How did we get here?

2009
SANDAG Regional Alternative Fuels, Vehicles, and Infrastructure Report

Fall 2014
Kick-off of Alternative Fuel Readiness Project

Spring 2015
Development of San Diego Alternative Fuel Assessment

Summer 2015
Development of Alternative Fuel Toolkits

2011-2013
Plug-in Electric Vehicle Planning/R EVI

Fall 2014
Creation of Refuel

July 2015
Kick-off of Plug-in SD
What is a toolkit?

Wants to inform select audiences about alternative fuel vehicles and infrastructure

Goal: Create greater awareness and understanding of AFVs to address existing barriers
This toolkit was developed as part of the San Diego Regional Alternative Fuel Readiness Plan with support from the San Diego Regional Alternative Fuel Coordinating Council (Refuel), which aims to reduce barriers to alternative fuel adoption in the region.

As California works toward achieving its ambitious climate goals, transitioning from gasoline and diesel vehicles into alternative fuel vehicles is an important facet in lowering greenhouse gas emissions (GHG). In the San Diego region, several public agencies and municipalities are taking the lead in developing strategies and goals to include alternative fuel vehicles into their policies. Many jurisdictions have noted alternative fuels as a key substitute to conventional fuels in their Climate Action Plan (CAP) or other planning or fleet management policy documents.

Among the several planning documents available and developed by jurisdictions, there are key strategies that are present among them all, including:

- Replacing vehicles in government and contractor fleets with alternative fuel vehicles
- Increasing the number of alternative fuel stations available for the public
- Increasing the number of alternative fuel vehicles in government fleets
- Streamlining permitting for alternative fuel infrastructure

How do I use this toolkit?

This toolkit provides resources that public agencies have identified as being desirable for further training and assistance in the transition into alternative fuel vehicles. This includes:

- Guidance on availability of funding for alternative fuel vehicles and infrastructure installation projects;
- Case studies of jurisdictions or private fleets that use alternative fuels; and
- Fact sheets or reference guides on general information about alternative fuels.
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**What is the value of alternative fuels?**

Alternative fuel vehicles offer long-term cost savings and can have the same performance quality of conventional vehicles, without the air pollution that comes with them. Policies for the acquisition of alternative fuel vehicles may already be in your organization’s larger long-term energy or Climate Action Plan. A majority of municipalities and public agencies throughout the San Diego region have already referenced the increased procurement of alternative fuel vehicles as a way to reduce greenhouse gas (GHG) emissions and to support the state’s climate goals.

Not only are local governments thinking about alternative fuels, there are several state-level policies and strategies that promote the increased use of them.

**How do I use this toolkit?**

This toolkit includes resources identified by fleet managers for further training and assistance in the transition to alternative fuel vehicles. The toolkit includes the following resources:

- Guidance on the available funding for alternative fuel vehicles and infrastructure installation projects
- Fact sheets or reference guides on general information about alternative fuels
- Case studies of fleets that use alternative fuel
Toolkits: A Glance

Alternative Fuels for Consumers

What is biodiesel?
- Increased energy security
- Reduced dependence on foreign oil
- Low greenhouse gas emissions

What is a PEV?
- Plug-in electric vehicles
- Zero tailpipe emissions
- Improved air quality

What is E85?
- Ethanol blend
- Reduced greenhouse gas emissions
- Increased energy security

What is hydrogen?
- Clean energy source
- Zero tailpipe emissions
- Improved air quality

What is natural gas?
- Reduced greenhouse gas emissions
- Increased energy security
- Improved air quality

What is propane autogas?
- Reduced greenhouse gas emissions
- Increased energy security
- Improved air quality

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As California works toward achieving its ambitious climate goals, transitioning from gasoline and diesel vehicles into alternative fuel vehicles is an important facet in lowering greenhouse gas emissions (GHGs).

Alongside public agencies, consumers can also begin to empower themselves with more knowledge about alternative fuel vehicles. This may encourage consumers to make more well-informed choices in their next vehicle purchase.

Driving an alternative fuel vehicle often has the following benefits:
- Cost savings
- Protection against petroleum price volatility and supply uncertainty
- Reduction of greenhouse gas emissions
- Improved local air quality

How do I use this toolkit?
- This toolkit provides resources and general information about alternative fuel vehicles for consumers. Within this toolkit, six different alternative fuels are discussed, detailing fuel-specific information such as:
  - Guidance on availability of funding for alternative fuel vehicle purchases.
  - Maps of public infrastructure locations.
  - Diagrams of how an alternative fuel vehicle works.
  - Fuel savings comparisons.

Center for Sustainable Energy
Toolkits: A Glance

Fuel Marketers and Retailers

Why Alternative Fuels?

Alternative fuels are growing in use in California to meet the Governor’s VITAL goals. In 2012, there were over 100 alternative fuel stations in the San Diego region alone. Further, there are over 1,000 charging options in California that offer alternative fueling options.

Alternative fuels include biodiesel (B1), compressed natural gas (CNG), ethanol (E85), electricity, hydrogen, and propane autogas (propane). They serve as an economic and cleaner burning option to conventional diesel or gasoline fuel. They also perform just as well as any conventional vehicle.

Biodiesel

E85

CNG

Hydrogen

EV Charging

The California Energy Commission offers great opportunities to fund the development of a variety of alternative fuel infrastructure. Visit http://www.energy.ca.gov/afdc.html for more information.

Fuel Marketers and Retailers

Propane

Biodiesel

CNG

Hydrogen

EV Charging

Installing E85:

- How much E85 are offered at the station?
- Do you have a reminder that an E85 tank is supplied by a local ethanol program?
- Do you have a spark plug that is certified for E85 use?
- What is the estimated throughput for the E85 station?

What you need to know before installing the infrastructure:

- Cost of the infrastructure
- Cost of the installation
- Cost of the fuel

For more information and resources, visit http://www.afdc.energy.gov/afdc.html.
Toolkits: A Glance

**First Responder**

This toolkit was developed as part of the San Diego Regional Alternative Fuel Readiness Plan with support from the San Diego Regional Alternative Fuel Coordinating Council (SDRF). It seeks to reduce barriers to alternative fuel adoption in the region. Emergency services are one of the sectors for which a toolkit has been developed. Alternative fuel vehicles (AFVs) are becoming more prevalent in the San Diego region.

There has been a big growth of alternative fuel vehicles in the San Diego region. Each year, more and more right-duty AFVs are being purchased in the region, especially in the electric vehicle (EV) space. As of September 2020, there are upwards of 25,000 electric vehicles on San Diego’s roads. The chart below shows the growth of AFV use in the United States.

**Why Emergency Personnel Training?**

With the growing number of alternative fuels, it is critical to ensure that emergency personnel are prepared to handle incidents involving alternative fuel vehicles. The following questions are some of the considerations for training emergency personnel to handle alternative fuel emergencies:

- How do I manage an incident?
- How do I mitigate any potential hazards?
- How do I prevent additional incidents?
- How do I ensure safety?
- How do I communicate with other agencies?
- How do I report incidents?

**What Training Resources are Available?**

The alternative fuels program provides extensive training resources to emergency responders to handle alternative fuel vehicles. These resources can be provided to fire departments for free.

- Interactive PowerPoint presentations for E512, E525, E529, E539, and E539x.
- E539 provides a comprehensive overview of AFV technology for incident command officers.
- E529 focuses on proper handling of fire emergencies, focusing on NFPA standards.
- E539x provides training for first responders on EVs and hydrogen.
- E539x includes video training on EVs and hydrogen.
- E525 provides a comprehensive overview of alternative fuel vehicles for incident command officers.
- E529 provides training for first responders on EVs and hydrogen.
- E529x includes video training on EVs and hydrogen.
- E539 provides a comprehensive overview of alternative fuel vehicles for incident command officers.
- E529 provides training for first responders on EVs and hydrogen.
- E539x includes video training on EVs and hydrogen.

**Fuel-Specific Training**

**Hydrogen Training**

The CA-DRFTRF provides a comprehensive training package for first responders on hydrogen emergency response. This package includes the following:

- **NAFC** (National Alternative Fuels Training Center): Provides comprehensive training on hydrogen emergency response.
- **SAFEC** (Southern California Edison Fuel Cell): Provides specialized training on hydrogen fuel cell technology.
- **CEC** (California Energy Commission): Provides regulatory and compliance information.

**Electric Training**

The California Fuel Cell Partnership (CFCP) provides comprehensive training on electric vehicles for first responders.

**Hybrid Training**

The American Fuel and Energy Research Institute (AFERI) provides comprehensive training on hybrid vehicles for first responders.

**Battery Training**

The California Energy Commission (CEC) provides comprehensive training on battery electric vehicles for first responders.
## Outreach

### Subcommittees
- Gaseous Fuels (June 11)
- Biofuels (July 9)
- Electric Drive (Aug. 28)
- Hydrogen (Sept. 15)

### External Stakeholder Meetings
- South Bay Energy Action Collaborative
- Fleet Manager Roundtable
- Energy Working Group
- Regional Technical Working Group

### One-on-Ones
- New Leaf Biofuel
- EXPO Propane
- San Diego Airport
- Others
Barriers Addressed

**Toolkits**
- Training and Education for Emergency Personnel and Transportation Fleet Staff
- Station Development: Codes and Permitting
- Access to Public Alt. Fuel Stations
- Converting Conventional Vehicles to AFVs

**Plug-in SD**
- Lack of Public Knowledge on Alt. Fuels
- Infrastructure Costs
- Workplace Charging Training and Education for Municipal Staff

**Clean Cities**
- TOU Utility Rates/Grid Integration
- EVSE and Multi-Unit Dwellings

Station Development: Codes and Permitting
Access to Public Alt. Fuel Stations
Converting Conventional Vehicles to AFVs
San Diego Clean Cities Coalition/ Southern California Advanced Transportation Center will provide support for all these efforts.
Since the project began...

- Two new CNG stations (EDCO) added
- More EV Charging Stations
- Three more E85/Ethanol Stations to be added in 2016
- Two new renewable diesel stations
- Growing interest in hydrogen, plus hydrogen station to be added 2016
- Fuel prices
- Ultra low NOx from new CNG technology
Next Steps/Moving Forward

• Is there something missing that would be helpful?

• We’re anticipating CEC funding for alternative fuel implementation work in the future.
  – How do we make it “implementation friendly”?

• How do we get these toolkits used regularly?

• How to support diverse needs of jurisdictions?
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