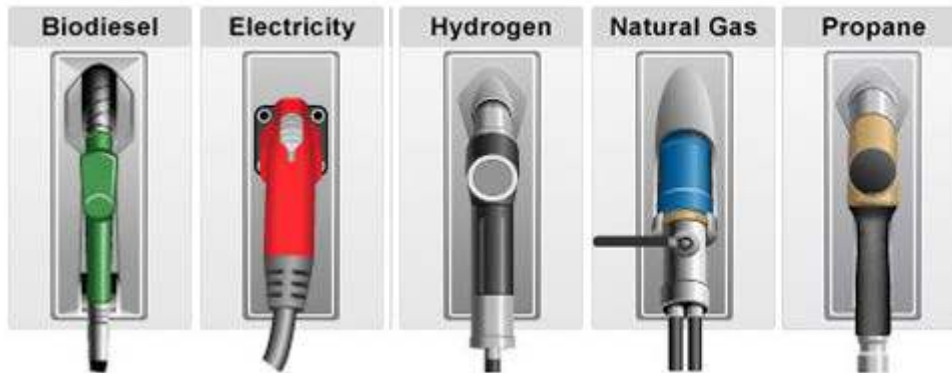


How Does CNG Compare to Other Alternative Fuels?



About Kwik Trip:

Founded in 1965, Kwik Trip, Inc. is one of the largest independently held convenience store chains in the United States.



Dedicated to service and making a difference in the lives of customers, Kwik Trip owns and operates over 630 stores in Wisconsin, Minnesota and Iowa and employs over 21,000 people.

With an emphasis on vertical integration, the company also operates its own kitchens, bakery, and dairy and maintains its own distribution center and fleet under the Convenience Transportation name.

Kwik Trip has been recognized as a Top Workplace in Wisconsin by the Milwaukee Journal Sentinel for each of the last eight years and was recently awarded the No. 1 ranking for 2018. Today, Kwik Trip continues to grow through new initiatives like a strong focus on food and value-priced commodities.

Kwik Trip[™] ***Kwik Star***

- ▶ 644 Stores
 - ▶ 396 in Wisconsin
 - ▶ 162 in Minnesota
 - ▶ 85 in Iowa
- ▶ 518 sell diesel
- ▶ 190 side diesel (separate diesel lanes)
- ▶ 123 stores have in line DEF dispensers
- ▶ 35 CNG (1 LNG)



Convenience Transportation

Transportation Arm of Kwik Trip

Delivery of Food and Petroleum Products to our stores

- ▶ Travel approximately 28 million miles
- ▶ Continue to run and maintain diesel powered
- ▶ 80% Natural gas powered

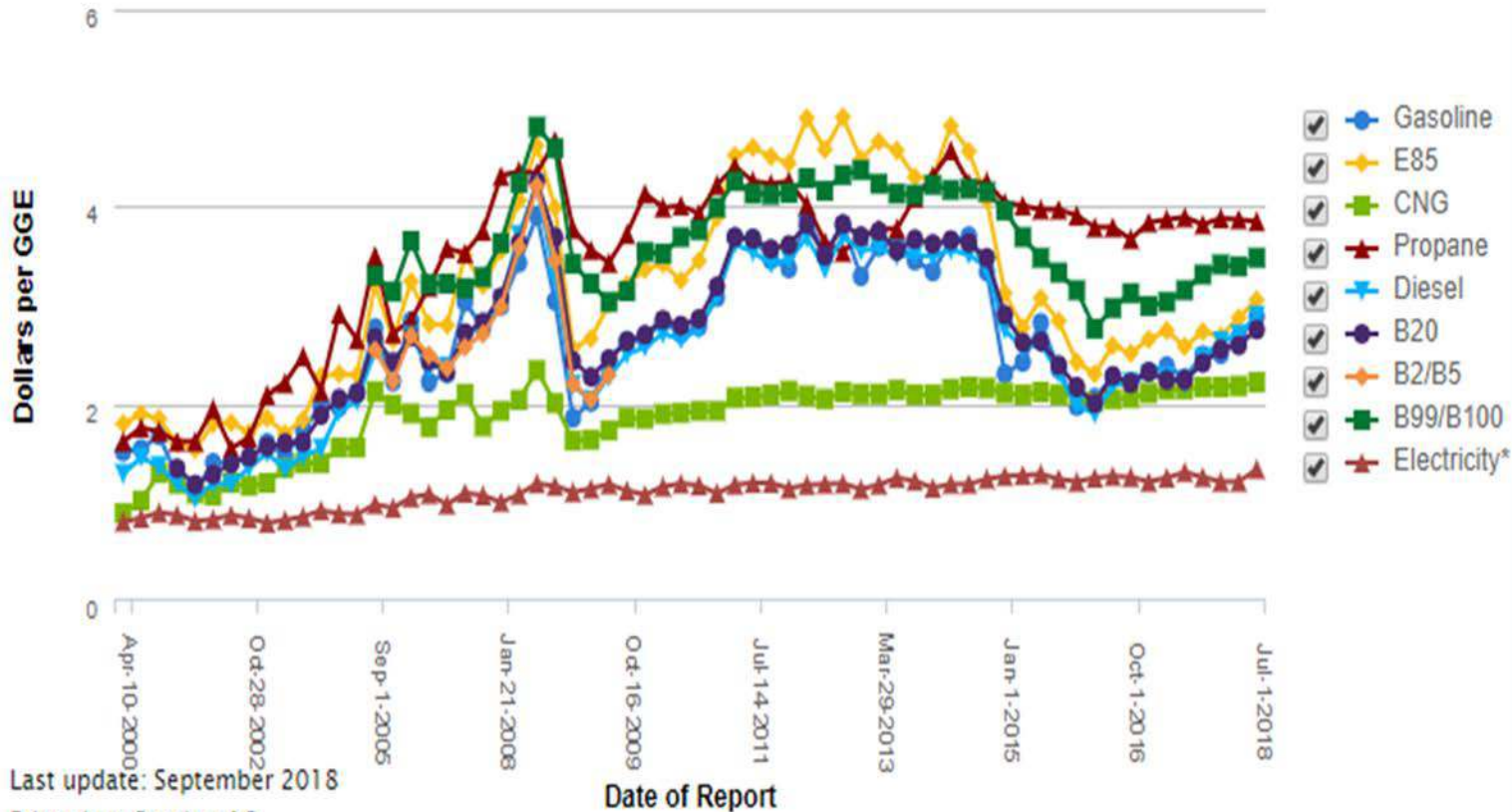


Considerations

- Vehicle – Available/ in production & application
- Fuel Price
- Fuel Price volatility
- Fuel Availability
- Strategic Fit – sustainability, mission
- Operational Fit
- Up Front Cost
- Maintenance
- Resale

Average Retail Fuel Prices in the U.S.

[Print](#) [Download](#)



Last update: September 2018

Printed on October 16

The Information Source for Alternative Fuels and Advanced Vehicles

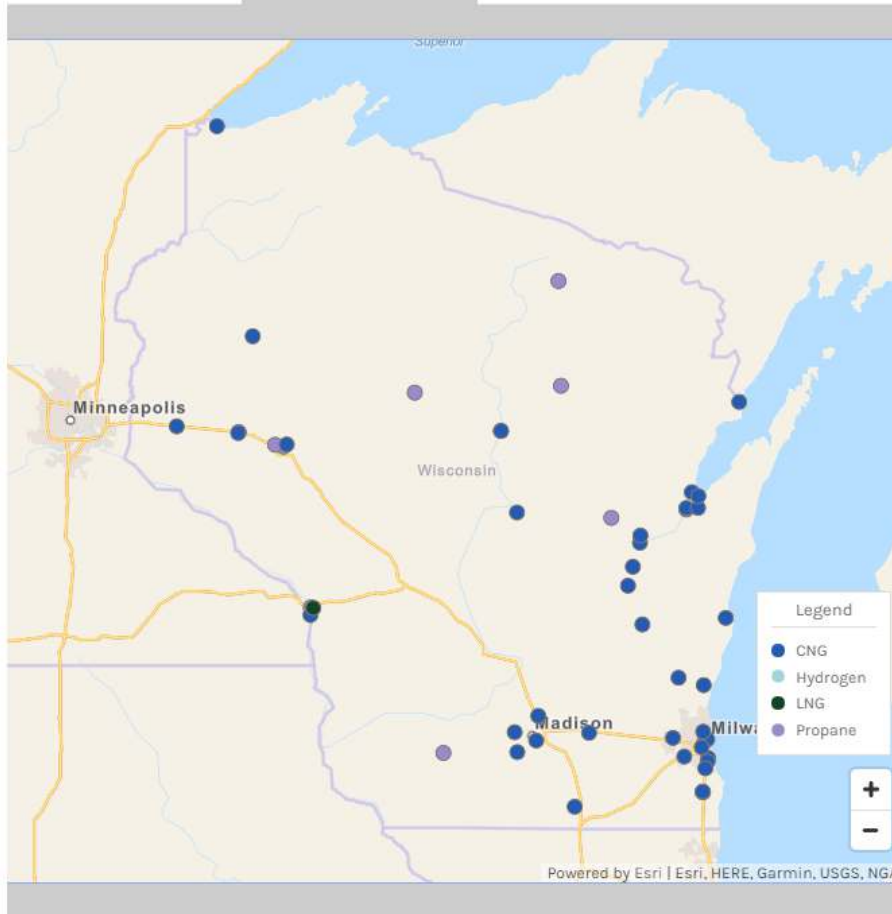
The Alternative Fuels Data Center (AFDC) provides information, data, and tools to help fleets and other transportation decision makers find ways to reach their energy and economic goals through the use of alternative and renewable fuels, advanced vehicles, and other fuel-saving measures.

Alternative Fueling Station Locator

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources Canada](#).

Public Stations

Advanced Filters



Edit Filters

52
stations

Filters chosen:



Wisconsin



Compressed Natural Gas (CNG)

Hydrogen

Liquefied Natural Gas (LNG)

Propane (LPG)



Access: Public



Download Results

Alternative Fueling Station Locator

Find alternative fueling stations in the United States and Canada. For U.S. stations, see [data by state](#). For Canadian stations in French, see [Natural Resources](#).

Public Stations

Advanced Filters

Kwik Trip #202

5339 Harding Ave
Plover, WI 54467

Directions

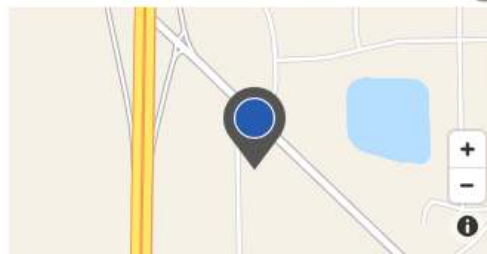
715-344-7252

Compressed Natural Gas (CNG)

Fill Type: Fast-fill

Fill Pressure: 3600 psi

Vehicle Accessibility: Accommodates all vehicle sizes and classes



Public



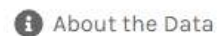
24 hours daily



American Express, Cash, Check, Comdata, Discover, EFS, Fleet One, Fuelman, MasterCard, TCH, T-Chek T-Card, Visa, Voyager, WEX

Last confirmed: September 2018

Station details are subject to change. We recommend calling the station to verify location, hours of operation, and access.

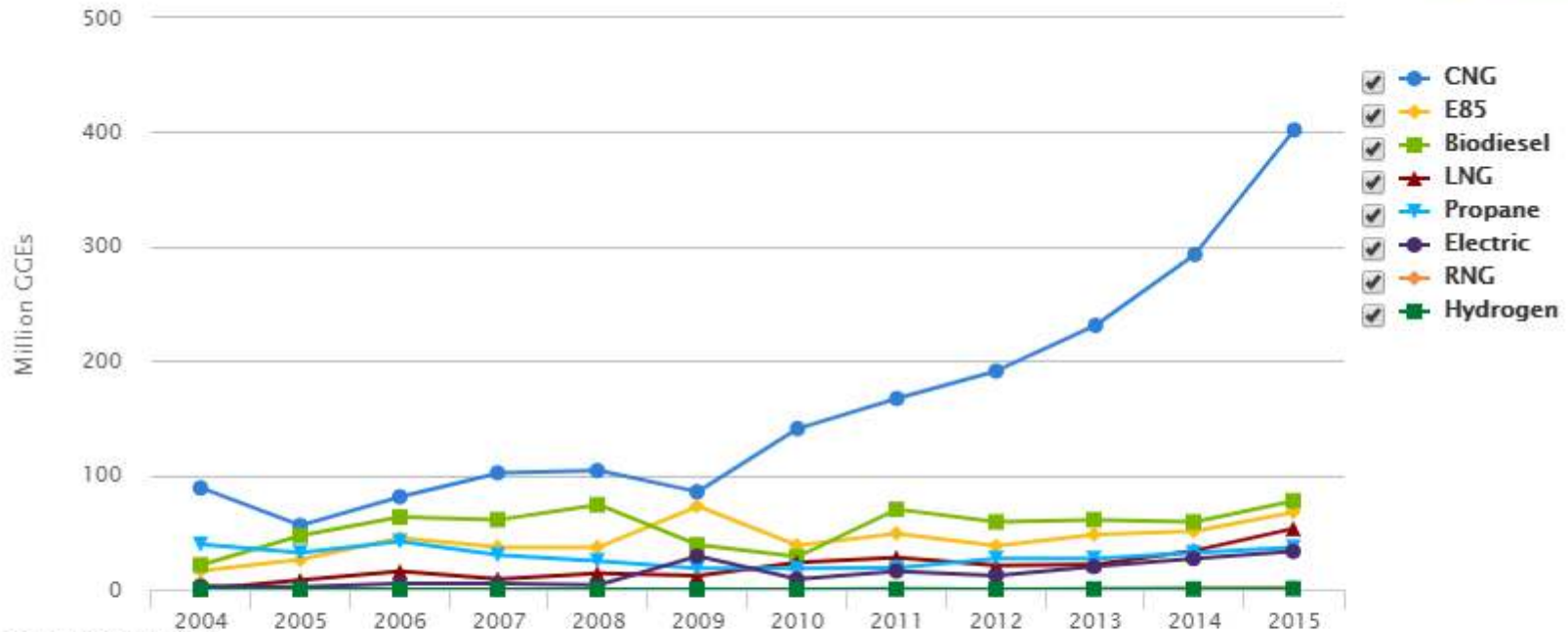


Variety in Fuel Offerings

- ▶ CNG/ RNG (Compressed Natural
 - ▶ LNG (Liquefied Natural Gas)
 - ▶ Propane
-
- ▶ Coast Development
 - ▶ Hydrogen
 - ▶ Electric



Clean Cities Petroleum Savings by AFV Type



Last updated: January 2017

Printed on: October 16

Source: [Clean Cities](#) annual metrics reports, 2004-2015.

Notes: Savings are measured in gasoline-gallon equivalents (GGEs), representing a quantity of fuel with the same amount of energy contained in a gallon of gasoline.

This chart shows trends in [Clean Cities](#) petroleum savings by various types of alternative fuel vehicles from 2004 to 2015.

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Payback Modeling


- There are a number of sources for modeling AFDC, Vendor, Etc

Compressed Natural Gas (CNG) Calculator - DEF, Maintenance, Upcharge									
Data Inputs									
General					Payback Data Inputs				
Current Price of Diesel	\$3.750				Fuel efficiency of CNG (DGE) Vs. Diesel				
Current Price of CNG (GGE)	\$1.790	RETAIL			MPG Diesel				
Current Price of CNG (DGE)	\$1.990								
Maintenance Cost per Mile (Diesel)	\$0.060	Per Mile			Maintenance Cost per Mile (CNG)	\$0.060			(12L seeing cost neutral)
Annual Misc Cost-Diesel (if needed) DEF	\$534		\$0.006		Annual Miscellaneous Cost-CNG (if needed)				
Demo Data Inputs					Payback Data Inputs				
Total Miles (During Demo)					Proj. Increase in PPG (Diesel)	2.09			
Days vehicle was Demoed					Proj. Increase in PPG (CNG)	0.57			
Total CNG-GGE Gallons (During Demo)					Annual Miles on vehicle	85,000			
Total CNG-DGE Gallons (During Demo)					Cost of Vehicle	\$110,000			
GGE to DGE	1.112				Cost of CNG upcharge (122 DGE Capacity)	\$40.00			
					Total Diesel Vehicle Cost	\$150,000			
					Total CNG Vehicle Cost	\$150,000			
Demo Result (unhide 30 thru 39)									
Fuel Savings Payback Calculation *Fuel savings based on estimates above									
Years	1	2	3	4	5	6	7...	10	
Vehicle Life Miles	85,000	170,000	255,000	340,000	425,000	510,000	595,000	850,000	
Diesel Vehicle									
Initial Cost of vehicle	\$ (110,000)								
Annual Fuel cost (Diesel)	\$ (45,536)	\$ (46,446)	\$ (47,357)	\$ (48,268)	\$ (49,179)	\$ (50,089)	\$ (51,000)	\$ (53,732)	
Maintenance Cost	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	
Residual Diesel Value									
Miscellaneous Cost (DEF)	\$ (534)	\$ (534)	\$ (534)	\$ (534)	\$ (534)	\$ (534)	\$ (534)	\$ (534)	
Total Cumulative cost									
Cost per Mile	(1.90)	(0.61)	(0.62)	(0.63)	(0.64)	(0.66)	(0.67)	(0.70)	
CNG Vehicle									
Initial Cost of vehicle	\$ (150,000)								
Annual Fuel cost (CNG)	\$ (28,435)	\$ (28,578)	\$ (28,721)	\$ (28,862)	\$ (29,004)	\$ (29,146)	\$ (29,288)	\$ (29,715)	
Maintenance Cost	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	\$ (5,100)	
Residual CNG Value									
Miscellaneous Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Cumulative cost									
Cost per Mile	(2.16)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.41)	
Net Cash Flow	\$ (22,365)	\$ (3,962)	\$ 15,209	\$ 35,150	\$ 55,858	\$ 77,335	\$ 99,581	\$ 170,930	
Cumulative Project Savings (Fuel Savings per Unit)	\$ (22,365)	\$ (3,962)	\$ 15,209	\$ 35,150	\$ 55,858	\$ 77,335	\$ 99,581	\$ 170,930	
Payback of CNG Vehicle*:									
Net Present Value of choosing CNG (NPV):									
*Based on average efficiency performance that Kwik Trip observes									
*Payback Period, Mileage to Payback, and NPV do not include Residual value of Asset									
**2000 pounds weight exemption payback is not included									

Alternative Fuels Data Center

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Alternative Fuels and Advanced Vehicles

More than a dozen [alternative fuels](#) are in production or under development for use in [alternative fuel vehicles](#) and [advanced technology vehicles](#). Government and private-sector vehicle fleets are the primary users for most of these fuels and vehicles, but individual consumers are increasingly interested in them. Using alternative fuels and advanced vehicles instead of conventional fuels and vehicles helps the United States conserve fuel and lower vehicle emissions.



Biodiesel ▶

Biodiesel is a renewable fuel that can be manufactured from vegetable oils, animal fats, or recycled cooking grease for use in diesel vehicles.

 [Diesel Vehicles ▶](#)


Electricity ▶

Electricity can be used to power plug-in electric vehicles, which are increasingly available. Hybrids use electricity to boost efficiency.

 [Hybrid & Plug-In Vehicles ▶](#)

Ethanol ▶

Ethanol is a widely used renewable fuel made from corn and other plant materials. It is blended with gasoline for use in vehicles.

 [Flexible Fuel Vehicles ▶](#)

Hydrogen ▶

Hydrogen is a potentially emissions-free alternative fuel that can be produced from domestic resources for use in fuel cell vehicles.

 [Fuel Cell Vehicles ▶](#)

Natural Gas ▶

Natural gas is a domestically abundant gaseous fuel that can have significant fuel cost advantages over gasoline and diesel fuel.

 [Natural Gas Vehicles ▶](#)

Propane ▶

Propane is a readily available gaseous fuel that has been widely used in vehicles throughout the world for decades.

 [Propane Vehicles ▶](#)

Considerations – still work to do!

- Vehicle – Available/ in production & application
- ✓ Fuel Price
- ✓ Fuel Price volatility
- ✓ Fuel Availability
- ✓ Strategic Fit – sustainability, mission
- ✓ Operational Fit
- Up Front Cost
- Maintenance
- Resale

Thank You!!

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