



**CALIFORNIA
ENERGY COMMISSION**



California Energy Commission
Clean Transportation Program

FINAL PROJECT REPORT

CENTRAL COAST ALTERNATIVE FUEL ECOSYSTEM PROJECT

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DISCLAIMER

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¹ [Central Coast Alternative Fuel Vehicle Plan](https://www.slcleanair.org/community/zev.php) <https://www.slcleanair.org/community/zev.php>

PREFACE

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Clean Transportation Program. The statute authorizes the CEC to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the Clean Transportation Program through January 1, 2024, and specifies that the CEC allocate up to \$20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational.

The Clean Transportation Program has an annual budget of about \$100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium and heavy-duty on-road and nonroad vehicle fleets to alternative technologies or fuel use.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce-training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

To be eligible for funding under the Clean Transportation Program, a project must be consistent with the CEC's annual Clean Transportation Program Investment Plan Update. The CEC issued PON-13-603 to provide the adoption of alternative fuel vehicles and support local planning for Alternative Fuel Infrastructure. In response to PON-13-603, recipient submitted an application which was proposed for funding in the CEC's notice of proposed awards December 16, 2013, and the agreement was executed as ARV-13-017 on June 30, 2014.

ABSTRACT

This Alternative Fuel Vehicle Readiness Plan for the California Central Coast is intended to guide the development of alternate fuel vehicle readiness policies and infrastructure for the tri-County Central Coast region, including the counties of Ventura, Santa Barbara and San Luis Obispo. The development and deployment of alternative fuel vehicles-ready infrastructure, policies, and incentives on the Central Coast will encourage local residents and fleet managers to purchase and utilize alternative fuel vehicles with improved environmental attributes over conventional vehicles. Key benefits of adopting alternative fuel vehicles include improvement in local air quality, reduction of greenhouse gas emissions that impact climate change, increased use of local and renewable energy sources, including solar energy and sustainable biofuels, more efficient use of existing grid energy via off-peak plug-in-vehicle charging and energy storage, and increased energy security through reduction in the use of petroleum fuels.

Keywords: California Energy Commission, Plug-In Vehicle, Alternative Fuel Vehicles Readiness Plan, Central Coast, Ventura County, Santa Barbara County, San Luis Obispo County, Chargers, Charging Infrastructure

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EXECUTIVE SUMMARY

The Central Coast Alternative Fuel Vehicles Coordinating Council was formed in 2014 and includes representatives from stakeholder organizations in San Luis Obispo, Santa Barbara, and Ventura Counties. The Council's mission is to encourage the adoption of alternative fuel vehicles in the Tri-Counties region through a public-private collaborative network of leaders from counties, cities, public entities, community organizations, private industry, and utilities.

In 2014, members of the Council applied for and received a grant from the California Energy Commission to oversee an initiative known as the Central Coast Alternative Fuel Ecosystem Project. The grant was administered by the County of Santa Barbara on behalf of the Central Coast alternative fuel vehicles Steering Committee. This steering committee includes the County of Santa Barbara (as lead agency), the three Air Pollution Control Districts of Santa Barbara, Ventura, and San Luis Obispo Counties, the Clean Cities Coalition of the Central Coast, the Community Environmental Council of Santa Barbara, and Plug-in Central Coast. Key consultants on the alternative fuel vehicles Ecosystem Project included Electric Vehicle Communities Alliance, Reach Strategies, and Plug-in America.

The goals of the alternative fuel vehicles Ecosystem project are to accelerate the adoption of alternative fuel vehicles, support local planning for Alternative Fuel Infrastructure, and serve as a blueprint for regional public and private actions to help achieve state emission reduction and alternative fuel vehicles goals. Measurable objectives included: increased alternative fuel vehicles sales; reductions in greenhouse gas emissions, criteria pollutant emissions, and petroleum consumption; and increased jobs and economic activity.

Activities included developing an Alternative Fuel Readiness Plan for the Tri-Counties region, and providing outreach, training, and informational workshops on alternative fuel vehicles and Alternative Fuel Infrastructure throughout the region. Activities and outreach initiatives target a wide variety of stakeholders, including the general public, fleet managers, planners, decision-makers, scientists, local businesses/organizations, and first responders.

CHAPTER 1:

PROJECT ACTIVITIES AND RESULTS

AFV Readiness Plan

The primary deliverable of the Central Coast Alternative Fuel Ecosystem Project was the Alternate Fuel Vehicle Readiness Plan (Plan). The Plan provides a detailed summary of the current AFV technology and policy landscape, and offers a series of targeted recommendations to planners, decision-makers, and fleet managers. Final recommendations were guided by two principles:

(1) Environmental and community benefits: proposed AFV policies/programs focused on technologies that have the greatest potential for reducing greenhouse gas emissions at a reasonable economic cost.

(2) Readiness for mass adoption: proposed policies/programs focused on AFVs that have the highest potential for mass adoption in the 2015-2020 period. Given those priorities, recommendations were divided into three broad categories, with a lead organization and timeline designated for each recommendation within those categories. The following categories and recommendations represent actions that partners in the Central Coast AFV Coordinating Council have already committed to undertake:

- Regional Planning
 - Regional AFV Coordination
 - Regional AFV Readiness Planning
- Local Government Actions
 - AFV Fleet Procurement Policies and Planning
 - AFV Fleet Management
 - Electric Vehicle Infrastructure
 - Compressed Natural Gas Vehicles and Infrastructure
 - Biofuel Vehicles and Infrastructure
 - Fuel Cell Vehicles and Infrastructure
- Market Development Activities
 - Consumer Outreach and Education
 - Education of Key Decision-Makers and Stakeholders

Additionally, the Plan provides: (1) policy context, (2) current and projected data for market growth, infrastructure availability, emissions, and vehicle performance, and (3) regionally specific best practices and technical recommendations for four types of alternative fuel vehicles and infrastructure. The types of alternative fuel vehicles and infrastructure considered in the Plan are electric, hydrogen fuel cell, biofuel, and natural gas.

To accelerate consideration and adoption of recommendations and best practices, the Central Coast AFV Coordinating Council will broadly disseminate copies of the Plan and present key recommendations to the Boards of the Air Pollution Control Districts in each County and to the Santa Barbara County Board of Supervisors.

AFV Training and Outreach Activities

Education and outreach efforts for the Central Coastal Alternative Fuel Ecosystem Project targeted the general public as well as key community stakeholders. These activities were primarily coordinated by the Community Environmental Council and are briefly described below:

- General public outreach and education:
 - National Drive Electric Week (September 2014)
 - 10 different electric vehicles (EVs) on display at local festival with EV owner presentations, informational displays, and handouts.
 - Interview with local television station about EVs (Summer 2014)
 - Two-day Green Car Shows and Ride & Drive events at Santa Barbara Earth Day Festivals (April 2015 and 2016)
 - [Workplace Ride & Drive event](#) at Lynda.com (April 2015)
 - Regular social media posts via “Plug in Santa Barbara” Facebook page² and Community Environmental Center blog posts
 - National Drive Electric Week (September 2015)
 - Green car show in Goleta featuring 14 EVs, EV owner presentations, and educational handouts.
 - Two consumers oriented EV workshops (November and December 2015)
 - Interactive presentation about options for personal AFVs
- Audience-specific AFV training and education for regional planners, fleet operators, decision-makers, and first responders (March 2016).
 - Training included industry-specific webinars and reference materials.

Additional project education and outreach efforts were conducted by engaging with regional agencies and organizations in order to assess interest in EVs and develop relevant education programs. Throughout the project, the following stakeholders were engaged in discussions and working groups regarding EV adoption:

- Towbes Group
 - Workplace charging education and outreach
- City of Ojai
 - Fast EV charger station
- Ventura County
 - Drive Electric events
- City of Santa Barbara
 - Acquiring additional EV charger stations
 - Public EV charging pricing
- City of Oxnard
 - Public EV charging pricing

² [Plug in Santa Barbara Facebook Page](https://www.facebook.com/pluginsb) <https://www.facebook.com/pluginsb>

- Turley Winery
 - EV charging facility
- Santa Barbara City College
 - Workplace charging education and outreach
- University of California, Santa Barbara
 - Workplace charging education and outreach
- Allan Hancock College
 - Workplace charging education and outreach
- City of Goleta
 - Workplace charging education and outreach
- San Luis Obispo Coastal Unified School District
 - Workplace charging education and outreach
- Central Coast car dealerships and manufacturers
- Fleet managers at 29 different organizations
 - AFV Inventory and Assessment survey

AFV Inventory and Assessment

The Central Coast AFV Inventory and Assessment provides a comprehensive, region-wide assessment of AFV use and the development of alternative fuel infrastructure. The findings of this project are intended to serve as a baseline evaluation of the alternative fuel infrastructure and AFV deployment in the Central Coast region against which future analyses on alternative fuels can be compared.

An AFV Inventory and Assessment survey³ was developed in order to support this region-wide inventory. The survey was developed with input from the AFV Readiness Task Force, the Plug in Central Coast Steering Committee, and other regional stakeholders. The survey was sent to fleet managers at 29 Central Coast organizations during June and July 2015.

Based on the regional survey and other public available surveys, data, and sales information, a final Inventory and Assessment Report was completed. This report details: AFV inventories by fuel type, model year, and location; alternative fuel infrastructure by fuel type, location, and public availability; and AFV deployment by regional fleet operators.

AFV Readiness Task Force

An AFV Readiness Task force comprising regional stakeholders was established to provide regular input on the project and the Plan. The task force consisted of approximately 20 people whose professional roles range from the Chief Executive Officer of a local biofuel producer to planners with local government agencies to regional fleet managers. The task force convened regularly to review the Plan and provide comments on draft chapters. Working groups for hydrogen, natural gas, electricity, and biofuel AFVs were established to provide more technical and specific comments on the pertinent Plan chapters.

³ [AFV Inventory and Assessment Survey](https://www.eia.gov/renewable/afv/) <https://www.eia.gov/renewable/afv/>

CHAPTER 2: CONCLUSIONS

The Central Coast Alternative Fuel Ecosystem Project successfully fulfilled the goals and objectives that were defined by the grant agreement. More significantly, the work that was completed for the project served to help accelerate the adoption of alternative fuel vehicles and development of alternative fuel infrastructure throughout the Central Coast region.

The project was successful in engaging with and educating the general public about options for personal AFV ownership. A wide range of community stakeholders also had the opportunity to provide accurate data about current adoption of AFVs, to contribute to developing final recommendations and best practices, and to learn about the present state of AFV-related technology and policy.

Moving forward, the Plan will provide a blueprint to guide the general public, organizations, planners, decision-makers, and fleet managers in transitioning towards alternative fuel vehicles and in promoting the development of alternative fuel infrastructure. This Plan will help align regional and local action with the California State's Assembly Bill 32⁴ goals for greenhouse gas reductions and Governor Brown's goal to reduce petroleum use 50 percent by 2030. Santa Barbara County will continue to promote AFVs and alternative fuel infrastructure throughout the region based on the findings and recommendations of the Plan, which will be available for the public on the [Santa Barbara County Long Range Planning website](https://www.countyofsb.org/pln/dev/home.sbc) at <https://www.countyofsb.org/pln/dev/home.sbc>.

⁴ [California's AB 32 Global Warming Solutions Act of 2016](https://www2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006) <https://www2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006>

GLOSSARY

ALTERNATIVE FUEL VEHICLE (AFV)—A vehicle designed to operate on an alternative fuel (e.g., compressed natural gas, methane blend, electricity). The vehicle could be either a dedicated vehicle designed to operate exclusively on alternative fuel or a nondedicated vehicle designed to operate on alternative fuel and/or a traditional fuel.

ALTERNATE FUEL VEHICLE READINESS PLAN (Plan)— This Alternative Fuel Vehicle Readiness Plan for the California Central Coast is intended to guide the development of AFV readiness policies and infrastructure for the tri-County Central Coast region, including the counties of Ventura, Santa Barbara and San Luis Obispo. The development and deployment of AFV-ready infrastructure, policies, and incentives on the Central Coast will encourage local residents and fleet managers to purchase and utilize Alternative Fuel Vehicles with improved environmental attributes over conventional vehicles.⁵

CALIFORNIA ENERGY COMMISSION (CEC)—The state agency established by the Warren-Alquist State Energy Resources Conservation and Development Act in 1974 (Public Resources Code, Sections 25000 et seq.) responsible for energy policy. The Energy Commission's five major areas of responsibilities are:

1. Forecasting future statewide energy needs
2. Licensing power plants sufficient to meet those needs
3. Promoting energy conservation and efficiency measures
4. Developing renewable and alternative energy resources, including providing assistance to develop clean transportation fuels
5. Planning for and directing state response to energy emergencies.

ELECTRIC VEHICLE (EV)—A broad category that includes all vehicles that are fully powered by electricity or an electric motor.

⁵ [Alternative Fuel Vehicle Readiness Plan Website](https://altfueltoolkit.org/resource/central-coast-alternative-fuel-vehicle-readiness-plan/) <https://altfueltoolkit.org/resource/central-coast-alternative-fuel-vehicle-readiness-plan/>