Electric vehicles





2016 WV Construction &

Design Exposition

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Clean Cities Mission

To advance the energy, economic, and environmental security of the U.S. by supporting local decisions to reduce petroleum use in transportation.

- Energy Policy Act of 1992 (EPAct)
- Provides a framework for businesses and government agencies to work together
- Clean Cities activities are implemented by a national network of nearly 100 Clean Cities coalitions.
- Major milestone: In 2013, coalitions and stakeholders reduced U.S. petroleum consumption by 1 billion gallons in a single year
- Ahead of schedule on goal: Reduce U.S. petroleum use by 2.5 billion gallons per year



www.energywv.org/cleanstateprogram

Description of Area: State of West Virginia

When was coalition formed? Oct. 19, 1994; re-designated in 1999, 2005, 2012 and 2016

Coalition Structure

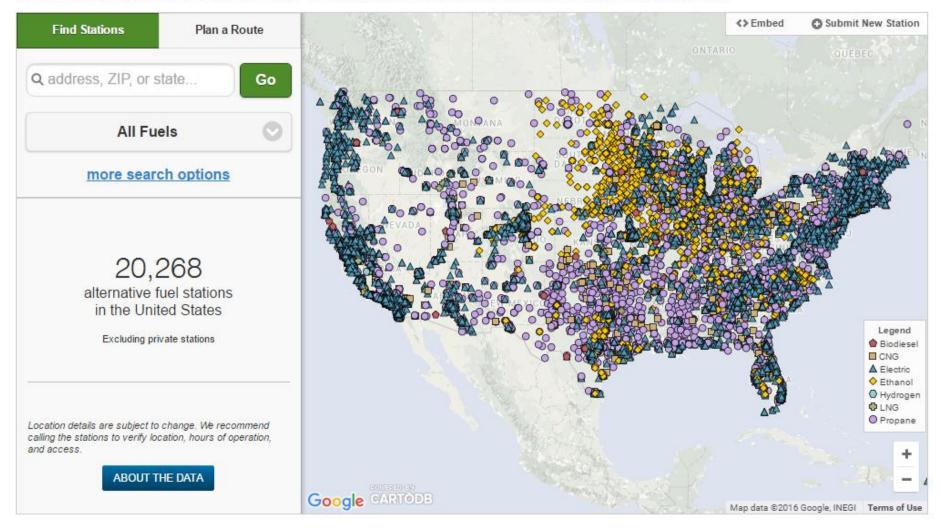


- Host agency is W.Va. Division of Energy, the state energy office
- Activities set by WVDOE director
- 60 stakeholders
- Coalition funded through U.S. Department of Energy
- In 2015, stakeholders reduced 536,827 gasoline gallon equivalents through electric vehicle use, reducing idling, and the use of alternative fuels (biodiesel, CNG and propane)



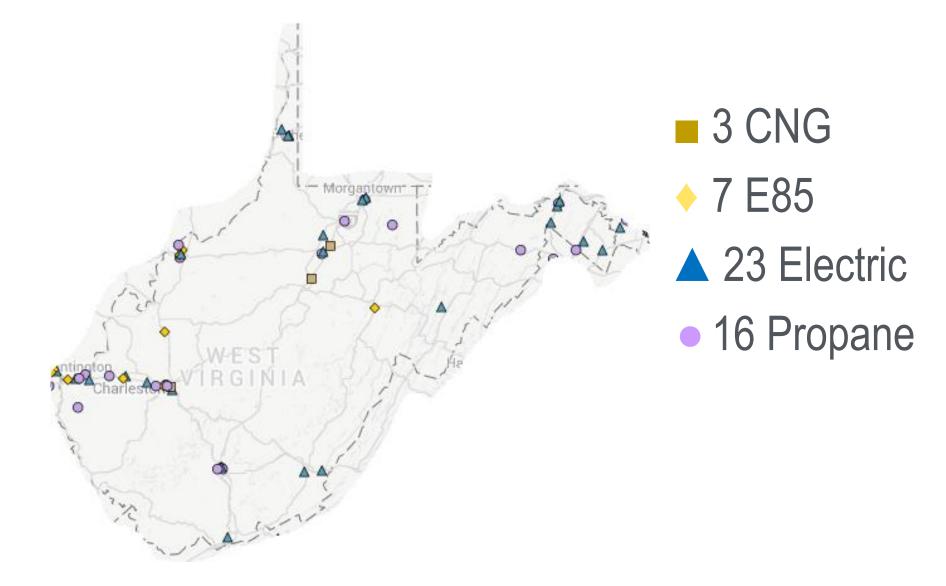
Alternative Fueling Station Locator

Find alternative fueling stations near an address or ZIP code or along a route in the United States. Enter a state to see a station count.



49 alternative fuel stations in WV





Three types of electric vehicles



Thinking of Going Electric?

Below are the types of electric-drive vehicles at a glance:

- HEVs: HEVs are powered by an internal combustion engine (ICE) and by an electric motor that uses energy stored in a battery. The battery is charged by the ICE and through regenerative braking, which recaptures some of the energy that is normally lost when braking. The vehicle cannot be plugged in to charge. The extra power provided by the electric motor allows for a smaller engine, resulting in better fuel economy without sacrificing performance.
- PHEVs: PHEVs are powered by an ICE and by an electric motor that uses energy stored in a battery (larger than the battery in an HEV). The battery can be charged by plugging in to an electric power source, through regenerative braking, and by the ICE. The larger battery allows a PHEV to travel on battery power alone.

Unlike all-electric vehicles (EVs), PHEVs don't have to be plugged in before driving. They can be fueled



Acura RLX. Photo from American Honda





Porsche Cayenne S e-Hybrid. Photo courtesy of Porsche

solely with gasoline, like a conventional HEV. However, they will not achieve maximum fuel economy or take full advantage of their all-electric capabilities without plugging in. Some PHEVs are considered "extended-range elec-

tric vehicles" because the ICE only charges the battery and does not directly propel the vehicle.

EVs: EVs run on electricity alone. They are powered by an electric motor that uses energy stored in a battery (larger than the batteries in an HEV or PHEV). EV batteries are charged by plugging the vehicle in to an electric power source and (to a lesser degree) through regenerative braking.





Hybrid electric vehicles: Internal combustion engine and electric motor that cannot be charged by plugging in Plug-in hybrid electric vehicles: Internal combustion engine and electric

motor that can be charged

by plugging in

Electric vehicles: Electric motor

charged by plugging in

Clean Cities 2016 Vehicle Buyer's Guide



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Electric Vehicle Model	Electric Motor/ Battery Size	Energy Impact Score* (barrels petroleum/ year)	Driving Range (miles)	GHG Score**	Fuel Economy (mpge) Combined/City/Hwy	Starting MSRP
BMW i3	125 kW/21 kWh	0.2 7	81	10	124/137/111	\$42,400
Chevrolet Spark	104 kW/20 kWh	0.2 🔨	82	10	119/128/108	-
Fiat 500e	83kW/24 kWh	0.2 ¥	87	10	116/122/108	-
Ford Focus	107 kW/23 kWh	0.2 7	76	10	105/110/99	\$29,170
Kia Soul	50 kW/16.4 kWh	0.2 🔨	93	10	105/120/92	\$31,950
Mercedes-Benz B250e	132 kW/28 kWh	0.2 ¥	87	10	84/85/82	-
Mitsubishi i-MiEV	49 kW/16 kWh	0.2 ¥	62	10	112/126/99	\$22,995
Nissan Leaf	80 kW/24 kWh	0.2 7	84	10	114/126/101	-
smart fortwo	55 kW/17.6 kWh	0.2 ¥	68	10	107/122/93	-
Tesla Model S	285 kW/70 kWh	0.2 1	265	10	89/88/90	-

* Assuming 15,000 miles driven per year. ** 10 = Best.

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All-Electric

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EV work in WV



State parks Shepherd University



August 6, 2013 – University of Rhode Island Professor Gary Stoner plugs in his Chevy Volt at a URI charging station. Ocean State Clean Cities Coalition collaborated with the Rhode Island Office of Energy Resources, the University of Rhode Island, and other partners on a Recovery Act project to install 50 electric vehicle charging stations across the state. The project effectively provided access to free public charging for all 1 million Rhode Islanders. (Photo from University of Rhode Island)

No AFV? Drive smarter!



U.S. DEPARTMENT OF EDUCATION ENDING	Office of Transportation & U.S. ENVIRONMENTAL & Air Quality PROTECTION AGENCY						
the Marial U.S. government source		Mobile Español Site Maj					
Find a Car Save Money & Fuel	Benefits My MPG Advanced Cars & Fuels	About EPA Ratings More	_	Welcome to My MPG!			
	- CARSA	Selling You	100	We've created "My MPG" to help you calculate and track your fuel economy and compare it with EPA test ratings. You can also share your MPG with other users.			
				Benefits of Registering			
		el tool.	If you register, you will be able to save your MPG information and view, edit, or update it later. You will also be able to share your MPG with others. Fueleconomy.gov retains no information that could be used to identify any individual with a user name or password.				
	Can a Hybrid Save Me Money?						
	This tool compares the costs of a selected hybrid wi manufacturer.	_{ne} o your car					
	2015 Toyota Prius c One	Personalize		As a non-registered guest, you still have access to all MPG tools, but you cannot save your data or share your MPG.			
	Vehicle Comparison			54 58 19800 598			
Find & Compare Cars	Hybrid	Non-hybrid 🛈	lectrics	We Can Help You			
	2015 Toyota Prius c One	2015 Toyota Yaris 5-Door LE		Calculate Your MPG			
	26			Maintain a Fuel Purchase Record			
2 MACH	1.5 L, 4 cyl, Automatic (variable gear ratios)	1.5 L, 4 cyl, Automatic 4-spd		Other Useful Tools			
Compare Side-by-Side	Combined MPG			Our Printable Form for Recording Fuel Purchases			
Power Search	49 33 d		ds	MPG Estimates from Drivers Like You			
Mobile Find-a-Car	\$20,365	\$18,034	ehicles				
		15RP is \$2,331 more .		Tracking Your MPG Just Got Easier			
Calculators and Other Tools				Now you can enter "My MPG" data at the pump from your			
Fuel Savings Calculator		thly Yearly		mobile device at <u>fueleconomy.gov/m</u> !			
Trip Calculator	4.551	7.58 \$331	uels Data Co				
Can a Hybrid Save Me Money?	7.0 years						
My Plug-in Hybrid Calculator			st Calculator				
Used Car Label Tool	What if I add the extra cost to my loan?		Change Web	site			
Developer Tools							
Find a Car Widnet	Note: This tool compares vehicles based on fuel o insurance, maintenance, or resale value, are not						

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Thank you

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