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Public Workshop

Alternative and Renewable Fuel and Vehicle Technology Program

Investment Plan and Funding Recommendations

Peter F. Ward | Tim Olson
California Energy Commission
San Joaquin Valley Air Pollution Control District
Fresno, California
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Program Overview

- **Purpose:** To develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies.
- Provide immediate GHG reduction benefits and to help create the impetus for the long-term transition.
- **Funding:** Up to $120 million per year through 2015.
  - $75 million for 2008-09 fiscal year
  - $101 million for 2009-10 fiscal year



Program Overview (cont.)

- A framework for sustainability
  - Decrease pollution on life-cycle basis (well-to-wheels).
  - Fund projects that will not adversely impact natural resources.
- Ensure economic development, education, outreach and workforce training
  - Attract and retain clean technology businesses
  - Fund financial incentives and private investment
  - Encourage market creation and informed consumer choice
  - Leverage innovation and use renewable and waste resources

Investment Plan

- Energy Commission is required to adopt an Investment Plan to:
  - Determine priorities and opportunities.
  - Describe how funding will complement existing public and private investments.
- The initial Investment Plan will guide funding decisions during the first two years of the program (fiscal years 2008/09 and 2009/10).
- We have convened an Advisory Committee to provide input during the development of the Investment Plan.

Investment Plan Status

- Staff draft Investment Plan available for public review.
- Advisory Committee meeting to discuss draft: January 8, 2009.
- Workshops to present the draft and receive public comments:
  - February 10, 2009 Fresno
  - February 11, 2009 San Jose
  - February 17, 2009 Diamond Bar
  - February 18, 2009 Los Angeles
- Transportation Committee (James D. Boyd, Vice Chair and Presiding Member and Karen Douglas, Chair and Associate Member) will consider the staff draft, Advisory Committee input, and public comments to prepare an Investment Plan for the Energy Commission.
- Consideration of the Investment Plan by the Energy Commission targeted for March 2009.

Projects Eligible for Funding

- Alternative and renewable low-carbon fuels development and improvement.
- Projects that optimize alternative and renewable fuels for engine technologies.
- Alternative and renewable low-carbon fuel production in California.
- Projects that decrease the fuel's life-cycle carbon footprint and increase sustainability.
- Alternative and renewable fuel infrastructure, fueling stations, and equipment.
- Improve light-, medium-, and heavy-duty vehicle technologies for better fuel efficiency.

Projects Eligible for Funding (cont.)

- Buy-down programs, advanced technology warranty or replacement insurance, development of market niches, and supply-chain development.
- Retrofits for medium- and heavy-duty vehicle fleets.
- Alternative and renewable fuel infrastructure development.
- Workforce training.
- Education and program promotion and develop technology centers.
- Analyses to assist in preparing the Investment Plan.

Funding Mechanisms

- Grants
- Contracts
- Loan Guarantees
- Revolving Loans
- Consumer Rebates
- Direct Fuel Subsidies
- Other mechanisms to be defined
- Co-funding and strategic partners will leverage funds

Funding Preferences

"The Commission shall provide preference to projects that…"

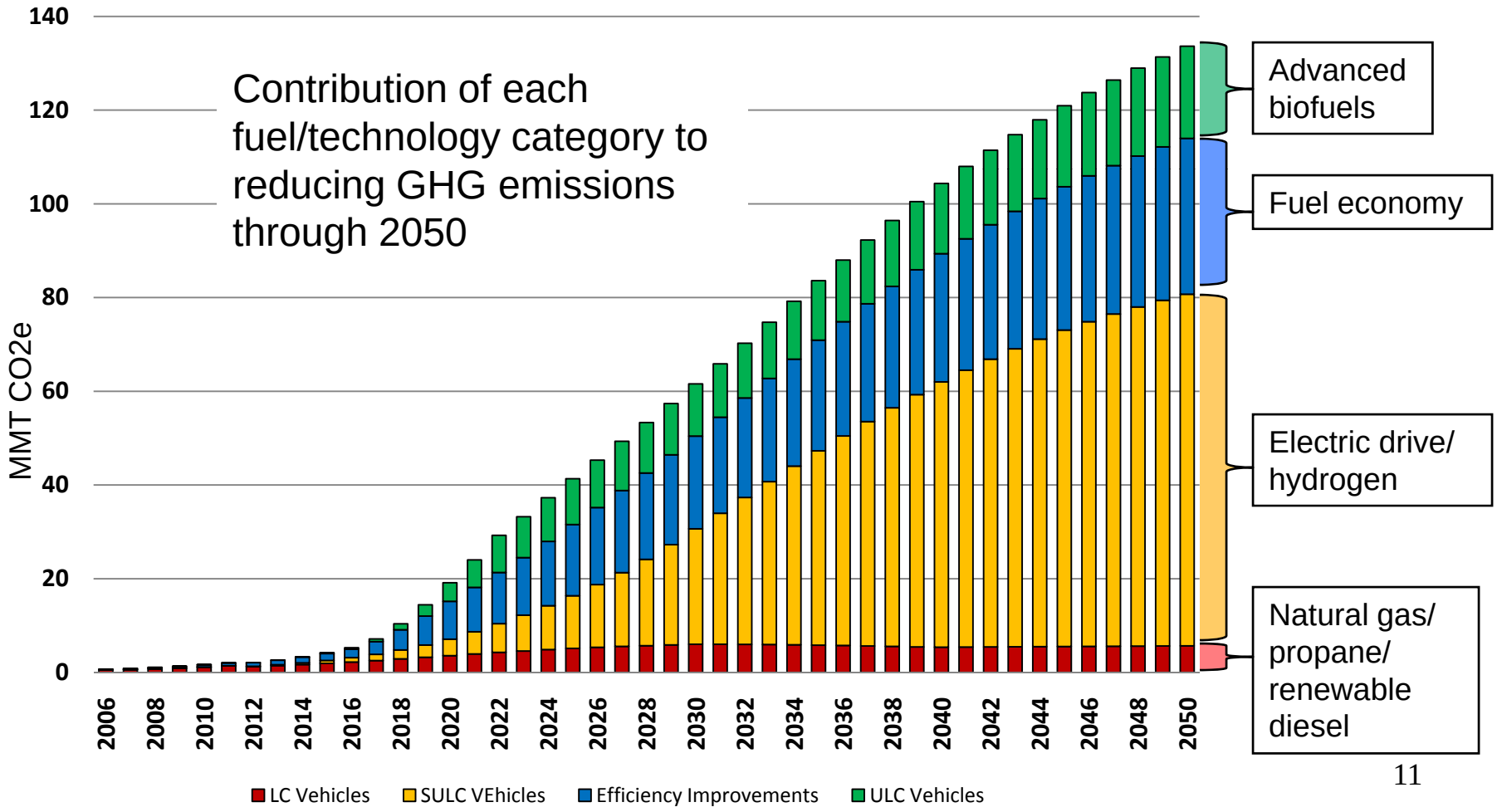
- Reduce lifecycle environmental impacts, including air and water pollution.
- Decrease lifecycle greenhouse gas emissions by at least 10%.
- Do not adversely impact the sustainability of the state's natural resources.
- Use alternative fuel blends of at least 20 %.
- Use existing or proposed fueling infrastructure.
- Provide non-state matching funds.
- Provide economic benefits for California.
- Drive new technology advancement.

Summary – Staff Draft Investment Plan

Step 1. Relative Greenhouse Gas Reductions

- Construct a feasible scenario that allows California to meet its 2020 and 2050 climate goals for the transportation sector.
- Work backwards from State Alternative Fuels Plan *2050 Vision.*
  - Populate assumptions with CALCARS model
  - Evaluate vehicle/fuel efficiencies expected in 2050
- Categorize fuels/technologies as:
  - Super Ultra Low Carbon
  - Ultra Low Carbon
  - Low Carbon
  - Additional Fuel Economy Improvements

Summary – Step 1 Results



Summary – Staff Draft Investment Plan

Step 2. Gap Analysis

- Review of existing public and private funding for alternative and renewable fuels and advanced vehicle technologies.
- Determine funding "gaps."
- Determine where additional funding is not needed.

Super Ultra Low Carbon Needs

- Support for fleet and retail hydrogen fueling stations.
- Support for mixed-use hydrogen fueling infrastructure (transit, CNG/hydrogen, light-duty fleets, and forklifts).
- Support 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.

Funding Recommendations – Electric Drive

- Offer rebates to offset additional costs for the purchase of low emission vehicles and components.
- Co-fund niche market demonstrations and additional costs of low-GHG medium- and heavy-duty vehicles.
- Support pre-commercial, demonstration, and deployment of electric drive technologies (upfit/retrofit PHEV/BEV).
- Co-fund network of Public Access Charging to support rollout of low GHG emission vehicles (OEM and retrofit).
- Coordinate with ARB to co-fund proof of concept and accelerated market deployment.

Funding Recommendations - Hydrogen

- Co-fund fueling network to support early adopter vehicles.
- Accelerate increased hydrogen fuel through multiple uses to maximize low GHG emissions.

Ultra Low Carbon Needs

- Encourage transition from existing ethanol production to lower-carbon feedstock production facilities.
- Develop new ethanol, renewable diesel, and bio-methane 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.

Funding Recommendations - Biofuels

- Co-fund development of California projects to develop low GHG emission fuels.
  - Reduce reliance on imported fuels
  - Stimulate California economic benefits
  - Explore loan financing for some options
- Co-fund development of fueling stations to support flexible fuel vehicles.
- Co-fund projects to maximize early GHG emission reductions in medium- and heavy-duty markets.

Low Carbon Needs

- Provide rebates 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, fueling, and fuel storage technologies.
- Support natural gas and propane fueling stations that are close to vehicle fleets and populations.

Funding Recommendations – Natural Gas and Propane

- Offer rebates in coordination with ARB to offset differential vehicle costs.
- Co-fund transitional technology.
- Co-fund fueling station projects to support fleets and other buyers.
- Explore loans and loan guarantee options.

Improved Vehicle Efficiency

- Develop and demonstrate new light-duty engine design and vehicle component efficiency improvements.
- Work with ARB's AQIP to develop and demonstrate medium- and heavy-duty hybrid technology with diesel and alternative and renewable fuel engines.

Funding Recommendations – Vehicle and Engine Efficiency

- Co-fund vehicle and component development for various engine fuels and market niche applications.

Funding Recommendations - Non-GHG Reduction Categories

- Support workforce training initiatives with employers, manufacturers, training programs, and government agencies.
- Support development of sustainability best management practices, standards, verification programs, and technical research.
- Co-fund development of government standards, guidelines, and certification tests.
- Co-fund programs to educate Californians about available fuel and vehicle options.

Funding Recommendations – Non-GHG Reduction Categories

- Fund analysis and program activities.
- Stay current and influence future funding decisions to reflect market changes, research insights, and financing trends.

Funding Recommendations - Manufacturing and Production Incentives

- Provide incentives to accelerate in-state use of low-GHG emission fuels and vehicles.
- Explore tax exemptions, loans, and loan guarantees for some options.

Summary – Staff Draft Investment Plan

	08/09	09/10	TOTAL
Low-Carbon	26M	36M	62M
Ultra-Low-Carbon	10M	12M	22M
Super-Ultra-Low-Carbon	18M	23M	41M
Efficiency Improvements	7M	15M	22M
Non-GHG Categories	9M	10M	19M
Manufacturing & Production	5M	5M	10M
	75M	**101M**	**176M**

Advisory Committee Comments

- Emphasis should be on 2050 goals rather than 2020 goals.
- More dollars should be directed to the Super-Ultra-Low-Carbon category.
- Mixed feedback on the benefit of funding retrofit and conversion projects.
- Stronger support for EV fueling infrastructure and distribution-level infrastructure.
- More focus should be on the economic development potential of the program.

Advisory Committee Comments

- Need a better understanding of how sustainability criteria will be applied.
- More support is needed for high-risk technologies.
- Need to develop a more compelling argument for the program.
- Cycle returns from investments back into the program to stimulate additional funding and growth.
- Need a stronger link between K-12 education and workforce development.

Program Implementation Schedule

- February 2009 - Public Workshops on the AB 118 Program and the Staff Draft Investment Plan
- March 2009 - Revised Investment Plan (Committee Draft) released
- March 2009 - Energy Commission adoption of final Investment Plan
- Spring 2009 - Solicitation Preparation and Release
- Late May 2009 - Target Effective Date for Program Regulations

For additional information, please contact:

Peter Ward
pward@energy.state.ca.us
916.654.4639

Tim Olson
tolson@energy.state.ca.us
916.654.4528