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.
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
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.
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Kwik Trip #202
5339 Harding Ave
Plover, WI 54467
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 Gas)
- LNG (Liquefied Natural Gas)
- Propane

- Coast Development
  - Hydrogen
  - Electric
Clean Cities Petroleum Savings by AFV Type


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.
Payback Modeling

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

## Compressed Natural Gas (CNG) Calculator - DEF, Maintenance, Upcharge

### Data Inputs

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Current Price of Diesel</td>
<td>$3.750</td>
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<tr>
<td>Current Price of CNG (GGE)</td>
<td>$1.790 RETAIL</td>
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<tr>
<td>Maintenance Cost per Mile (Diesel)</td>
<td>$0.060 Per Mile</td>
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<tr>
<td>Annual Misc Cost-Diesel (if needed) DEF</td>
<td>$534 $0.006 Annual Miscellaneous Cost-CNG (if needed) (12L saving cost neutral)</td>
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### Demo Data Inputs

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Total CNG-GGE Gallons (During Demo)</td>
<td>1.112</td>
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### Demo Result (unhide 30 thru 39)

<table>
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<th>Category</th>
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<tbody>
<tr>
<td>Payback Data Inputs</td>
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<tr>
<td>Total Dates (During Demo)</td>
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<tr>
<td>Days vehicle was Demoed</td>
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<td>Total CNG-GGE Gallons (During Demo)</td>
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### Fuel Savings Payback Calculation*Fuel savings based on estimates above

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<thead>
<tr>
<th>Years</th>
<th>Vehicle Life Miles</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
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<td>85,000</td>
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<td>Diesel Vehicle</td>
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<td>Initial Cost of vehicle</td>
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<td>Annual Fuel cost (Diesel)</td>
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<td>Total Cumulative cost</td>
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<td>CNG Vehicle</td>
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<tr>
<td>Total Cumulative cost</td>
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<td>$217,213</td>
<td>$251,033</td>
<td>$284,995</td>
<td>$319,099</td>
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### Cumulative Project Savings

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<tr>
<td>Fuel Savings per Unit</td>
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<td>$55,858</td>
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<td>$99,581</td>
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</table>

### Payback of CNG Vehicle**

- Net Present Value of choosing CNG (NPV): $114,807

**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 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 is 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!!

Joel Fasnacht
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608-793-6400