

March 24, 2008

Ms. Mary Nichols, Chair and Board Members
Mr. James Goldstene, Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95814

**RE: Zero Emission Vehicle Technological Progress and Automaker
Accountability**

Dear Ms. Nichols, Mr. Goldstene and Board Members:

We would agree with the Expert Review Panel's assessment that there is significant commitment on the part of the auto manufacturers in terms of investment of financial and intellectual resources in the development of fuel cell vehicles (FCVs) and that the technology, along with advanced battery technology, has been making regular and significant advances. We assert that in light of this investment and progress, and even progress since the Expert Panel Report was initiated almost two years ago, that the proposed 2,500 "Gold" pure ZEVs proposed in the ISOR is not defensible and in fact undermines recent progress.

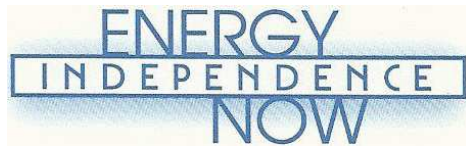
In addition, it is critical that in considering changes to the ZEV regulation, the Air Board and the public hold automakers accountable to the statements they make to the public and the press about the status and plans for their zero emissions vehicles. Too often automakers make one statement to the public and another to regulators. This inconsistency is counterproductive to the goal of advancing ZEV technologies, and undermines the likelihood of success.

Below are examples of recent statements made by automakers to the press that must be factored into any decision to reduce the number of Gold vehicles under the program. The first section includes statements regarding recent advances and progress as presented by automakers and technology companies. The second section includes automaker statements regarding when they expect to commercialize these zero emissions vehicles.

Statements regarding technical progress and capability:

Ballard/Automotive Fuel Cell Corporation:

"Development has progressed at a pace such that these results are already substantively better than the results the Technology Panel included in their process. We firmly believe that with continued investment in technology development we will



maintain this successful development trajectory path that concludes with commercially viable technology being demonstrated by 2010.

<i>Technical Metrics</i>	<i>2007 Goal Target Range</i>	<i>2007 Achievement</i>
<i>High Volume Cost</i>	<i>\$37 - \$57/kW net</i>	<i>\$52.30/kW net</i>
<i>Durability</i>	<i>2800 - 3600 hours</i>	<i>3670+ hours</i>
<i>Freeze Start -20°</i>	<i>20 - 40 seconds</i>	<i>21 seconds</i>
<i>-30°</i>	<i>130 - 160 seconds</i>	<i>129 seconds</i>
<i>Power Density</i>	<i>1700 - 1900 Wnet/Liter</i>	<i>1967 Wnet/Liter</i>

Plug-in hybrid architecture offers additional benefit in that "from a cost perspective, our analyses concludes that in 2012, if volumes rise to above 10,000 automotive fuel cell stacks over a 2 year period, there would be an approximate 90% cost reduction over current fuel cell costs. More specifically, at volumes as low as 10,000 vehicles we could produce and deliver a fuel cell stack (that would meet durability requirements in such a hybrid architecture and would produce 35 kW net power) to our OEM customers for approximately US\$5000."

From Ballard letter to CARB Chair Mary Nichols, August 22, 2007

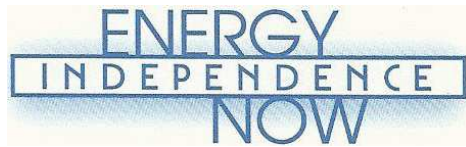
"Dr. Thomas Weber, member of the Board of Management of Daimler AG responsible for Group Research & Mercedes-Benz Cars Development: "At Daimler, we have identified the future fields of activity and key technologies for zero-emission mobility, and we invest specifically in expanding our competencies in these fields. Our majority stake in Automotive Fuel Cell Cooperation [formerly Ballard] is the next consequent step in this direction."

With numerous patents and 150 highly specialized employees, Automotive Fuel Cell Cooperation is the technology leader in automotive fuel cell stacks. The new company is to be a guarantor for the successful further development of automotive fuel cell technology and will closely cooperate with the research and development departments of the automakers involved."

"Prof. Herbert Kohler: "Investment in the fuel cell is investment in our future. In the coming years, we will work intensively on making this technology even more reliable and on cutting costs. For all the companies involved, the foundation of "Automotive Fuel Cell Cooperation" [formerly Ballard] is an important step into the future because in the long term, the fuel cell is the most viable proposition for sustainable and zero-emission mobility combined with a sparing use of resources."

From "Daimler AG to Become Majority Stakeholder in New "Automotive Fuel Cell Cooperation", (Daimler Press Release) Vancouver, Canada, November 08, 2007
<http://www.daimler.com/dccom/0-5-7153-1-987920-1-0-0-0-0-8-7145-0-0-0-0-0-1.html>

Honda:



Honda's latest generation technology in the FCX Clarity "features an advanced Honda V-Flow fuel cell stack that is 30% lighter, 20% smaller, offers 100kw output, and a power/density improvement of 50%. Driving range has been increased 30% from 210 to 270 miles, using 5,000 psi gaseous hydrogen. With sub-freezing startup temperatures as low as -22F, it a practical vehicle for a wide range of real-world applications."

From California Fuel Cell Partnership website

<i>Technical Metrics</i>	<i>1999</i>	<i>2003</i>	<i>2006</i>
<i>Power</i>	60 kW	86 kW	100 kW
<i>Size</i>	134 liters	66 liters	52 liters
<i>Weight</i>	202 kg	96 kg	67 kg

From Honda website and Honda's technology display at the LA Autoshow

"Honda says the [FCX Clarity] performance is on a par with a similar-size car powered by a 2.4-liter engine, and it should know, as the 2008 Accord LX has just such an engine. The comparison is apt. The FCX motor produces 134 horsepower and 189 pound-feet of torque; the Accord's in-line four makes 177 horsepower and 161 pound-feet. The Clarity weighs nearly 3,600 pounds, and while that is 400 pounds lighter than its predecessor, the Accord is some 300 pounds lighter yet. The wheelbases of the Clarity and Accord are identical at 110.2 inches."

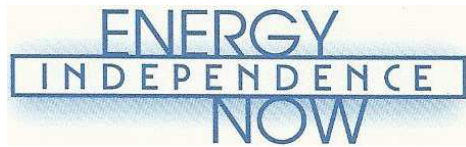
From The New York Times, "Honda's fuel-cell FCX Clarity ready to roll" by Norman Meyersohn, December 15, 2007
<http://www.azstarnet.com/business/216289>

General Motors:

"GM's fifth-generation fuel cell system [in the E-Flex Volt] is half the size of its predecessor, yet it provides the same power and performance. The fourth generation currently powers the Chevrolet Sequel concept vehicle. The Sequel stores 8 kg of hydrogen and delivers a range of 300 miles (483 km). The fuel cell Volt will also deliver 300 miles of range, but with only 4.0 kg of hydrogen (75 miles / kg).

"GM's advancements are a strong indication that our fuel cell technology has the potential to be a competitive alternative to the internal combustion engine - in size, performance, durability and cost.

"Our progress has made us increasingly confident that our fuel cell propulsion system will be automotive-competitive," said Burns. "But before this technology can be made widely available, governments, energy suppliers and infrastructure



companies around the world need to collaborate with GM and the auto industry to develop a market for fuel cell vehicles and hydrogen fuel."

"A variety of technological advancements and lightweight materials contribute to the efficiency of the Volt. With an estimated curb weight of 3,500 pounds (1,588 kg), it weighs 30 percent less than the Sequel. The fuel cell propulsion system is packaged entirely under the hood and is equivalent in size to a four-cylinder engine with automatic transmission.

"The E-Flex fuel cell variant also showcases GM's third-generation wheel hub motors, packaged inside the rear wheel to add considerable torque for all-wheel electric drive capability. The new coreless motor technology reduces mass and produces more power compared to the first generation shown in 2003.

From "GM Unveils Second Propulsion System for Chevrolet Volt: E-Flex hydrogen fuel cell continues move toward electric drive," GM Press Release, April 19, 2007
http://www.gm.com/explore/technology/news/2007/fuel_cells/volt_042007.jsp

Hyundai:

Dr. Hyun-Soon Lee, Hyundai's President of Research and Development said, "The i-Blue is Hyundai's first-ever model designed from the ground up to incorporate fuel cell technology, marking a tremendous leap forward for our R&D program. Our engineering team has successfully designed a more compact fuel cell vehicle, while still realizing the safety, comfort, convenience and driving range of a traditional internal combustion engine vehicle."

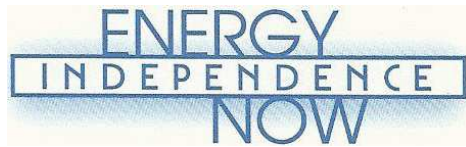
From "Hyundai Introduces i-Blue Fuel Cell Concept at Chicago Auto Show; New, Purpose-Built Fuel Cell Architecture," Green Car Congress, 6 February 2008

Volkswagen:

"Volkswagen claims it has made major progress in the development of the high temperature fuel cell, presenting at the recent Los Angeles Motor Show the Space Up! Blue concept vehicle with a range of more than 350 kilometres on a single energy charge. The car maker said "the world's first high temperature fuel cell" is made up of an array of twelve lithium-ion batteries that represent "a turning point in research on fuel cell for mass production."

From "VW claims major progress on fuel cell technology", The Earth Times,
Author:DPA, December 5, 2007
<http://www.earthtimes.org/articles/show/153333.html>

Chrysler:



"The Chrysler ecoVoyager Concept celebrates the romance of automobile travel embodied in a four-door, four-passenger distinctively American design. Designed for customers seeking elegance, simplicity and serenity, the elegant one-box design takes advantage of space normally occupied by a conventional powertrain setup. The Chrysler ecoVoyager features an advanced lithium-ion battery pack, along with a small, advanced hydrogen fuel cell that serves as a range extender. The result is a vehicle with a total range of more than 300 miles that emits no emissions from the tailpipe except water vapor."

From Chrysler Press Release, Nov 27, 2007, Auburn Hills, Mich.
http://www.chrysler.com/en/experience/news/articles/?guid=2007_11_30_ecovoyager_concept

Current range capabilities of OEM fuel cell vehicles

<i>Automaker</i>	<i>Current Generation</i>	<i>Technology</i>
<i>Honda</i>	270 miles	350 Bar
<i>GM</i>	300 miles	700 Bar
<i>Toyota</i>	350 miles	700 Bar
<i>Hyundai</i>	370 miles	700 Bar
<i>Ford (HyEdge)</i>	225 miles	

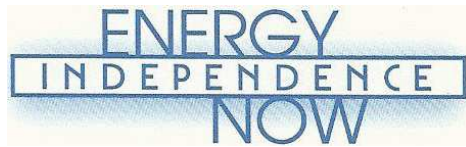
Statements regarding commercialization:

"General Motors aims to be the first automaker to produce 1 million fuel cell-powered vehicles a year, an executive said on Wednesday, as the world's auto industry leaders race to develop "green" vehicles for the mass market."

"Larry Burns, GM's vice president of research and development, said in May that the company aimed to have fuel cell-powered vehicles, which run on hydrogen and emit only water vapor, in showrooms around 2011 or 2012, and to ramp up production to about a million vehicles a year worldwide after 2012."

From "GM Goal: 1 Million Hydrogen Cars,"Automotive News (Reuters), November 14, 2007

"GM said that it will distribute 100 fuel cell Chevy Equinox over the next year...before it ramps up its efforts to put hydrogen-powered vehicles in showrooms by 2011 - 2012."



"Honda will lease FCX Clarity to a limited number of Southern California customers by summer 2008, making it the first automaker to offer a fuel cell car to the general public."

From "Toyota Bides Time With Fuel Cells; GM Scores Green Honors," Wall Street Journal, 11/15/07

"General Motors (GM) says it hopes to begin pumping hundreds of hydrogen fuel-cell vehicles a year into ordinary buyers' hands through GM dealerships beginning in 2011."

"GM is working as hard and fast as we can for competitive reasons," says Larry Burns, GM vice president in charge of research and development, "I'm paranoid enough to conclude [rivals] are running on the same timeline we are."

From "GM Pushes the Pedal on Hydrogen Fuel Cell Power," USA Today, James R. Healy, 11/6/07

"GM's engineers say that the fuel cells have gotten smaller, more efficient, and less costly in recent years. So the question a lot of people have right now is, "When will I be able to buy one?"

"It's the largest market test of its kind, and from our drivers using these vehicles, we're going to get back information so that we can make these cars you see on the road in a few years," said GM spokeswoman Diedra Wiley."

From ABC7 Eyewitness News, Reporter: Dave Kunz (Automotive specialist at Eyewitness News), Wednesday, February 13, 2008
http://abclocal.go.com/kabc/story?section=news/car_tips&id=5956215

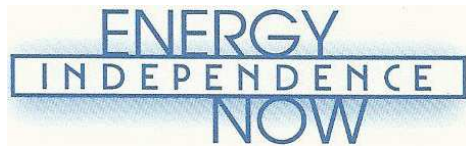
"CEO Takeo Fukui said in Japan late last month that Honda will put up to 100 of its 2008 FCX regular-production fuel cell sedans into U.S. customers hands next year."

"Hyundai has promised to mass-produce fuel cell vehicles as soon as 2012, no later than 2015."

"GM 2011 production date could be delayed if hydrogen infrastructure isn't deployed."

From "Fuel Cell Hurdle: Only the Price Tag," New York Times, 11/4/07

Honda President Takeo Fukui said Honda will be able to mass produce fuel cell vehicles for the general market by 2018. (Interview with Kyodo News).



From Green Car Congress, 12/29/06

"Herbert Kohler, Daimler's Chief Environmental Officer and V.P. of Advanced Vehicle and Powertrain Engineering said Automotive Fuel Cell Corp [formerly Ballard] will go full steam ahead in our preparations for the series production of fuel cell cars."

"Ford's Gerhard Schmidt said fuel cells are one of the most viable solutions to developing a sustainable, zero-emissions vehicle."

From "Daimler and Ford Like Fuel Cells So Much, They Bought the Company,"
Edmunds Inside Line, 11/08/07

"Daimler fuel cell system development director Christian Mohrdieck told a conference in Stuttgart recently that by the 2012-2015 time frame they will be able mass-produce fuel cell cars on a cost competitive basis with other technologies."

From "Daimler Wants to Mass Produce Fuel Cell Vehicles by 2012-2015,"
Autobloggreen.com by Sam Abuelsamid, October 24, 2007

"Daimler expects fuel cell vehicles to reach maturity for large-scale production between 2012 and 2015 and will start producing a small series of B-Class F-Cell cars as early as 2010."

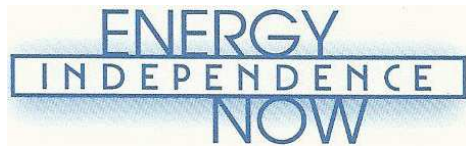
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"Ford Motor Company announced its blueprint for sustainability and highlighted two key technologies, one on the road today, the other for future transportation. Ford is showcasing the Ford Edge HySeries, a fuel cell hybrid concept vehicle with plug-in capability, and the Ford Escape Hybrid, a gasoline-electric engine hybrid production vehicle at Challenge Bibendum 2007, a global gathering focused on cutting-edge sustainable auto technology."

From "Ford Motors Aims Fuel Cell Technology At Chinese Market", Carbon Free,
November 22, 2007, <http://www.carbonfree.co.uk/cf/news/wk47-07-0006.htm>

"GM announced that it moved 500+ fuel cell experts from advanced vehicle development labs to core engineering functions. 400 fuel cell engineers will report



to GM Powertrain Group to begin production engineering of fuel cell systems. 100 will transfer to Global Product Development to start integrating fuel cells in future vehicles."

From "GM Forms New Group to Develop Electric and Hybrids Faster," Detroit News,
1/25/08

Recent Inconsistency and Misleading Statements

Of particular concern are recent statements reported in the press with regard to the viability of fuel cells and their commercialization given the upcoming CARB hearing on proposed changes to the ZEV regulation on the one hand, and the National Hydrogen Association annual conference on the other. Below are two very recent quotes from statements made by executives of the same major manufacturer.

"If we get lithium-ion to 300 miles, then you need to ask yourself, Why do you need fuel cells?" Mr. Lutz told reporters. He added that fuel-cell vehicles are still far too expensive to be considered for the mass market. "We are nowhere [near] where we need to be on the costs curve," he said.

- From "GM, Toyota Doubtful on Fuel Cells' Mass Use," The Wall Street Journal, By EDWARD TAYLOR and MIKE SPECTOR, March 5, 2008; Page B2

"Larry Burns, Vice President of Research and Development for General Motors, makes a Keynote presentation of GM's newly released White Paper, "Hydrogen Fueling Infrastructure Assessment." ...Burns, who will present the findings of the paper and update his audience on continuing efforts to speed the evolution of a hydrogen infrastructure."

"Of note is the position taken in the Paper, which after exhaustive research and analysis, shows a continued strong commitment to hydrogen and fuel cells while GM also pursues other alternative technologies. The paper compares hydrogen's retail cost with gasoline, and confirms the feasibility of pollution-free hydrogen production from a variety of renewable energy sources. One of the paper's main conclusions recognizes that "the hydrogen infrastructure for automobiles is economically viable and doable."

- From "GM Vice President discusses viability of affordable hydrogen infrastructure at NHA's Annual Hydrogen Conference," NHA Press Release, March 6, 2008