

Statement of American Honda Motor Co., Inc.
to the Department of Energy
Quadrennial Energy Review : Comment on the Public Meeting “Enhancing Infrastructure
Resiliency,” Held April 11, 2014, Washington, D.C.
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Thank you for the opportunity to comment on the upcoming Quadrennial Energy Review (QER) Report. Honda commends President Obama’s commitment to the development of clean energy solutions to address the climate change and energy security challenges facing the nation.

The Department of Energy has been tasked with an important leadership role to develop a report which, among other things, “provides an integrated view of, and recommendations for, Federal energy policy in the context of economic, environmental, occupational, security and health and safety priorities, with attention in the first report given to the challenges facing the Nation’s energy infrastructure.”¹ The timing of this review could not be more critical. The nation is poised to change substantially the fuels and technologies on which it relies to meet its growing electricity and transportation needs for the next century. The QER is a forward-looking assessment, and in that regard, it must consider the underlying fueling infrastructure and distribution needs to accommodate the coming changes.

Hydrogen will play an increasingly critical role in this country’s energy future. We are already beginning to see what this future will entail. Hydrogen-fueled stationary fuel cells systems are being installed to provide primary and back-up power throughout the country. For example, a stationary fuel cell system provides 25 percent of the electricity needs of Honda’s Torrance, CA campus. Similarly, AT&T has 17.1 megawatts of fuel cells operating at 28 sites throughout California and Connecticut. Hydrogen-fueled forklifts are becoming more common, with major customers that include Wal-Mart, Kroger Co., and Bayerische Motoren Werke AG.

¹ Presidential Memorandum—Establishing a Quadrennial Energy Review, Jan. 9, 2014, Sec. 2(a).

Clean and sustainable mobility is another promising application for fuel cell technology. FedEx's airport tractors in Memphis are powered by fuel cells. Many automakers, including Honda, believe that fuel cell electric vehicles (FCEVs) will be the dominant technology for mobility in the mid-to long term future. That transition has already begun.

Honda has a longstanding commitment to manufacturing fuel-efficient and environmentally-friendly products that meet – and often exceed – state and federal policy goals. In fact, Honda has set a target to reduce global carbon dioxide emissions from our products by 30 percent by the end of 2020, as compared to 2000 levels. In the United States, Honda is planning a fleet CO₂ average well below the 2025 greenhouse gas (GHG) standards set by the Environmental Protection Agency. Fuel cell technology will help us achieve this objective. In 1999, Honda introduced its first fuel cell prototypes, the FCX-V1 and FCX-V2.² Almost a decade later, in 2008, the FCX Clarity was available for lease to select customers in Southern California. Throughout that time, Honda has made significant investments in improving fuel cell stack technology. Honda will introduce a next-generation FCEV to the U.S. market in 2015.³ Honda and General Motors – the two companies with the highest number of fuel cell vehicle patents – are combining their capabilities to develop an advanced fuel cell stack capable of significant cost reduction and commercialization by 2020.⁴ Additionally, Honda continues to research, design, and operate innovative small hydrogen refueling stations for demonstration purposes, including a prototype system that generates hydrogen *at pressure* without the use of mechanical compression at Honda R&D's Torrance, CA campus.⁵

Honda is not unique in its support for FCEVs – the automotive industry as a whole is committed to bringing this technology to market. A number of manufacturers each have invested literally billions of dollars to develop vehicles. Toyota and Hyundai have also announced that they will be offering FCEVs for sale later this year and in 2015. The Department of Energy's own fuel cell program has been successful in meeting and exceeding significant performance and cost objectives for fuel cell vehicle technology. We are greatly encouraged by the leadership of the

² Honda Fuel Cell Evolution, <http://automobiles.honda.com/fcx-clarity/fuel-cell-evolution.aspx>

³ Honda FCEV Concept Makes World Debut at Los Angeles International Auto Show, <http://world.honda.com/news/2013/4131120FCEV-Concept-Los-Angeles-Auto-Show/index.html>

⁴ GM, Honda to Collaborate on Next-Generation Fuel Cell Technologies, <http://www.hondainamerica.com/news/gm-honda-collaborate-next-generation-fuel-cell-technologies>

⁵ Honda Begins Operation of New Solar Hydrogen Station, <http://world.honda.com/news/2010/c100127New-Solar-Hydrogen-Station/>

Department of Energy in spearheading the formation of H2USA, the public-private partnership focused expanding hydrogen infrastructure. And these efforts are not limited to the United States. It is important to note that the quest to lead in the areas of hydrogen as a source for fuel and fuel cell technologies is being aggressively pursued in Europe and Asia. The global competitive implications cannot be ignored.

One of the catalysts for the dramatic increase in interest in FCEVs by automakers are regulatory standards at the federal and state level that seek to reduce greenhouse gas emissions from the nation's transportation sector. The 2017-2025 Corporate Average Fuel Economy/Greenhouse Gas (CAFE/GHG) standards are significant achievements by the Obama Administration. While these standards do not mandate specific technologies, they envision a national policy of progressively-increased fuel efficiency and reduction of greenhouse gases, goals that beyond this timeline will prove challenging for the internal combustion engine and traditional fuels to meet. Automakers recognize these challenges and are not waiting for the day when we exhaust the efficiency of gasoline vehicles. We are committed to developing an array of advanced vehicle technologies that our customers want and love to drive, and Honda believes that FCEVs are well-positioned to meet and even exceed consumer expectations.

FCEVs have many of the characteristics that appeal to customers who are accustomed to the convenience and utility of gasoline-powered vehicles. The technology is scalable, meaning a fuel cell stack can be used to power a small car, a minivan, or a bus. The driving range is comparable to that of gasoline-powered vehicles, enabling longer trips in a single stretch. Finally, when it is time to refuel, it only takes 3-5 minutes to refill the hydrogen tank in a FCEV. With an adequate refueling infrastructure, the "range anxiety" that accompanies some of the other advanced technology vehicles will be non-existent with FCEVs.

State policies are playing a significant role as well. California's Zero Emission Vehicle (ZEV) program, which has been adopted by nine other states, is pushing automakers to produce and sell ZEVs in ever-increasing volumes. These states are poised to require at least 3.3 million ZEVs – plug-in hybrid electric vehicles, battery electric vehicles, and FCEVs – collectively on their roads by 2025.⁶

⁶ Multi-State ZEV Action Plan, <http://governor.maryland.gov/documents/MultiStateZEVActionPlan.pdf>

Taken together, these programs are driving revolutionary change in personal mobility. But they are destined to fail unless customers are willing to buy the vehicles. Automakers bear the responsibility to design, produce and market cars that meet the demands of discriminating consumers. Significant progress is being made toward achieving that goal. But unless the infrastructure to refuel these advanced technology vehicles is readily available, we will be unable to sell them in the volumes necessary to prompt migration to these more efficient, clean, and sustainable transportation technologies. The burden of defining a strategy to build this new infrastructure lies foremost with the federal government, and the QER is the document in which that direction needs to be outlined.

Currently, hydrogen is being used not only in the nascent fuel cell industry, but also by refineries to produce motor fuels. An infrastructure to move and store hydrogen from its sources of production to the point of retail must be conceived and built for the U.S. to meet its future energy needs and compete in the hydrogen sector already being pursued in Asia and Europe.

Honda understands that the second QER report will include an assessment of the state of advanced technology vehicles and infrastructure. While FCEVs should play a prominent role in that discussion, the infrastructure needs for production, distribution, and storage of hydrogen are substantial. The first QER report, which will focus specifically on electricity and transportation infrastructure needs, should address how hydrogen can enable the federal government and the nation to meet its energy and climate goals.

Thank you for your ongoing work to set our nation on a prosperous, sustainable energy course for the future.