

ALTERNATIVE FUELS CORRIDOR

Intermountain Western Alternative Fuel Corridor Convening



Helpful Tools for Alternative Fuel Corridor Planning

Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite, National Renewable Energy Lab (NREL) and California Energy Commission (CEC)

EVI-Pro Lite is an online tool for projecting consumer demand for electric vehicle (EV) charging infrastructure. The EVI-Pro Lite tool uses simulations to predict the type and quantity of charging infrastructure required to support different levels of EV adoption. Simulations use data on charging station characteristics, EV attributes, and personal vehicle travel patterns. The EVI-Pro Lite tool gives users the option to change assumptions about vehicle mix and electricity needs, and provides planners with suggested infrastructure priorities. The EVI-Pro Lite tool was developed through a collaboration between NREL and CEC, with support from the U.S. Department of Energy’s (DOE) Vehicle Technologies Office.

Link: <https://www.afdc.energy.gov/evi-pro-lite>

Your Results
 In the Ft. Jacob area, to support 1,000 plug-in electric vehicles you would need:
 24 Workplace Level 2 Charging Plugs
 19 Public Level 2 Charging Plugs
 4 Public DC Fast Charging Plugs

Where Do I Start?
 Planners may want to prioritize installation of fast charging infrastructure above Level 2 charging.
 Build DC Fast First: Establishing fast charging networks that enable long distance travel, serve as charging safety nets, and provide charging for drivers without home charging is critical to support all-electric vehicles that have no other alternative for quickly extending their driving range.
 Build Level 2 Second: EVI-Pro typically simulates the majority of Level 2 charging demand coming from plug-in hybrid-electric vehicles, which have the ability to use gasoline as necessary to quickly extending driving range.

Change Assumptions
 Plug-in Electric Vehicles (as of 2016): 20
 Light Duty Vehicles (as of 2016): 72,000
 Number of vehicles to support: 1,000

Vehicle Mix

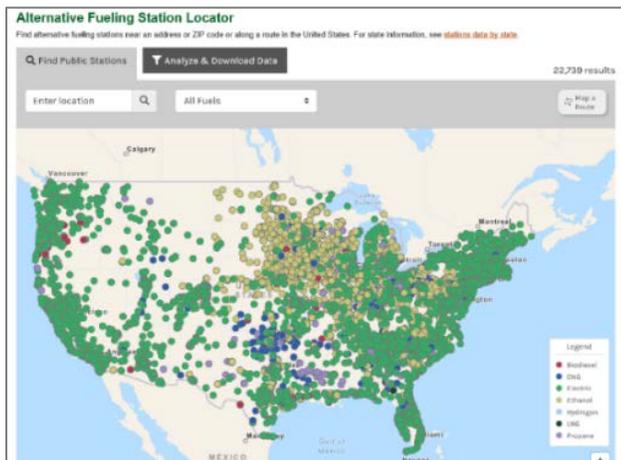
Vehicle Mix	Plugs to Support	%
20-mile electric range	10	10%
30-mile electric range	10	10%
All 3 Electric Vehicles	100	100%
All Electric Vehicles	20	20%
20-mile electric range	10	10%
Total	100	100%

How much support do you need to provide for plug-in electric vehicles (PHEV)?

- Full Support: Most PHEV owners probably need to use gasoline or CNG/Diesel.
- Partial Support: Consider every part of full support assumption.
- Do not count PHEV in charging demand estimates.

Percent of drivers with access to home charging: 100%

See all assumptions



Alternative Fuels Data Center Station Locator, U.S. Department of Energy

The U.S. DOE Alternative Fuels Data Center hosts the Alternative Fueling Station Locator on its website that allows users to enter their address or postal code to find the nearest alternative fueling station. This tool also allows users to map a travel route, or to filter by fuel type. The Alternative Fueling Station Locator provides downloadable data and results.

Link: <https://afdc.energy.gov/stations>

The AFDC also contains station data for nominating corridors which provides station data and shapefiles by state and fuel type. Additionally, the site contains a prototype mapping tool to explore potential corridors by fuel. These resources can be found at: <https://www.afdc.energy.gov/corridors>.

Organizing Partners

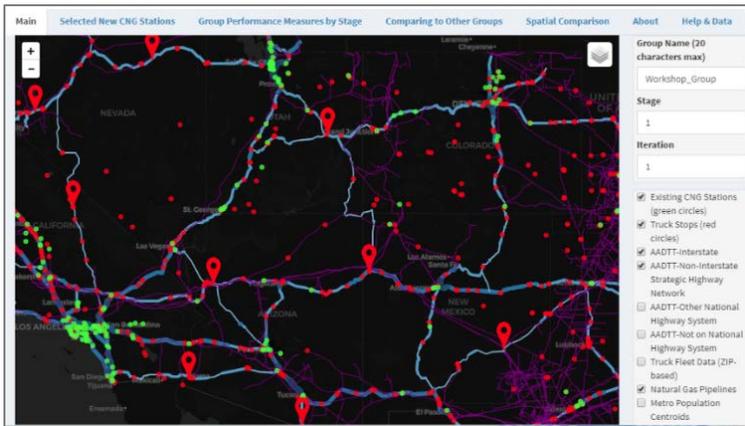
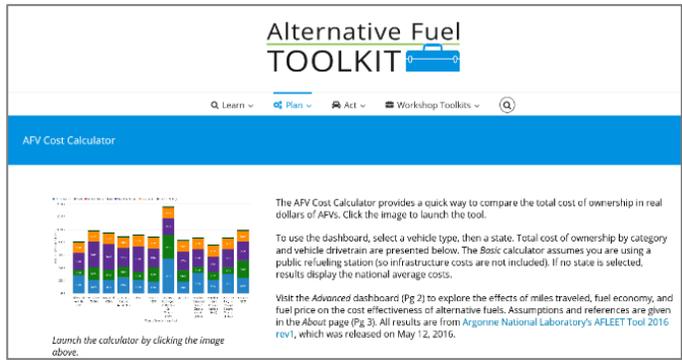


CADMUS

Alternative Fuel Toolkit, Federal Highway Administration (FHWA)

The Alternative Fuel Toolkit is an online platform designed to help state Departments of Transportation (DOTs) learn more about alternative fuels, plan alternative fuel vehicle infrastructure and explore funding sources, and take action to deploy alternative fuels and vehicles using an online action guide, set of facilitation materials, and other resources. The website is the result of an effort led by the Oregon DOT and FHWA, and supported by nine other state DOTs.

Link: <http://altfueltoolkit.org/>



Collablocation, University of Arizona and Arizona State University

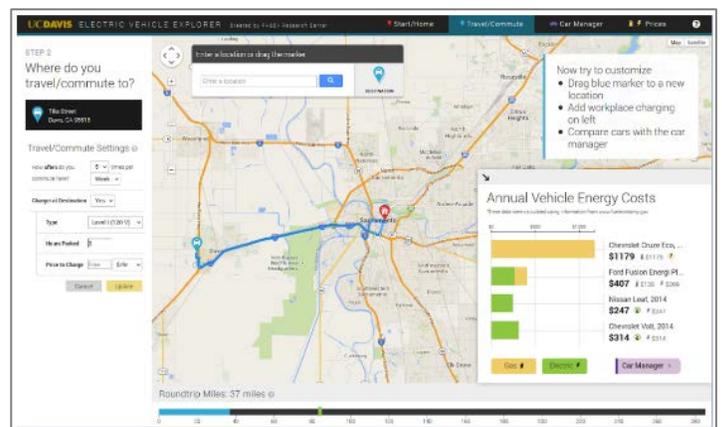
Rolling out alternative fuel stations is never a “one-size-fits-all” exercise. Acknowledging this reality, Collablocation is an online, open-source “geodesign” platform that allows multiple stakeholders (e.g., workshop attendees) to collaboratively and iteratively design a refueling station network. Developed by Arizona State University and the University of Arizona, this tool is currently only available for the Southwest United States, but developers have plans for enlarging the platform to a nation-level.

Link: <https://collablocation.shinyapps.io/home/>

EV Explorer, University of California Davis (UC Davis)

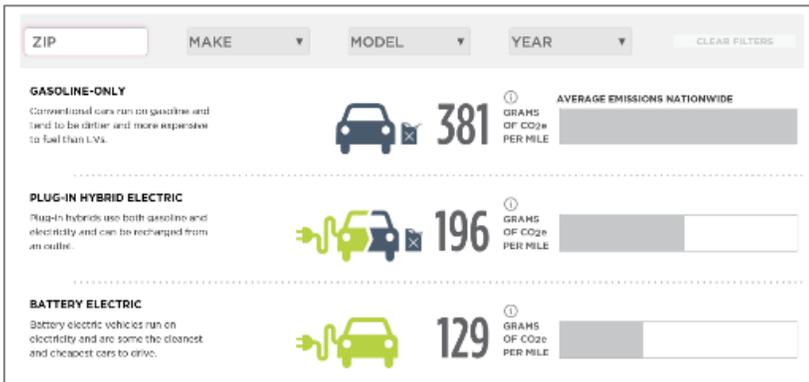
The EV Explorer is an online program designed by UC Davis to help users compare fuel costs of any type of gasoline or plug-in EV. The primary inputs for this tool are a vehicle’s destination and frequency of travel, with annual costs produced as an output. The tool allows commuters to compare annual fuel costs based on their own specific geographic location, and allows for customization based on user preferences, with several other input options including regional prices of gasoline and electricity, duration of charging, and the level of charging power, among others.

Link: <https://phev.ucdavis.edu/project/ev-explorer/>



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EV Emissions Tool, Union of Concerned Scientists

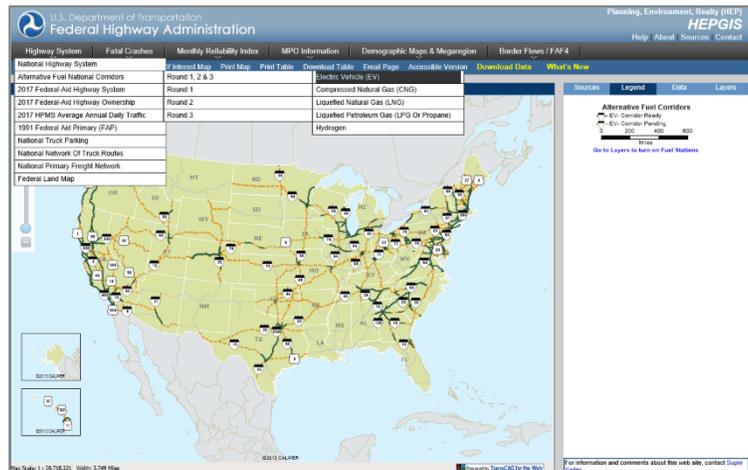
This EV Emissions Tool, developed by the Union of Concerned Scientists, is designed to allow users to compare greenhouse gas emissions from gasoline-only vehicles to those of plug-in hybrid electric vehicles and battery electric vehicles. This simple tool calculates grams of carbon dioxide (CO₂)-equivalent per mile of travel, comparing across the vehicle types using four inputs: a

user's zip code, and the make, model, and year of the user's car.

Link: <https://www.ucsusa.org/clean-vehicles/electric-vehicles/ev-emissions-tool#.WwVvgO4vztQ>

Alternative Fuel Corridor Interactive Maps, HEPGIS, Federal Highway Administration, U.S. Department of Transportation

The U.S. DOT Federal Highway Administration's on-line mapping tool, HEPGIS, hosts over one hundred interactive thematic maps. The tool allows users to display, locate and download spatial data, as well as print maps and tables. The Alternative Fuel National Corridor maps for the five alternative fuels are included in HEPGIS under the 'Highway System' dropdown menu. These interactive maps display 'ready' and 'pending' corridors. The maps also include the ability to display additional layers on the maps, such as refueling stations, traffic volume (present and projected growth), rest areas, and intermodal facilities, as well as to view each layer's tabular data.



Link: <https://hepgis.fhwa.dot.gov/fhwagis/#>

Alternative Fuels Data Center

Station Data for Nominating Alternative Fuel Corridors

The table below provides station data and shapefiles by state and fuel type. These datasets include public stations with the following filters applied to meet the criteria for nominating alternative fuel corridors:

- EV charging – only DC fast electric vehicle (EV) charging stations with both CHAdeMO and CCS connectors, excluding Tesla
- Hydrogen – only retail stations (Non-retail stations may be used in corridor nominations if the stations are compliant with SAE J2001 standards and meet all of the criteria for a hydrogen corridor.)
- Propane – only "primary" liquefied petroleum gas (LPG) stations, which have fuel for vehicles and vehicle-specific fueling services that are consistently offered during business hours
- CNG – only fast-fill compressed natural gas (CNG) stations that offer a fill pressure of 3,600 psi
- LNG – all liquefied natural gas (LNG) stations

The data downloads are CSVs with current station data pulled automatically from the [Alternative Fueling Station Locator](#). The shapefiles are ZIP downloads with a static snapshot of the stations as of Oct. 13, 2019, including stations outside state borders within 25 miles.

Learn more about corridor designations from the [Federal Highway Administration](#).

State	EV Charging	Hydrogen	Propane	CNG	LNG
Alabama	data shapefile				
Alaska	data shapefile				
Arizona	data shapefile				
Arkansas	data shapefile				
California	data shapefile				

Alternative Fuels Data Center Resources for Nominating Corridors, U.S. Department of Energy

The U.S. DOE Alternative Fuels Data Center provides station data and shapefiles to assist with nominating alternative fuel corridors. These datasets are organized by state and fuel type with filters applied to meet criteria for nominating corridors. This page also provides links to interactive maps to explore potential corridors by fuel.

Link: <https://afdc.energy.gov/corridors>

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