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The natural-gas alternative

The pros & cons of buying a CNG-powered Honda Civic

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The buzz on alternatives to gasoline usually focuses on hybrids or ethanol. But Honda is quietly pushing another alternative: a Civic that runs on compressed natural gas (CNG). The Civic GX was initially offered as a 1998 model to fleet customers, but Honda began limited sales to California consumers in 2005 and now is expanding the car's retail reach to New York.

Like other alternatives, CNG has its advantages and disadvantages. Compared with gasoline, it has much cleaner emissions while providing similar fuel economy, performance, and driveability. Its relative energy cost can be about half that of gasoline when using a home-fueling station. And it's mostly a domestically produced energy source; 85 percent of the CNG consumed in the U.S. is also produced here. On the other hand, the Civic GX is priced almost \$7,000 higher than a similar gasoline-powered version, refueling stations are relatively rare, and CNG is not available at all--even for home fueling--in some areas.

OVERVIEW

Natural gas has been used as a motor vehicle fuel since the 1930s. In fact, Chrysler, Ford, and General Motors once offered passenger vehicles fueled by CNG, sold primarily to fleets. Today one out of every five new buses uses CNG.

But with the increased focus on ethanol as an alternative fuel, fewer and fewer CNG-fueled passenger vehicles have been offered in recent years. In particular, budget-constrained domestic automakers withdrew from this niche segment due to slow sales, financial challenges, and limited refueling stations. Shoppers were left to choose from only from Honda and a handful of aftermarket conversion companies, along with used fleet cars.

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When Honda started retail GX sales in California, it also began offering a home refueling device called Phill, made by a marketing partner in Canada. The device can refuel a vehicle overnight when connected to a gas line from a home served by natural gas. The Civic line was redesigned for 2006, and a GX model was again offered in California. With the 2007 model year, Honda has expanded consumer sales to New York state dealerships and is looking at other markets.

While it might seem odd for one manufacturer to be charging into a niche segment that others have abandoned, Honda says much of what it learns from CNG can be applied to hydrogen technology in the future. Because both fuels are delivered under much greater pressure than gasoline, information gained through experience with such elements as refueling systems and fuel lines might be applied to hydrogen.

With Honda's innovative approach to the challenges of refueling, the company will still face challenges similar to those experienced by its competitors. For instance, while about 85 percent of the CNG consumed in the U.S. is produced here, it's not available in all areas. California and New York have an infrastructure in place to deliver natural gas, but some areas have very limited access to the fuel. Since CNG is generally transported by pipeline, rather than by truck or rail, the distribution infrastructure plays a key role in the fuel's availability.

To help understand the value of CNG, we broke down the notable benefits and the compromises involved. Like all alternatives, CNG will not be for everyone. But if it is available in your area, and you do a fair bit of long-distance driving or commuting in a region with a ready supply, it might be worth a look.

BENEFITS

- **Cost.** The cost of CNG can be as little as half that of a gallon of gas if you use a home refueling device. And at commercial stations, the cost is still less than gasoline. Some research pegs the fuel savings at about 30 percent less than gasoline on average.
- **The driving experience.** Drivers are not expected to notice a significant difference in performance between a CNG-powered vehicle and one fueled by gasoline. Acceleration is comparable, and the car starts and drives normally. Gas mileage is about the same. As a bonus, in some states, drivers of CNG vehicles can use the HOV lane. A study of New York City taxis running on natural gas concluded that maintenance costs were also reduced.
- **Air quality.** CNG is much cleaner-burning than gasoline. According to the Environmental Protection Agency, CNG can reduce carbon-monoxide emissions by 90 to 97 percent and nitrogen-oxide emissions by 35 to 60 percent when compared with gasoline. CNG can also potentially reduce non-methane hydrocarbon emissions by 50 to 75 percent, while producing fewer carcinogenic pollutants and little or no particulate matter. When the 1998 Civic GX was introduced, the EPA cited it as having the cleanest internal combustion engine ever tested.
- **Tax and other incentives.** The federal government offers a tax credit to buyers of CNG-powered vehicles. That credit is \$4,000 for buyers of the Civic GX. States may offer additional credits for both the vehicle and a home-fueling device. Some California residents have been offered a \$2,000 credit toward the \$3,400 cost of a Phill unit by the South Coast Air Quality Management District and the Mobile Source Air



The 2007 Civic GX uses a 1.8-liter, four-cylinder engine with 113 hp and 109 ft.-lb. of torque.

Pollution Reduction Review Committee.

COMPROMISES

- **Purchase cost.** CNG-powered vehicles have generally cost more to purchase new than comparable gasoline models. Suggested retail for the Civic GX will be \$24,590 plus \$550 for freight when it goes on sale in New York. A comparably equipped, gasoline-powered Civic LX lists for \$17,760. Honda concedes GX resale values can also be \$1,000 to \$3,000 less than their gasoline counterparts. Add to that the cost of a Phill refueling unit at \$3,400 plus the installation cost, upwards of \$500, and the premium could easily top \$10,000. Honda says it will also offer a lease program for both the GX and the Phill in New York
- **Availability.** CNG stations are not available in some areas. Check the [U.S. Department of Energy Web site](#) for availability in your region.
- **Gasging up with CNG.** Even if you have access to natural gas, refueling can be a hassle. There are only about 1,300 refueling stations in the U.S., and many are operated by fleets and not open to the public. The number available to consumers is estimated to be from 700 to 800, on par with the number of ethanol stations. New York has about 37 stations with public access. In addition, the pressurized CNG pumps take some getting used to. They use a special fitting to seal to the vehicle, something with which most motorists are not familiar. A Honda representative suggested a 15-minute training session before using the pumps. Many pumps also work on a card-reader system specific to the fuel supplier. Users are billed monthly, which may be less convenient than handing over cash.
- **If you choose to fill up with Phill.** An advantage of refueling stations over the Phill home unit is that the gas is already pressurized, so the tank can be filled in a matter of minutes. Home gas is under very low pressure. The Phill device acts as both a pump and a compressor, which is why it takes overnight to fill the tank. But refueling at home at half the cost of going to a refueling station can be worth the wait. Of course, it would take time for the payback of the initial unit cost and installation. Also, installation is likely to require a building permit.
- **Honey, they shrunk the trunk.** Even though a CNG tank is larger than a gasoline tank, you get fewer miles per tank. With the Civic GX, roughly half the trunk capacity is given over to the tank, with 6 cubic feet left for your luggage. Miles-per-fillup also drops, from 400-plus miles to between 220 and 260 miles.



OTHER CONSIDERATIONS

- **Safety.** The Department of Energy says vehicles powered by natural gas are as safe as conventional gasoline or diesel vehicles, and their pressurized tanks have been designed to withstand severe impact, temperature, and environmental exposure. CNG is lighter than air, so if fuel were to escape in a crash, it would evaporate rather than create a puddle under the car. While the gas is escaping the storage tank, it is highly volatile. But once the gas has evaporated, the fire danger is diminished. In contrast, a gasoline spill remains a danger until the pooled liquid is removed.

As for the potentially scary business of home refueling, Phill's manufacturer, the FuelMaker Corp. of Toronto, says that the unit will not operate if it is not connected properly and that a built-in sensor shuts it down if the system senses a methane leak or any other kind of

malfunction. The manufacturer also says the device is considered a home appliance by municipalities, like a hot-water heater or gas dryer. Still, it would be wise to check with local authorities before making the investment.

- **Don't want a Honda?** There are companies that specialize in converting other models to run on CNG. The Department of Energy says you can expect to pay between \$2,000 and \$4,000 if you chose to go that route.
- **No promises of cheap fuel.** Natural-gas prices have been volatile lately, and today's good deal might not look so good tomorrow. After reaching a historical high in December 2005, natural-gas prices had fallen by 50 percent by July 2006. But as anyone who has recently bought gasoline knows, fuel prices can change quickly.

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