



WHEELS OF

Honda FCX Clarity

DESTINY

A champion of high fuel economy and low emissions, Honda takes the long view on sustainable mobility

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Decades from now, automotive historians will call the 2007 North American International Auto Show (NAIAS) a pivotal moment in the transition to a hydrogen economy. That much was assured when Honda introduced its FCX Clarity at the show. Honda also announced that this new, second-generation fuel cell car would be leased to retail customers in Southern California starting in summer 2008.

Having unintentionally ceded hybrid leadership to Toyota, Honda is now staking an early claim on the

future of personal transportation. That future, Honda seems to have no doubt, will require hydrogen to achieve the best fuel efficiency and lowest emissions. The FCX Clarity is only one very visible part in the carmaker's plans to achieve that end.

While it helps pave the road to hydrogen, Honda will continue to improve its gasoline engines' efficiency, introduce new hybrid models, and further develop alternative fuels, including clean diesels and natural gas.

"Global warming is the number one environmental issue. For every company, increasing fuel efficiency to

continued on page 18

reduce CO2 emissions is the single most important challenge we face, along with the new CAFE standards,” Honda CEO Takeo Fukui told journalists at the 2007 NAIAS. “I look at this challenge in the same way we approached the issue of clean air more than 40 years ago.”

Fuel Economy Leadership

Honda built its car business on a foundation of economical cars, and its continued devotion to fuel efficiency shows in a 2006 CAFE score of 29.1 mpg. That’s one reason *Edmunds.com* Senior Editor and Green Car Advisor John O’Dell is confident Honda will achieve the new 35-mpg fleet standard before the 2020 deadline. High fuel economy, O’Dell said, “is part of the company’s engineering DNA. It’s not marketing driven.”

Ed Cohen, Honda’s vice president of government and industry relations, shared the company’s basic plan for pursuing high fuel economy. “Over the last 15 years, Honda has had the highest average fuel economy of all manufacturers, and that is even while an increasing

proportion of our vehicles have been light-duty trucks,” he said. Light trucks, including SUVs and the Ridgeline pickup, constituted 43 percent of Honda’s 2007 sales.

When it comes to fuel efficiency, Honda has always offered standout choices. In many years, Honda offered the country’s highest-mpg vehicle, including the first Civic (1973), special, high-mpg versions of its CRX two-seater (1980s) and Civic (1990s) and, more recently, the slow-selling Insight Hybrid.

No V8s – But Timing May be Perfect

Consistently strong sales of economical models don’t provide the only route to a high CAFE result. What is not in Honda’s lineup helps, too: no conventional full-size pickups, and no truck-based large SUVs and especially, no V8 engines.

Timing and rising gas prices could vindicate Honda’s strategy. A recent new-car buyer study from *Edmunds.com* revealed that America’s appetite for V8s is declining in all segments where they’re offered except full-size pickup trucks. Overall, shopper demand for V8s has dropped from 19 percent two years ago to 15 percent today, according to *Edmunds*. Declines were steepest in the SUV and large car categories.

Do Customers Get the Message?

O’Dell said that Honda hasn’t been as vocal about its fuel economy leadership as it could be. “Honda attracts atten-

tion for fuel economy, but there’s not a lot of drum banging in the marketing. Brands with a lesser message are making louder noises.”

Dave Conant, who owns the country’s largest Honda dealership, Norm Reeves Honda in Southern California, sees an opportunity to speak up. “Honda has traditionally taken a very understated approach to marketing. Everything has been on the strength of the product,” Conant said. “Because of that, Honda has always been a brand that savvy customers research and study, and its cars tend to be bought by more ‘influentials,’ which ultimately does help.”

Enough customers seem to be getting the message to keep pushing Honda’s sales upward. In 2007, Honda (including Acura) sold 1,541,542 new vehicles in the United States, a 2.5-percent increase over 2006. It was the company’s 14th consecutive year-over-year sales increase. “I think the best consumer research is found in the sales, and ours keep going up,” said Cohen.

Hybrids: Act II

Eight years after launching the first gasoline-electric hybrid in the U.S. market, the two-seat Insight, Honda found itself announcing a “do-over.” The company has not come close to matching Toyota’s success with hybrids. To remedy that situation, Honda will build new, dedicated hybrid models with lower prices.

What went wrong? The Insight sold only 13,000 vehicles over six years. The first- and second-generation Civic Hybrids, well regarded by the auto media and customers alike, were left in the Prius’s clean exhaust trail. In 2007, the Prius sold 181,221 compared to 31,253 for the Civic Hybrid. The Accord Hybrid, engineered for high power rather than high fuel economy, sold only about 25,000 units over three years before Honda cancelled it.

The problem was not technology. Honda’s Integrated Motor Assist (IMA), which sandwiches a low-profile electric flywheel/motor between the gasoline engine and transmission, is as elegant in its seeming simplicity as Toyota’s hybrid system is in its complexity. The problem was positioning and perception.

“We were first [with a hybrid in the U.S.], but you have to give Toyota a lot of credit,” said Cohen. “They led with a dedicated vehicle, and it was a very smart thing to do. Our



The small start of something really big: The first Honda Civic arrived in 1973, just in time for skyrocketing gas prices and gas lines.



Get sporty: Honda has not yet revealed the first of its next-generation hybrids, but the second one will be a sports coupe like the CR-Z Concept.

approach was to make the hybrid technology transparent, a powertrain option on existing models.”

The idea was to demystify hybrid technology to help take it mainstream quickly. But hybrid buyers, Honda learned, want to stand out from the mainstream.

Now, Honda has a new plan. It will build a new hybrid “world car” in Japan next year, with a capacity for 200,000 units. Half of those are slated for the U.S. market. The price will be “under the Civic Hybrid,” Cohen confirmed. “We’re trying to reduce the cost premium of a hybrid to under \$2,000 on this next vehicle,” he said. By comparison, the 2008 Civic Hybrid is priced \$3,090 more than the Civic EX sedan with automatic transmission.

Just as important to many hybrid buyers, the new Honda hybrid will be a distinct vehicle, not a version of a current model. And car enthusiasts who have been lamenting the departure of the CRX since 1991 should be excited about the second new-generation Honda hybrid planned, a sporty two-seater based on the rakish CR-Z concept.

Fueling the Future with Hydrogen

Honda is careful not to put an arrival date on mass-produced fuel cell cars, but its FCX Clarity makes clear its intention to hasten that day along.

A fuel cell vehicle is an electric vehicle. But rather than drawing energy stored in a battery, it creates energy by pulling electrons out of hydrogen as it is passed through a special membrane. The only emission is water vapor. In the FCX Clarity, a small fuel cell “stack” is positioned between the front seats. Range is about 270 miles on a tank of pressurized hydrogen. That’s a 30 percent improvement over Honda’s first fuel cell vehicle, the FCX, which a handful of consumers began testing in 2004.

There have traditionally been three obstacles to fuel cell cars becoming mainstream: One was the physical size of the

technology, which has now been addressed. Two is cost, which commercialization can theoretically reduce by economies of scale.

The third is a doozy: commercialization will require hydrogen infrastructure, which barely exists today. Honda has some ideas on that, too.

“It’s the chicken and egg situation — you can’t do one first. Both must evolve simultaneously,” said Cohen.

As one part of the solution, Honda envisions using homes as fueling

stations. Honda announced its Home Energy Station (HES) IV at the same time it unveiled the FCX Clarity. The HES IV would tap a home’s natural gas supply to produce hydrogen, while also providing heat and electricity to an average-size home. According to Honda, such an installation can reduce CO2 emissions by an estimated 30 percent and energy costs by an estimated 50 percent.

Others are testing fuel cell vehicles now, too, including Daimler, Ford and General Motors. But nobody else is putting them into the hands of paying customers for three years. Still, there are doubters. In its March issue, *Car & Driver* magazine said, “The Honda FCX Clarity is a technology of the future and may always be just that...”

Cohen shrugs off naysayers. “We would not be investing hundreds of millions of dollars or more in technology that we thought was a dead-end,” he said. “Look at the extraordinary difference between our first FCX from four years ago versus the FCX Clarity. The magnitude and rapidity of our progress and refinement is simply breathtaking.”

Rita Sims-Snyder of Coeur d’Alene Honda in Idaho, which sells the entire line of Honda cars, trucks, motorcycles, powersports, and power equipment, is optimistic about Honda’s chosen road. “Honda is very innovative, but also conservative. They make sure technology is perfect before they release it. As dealers, we sometimes find ourselves waiting and waiting for something new. But when it arrives, we realize why we had to wait.” **AD**



Elegant packaging: Civic Hybrid’s Integrated Motor Assist (IMA) uses a low-profile electric motor sandwiched between the gasoline engine and the transmission.

“IT WAS
20 YEARS AGO
TODAY...”

1988

HONDA ACCORD



With each new-generation of its Civic and Accord, Honda has improved fuel economy, even as the cars gained in size, weight, power, features, and safety technology. “In order to not lose ground, you must make both the powertrain and the vehicle more efficient,” said Ed Cohen, Honda vice president of Government and Industry Relations.

2008

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