



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 (Refuel), which seeks to reduce barriers to alternative fuel adoption in the region. Emergency personnel 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 light-duty AFVs are being purchased in the region; especially in the electric vehicle (EV) space. As of September 2015, there are upwards of 17,500 electric vehicles on San Diego's roads. The chart below shows the growth of AFV use in the United States.

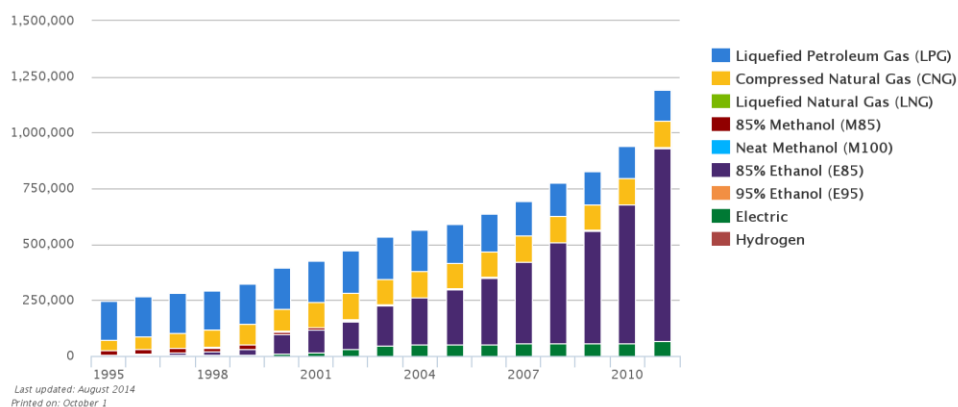
How do I use this tool kit?

This toolkit provides resources and guidance that inform emergency personnel about available training and educational material and events for handling alternative fuel vehicles.

Through the resources provided in this toolkit, first responders and emergency personnel should be able to find the appropriate channels and information in order to:

1. Familiarize themselves with alternative fuels
2. Understand potential hazards unique to individual alternative fuels
3. Safely respond to an incident in which an alternative fuel is present

Alternative Fuel Vehicles in Use



Why Emergency Personnel Training?

With the growing number of alternative fuel vehicles (AFVs) on the road today, it is important that emergency responders have the information they need to respond to an incident involving an AFV or fueling equipment. First responders, primarily fire department personnel, should to be properly trained to respond at the scene of a vehicle emergency or in the event of a fueling station incident.

Barriers to Training

While training is important, fire departments are already obligated to meet required safety and medical trainings, leaving limited time and resources for additional, although important, training opportunities.

- Funding and resource limitations
- Staff scheduling and training availability
- Lack of incentive for completion of alternative fuel trainings
- Little integration of AFVs into existing emergency personnel coursework, when applicable

What Training Resources are Available?

With new vehicle technologies and fueling systems on the road, safety and technical training is essential.

National Fire Protection Agency (NFPA) Alternative Fuel Vehicles Training Program

NFPA's self-paced online training Alternative Fuel Vehicles Training Program for Emergency Responders teaches emergency responders how to safely deal with emergency situations involving alternative fuel passenger vehicles, trucks, buses, and commercial fleet vehicles. Students receive a certification upon completion of the program. Learn more at:

<http://catalog.nfpa.org/Alternative-Fuel-Vehicles-Training-Program-for-Emergency-Responders-Online-Training-P15552.aspx?icid=D533#sthash.epyPh4xr.dpuf>



**ALTERNATIVE
FUEL VEHICLES**
SAFETY TRAINING PROGRAM

The NFPA also offers a website specific to electric vehicle training to learn how to safely deal with emergency situations involving electric vehicles and hybrid vehicles. Learn more at: <http://www.evsaftytraining.org/>.



National Alternative Fuels Training Consortium (NAFTC)

NAFTC offers courses and workshops in traditional classroom and online learning formats customized to fit audience needs to properly educate first responders about alternative fuel vehicle safety. Learn more at: <http://www.naftc.wvu.edu/>.



**National Alternative Fuels
Training Consortium**

A Program of



NAFTC Train the Trainer Program

National Alternative Fuels Training Consortium (NAFTC) at West Virginia University offers a "Train the Trainer" program of courses developed to teach alternative fuel vehicle technology to trainers who then return to their institutions to conduct training. Train-the-Trainers courses include:

- Classroom time and lab/shop activities to learn fundamentals
- Videos, discussions, pre- and post-tests
- Development of new courses that address specific topics in the evolution of the AFV industry

NAFTC Clean Cities Learning Program Toolbox

The NAFTC Clean Cities Learning Program (CCLP) Toolbox provides educational resources promoting First Responder Safety Training and Petroleum Reduction Technologies Training activities.

Fact Sheets highlighting the various alternative fuel types and safety information can be viewed at the following links:

- Biofuels and Biofuel Vehicles: <http://assets.slate.wvu.edu/resources/527/1287694991.pdf>
- Gaseous Fuels and Gaseous Fuel Vehicles: <http://assets.slate.wvu.edu/resources/527/1287695094.pdf>
- Hydrogen and Hydrogen-Powered Vehicles: <http://assets.slate.wvu.edu/resources/527/1287695095.pdf>
- Electric Drive Vehicles: <http://assets.slate.wvu.edu/resources/527/1287695093.pdf>

NAFTC Training Centers

NAFTC has five training centers throughout California at Fresno City College, Modesto Junior College, Yuba College, El Camino College, and Rio Hondo College. Learn more about local NAFTC training centers:

- El Camino College: http://naftc.wvu.edu/training_centers/el-camino
- Rio Hondo Community College at: http://naftc.wvu.edu/training_centers/rhcc



The Advanced Transportation & Renewables (ATR) Program

The Advanced Transportation & Renewables program coordinates Advanced Transportation Technologies and Energy (ATTE) centers at community colleges which offer alternative fuel technical trainings for fleet managers and technicians in addition to regular credit courses.

- **El Camino College (ECC)** (http://naftc.wvu.edu/training_centers/el-camino)
 - ECC provides courses that use a version of the NAFTC curriculum with revisions
 - ECC offers its Alternative Fuel First Responder Training Program to emergency personnel employed by the college and its centers (police, firefighters, mass transit mechanics and college/university police)
- **San Diego Miramar College** (<http://www.sdmiramar.edu/academics/automotive/about>)
 - The Miramar ATTE Center will provide Alternative Fuels First Responder training using NAFTC information
 - Miramar College also provides training for tow truck drivers on towing alternative fuel vehicles through the ATTE center
- **Long Beach Advanced Transportation Technology ATTE Center** (<http://www.lbcc.edu/atcc/>)
 - The Long Beach Advanced Transportation Technology Center offers classes in alternative fuels and technologies (Compressed Natural Gas, Liquefied Natural Gas and Propane, Hydrogen Fuel Cells, Hybrids and Electric Vehicles)
- **Cerritos College ATTE Center** (<http://cms.cerritos.edu/atte/training.htm>)
 - Cerritos College provides education on Advanced Transportation and Renewable Energies, such as Alternative Fuels, Transportation Strategy, Engine Technology, Alternative Energy

Office of the State Fire Marshal (OSFM)

- **CA State Fire Training (SFT) certification program:** OSFM certification standards with state & national certification program standards. Learn more at: <http://osfm.fire.ca.gov/training/alternativefuelvehicles.php>.



Fuel-Specific Training

Biodiesel

The National Hazardous Materials Fusion Center offers a Biodiesel Training Package, which includes various resources for dealing with biodiesel, including instructor guides and participant manuals. These resources can be access at: <http://www.hazmatfc.com/Resources/Training-Packages/Biodiesel-Training-Package>.

E85/Flex-Fuel

The Ethanol Emergency Response Coalition has a website devoted to support the safe handling of ethanol and ethanol-blended fuels. They offer a variety of resources and training guides for ethanol emergency response, including seven learning modules and videos. These resources can be accessed at: <http://ethanolresponse.com/pages/resources>.

Electric Vehicles

The National Fire Protection Agency (NFPA) provides Electric Vehicle Safety Training and resources for electric or hybrid-electric vehicles. Read more in the NFPA Electric Vehicle Emergency Field Guide at: <http://www.evsaftytraining.org>.

Hydrogen Fuel Cell First Responder Training

The California Fuel Cell Partnership (CaFCP) offers education for first responders and authorities having jurisdiction on fuel cell electric vehicles and hydrogen. CaFCP provides individual OEM Emergency Response Guides, a course "Hydrogen Emergency Response Training for First Responders," and toolkits which can be found here: <http://cafc.org/toolkits/safety>. The table below lists a few of the hydrogen fuel cell vehicles available along with their emergency response safety information.

Hydrogen Fuel Cell Vehicle	Emergency Response Safety Information
Mercedes-Benz Daimler	http://www.daimler.com/technology-and-innovation/safety
Honda FCX Clarity	https://techinfo.honda.com/Rjanisis/pubs/web/ACI47994.pdf
Toyota	http://tinyurl.com/toyota-emergencyinfo

Natural Gas Vehicle Institute (NGVi)

NGVi provides technical and operations safety training on natural gas as a transportation fuel through vehicle education, in-house training, public education forums, and awareness programs for government, utility companies, suppliers, and customers. Learn more about NVGi at <http://ngvi.com/>.

Propane Education and Research Council (PERC)

PERC's Propane Emergencies program is a comprehensive training program adopted by 27 state firefighter training agencies and propane marketers that helps emergency responders develop the knowledge and skills necessary to safely and effectively manage a propane emergency in transportation or at fixed facilities. In addition, PERC provides propane emergency training scenarios with appropriate emergency response guidelines such as a scenario of a propane delivery truck fire which can be viewed at:

http://www.propanecouncil.org/uploadedFiles/Council/Site_Sections/Marketer_Resources/Safety_and_Training/Propane_Emergencies/Scenario%208.pdf.

Fuel Responder Training Guides – All Fuels

The two resources below offer first responder training guides for a variety of makes and models.

- The North Carolina Department of Insurance Office of State Fire Marshal and the North Carolina Solar Center developed the “Triangle Alternative Fuels First Responder Online Training Modules,” which include first responder training videos for alternative fuel vehicles. Watch the videos at: http://www.ncdoi.com/OSFM/RPD/PT/Videos_Alternative_Fuels.aspx.
- The [National Alternative Fuels Training Consortium](http://afvsafetytraining.com), a nationwide alternative fuel vehicle and advanced technology vehicle training organization, offers a website full of emergency response guides found here: <http://afvsafetytraining.com/erg.html>.



What funding is available for training?



Clean Cities Coalition

The Department of Energy's Clean Cities Program (Clean Cities) offers funding opportunities for a variety of programs. Stay up-to-date on current financial opportunities at: http://www1.eere.energy.gov/cleancities/current_opportunities.html.



California Energy Commission

The California Energy Commission provides funding opportunities in the alternative fuel sector as a means to support the Governor's goals to reduce greenhouse gas emissions and reliance on foreign sources. Funding opportunities are listed at: <http://www.energy.ca.gov/drive/funding/>.



State of California Employment Training Panel (ETP)

ETP is a funding agency created by California Legislature to provide funds for assisting employers in advancing the skills of their workers. Community colleges such as El Camino College and Riverside Community College have been awarded funding through ETP. Learn more at: <https://www.etp.ca.gov>.



Where can I learn more?

- Alternative Fuel Data Center: <http://www.afdc.energy.gov/fuels/>
- National Alternative Fuels Training Consortium: http://www.naftc.wvu.edu/alt_fuel_data
- Office of the State Fire Marshal (OSFM) Emergency Response: <http://osfm.fire.ca.gov/training/pdf/alternativefuelvehicles/Altfuelemergencyresponse.pdf>
 - OSFM Information on all fuels: <http://osfm.fire.ca.gov/training/pdf/alternativefuelvehicles/Altfuelstudenthandout.pdf>