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# Revisions and Additions to Motor Vehicle Fuel Economy Label

## Response to Comments



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## Response to Comments

Assessment and Standards Division  
and  
Compliance and Innovative Strategies Division  
and  
Transportation and Climate Division  
and  
Transportation and Regional Programs Division

Office of Transportation and Air Quality  
U.S. Environmental Protection Agency

Docket ID No. EPA-HQ-OAR-2009-0865 and  
NHTSA-2010-0087

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## **Introduction**

The Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) are issuing a joint final rule establishing new requirements for the fuel economy and environment label that will be required to be posted on the window sticker of all new automobiles sold in the U.S. beginning with model year 2013. This rulemaking is in response to (1) provisions in the Energy Independence and Security Act of 2007 that imposed several new labeling requirements and (2) new advanced-technology vehicles entering the market.

The label provides clearer and expanded information to American consumers about projected fuel costs and savings, new vehicle fuel economy and fuel consumption, and greenhouse gas and smog-forming emissions. NHTSA and EPA believe that these changes will help consumers to make more informed vehicle purchase decisions particularly as the future automotive marketplace provides more diverse vehicle technologies from which consumers may choose.

The proposed rule was published on September 23, 2010 (see 75 FR 58078). More than 50 organizations, including auto manufacturers and dealers, state and local governments, environmental groups, consumer organizations, other non-governmental organizations, provided detailed comments. Over 6,000 private citizens also submitted comments.

Most of the 6,000+ comments received from citizens fell into several categories that we were able to quickly analyze and consider; for example, a preference for Label 1 or Label 2. The citizen comments included in Index of Proposal Commenters that follows are those that are more detailed. These citizen comments are similar in complexity to comments from other entities, which are also included in the Index.

### Index of Proposal Commenters

<b>Organization</b>	<b>Abbreviation</b>	<b>Comment Document ID Number</b>
American Automobile Association	AAA	EPA-HQ-OAR-2009-0865-6914.1.pdf EPA-HQ-OAR-2009-0865-6914.html
Abbat, Pierre		EPA-HQ-OAR-2009-0865-7588.pdf
Abengoa Bioenergy		EPA-HQ-OAR-2009-0865-7140.1.pdf EPA-HQ-OAR-2009-0865-7140.html
Alliance of Automobile Manufactures	Alliance	EPA-HQ-OAR-2009-0865-6850.1.pdf EPA-HQ-OAR-2009-0865-6850.2.pdf EPA-HQ-OAR-2009-0865-6850.html
American Council for an Energy-Efficient Economy	ACEEE	EPA-HQ-OAR-2009-0865-7135.1.pdf EPA-HQ-OAR-2009-0865-7135.html
American Petroleum Institute	API	EPA-HQ-OAR-2009-0865-7250.1.pdf EPA-HQ-OAR-2009-0865-7250.pdf
American Public Gas Association	APGA	EPA-HQ-OAR-2009-0865-6794.1.pdf EPA-HQ-OAR-2009-0865-6794.pdf
Argonne National Laboratory		EPA-HQ-OAR-2009-0865-7172.1.pdf EPA-HQ-OAR-2009-0865-7172.pdf EPA-HQ-OAR-2009-0865-7572.1.pdf EPA-HQ-OAR-2009-0865-7572.html
Association of International Automobile Manufacturers	AIAM	EPA-HQ-OAR-2009-0865-7134.1.pdf EPA-HQ-OAR-2009-0865-7134.html
Auerbach, Jan (Lane)		EPA-HQ-OAR-2009-0865-4916.pdf
Automotive Global Accounts		EPA-HQ-OAR-2009-0865-6285.pdf
BMW	BMW Group	EPA-HQ-OAR-2009-0865-7142.1.pdf EPA-HQ-OAR-2009-0865-7142.html
BorgWarner		EPA-HQ-OAR-2009-0865-7531.pdf
Bullis, Kevin		EPA-HQ-OAR-2009-0865-3415.pdf
California Air Resources Board	CARB	EPA-HQ-OAR-2009-0865-7527.1.pdf EPA-HQ-OAR-2009-0865-7527.pdf
California Cars Initiative		EPA-HQ-OAR-2009-0865-4695.pdf
California Fuel Cell Partnership		EPA-HQ-OAR-2009-0865-6852.1.pdf EPA-HQ-OAR-2009-0865-6852.pdf
California New Car Dealers Association		no files for docket
Catania, Andrew		EPA-HQ-OAR-2009-0865-7425.pdf
Center for Biological Diversity	Center	EPA-HQ-OAR-2009-0865-7122.1.pdf EPA-HQ-OAR-2009-0865-7122.2.pdf EPA-HQ-OAR-2009-0865-7122.html
Center for Neighborhood Technology		no files for docket
Cleeves, Monty		EPA-HQ-OAR-2009-0865-1387.pdf
Community Environmental Council		EPA-HQ-OAR-2009-0865-4668.pdf

<b>Organization</b>	<b>Abbreviation</b>	<b>Comment Document ID Number</b>
Congress of the United States, U.S. House of Representatives		EPA-HQ-OAR-2009-0865-7581.1.pdf EPA-HQ-OAR-2009-0865-7581.html
Consumer Federation of America	CFA	EPA-HQ-OAR-2009-0865-7173.1.pdf EPA-HQ-OAR-2009-0865-7173.pdf
Consumers Union		EPA-HQ-OAR-2009-0865-7251.1.pdf EPA-HQ-OAR-2009-0865-7251.pdf
Diesel Technology Forum		EPA-HQ-OAR-2009-0865-6247.1.pdf EPA-HQ-OAR-2009-0865-6247.pdf EPA-HQ-OAR-2009-0865-6365.1.pdf EPA-HQ-OAR-2009-0865-6365.html
DieselGreen Fuels		EPA-HQ-OAR-2009-0865-1376.pdf
Duoba, Mike		no files for docket
Ecolane Transport Consultancy and WhatGreenCar.com		EPA-HQ-OAR-2009-0865-0094.1.pdf EPA-HQ-OAR-2009-0865-0094.pdf
EcoMotors International, Inc.		EPA-HQ-OAR-2009-0865-6851.1.pdf EPA-HQ-OAR-2009-0865-6851.pdf
Edison Electric Institute	EEI	EPA-HQ-OAR-2009-0865-7117.1.pdf EPA-HQ-OAR-2009-0865-7117.pdf
Electric Drive Transportation Association	EDTA	EPA-HQ-OAR-2009-0865-7137.1.pdf EPA-HQ-OAR-2009-0865-7137.pdf
Encana Natural Gas Inc.		EPA-HQ-OAR-2009-0865-7170.1.pdf EPA-HQ-OAR-2009-0865-7170.pdf
Energy Independence Now	EIN	no files for docket
Environmental Defense Fund	EDF	EPA-HQ-OAR-2009-0865-6927.1.pdf EPA-HQ-OAR-2009-0865-6927.html
F., Nick		EPA-HQ-OAR-2009-0865-1323.pdf
Ford Motor Company	Ford	EPA-HQ-OAR-2009-0865-7141.1.pdf EPA-HQ-OAR-2009-0865-7141.html
Foster, Marcus		EPA-HQ-OAR-2009-0865-4833.pdf
Gas Technology Institute	GTI	EPA-HQ-OAR-2009-0865-6858.1.pdf EPA-HQ-OAR-2009-0865-6858.pdf
Gates, Matthew		EPA-HQ-OAR-2009-0865-1179.pdf
General Motors	GM	EPA-HQ-OAR-2009-0865-6924.1.docx EPA-HQ-OAR-2009-0865-6924.html EPA-HQ-OAR-2009-0865-7549.1.pdf EPA-HQ-OAR-2009-0865-7549.pdf
Haller, Bill		no files for docket
Heinzmann, John David		EPA-HQ-OAR-2009-0865-4706.pdf
Highland Laboratories, Inc		EPA-HQ-OAR-2009-0865-4983.pdf



<b>Organization</b>	<b>Abbreviation</b>	<b>Comment Document ID Number</b>
Hill, Joel		EPA-HQ-OAR-2009-0865-4862.pdf
Honda Motor Company		EPA-HQ-OAR-2009-0865-6774.1.pdf EPA-HQ-OAR-2009-0865-6774.html
Honeywell		EPA-HQ-OAR-2009-0865-7095.1.pdf EPA-HQ-OAR-2009-0865-7095.pdf
Hunter, Robert S.		EPA-HQ-OAR-2009-0865-4232.pdf
Hyundai Motor Company		EPA-HQ-OAR-2009-0865-7139.1.pdf EPA-HQ-OAR-2009-0865-7139.html
Illinois Student Environmental Coalition		no files for docket
IMPCO Technologies		no files for docket
Institute for Policy Integrity - New York University School of Law		EPA-HQ-OAR-2009-0865-7136.1.pdf EPA-HQ-OAR-2009-0865-7136.html
International Council on Clean Transportation	ICCT	EPA-HQ-OAR-2009-0865-7118.1.pdf EPA-HQ-OAR-2009-0865-7118.html
JAGTAG, Inc		EPA-HQ-OAR-2009-0865-6568.1.pdf EPA-HQ-OAR-2009-0865-6568.html
Jobe, Jonathan		EPA-HQ-OAR-2009-0865-4633.pdf
Johnson, Evan W.		EPA-HQ-OAR-2009-0865-7252.1.pdf EPA-HQ-OAR-2009-0865-7252.pdf
Johnson, Ken		EPA-HQ-OAR-2009-0865-3507.pdf
Kelly, David		EPA-HQ-OAR-2009-0865-3351.pdf
Kustin, Camille		no files for docket
Laclede Gas Company		EPA-HQ-OAR-2009-0865-7138.1.pdf EPA-HQ-OAR-2009-0865-7138.pdf
Linsky, Robert		EPA-HQ-OAR-2009-0865-3382.pdf
Liscia, Laurent		EPA-HQ-OAR-2009-0865-4225.pdf
Lorenzo, Jose		EPA-HQ-OAR-2009-0865-7600.pdf EPA-HQ-OAR-2009-0865-7604.pdf
Massachusetts Institute of Technology		EPA-HQ-OAR-2009-0865-5849.1.pdf EPA-HQ-OAR-2009-0865-5849.html
Mauldin, Ronald		EPA-HQ-OAR-2009-0865-5795.pdf
Merritt, Kevin		EPA-HQ-OAR-2009-0865-3705.pdf EPA-HQ-OAR-2009-0865-4723.pdf EPA-HQ-OAR-2009-0865-3549.pdf
Metropolitan Washington Air Quality Committee	MWAQC	EPA-HQ-OAR-2009-0865-5848.1.pdf EPA-HQ-OAR-2009-0865-5848.html
Mitsubishi		EPA-HQ-OAR-2009-0865-6934.1.pdf EPA-HQ-OAR-2009-0865-6934.html
Mopsik, Frederick I.		EPA-HQ-OAR-2009-0865-3349.pdf

<b>Organization</b>	<b>Abbreviation</b>	<b>Comment Document ID Number</b>
Naghdi, Kamran Michael		EPA-HQ-OAR-2009-0865-3497.pdf
National Association of Minority Auto Dealers	NAMAD	no files for docket
National Automobile Dealers Association	NADA	EPA-HQ-OAR-2009-0865-6940.1.pdf EPA-HQ-OAR-2009-0865-6940.html
National Petrochemical and Refiners Association	NPRA	EPA-HQ-OAR-2009-0865-6773.1.pdf EPA-HQ-OAR-2009-0865-6773.html
National Propane Gas Association	NPGA	EPA-HQ-OAR-2009-0865-7096.1.pdf EPA-HQ-OAR-2009-0865-7096.pdf
National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems	CTTS	EPA-HQ-OAR-2009-0865-7222.1.pdf EPA-HQ-OAR-2009-0865-7222.pdf
National Wildlife Federation	NWF	EPA-HQ-OAR-2009-0865-7528.1.pdf EPA-HQ-OAR-2009-0865-7528.pdf
Natural Gas Vehicles for America	NGVAmerica	EPA-HQ-OAR-2009-0865-6921.1.pdf EPA-HQ-OAR-2009-0865-6921.pdf
Natural Resources Defense Council	NRDC	EPA-HQ-OAR-2009-0865-6925.1.pdf EPA-HQ-OAR-2009-0865-6925.html
Neighbour, Rob		EPA-HQ-OAR-2009-0865-0807.pdf
Nelson, Dennis R.		no files for docket
Nelson, Steve		EPA-HQ-OAR-2009-0865-4069.pdf
Nissan		EPA-HQ-OAR-2009-0865-6922.1.pdf EPA-HQ-OAR-2009-0865-6922.html
Occidental College		no files for docket
Operation Free		no files for docket
Pershey, Nick		EPA-HQ-OAR-2009-0865-3412.pdf
Priddy, RL		EPA-HQ-OAR-2009-0865-3278.pdf
Public Hearing Transcript, Chicago		EPA-HQ-OAR-2009-0865-7548.pdf
Public Hearing Transcript, Los Angeles		EPA-HQ-OAR-2009-0865-7551.pdf
Raab, Michael		EPA-HQ-OAR-2009-0865-3279.pdf
Ree, Andree		EPA-HQ-OAR-2009-0865-3469.pdf
Reger-Nash, Bill		EPA-HQ-OAR-2009-0865-7036.pdf
Renewable Fuels Association		EPA-HQ-OAR-2009-0865-6926.1.pdf EPA-HQ-OAR-2009-0865-6926.html
Richter Creative		EPA-HQ-OAR-2009-0865-1364.pdf EPA-HQ-OAR-2009-0865-2847.pdf
Santos, Alejandra		no files for docket
SapientNitro		EPA-HQ-OAR-2009-0865-1407.pdf EPA-HQ-OAR-2009-0865-2846.pdf

<b>Organization</b>	<b>Abbreviation</b>	<b>Comment Document ID Number</b>
Scarborough, Christina		no files for docket
Scheve, Elliot		EPA-HQ-OAR-2009-0865-2580.pdf
Schrader, Andy		no files for docket
Securing America's Future Energy	SAFE	EPA-HQ-OAR-2009-0865-7522.1.pdf EPA-HQ-OAR-2009-0865-7522.pdf
Siegel+Gale		EPA-HQ-OAR-2009-0865-0824.1.pdf EPA-HQ-OAR-2009-0865-0824.html
Sierra Club		EPA-HQ-OAR-2009-0865-7221.1.pdf EPA-HQ-OAR-2009-0865-7221.2.pdf EPA-HQ-OAR-2009-0865-7221.pdf EPA-HQ-OAR-2009-0865-7223.1.pdf EPA-HQ-OAR-2009-0865-7223.pdf
Simon, Chris		EPA-HQ-OAR-2009-0865-3359.pdf
Smith, Houston		EPA-HQ-OAR-2009-0865-0477.pdf
Steele, John M.		EPA-HQ-OAR-2009-0865-3276.pdf
Suzuki Motor Corporation		EPA-HQ-OAR-2009-0865-6900.1.pdf EPA-HQ-OAR-2009-0865-6900.html
Tesla Motors		EPA-HQ-OAR-2009-0865-6933.1.pdf EPA-HQ-OAR-2009-0865-6933.html
Thain, Bruce		EPA-HQ-OAR-2009-0865-3296.pdf
Thomas, Sandy		EPA-HQ-OAR-2009-0865-0093.1.pdf EPA-HQ-OAR-2009-0865-0093.pdf
Toyota		EPA-HQ-OAR-2009-0865-6901.1.pdf EPA-HQ-OAR-2009-0865-6901.html
U.S. Coalition for Advanced Diesel Cars		EPA-HQ-OAR-2009-0865-7130.1.pdf EPA-HQ-OAR-2009-0865-7130.html
Union of Concerned Scientists		EPA-HQ-OAR-2009-0865-7132.1.pdf EPA-HQ-OAR-2009-0865-7132.html
United Transportation Advisors		EPA-HQ-OAR-2009-0865-0183.html EPA-HQ-OAR-2009-0865-4722.pdf
University of Pennsylvania Law School, Environmental Law Project		EPA-HQ-OAR-2009-0865-7171.1.pdf EPA-HQ-OAR-2009-0865-7171.2.pdf EPA-HQ-OAR-2009-0865-7171.pdf
Volvo		EPA-HQ-OAR-2009-0865-7123.1.pdf EPA-HQ-OAR-2009-0865-7123.2.pdf EPA-HQ-OAR-2009-0865-7123.html
Wasserman, Seth		EPA-HQ-OAR-2009-0865-4564.pdf
Wong, Jeffrey		EPA-HQ-OAR-2009-0865-4847.pdf
Woon, Michael		EPA-HQ-OAR-2009-0865-3163.pdf
Yarrow, Jon		EPA-HQ-OAR-2009-0865-4246.pdf

## 1. Support

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Environmental Defense Fund (EDF)  
Ford Motor Company (Ford)  
Natural Resources Defense Council (NRDC)  
Hyundai Motor Company  
Massachusetts Institute of Technology  
Toyota  
Union of Concerned Scientists  
Electric Drive Transportation Association (EDTA)  
Consumer Federation of America (CFA)  
Edison Electric Institute (EEI)  
National Automobile Dealers Association (NADA)  
California Air Resources Board (CARB)  
Sierra Club  
Tesla Motors  
Securing America's Future Energy (SAFE)  
American Council for an Energy-Efficient Economy (ACEEE)  
Institute for Policy Integrity - New York University School of Law  
Volvo  
Suzuki Motor Corporation  
Nissan  
BorgWarner  
Abengoa Bioenergy  
Argonne National Laboratory  
Center for Biological Diversity (Center)  
U.S. Coalition for Advanced Diesel Cars  
Metropolitan Washington Air Quality Committee (MWAQC)  
National Wildlife Federation (NWF)  
AAA  
Renewable Fuels Association  
National Propane Gas Association (NPGA)  
BMW  
Thomas, Sandy  
American Petroleum Institute (API)  
Priddy, RL  
Encana Natural Gas Inc.  
California Cars Initiative  
Mauldin, Ronald  
Catania, Andrew  
Honeywell  
Laclede Gas Company  
IMPCO Technologies

Haller, Bill  
Operation Free  
Center for Neighborhood Technology  
Illinois Student Environmental Coalition  
DieselGreen Fuels  
Community Environmental Council

**Comment:**

The agencies received overwhelming support for revising the labels to respond to statutory requirements, to provide a broader array of information about the energy, cost, and environmental aspects of vehicle choices, and to accommodate advanced technology vehicles as they enter the marketplace. Of the over 6000 comments received from private citizens, over 80% were supportive of revising the label in general. Those opposed tended to refer to the usefulness of the current label, and did not address the new statutory requirements nor the emergence of new technologies. Of all the comments submitted on behalf of corporations and organizations--including auto manufacturers and dealers, fuel suppliers, environmental and consumer organizations, and academics--none were opposed to revisions, and nearly all explicitly expressed support for updating the label.

**Response:**

The agencies agree that label revisions are needed to accommodate statutory requirements, to provide additional information for the consumer to take into consideration, and to accommodate advanced technology vehicles.

## **2.1. Proposed Label Designs**

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Diesel Technology Forum  
Toyota  
Securing America's Future Energy (SAFE)  
Volvo  
Suzuki Motor Corporation  
Nissan  
Abengoa Bioenergy  
Argonne National Laboratory  
Honda Motor Company  
Renewable Fuels Association  
American Petroleum Institute (API)  
Mitsubishi  
Liscia, Laurent  
Honeywell  
Foster, Marcus  
Siegel+Gale  
California New Car Dealers Association  
Scarborough, Christina  
Congress of the United States, U.S. House of Representatives  
Abbat, Pierre  
Lorenzo, Jose

### **Comment:**

#### **Abbat, Pierre**

I prefer design 2 because the information in largest type is a number, and because it shows how much the fuel costs, rather than how much it saves, which is muddled thinking. [EPA-HQ-OAR-2009-0865-7588, p.1]

#### **Abengoa Bioenergy**

“Label 2” Option Should be Selected

In general, Abengoa Bioenergy supports the adoption of the “Label 2” option proposed by EPA and NHTSA, provided that the label is modified to reflect full “well-to-wheels” lifecycle emissions rather than tailpipe-only emissions. The letter grades proposed by “Label 1” are overly subjective, overly simplified, and may weigh either fuel economy, GHG emissions, or other factors differently than certain consumers. Similarly “Label 3” combines the two metrics and would make it difficult for consumers who value either fuel economy or GHG performance more highly to make an informed choice. We believe that “Label 2” best achieves the goals of full disclosure of objective data in a format that allows consumers to make up their own mind

about the factors that are most important to them in buying a new vehicle. [EPA-HQ-OAR-2009-0865-7140.1, p.3]

### **Alliance of Automobile Manufactures (Alliance)**

A More Traditional Label Such As “Label 2” Will Be More Useful to Consumers. The Alliance supports a more traditional label such as the proposed “Label 2.” 49 U.S.C. Section 32908(b)(1)(A) requires that each label indicate the fuel economy of the automobile; fuel economy is the essential or “core information” that must be communicated. The additional information required by Section 32908(g) must accompany and not overwhelm the fuel economy information. “Label 2” continues the proper emphasis on fuel economy – while enabling consumers to become more familiar with the new greenhouse gas metrics. The responses from the focus groups point toward this as an evolution of the current label design. This would provide the same basic information as “Label 1,” but would use a format consumers are already familiar and comfortable with. It would also provide more visible data on fuel economy, the metric that consumers expect and rely upon, and allow for comparisons within each vehicle class. Some of the major manufacturers have also conducted their own focus groups - the results of which have been shared with EPA – which support the more traditional label. [EPA-HQ-OAR-2009-0965-6850.2, p.1]

A More Traditional Label Such As “Label 2” Will Be More Useful to Consumers. [EPA-HQ-OAR-2009-0965-6850.2, p.3]

The Alliance supports a more traditional label such as the proposed “Label 2.” The responses from the focus groups point toward this evolution of the current label design. This would provide the same basic information as “Label 1,” but use a format consumers are already familiar with and understand. It also provides more visible data on fuel economy, a metric that consumers are used to and rely upon, and allows for comparisons within each vehicle class. Some of the major manufacturers have also conducted their own focus groups - the results of which have been shared with EPA – which support the more traditional label. [EPA-HQ-OAR-2009-0965-6850.2, p.3]

Prominence of MPG Values [EPA-HQ-OAR-2009-0865-6850.2, p.11]

As the Agencies note in their first focus group report, the one thing that participants across all groups said that they wanted to see on a full label was the fuel consumption information expressed in terms of MPG. They explained that they were used to the MPG system and that it would take time for them to adopt other metrics, including ‘gallons per 100 miles.’ Further, they added that the city and highway gas mileage estimates were important pieces of information that helped them to compare vehicles based on their driving styles, and was something that needed to be prominent on the label. [EPA-HQ-OAR-2009-0865-6850.2, p.11]

Because MPG values are numbers that customers understand and will continue to look for, they should continue to be prominent on the fuel economy label. [EPA-HQ-OAR-2009-0865-6850.2, p.11]

## **American Petroleum Institute (API)**

Based on the considerations above, 'Label Option 2' stickers, without the letter grades, are strongly recommended. [EPA-HQ-OAR-2009-0865-7250.1, p.6]

Overall, new vehicle labels should present a few simple, accurate and easy to read facts in a way that promotes a practical comparison between the vehicles that a given consumer is considering when shopping for a new vehicle. [EPA-HQ-OAR-2009-0865-7250.1, p.7]

## **Argonne National Laboratory**

The label should present the relevant and independent vehicle performance metrics separately. Slider bars or providing context to other vehicles is a valid approach to helping the consumer understand the values. For all vehicles, the relevant metrics worth highlighting on a label are:

- Petroleum-based fuel consumption per distance
- Greenhouse gas emissions per distance
- Energy cost per distance, or estimated per year etc.
- Criteria emissions rating [EPA-HQ-OAR-2009-0865-7172.1, p.3]

## **California New Car Dealers Association**

Based on our members' feedback concerning their experiences with the Air Resources Board's Environmental Performance labels, we've learned that our members actually generally like having easily understood information concerning a vehicle's environmental performance posted on the vehicle. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 63.]

Label 2, on the other hand, as with a lot of the representatives, and as has been seen with the survey information from Edmunds and others, we believe that to be comprehensive. It contains the information that our members tell us that customers are looking for. We think it's easy to understand. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 70.]

## **Congress of the United States, U.S. House of Representatives**

The Proposed rule presents two primary label options. Label 1 minimizes miles per gallon (mpg), an objective measure of the fuel economy performance of a vehicle, in favor of a prominently displayed subjective 'letter grade'. In contrast, Label 2 focuses on the mpg metric and implements the other information Congress required under EISA. Consumers are very familiar with the mpg metric and rely on it when purchasing a new motor vehicle. [EPA-HQ-OAR-2009-0865-7541.1, p.1]

We hope you will agree that it is essential for consumers to have clear and concise information about the fuel economy performance of their vehicle. However, Label 1 marginalizes the most important piece of information on the fuel economy sticker, namely fuel economy of the



vehicle. Moreover, Label 1 unfairly promotes certain vehicles over others. [EPA-HQ-OAR-2009-0865-7541.1, p.1]

We believe that Label 2 better serves the needs of the consumer by continuing to prominently display the mpg of the vehicle, and is consistent with the statutory intent of EISA. [EPA-HQ-OAR-2009-0865-7541.1, p.1]

### **Diesel Technology Forum**

The announced purpose of this proposal is to ...” increase [the label’s] usefulness to consumers in picking efficient and environmentally friendly vehicles.” Judged by that rationale, we strongly recommend a more traditional label design similar to label #2 which retains the focus on fuel economy values and resembles the existing label. [EPA-HQ-OAR-2009-0865-6247.1, p.2]

### **Foster, Marcus**

Lastly, the choice of Label 1 (with a school-grade and five-year saving based on comparison to an unidentified ‘average’ vehicle) and label 2 (more factual, less comparison). I favour the relative simplicity of Label 2, but taking into account the comments above, it should show: Fuel consumption only in L/100 km, not fuel economy; No ‘MPGe’ for EV’s, just a cost/mile comparison; Use full-fuel-cycle (not tailpipe) emissions. [EPA-HQ-OAR-2009-0865-4833, p. 2]

### **General Motors (GM)**

GM opposes the letter grade and believes Label #2 is more appropriate to communicate and compare the fuel efficiency of vehicles. Label #2 is a more traditional label and will be the most accepted and least disruptive way to communicate fuel economy since it is an evolution of today’s label. [EPA-HQ-OAR-2009-0865-6924.1, p. 2]

### **Honda Motor Company**

Overall Label Designs: The agencies requested comment about the two designs in the NPRM. Honda strongly prefers the existing size and landscape layout for the revised fuel economy label (Figure III-9. Label 2). The vertical design (Figure III-1. Label 1) has several key problems, discussed below. [EPA-HQ-OAR-2009-0865-6774.1, p.1]

As an initial observation, the motor vehicle fuel economy label is an important consumer education tool. To maximize its efficacy, it should be modified as infrequently as possible so that consumers become used to the information and format offered and it should offer meaningful information in the simplest manner possible. Our comments are calculated to meet these objectives. Over the next decade, consumers will encounter new powertrain technologies whose performance is measured in different metrics and using terms and concepts that will be new to many. We urge the agency not to overwhelm consumers and to offer information that is

accurate, intuitive and will have meaning when comparing vehicles. [EPA-HQ-OAR-2009-0865-6774.1, p.1]

## **Honeywell**

Honeywell strongly urges a more traditional label. 'Label Option 2' would provide consumers more reliable and accurate vehicle information, while 'Label Option 1' would favor a particular technology and could reduce consumer interest in other fuel-saving technologies such as turbo downsizing. [EPA-HQ-OAR-2009-0865-7095.1, p.2]

EPA/NHTSA's Proposed Label Option 2 is Favorable, as the Letter Grading System Option Creates Bias Against Certain Advanced Vehicle Technologies, Such as Turbo Downsizing.

Honeywell believes that EPA/NHTSA's proposed label that does not include a letter grade (Label Option 2) is favorable. It satisfies the labeling requirements of the Energy Independence and Security Act by enabling consumers to consider all necessary data to 'compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase' without adding confusion and creating bias toward certain vehicle classes or forcing certain technologies. [EPA-HQ-OAR-2009-0865-7095.1, p.2]

Label Option 2 provides the consumer with a familiar format/layout that presents improved, easy to understand, comprehensive information on the fuel economy, operating cost in terms of fuel consumption, and other environmental impacts of each covered vehicle. Label Option 2 is objective and enables consumers to better compare vehicles within and across class categories on 'greenhouse gases, and other emissions' without creating biases. [EPA-HQ-OAR-2009-0865-7095.1, p.3]

Label Option 2 presents in a balanced way all the distinct environmental data that EISA requires EPA/NHTSA to include on the vehicle label so the consumer can make 'more informed decisions on how a vehicle they buy may impact the environment.' Unlike the letter grade approach, Label Option 2 does not overemphasize a single indicator (i.e., a letter grade), one that may not be easily understood and be based on factors unknown to most consumers. As the agencies recognize, 'consumers do not act on details.' [EPA-HQ-OAR-2009-0865-7095.1, p.3]

Label Option 2 better enables consumers to 'select more energy efficient and environmentally friendly vehicles that meet their needs,' such as those utilizing turbo downsizing technologies, and does not force certain technologies. Label Option 1 places currently available advanced technologies, including turbo downsizing, at a disadvantage. [EPA-HQ-OAR-2009-0865-7095.1, p.3]

Label Option 2 better 'allow[s] for comparison across technologies' and 'make[s] it easy to identify the most fuel efficient vehicles.' Unlike the letter grade approach, Option 2 provides objective data in a familiar format that will enable consumers to get a clear understanding of the fuel economy and environmental performance of a specific vehicle in a class of vehicles that meets their needs. Label Option 1 grades vehicles without regard for class category,

making it difficult for consumers to get a clear understanding of the fuel economy and environmental performance of the class of vehicle that meets their needs. Under the proposed system, larger vehicles, such as SUVs and minivans, potentially are penalized when being compared under the same rating system as small passenger cars. [EPA-HQ-OAR-2009-0865-7095.1, p.3]

As proposed, the large size (over half the label) and prominent position of the letter grade overshadows the utility of all the other valuable information that the agencies include on the label, as required in EISA. These include the more common and widely recognized metrics of city/highway MPG and estimated annual fuel cost. [EPA-HQ-OAR-2009-0865-7095.1, p.4]

### **Liscia, Laurent**

As the Executive Director of a standards organization, I'm sensitive to issues of consumer label standardization: the information should be immediately understandable and easily placed in context. Both proposals are quite attractive. Good job! Proposal 1 focuses on 'the grade' but feels less informative than proposal 2, which could be augmented by a grade if necessary (in the top right corner or possibly in relation with the How this Vehicle Compares diagram). The grade itself is a bit obscure when presented without context. [EPA-HQ-OAR-2009-0865-4225, p. 1]

### **Lorenzo, Jose**

Generally I have a small preference towards label 2 if we ignore the large letter grade section of label 1. [EPA-HQ-OAR-2009-0865-7600, p.1]

### **Mitsubishi**

Maintain the landscape orientation, like Label 2, for new labels and maintain existing fuel economy label size, (AIAM, Alliance) [EPA-HQ-OAR-2009-0865-6934.1, p.1]

### **Nissan**

Nissan supports the use of the Option 2 label design, as opposed to the letter grade design in Option 1, as well as the development of labels specific to vehicle types. [EPA-HQ-OAR-2009-0865-6922.1, p.1]

Nissan endorses Option 2 presented in the proposal. The Option 2 design more clearly presents the information consumers find the most useful – MPG and MPGe – and sets forth the remaining information in an easy to read fashion. [EPA-HQ-OAR-2009-0865-6922.1, p.2]

Nissan's market research also confirms a consumer preference for Option 2, even amongst those consumers most aware of environmental considerations. Nissan conducted an online survey of potential LEAF customers who had expressed interest in receiving information and potentially purchasing a zero emission, full electric vehicle. In total, 1,573 people took the survey. [EPA-HQ-OAR-2009-0865-6922.1, p.2]

The respondents were shown electric vehicle labels based on both options contained in the NPRM. A significant majority – 72% (1129 of this group) preferred the Label Option 2 over Label Option 1. A solid 60% of the respondents expressed a liking for the MPG based label in Option 2 and a similar percentage expressed support for the charge and range, comparison, environmental impact and annual electric cost information on Option 2. A lesser percentage (between 50-55%) reported liking the letter grade and about 90% expressed neutrality about the top label when shown Option 1. (See Attachment A.) The Nissan survey suggests that, when faced with a label that does not provide meaningful comparative information, consumers may simply be neutral towards the data presented and not utilize the information in their purchasing decisions. [EPA-HQ-OAR-2009-0865-6922.1, p.3]

### **Renewable Fuels Association**

EPA and NHTSA should adopt the proposed “Label 2” (“traditional” format), as it best serves the needs of consumers. “Label 2” is more objective and familiar than “Label 1” (“letter grade” format) and less cluttered than “Label 3” (“alternative design” format). [EPA-HQ-OAR-2009-0865-6926.1, p.5]

EPA and NHTSA seek comment on three proposed options for revising the appearance of the fuel economy labels. We believe EPA and NHTSA should adopt “Label 2,” provided that the greenhouse gas “slider bar” is modified to reflect full fuel lifecycle direct GHG emissions, rather than simply tailpipe-only GHG emissions. “Label 2” largely preserves the familiar vehicle fuel economy label format currently in use, prominently features objective data, allows for balanced comparisons across vehicle options, and uses well-understood metrics. [EPA-HQ-OAR-2009-0865-6926.1, p.5]

### **Scarborough, Christina**

In terms of the other one (Ed. Note: Label 2), I really find it a little confusing. There's like a bunch of different boxes and they range, and I just feel like this one is really straightforward. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 155.]

### **Securing America's Future Energy (SAFE)**

Adopting a label based on Label 1 in the NPRM would be a mistake. The approach reflected in that label oversimplifies important information, is inconsistent with recent fuel economy and GHG emissions regulations for light-duty vehicles, and does not present critical information in an easy-to-use format. In sharp contrast to Label 1, Label 2 represents a sound starting point for a label that conveys the critical information that consumers need to know and that policymakers should want consumers to consider when purchasing a new vehicle. [EPA-HQ-OAR-2009-0865-7522.1, p.2]

## **Siegel+Gale**

The EPA redesigned the labels to inform consumers about operating cost and environmental impact and to reflect the increasing availability of alternative fuel vehicles. Siegel+Gale's survey concluded that the horizontal label was viewed as more understandable than the vertical one. In fact, over half (59 percent) of those surveyed said they would not want to purchase a vehicle without it—an indication of support for the horizontal approach over the vertical approach.[EPA-HQ-OAR-2009-0865-0824.1, p.1]

“By giving so much space on the label to the letter grade, other data were presented with little or no context and crammed into the lower third of the label, causing confusion,” says Alan Siegel, founder and chairman of Siegel+Gale and a pioneer in promoting simplicity in communications. “Our survey demonstrates that Americans want clarity and usefulness in communications from government agencies. The redesign of the fuel economy label is a major initiative that will touch countless Americans. Now is the time for the federal government to show its commitment to making clear communications a national priority.” [EPA-HQ-OAR-2009-0865-0824.1, p.1]

“The recommendations are simple: scrap the vertical label, lose the letter grade and emphasize the mpg and cost of owning the vehicle,” adds Siegel. “If the EPA takes these steps, it may be successful in increasing the number of fuel-efficient vehicles on the road and communicating clearly with consumers.”[EPA-HQ-OAR-2009-0865-0824.1, p.2]

## **Suzuki Motor Corporation**

Suzuki also supports the more traditional fuel economy label design (label 2) with some minor changes that would provide simple and easy to understand information for consumers without imposing a significant cost burden on auto manufacturers. [EPA-HQ-OAR-2009-0865-6900.1, p.2]

Change the font size of the combined fuel economy (FE) value to be the same font size as the proposed city and highway FE value.

Change the font size of the city FE value to be the same size as the proposed combined FE value.

Change the font size of the highway FE value to be the same size as the proposed combined FE value. [EPA-HQ-OAR-2009-0865-6900.1, p.4]

## **Toyota**

The orientation is a portrait orientation, rather than the landscape style of the current label. Departing from the traditional landscape view and using a portrait orientation will require a significant redesign of the existing window Monroney label. The merits of making this change to the label appear dubious and can lead to consumer confusion due to the changed window sticker. [EPA-HQ-OAR-2009-0865-6901.1, p.11]

EPA proposes Label 2, as a more traditional approach, similar to the current fuel economy label and highlights the key metrics of MPG and annual fuel cost. Toyota favors this label design. [EPA-HQ-OAR-2009-0865-6901.1, p.12]

## **Volvo**

Volvo recommends that automakers continue to be granted discretion in orienting and positioning the fuel economy label block. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

In that regard, Volvo does not support a fuel economy/environmental performance label that magnifies a single attribute of a vehicle so that it is out of proportion to other attributes that clinics and surveys tell us are at least as important to them. [EPA-HQ-OAR-2009-0865-7123.1, p.3]

## **Response:**

The agencies heard a wide range of viewpoints and considered a wealth of input from market research, an expert panel, hearings, and public comments in deciding on the final label design and content. The agencies have chosen to require a label that combines the five-year fuel cost-saving element of Label 1, a fuel economy and GHG slider bar similar to Label 3 with key design elements of the co-proposed Label 2, using a single additional color besides black and white. Each of these elements, including a discussion of comparisons within class and across all vehicles, is discussed in greater detail in other sections of this Response to Comments document and the final preamble.

An internet survey was administered at the time of the release of the proposed rule in September, 2010, to determine whether any of the label designs had flaws that could undermine their ability to convey the desired information to the U.S. new car buying population. EPA and NHTSA did not uncover any fatal flaws with either of the co-proposed labels. For the co-proposed labels and the alternative label, we designed the survey to test the understandability of the labels as well as whether the label designs affected consumers' abilities to select efficient and environmentally-friendly vehicles, given their typical travel pattern. The survey had nearly 3200 respondents of self-identified U.S. new vehicle purchasers, each of whom saw only one of the three label designs. Respondents were asked questions that sought to reveal understanding of the information on the label, as well as questions that sought to reveal variations in vehicle selection based on label design.

Overall, the results showed that the differences between the three label designs with respect to understandability were small in magnitude, with label 2 appearing to be a little more understandable than label 1.[\[1\]](#) Likewise, the variations with regard to vehicle selection were relatively small. Although in all cases the majority of people selected the vehicle with lower projected fuel costs and higher savings, label 1 somewhat enhanced this effect over label 2.[\[2\]](#) Because the survey did not uncover any "fatal flaw" with any of the three labels that would exclude it or any of its key elements from serious consideration in the final rule, the agencies continued to consider all elements of the three labels in developing the final rule. A report on that survey and its results is available in the public docket and on the web site for this rule.[\[3\]](#)

The final fuel economy and environment labels retain many of the attributes of the existing fuel economy label. The agencies agree that a more traditional label format, such as the one being finalized, provides consumers a familiar means for information regarding the fuel economy of vehicles. Retaining the prominence of the fuel economy values and the same size and shape of the label helps ensure a natural evolution of the current label. EPA also agrees that this moderate evolution, introducing the new metrics without diminishing the prominence of the MPG value, will allow consumers to become more familiar with the new fuel consumption and environmental metrics while retaining easy access to the familiar MPG metric.

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[1] PRR, “Internet Survey Results on the Effects of Fuel Economy Labels on Understanding and Selection” November 2010, p. 1-8.

[2] Ibid, p. 9-12.

[3] PRR, “Internet Survey Results on the Effects of Fuel Economy Labels on Understanding and Selection” November 2010.

**Organization: National Automobile Dealers Association (NADA)**

**Comment:**

At issue is how best to fulfill this statutory mandate. EPA and NHTSA should start by recognizing that the fuel economy labels rolled out for MY 2008 work well and, as such, should serve as the basic framework for fuel economy/emissions labels moving forward. Dealerships know this because prospective purchasers raise relatively few questions about existing labels and, when those questions arise, they are relatively easy to answer, either directly or by reference to [www.fueleconomy.gov](http://www.fueleconomy.gov). There is no need to “fix what isn’t broke.” [EPA-HQ-OAR-2009-0865-6940.1, p.3]

Both the existing fuel economy label and the [www.fueleconomy.gov](http://www.fueleconomy.gov) web site were put to an unprecedented test in the latter half of 2009 with the implementation of the Consumer Assistance to Recycle and Save Act of 2009 (CARS or “Cash-for-Clunkers”). The CARS program allowed owners of vehicles meeting statutorily specified criteria to receive a \$3,500 or \$4,500 credit for trading in their vehicles and purchasing or leasing new, more fuel efficient vehicles. To be eligible for either the \$3,500 or \$4,500 credit, the CARS program required purchasers to show that the new vehicles they were buying had significantly higher fuel economy ratings than their trade-ins. Consequently, prospective purchasers and dealers consulted new vehicle fuel economy labels and [www.fueleconomy.gov](http://www.fueleconomy.gov) thousands of times each day on the path to consummating some 680,000 eligible new vehicle sales with an average fuel economy improvement of 60%! Never before had the fuel economy label played such a pivotal role in assisting consumers with making fuel economy related purchase decisions.<sup>3</sup> [EPA-HQ-OAR-2009-0865-6940.1, p.3]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 31-32, 44.]

Given that existing labels work well and that fuel economy label information must be factual and neutral, NADA generally supports proposed “Label 2,” “since it retains the current label’s focus on miles per gallon (mpg) and annual fuel costs, while updating its overall design, and incorporating the new information required by EISA. Of the three principal options set out in the proposal, Label 2 poses the least risk of confusing the buying public, of making new vehicle purchasing decisions more difficult, or of treating automakers or fuel types unfairly. Label 2 attempts — clearly and simply — to present vehicle-specific metrics such as combined mpg, city mpg, highway mpg, and annual fuel cost, and does so based on reasonable and easy-to-understand assumptions. Critically, these metrics can be used by prospective new vehicle purchasers to make comparisons as they see fit. [EPA-HQ-OAR-2009-0865-6940.1, p.4]

[This comment was also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 32.]

Heading in Top Margin: Add “FTC” to “EPA/DOT.” Change the title to “Estimated Fuel Economy and Emissions Information.” [EPA-HQ-OAR-2009-0865-6940.1, p.6]

City and Highway Fuel Economy Metrics: Retain the existing label’s type font for the city and highway fuel economy estimate metrics. NADA supports deleting the existing label’s “expected range” language for the city and highway numbers. [EPA-HQ-OAR-2009-0865-6940.1, p.6]

Combined Fuel Economy Metric: As on the existing label, this number only should be used for in-category comparisons. The combined fuel economy comparison box should be titled “How This Vehicle’s Combined Fuel Economy Estimate Compares to Similar Vehicles,” and the subtitle should be deleted. The range bar only should show numbers for same category vehicles, should be labeled as such, and should use the terms “highest” and “lowest,” not “best” and “worst.” For vehicles with the “highest” combined fuel economy for their category, consideration should be given to a notation to that effect, or to including the Smart Way logo awarded to the best in-category combined fuel economy and emissions performers. Consideration also should be given to the inclusion of a simple footnote describing what “combined fuel economy” means. [EPA-HQ-OAR-2009-0865-6940.1, p.6]

Annual Fuel Cost Metric: The label should show an estimated annual fuel cost metric along with the assumptions upon which it is based located adjacent to it (as in the existing label), not in the bottom margin. No other fuel cost metric is necessary or appropriate. [EPA-HQ-OAR-2009-0865-6940.1, p.6]

“Environment” Metrics: The title of this box should be changed from “Environment” to “How This Vehicle’s Emissions Performance Compares to Similar Vehicles.” “Emissions,” not “Environment” is the language used in EISA and is what should be used on the label. Like with the combined fuel economy metric, only a comparison to vehicles in the same category should be presented, for GHGs and emissions. NADA supports a tailpipe only, grams per mile metric



for GHGs. The second comparison bar should read “Other Air Emissions” not “Other Air Pollutants,” and both bars should use the terms “highest” and “lowest,” not “best” and “worst.” For vehicles with the “lowest” GHG and other air emissions in their category, consideration should be given to a notation to that effect, or to including the Smart Way logo awarded to the best in-category combined fuel economy/emissions performers. EISA doesn’t require and NADA doesn’t support the disclosure of upstream emissions data on these labels. [EPA-HQ-OAR-2009-0865-6940.1, pp.6-7]

Language in the Bottom Margin: As noted above, assumptions used to calculate the annual fuel cost metric should be moved up to and just below the annual fuel cost estimate figure. The “disclaimer” should be rewritten to read “Actual mileage and emissions will vary for many reasons including driving conditions and how a vehicle is driven and maintained.” The next sentence should be rewritten to read “Visit [www.fueleconomy.gov](http://www.fueleconomy.gov) for more information, to calculate personalized estimates, or to download the Fuel Economy Guide.” Also, in order to harmonize with and incorporate the FTC’s alternative fueled vehicle information label, NADA recognizes that NHTSA/EPA labels for alternative fueled vehicles may need to incorporate some of the “vehicle selection” and “additional information” language currently found on the FTC label. [EPA-HQ-OAR-2009-0865-6940.1, p.7]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 32, 35.]

Label 2 offers the public the advantage of a familiar landscape format consistent with what has been used since fuel economy labeling began over 35 years ago. It generally highlights the key data elements prospective purchasers long have come to expect from fuel economy labels, while incorporating the new information required by EISA in a manner that is much cleaner, simpler, and more straight-forward than the Label 1 or Label 3 alternatives. [EPA-HQ-OAR-2009-0865-6940.1, p.8]

[This comment was also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 32.]

Arguably, the information set out on those labels, you know, they do drive the crash worthiness design. In contrast, fuel economy labels simply should provide useful facts in an easy-to-understand manner. I’m not saying that NADA does not support fuel economy improvements because we do and we always have.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 30.]

In April 2010, Secretary of Transportation LaHood noted that the CARS program was “wildly successful” both for its dramatic impact on the economy and on fleet turnover and fleet fuel economy. <http://www.nhtsa.gov/PR/DOT-85-10>. Interestingly, EPA’s recently published annual report on fuel economy trends fails to credit the CARS program for its impact on OEM production fuel economy, despite touting MY2009/ 10 fuel economy to be at its most favorable level since the database began in 1975. <http://www.epa.gov/otaq/fetrends.htm>.

## **Response:**

While the agencies agree that the fuel economy label of 2008 provided useful consumer information, and have therefore retained many of the features of the previous label, this rulemaking responds to provisions in the Energy Independence and Security Act of 2007 that imposed several new labeling requirements and new advanced-technology vehicles entering the market. NHTSA and EPA believe that a single, coordinated fuel economy and environment label is the most appropriate way to meet the statutory requirement, and are therefore finalizing a redesigned label. This final rule expands the current fuel economy label to a more comprehensive fuel economy and environment label that includes additional information related to vehicle fuel consumption, greenhouse gas (GHG) and smog-forming emissions, and fuel costs or savings over a 5-year period relative to the average vehicle, as well as a smartphone interactive code that links to a web site for more detailed information and options for direct vehicle comparisons. NHTSA and EPA believe that these changes will help consumers to make more informed vehicle purchase decisions, particularly as the future automotive marketplace provides more diverse vehicle technologies from which consumers must choose. Please see other sections in this document for a more comprehensive explanation of topics such as ratings within class and across all vehicles, harmonization with other agencies, and upstream emissions

The agencies do not agree that the FTC abbreviation should be added to the top margin of the label because this rule is a joint rulemaking for EPA and DOT. The FTC will ultimately need to make a formal decision as to whether vehicles with these labels meet the FTC label requirements.

The agencies appreciate the specific language suggestions, such as "highest" and "lowest" rather than "best" and "worst"; "How This Vehicle's Emissions Performance Compares to Similar Vehicles" rather than "Environment"; "Emissions," not "Environment"; the rewording suggestion for the statement explaining that actual results will vary for many reasons; and other re-wording suggestions. The agencies believed it was important to select language that is concise - to reduce clutter- and clear to consumers. Thus the final language is generally the shortest and most direct language of the numerous options available.

According to the FTC, the Energy Policy Act of 1992 "directs the Commission to issue a rule establishing uniform labeling requirements, to the greatest extent practicable, for alternative fuels and alternative fueled vehicles. The Act does not specify what information should be displayed on the labels. Instead, it provides generally that the rule must require disclosure of 'appropriate,' 'useful,' and 'timely' cost and benefit information on 'simple' labels." (60 FR 26926, May 19, 1995). The FTC chose to highlight the driving range of a vehicle using alternative fuel, and the new labels allow driving information to be incorporated on FFV labels (required on electric vehicles, plug-in hybrid vehicles, CNG vehicles, and fuel cell vehicles). The Agency believes that driving range information can, with the additional information available on the labels of alternative fuel vehicles, be considered as meeting the intent of the 1992 Energy Policy Act. However, it is not within EPA's discretion to make such a conclusion. Following the conclusion of this rulemaking action we expect the FTC to evaluate the new

labels and make a formal determination as to whether use of the EPA label can allow a manufacturer to be waived from putting an FTC label on their vehicles.

EPA appreciates the comment that fuel economy label played a pivotal role in assisting consumers with making fuel economy related purchase decisions during the CARS program. EPA and NHTSA believe that the new label provides additional metrics, not previously readily available, for consumers to consider. Consumers will find both familiar and new metrics on the redesigned label. We expect that the broader set of metrics on the new label will allow consumers to make even more informed vehicle purchase decisions.

The comment about the fuel economy trends report is beyond the scope of this rulemaking, however, EPA appreciates the feedback on the Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010 (PDF). We note that the CARS program is in fact mentioned in this report, on Executive Summary page i, which says, "The Car Allowance Rebate System likely impacted consumer demand."

**Organization:** Consumers Union  
Priddy, RL  
California Cars Initiative  
Highland Laboratories, Inc

**Comment:**

**California Cars Initiative**

I believe that Label Option 2, for all vehicles, is superior to both Label Option 3 and the bottom of Label Option 1 for laying out the details of vehicle performance. I strongly recommend using Label Option 1 after modifying it by replacing its bottom, details section with the whole of Label Option 2. The following points are about the exceptional features, as well as a few recommendations for minor improvements, specifically of Label Option 2. [EPA-HQ-OAR-2009-0865-4695, p. 1]

The top half (through 5-year extra fuel cost or savings) of Label Option 1, for all vehicles, is superb, and provides maximum incentive for buyers to buy green. I sincerely hope this part, especially the 5-year extra fuel cost or savings, is included in the final label design. The huge grade, along with the color coding, makes the most basic comparison obvious. The indication of 5-year fuel cost or savings in comparison to the average will provide the best yet major and obvious incentive for customers to buy into top fuel economy and/or alternate fuels (especially electricity, which is both clean and really cheap). [EPA-HQ-OAR-2009-0865-4695, p. 1]

**Consumers Union**

Class comparison bar

The class comparison bar on Label I will be very useful to the many consumers considering vehicles across classes. CU would recommend that the class comparison bar be made larger on

the label so consumers can more easily recognize this important information. [EPA-HQ-OAR-2009-0865-7251.1, p.2]

### Comments regarding Label Type II

The Type II label displays important information very clearly. CU believes that using Type II as a starting point and adding the letter grade from Type I would provide a clearer, more straightforward label with a good emphasis on fuel economy than does Label I. The range and charge time are very useful for the electric vehicle label, but the charge time should specify what type of charger is used for the calculation. It would be helpful to enlarge the assumptions of average cost/kWh and cost/gallon so consumers can compare it to their own locale and sense of where prices are likely to go in the near future. [EPA-HQ-OAR-2009-0865-7251.1, pp.3-4]

### **Highland Laboratories, Inc**

I prefer the first label with the large 'B' on it. [EPA-HQ-OAR-2009-0865-4983, p.1]

However, the mpg in town and highway should be larger (similar to the # 2 label). Both labels are excellent. [EPA-HQ-OAR-2009-0865-4983, p.1]

I do hope that the EPA will do serious evaluation of each vehicle that display's these signs and there are no exceptions. In the past Hummer's did not display the current EPA ratings. Tons of CO2 should be in bold lettering and evaluated accurately. [EPA-HQ-OAR-2009-0865-4983, p.1]

### **Priddy, RL**

Label Option 2, for all vehicles, is superior to both Label Option 3 and the bottom of Label Option 1 in laying out the details of vehicle performance. I would strongly recommend combining the top of Label Option 1 with all of Label Option 2. [EPA-HQ-OAR-2009-0865-3278, p.1]

About Label 2's exceptional features with a few recommendations: [EPA-HQ-OAR-2009-0865-3278, p.1]

Starting with the gas/diesel vehicle (Figure III-9), the gas pump icon, next to the MPG figure and the associated annual fuel cost, all offer obvious visual contrast to the plugs used for EVs and PHEVs. The plots of overall MPG, CO2, and other pollutants on bar graphs read well, too, and are similar to what consumers have seen for years on appliances. Displaying only tailpipe emissions may be the only way to reflect that 'well-to-tank' pollutants vary dramatically between locations and over time, with sources of electricity becoming increasingly clean, while more gasoline is starting to come from such high-CO2 sources as tar sands. [EPA-HQ-OAR-2009-0865-3278, p.1]

The top half (down to the 5-year extra fuel cost or savings compared to an average vehicle) of Label Option 1, for all vehicles, is superb. These ratings and fuel savings should be in the final

label design. Those savings over years will provide the best reasons for customers to buy vehicles with high fuel economy and those using clean and cheap electricity. [EPA-HQ-OAR-2009-0865-3278, p.1]

**Response:**

The agencies explored labels that combined the letter grade and the five year relative savings value from label 1 with many elements of label 2; however, space and design constraints proved to be challenging. In addition, the simplicity of the letter grade is diminished when other items are increased in prominence. While a letter grade rating can be readily understood, the agencies agree with some commenters' concerns that it may imply more meaning about overall vehicle attributes—an assessment of overall quality on a number of factors--than was intended. We recognize that the letter grade is a fairly significant departure from the current fuel economy label, which provides absolute numerical values and no relative ratings. Therefore, the agencies are not finalizing a label with a letter grade, but are finalizing instead a fuel economy and greenhouse gas rating intended to address the large number of comments received in support of a relative rating that allows a quick and easy assessment of a vehicle's relative environmental impact. In addition, the agencies are finalizing the five year relative savings value from label 1 on a landscape layout that is similar to the current fuel economy label and proposed label 2.

The agencies agree with the comment indicating that a comparison across all classes is valuable. Each of the ratings systems include all new vehicles for which labeling is required in a single rating system; that is, the ratings would be universal across all new vehicles, rather than broken out by vehicle class. This approach was based on the text of EISA requiring a rating “that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase...” [2] rather than the EPCA provisions in the statute.[3] NHTSA's interpretation was that this language was meant to require rating systems that would allow consumers to compare new vehicles against each other without restriction, and that it would not be satisfied by rating systems that spanned less than the entire fleet. The EISA requirement for indicating the highest fuel economy vehicle and the EPCA requirement for providing the fuel economy of vehicles in a comparable class will be met with text located near the vehicle's fuel economy numbers.

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[2] 49 U.S.C. 32908(g)(1)(A)(ii).

[3] 49 U.S.C. 32908(b)(1)(F)

**Organization:** AAA

**Comment:**

**AAA**

When comparing the two label options included in the proposal, we believe that Label 2 is the better consumer tool, and most thoroughly achieves the agencies' goal of helping consumers "make fully-informed decisions when purchasing a new vehicle." [EPA-HQ-OAR-2009-0865-6914.1, p.1]

**Response:**

The agencies considered all stakeholder input before finalizing a label that combines the five-year cost-saving element of Label 1 with key elements of the co-proposed Label 2, using a single additional color besides black and white.

**Organization:** Association of International Automobile Manufacturers (AIAM)

Hyundai Motor Company

Electric Drive Transportation Association (EDTA)

Edison Electric Institute (EEI)

California Air Resources Board (CARB)

Institute for Policy Integrity - New York University School of Law

International Council on Clean Transportation (ICCT)

Linsky, Robert

Laclede Gas Company

IMPCO Technologies

**Comment:**

**Association of International Automobile Manufacturers (AIAM)**

MS. OGE: Also, you stated that as an Association you don't have a position between the two labels. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 73.]

MR. CABANISS: That's correct. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 73.]

MS. OGE: Do you expect to get a consensus or we're going to hear from the different member companies on that issue? [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 73.]

MR. CABANISS: Well, we have another month or so to go with the written comments. So in that time, obviously, we'll be working closely with all our members to fine-tune all of our comments. And if we're able to reach a consensus on a particular label -- or, you know, with

respect to your question today about how to better differentiate between models and a grading system, we'll certainly consider some points that I've heard today along the lines of, you know, within class versus across the whole range of models. We'll consider those things and try to give you more information in our written comments. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 73-74.]

### **California Air Resources Board (CARB)**

Regarding the overall design of any label you develop, as you found in your focus group research, keep it simple. Right now there is a lot of information on all of the different label designs. It may be worth reexamining what really needs to be there and what consumers really care about. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

We suggest that the information you provide on the label be consistently laid out so that the same information can be found in the same location on the label no matter what type of vehicle you are looking at. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 132.]

In order to de-clutter the label, we suggest you consider removing duplicate information. For instance, on Label 1, CO<sub>2</sub> grams per mile (g/mile) are provided both in the table of information and as part of the greenhouse gas rating scale. It may be worth removing it from the table since the information is also on the rating scale below. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

Although we think that the letter grade proposed in Label 1 is very innovative and eye catching, the bottom part of this the label is cluttered. As mentioned above, any duplicate numbers should be removed and only presented once. Also, as mentioned above, the information should be consistently placed on the label. If not for all technologies then at least within similar technologies. This is most important with plug-in hybrids. No matter what type of plug-in vehicle it is, the information on the labels should be consistently placed. [EPA-HQ-OAR-2009-0865-7527.1, p.3]

We prefer the graphical representation of the range of fuel economy of comparable vehicles as shown in Label 2 over having this information in the text. We believe the information is useful and helps consumers see where the car they are considering compares to similar vehicles. [EPA-HQ-OAR-2009-0865-7527.1, p.4]

### **Edison Electric Institute (EEI)**

In general, greater simplicity will help ensure that the numerous data points included on the label are clear and understandable. Greatest prominence should be given to metrics that are familiar to the consumer – especially fuel economy and average annual fuel costs. In addition, any rating system adopted should avoid symbols or terms that could skew consumers' perceptions. Metrics that are unfamiliar and require explanatory information are more

appropriately made available on a website, the link to which should be prominently displayed on the label. Stakeholders should be afforded the opportunity to participate in the development of this website. [EPA-HQ-OAR-2009-0865-7117.1, p.2]

Consistent with the requirements of Energy Policy and Conservation Act of 1975 and the Energy Independence and Security Act (EISA) of 2007, EPA and NHTSA should adopt a revised vehicle label that presents clear, understandable, unbiased fuel economy and related information in a way that will aid consumers in assessing their vehicle options. The goal of the proposed revisions is to “increase the usefulness of the label in helping consumers choose more efficient and environmentally friendly vehicles.” 75 Fed. Reg. 58082. [EPA-HQ-OAR-2009-0865-7117.1, p.3]

In general, greater simplicity in the vehicle label will help to ensure that the necessary information is clear to the consumer. The proposed labels include numerous data points. While each piece of information is understandable on its own, the combined result is a complex label that may be confusing to consumers. Regardless of which proposed label ultimately is selected, EPA and NHTSA should consider ways to simplify the label so that consumers can more quickly and easily understand the key fuel economy facts about vehicles. [EPA-HQ-OAR-2009-0865-7117.1, pp.3-4]

### **Electric Drive Transportation Association (EDTA)**

Emphasize Simplicity [EPA-HQ-OAR-2009-0865-7137.1, p.2]

The members of EDTA favor greater simplicity in the vehicle label to ensure that the necessary information is clear to the consumer. The proposed labels include numerous data points. While each piece of information is understandable on its own, the result is a complex label that may be confusing to consumers. Regardless of the label family selected, EPA and NHTSA should consider ways to simplify the label so that consumers can more quickly and easily understand the key fuel economy facts about the vehicles. [EPA-HQ-OAR-2009-0865-7137.1, p.2]

### **Hyundai Motor Company**

Labels 1 and 2 [EPA-HQ-OAR-2009-0865-7139.1, p.1]

Hyundai could support either proposed Labels 1 or 2 as a layout but is supplying several comments related to content and to a certain extent design considerations for whichever layout is finalized. [EPA-HQ-OAR-2009-0865-7139.1, p.1]

### **IMPCO Technologies**

And, Ms. Hay, thank you for your testimony. I don't believe I heard in your testimony that your organization has any preference between the two labels. MS. HAY: No, we don't have a preference. MS. OGE: Okay. Thank you. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 149.]



## **Institute for Policy Integrity - New York University School of Law**

Regardless of either how the cost-benefit analysis is ultimately conducted or which label design the agencies ultimately settle on, the agencies should make some important substantive changes to the label, in order to ensure that consumers are both well informed as to the actual impact of their vehicles, and not unduly confused by the manner in which information is presented. These changes include using well-to-wheel analysis to calculate emissions for all vehicles, adding information on all greenhouse gases rather than only carbon-related emissions, taking into account air conditioning credits in the emissions information, displaying emissions information in tons per year rather than grams per mile, and mounting an advertising and educational campaign in order to minimize consumer confusion in the face of new technologies. [EPA-HQ-OAR-2009-0865-7136.1, p.13]

In addition to these substantive changes, EPA and NHTSA should, with the help of OIRA, coordinate with other federal agencies that are involved in environmental labeling programs in order to formulate best practices in this area. [EPA-HQ-OAR-2009-0865-7136.1, p.13]

## **International Council on Clean Transportation (ICCT)**

The proposed rulemaking proposes to add additional information to the label, as well as ratings to help the reader interpret the information. The additional information is potentially useful, but will it just serve to confuse most customers? Past efforts by the agencies have focused on trying to simplify the label information, so that customers can more easily understand the label values and what they mean. Overall, ICCT does not believe we have the expertise to know whether customers will find the additional information useful or confusing. In general, our sense is to try to keep the label as simple and easy to understand as possible, but additional information may be useful. Our primary recommendation is that the agencies should invest in studies of consumer response to different information and label formats, using expert contractors. [EPA-HQ-OAR-2009-0865-7118.1, p.2]

## **Laclede Gas Company**

However, the bulleted list of objectives shown below is out-of-synch with the two shown above by emphasizing visual design elements over that of identifying most fuel efficient and environmentally friendly vehicles. The list should be numbered and the last one listed (Make it easy to identify the most fuel efficient and environmentally friendly vehicles) should be reordered as number one. [EPA-HQ-OAR-2009-0865-7138.1, p.4]

The labels should:

- Create an immediate first impression for consumers [EPA-HQ-OAR-2009-0865-7138.1, p.4]
- Be easy to read and understand quickly [EPA-HQ-OAR-2009-0865-7138.1, p.4]
- Clearly identify vehicle technology (conventional, EV, EREV, PHEV) [EPA-HQ-OAR-2009-0865-7138.1, p.4]

- Utilize color [EPA-HQ-OAR-2009-0865-7138.1, p.4]
- Chunk information to allow people to deal with “more information” [EPA-HQ-OAR-2009-0865-7138.1, p.4]
- Be consistent in content and design across technologies [EPA-HQ-OAR-2009-0865-7138.1, p.4]
- Allow for comparison across technologies [EPA-HQ-OAR-2009-0865-7138.1, p.4]
- Make it easy to identify the most fuel efficient and environmentally friendly vehicles [EPA-HQ-OAR-2009-0865-7138.1, p.4]

This reordering would better indicate that the EPA and NHTSA recognize their responsibilities to serve the American public with objective information with which to make better informed purchase decisions as well as harmonize this list with the other two objectives. [EPA-HQ-OAR-2009-0865-7138.1, p.4]

### **Linsky, Robert**

As an information designer, I believe that all documents need to be written and designed to present information clearly and easily for all users. I have been practicing information design for over 20 years and I would like to offer my expertise pro bono to make these labels more user friendly. My blog on information design is: <http://informationdesigndoc.blogspot.com> [EPA-HQ-OAR-2009-0865-3382, p.1]

### **Response:**

The agencies agree with the comments stating that simplicity and clarity are important and appreciate the comments that acknowledge that it is important to conduct consumer market research to help analyze effective means for conveying information clearly to consumers. Therefore, the agencies heard a wide range of viewpoints and considered a wealth of input from market research, an expert panel, hearings, and public comments in deciding on the final label design and content.

The agencies also agree with the comments suggesting that consistency across vehicle technologies is important, where possible. Although there are different elements and units that are required for specific vehicle technologies, the agencies endeavored to maintain as much consistency as possible across the labels.

While duplicate or similar information can add to the clutter of the label, the agencies believed that it was necessary to show some information in several forms to enhance clarity, for ease of use, and for consistency across vehicle technologies. For instance, the fuel economy and the CO<sub>2</sub> emission rates are displayed as values in units of MPG and grams per mile, respectively. Fuel Economy and greenhouse gas emissions are also displayed as a 1-10 rating to allow a quick and easy assessment of a vehicle’s relative fuel economy and environmental

impact. Consistent with EISA, the fuel economy and greenhouse gas 1-10 rating(s) helps consumers easily compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase.

The agencies wish to clarify that the bulleted list in the NPRM, described by the commenter and included in this final rule, should not be considered an indication of the agencies' opinion about the order of importance of the bulleted items. This list summarizes feedback from focus groups and we did not order the bulleted items in any meaningful way.

The agencies explored a wide range of units for each metric before finalizing the units displayed on the final label. Displaying greenhouse gas information in tons per year was considered, however, for consistency with other regulatory programs, such as the National Program for light-duty greenhouse gases (75 FR 25324), a grams per mile unit was retained for CO<sub>2</sub>.

Please see other sections in this document for a more comprehensive explanation of topics such as air upstream emissions and conditioning credits.

**Organization:** Natural Gas Vehicles for America (NGVAmerica)

**Comment:**

**Natural Gas Vehicles for America (NGVAmerica)**

CNG Labels [EPA-HQ-OAR-2009-0865-6921.1, p.9]

Proposed Label 2 includes a picture of a pump in the upper right corner and the words “Compressed Natural Gas” along with a diamond with the letters “CNG” inside the diamond. There also is a larger pump symbol located next to the fuel economy rating for the vehicle. We recommend including the letters CNG inside the pump that appears next to the fuel economy rating as currently called for in the Manual on Uniform Traffic Control Devices (2009), which sets out requirements for highway signs. The current signage for CNG fueling stations shows the pump with CNG spelled out vertically inside the pump. Other alternative fuels are similarly noted with appropriate lettering inside the pump (e.g., EV, E85). [EPA-HQ-OAR-2009-0865-6921.1, p.9]

**Response:**

Space limitations on the label preclude an easily-readable vertical "CNG" inside the gas pump. In addition the FHWA road signs are meant to convey the existence of a fueling station. However the fuel economy and environment label is conveying among other things, which fuel the vehicle uses, and the agencies are concerned about potentially implying that a liquid fuel gas pump would be used to fuel CNG vehicles. Therefore the agencies are finalizing the diamond symbol with horizontal "CNG" text.

**Organization:** Environmental Defense Fund (EDF)  
Union of Concerned Scientists  
Consumer Federation of America (CFA)  
Sierra Club  
Tesla Motors  
National Wildlife Federation (NWF)  
Ree, Andree  
Catania, Andrew

**Comment:**

**Catania, Andrew**

Of the two labels I am in favor of the one that displays a letter grade for the given vehicle's fuel economy and greenhouse gas emissions (this is the version of the new label the comment addresses). The grade presents a measurement of a vehicle's environmental impact based on mile per gallon and emission data of one vehicle as it compares to all others on the market. Therefore, I feel that the grade allows a consumer to make a more informed purchase decision that takes the externalities of owning a vehicle into consideration. [EPA-HQ-OAR-2009-0865-7425, p. 1]

**Consumer Federation of America (CFA)**

The Consumer Federation of America (CFA) is pleased to submit these comments on the proposed rules regarding the revision of the motor vehicle fuel economy labeling program. Of the two different label designs the agencies are proposing, the CFA supports Label 1. This design prominently features a letter grade (A+ to D) to communicate the overall fuel economy and greenhouse gas emissions, and the 5 year-fuel-cost savings compared to an average vehicle. We believe that the Label 1 grading system will have a profoundly positive effect on improving vehicle fuel efficiency. [EPA-HQ-OAR-2009-0865-7173.1, p.1]

**Environmental Defense Fund (EDF)**

The Agencies are proposing two new labels that are different in how they present and emphasize information. Both labels, Label 1 and Label 2, present data on greenhouse gas emissions, criteria pollutant emissions, and fuel economy. However, Label 1 also includes a prominent letter grade that reflects combined performance on greenhouse gas emissions and fuel economy. We strongly recommend adoption of Label 1 for the clarity and rigor of information it provides for consumers. Congress revised the label requirements in the Energy Independence and Security Act to strengthen consumers' right to know by providing consumers with expansive information about vehicle fuel economy and air pollution discharges. EDF recommends final adoption of Label 1 including the letter grade to provide the clear, rigorous consumer-friendly information that Congress intended. [EPA-HQ-OAR-2009-0865-6927.1, p.2]

[These comments were also submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 48]

### **National Wildlife Federation (NWF)**

Whether done in a stacked scale format or in another manner, the label should clearly communicate key efficiency, environmental, and cost data consistently and both in absolute and relative terms.

It is probably useful not only to stack the scales so that all the “worst” ends are on one side and the “best” ends are on the other, but to visually separate the efficiency, environmental and cost measures, and to do this consistently, and with the same units, regardless of the vehicle fuel or fuel mix. In each of these categories there are measures of both primary and secondary importance, but we would summarize our comments above by highlighting the central importance of MPG/MPGe, CO<sub>2</sub>e emissions per mile, other pollutant emissions, and relative cost. [EPA-HQ-OAR-2009-0865-7528.1, p.4]

[These comments were also submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 67]

Large, readable sliding scales provide an extremely valuable means to show key values in context both of the full fleet and within a size class.

In all the labels presented in Figure III of the “Revisions and Additions to Motor Vehicle Fuel Economy Label” Notice of Proposed Rulemaking, there are scales to show “worst” to “best” in a number of criterion including fuel economy, emissions, and other air pollutants. In order for a consumer to best understand with a quick glance, it is our impression that these scales are much clearer when stacked vertically, than when smaller and spread horizontally across a page. If vertically stacked, visually consistent, and labeled in plain language, they also provide a means to cut through the confusion of very different absolute scales. [EPA-HQ-OAR-2009-0865-7528.1, p.4]

### **Ree, Andree**

So if you make it simple by providing a basic grade and lots of other information on the vehicle's sticker. Being sure to point out that it's based on 15,000 miles a year under average conditions. With a suggestion to visit the fuel economy site, to see how to improve the grade of their vehicle. Improve the mpg. And driving less instantly cuts pollution, of any vehicle. [EPA-HQ-OAR-2009-0865-3469, p.2]

### **Sierra Club**

To be most effective, window labels should convey a range of helpful information in a simple format that is easily digestible by consumers. Key considerations include which metrics to display and the layout of the label. We support a simple label that effectively conveys emissions, both greenhouse gas emissions and traditional criteria emissions, and that allows

consumers to easily compare vehicles and provides information regarding the economic costs of operating the vehicle and the savings associated with efficiency. [These comments were submitted by Jack Darin as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 71]

A sample of some of the specific comments that we got. One person said: 'I love the label with the vertical design and the information it contains. The horizontal label is just a facelift of the information that is already posted on vehicles. The vertical label is progress toward raising greater environmental awareness. I've read that the horizontal label is currently preferred by the public. I believe this is only because this is what they are used to. The vertical label still provides the mpg and operation costs, so the consumer isn't missing any data. People will soon get used to the new design and will come to appreciate the additional information and evaluation.' [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 98-99.]

And a third person said: 'Labels 1 and 2 are both good. I'm against Label 3, as it doesn't tell me quickly what I want to know about fuel economy and emissions.' [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 99.]

### **Tesla Motors**

The labels should be straightforward and contain information that is both relevant and easy to understand; therefore, Tesla supports the use of letter grades as presented as "Label 1" in the NPRM. [EPA-HQ-OAR-2009-0865-6933.1, p.1]

While Tesla supports the inclusion of new additional information on fuel economy labels, the Company also cautions that not all information can appear on the label. First, the amount of space on the labels is limited. As a result, labels must be clear, concise and highlight key metrics and information. [EPA-HQ-OAR-2009-0865-6933.1, p.3]

### **Union of Concerned Scientists**

**SIMPLE, EYE-CATCHING DESIGN:** Third, UCS recommends that the final label design be relatively simple, easy on the eye and, to the extent practical, uncluttered. The purpose of the label is to convey accurate information to prospective vehicle purchasers to help them make informed decisions. Too much information may discourage consumers from reading or digesting the key comparison data on the label. [EPA-HQ-OAR-2009-0865-7132.1, pp.2-3]

**MR. MEDFORD:** And you said that the final label should be easy on the eye. Do you think any of these two that we co-proposed are easy on the eye? [These comments were also submitted by as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 93]

**MS. HOHMANN:** I do. Especially the first one. I think, again, the letter grade is real important. I think it's very clear and understandable to consumers, and I think the layout is very

clear. [These comments were also submitted by as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 93]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 86.]

### **Response:**

Thank you for all the positive support for Label 1. These comments were consistent with insights and guidance the agencies received from the Expert Panel:

- Keep it simple
- Consumers are likely to view the labels for a very short time—roll ratings and metrics up into a single score
- Use cost savings information—a very strong consumer motivator
- Develop a web site that would be launched in conjunction with the new label. This consumer-focused web site could provide more detailed information, along with access to tools, applications, and social media.[\[1\]](#)

The agencies strove to maintain a simple layout, while ensuring that all required and desired elements were included.

Many comments supporting Label 1 were particularly supportive of the letter grade. While the agencies agree that a letter grade rating can be readily understood, the agencies also agree with some commenters' concerns that a letter grade may imply more meaning about overall vehicle attributes—an assessment of overall quality on a number of factors--than was intended. Additionally, the letter grade is a fairly significant departure from the current fuel economy label, which provides absolute numerical values and no relative ratings. The agencies believe that the one to ten rating fills a middle ground between the absolute numerical values of the current label and a letter grade rating, providing a similar ease of use without conveying any perceived value judgment that may be associated with a letter grade. We believe that the 1 to 10 rating will provide simple and clear information about a vehicle's environmental impact. Additionally, we agree that having consistent systems for the two environmental ratings on the label may help to minimize confusion and increase comprehension. Finally, the use here of a one to ten system is a logical extension of its use on the EPA Green Vehicle Guide web site and the California Environmental Performance Label, where it serves a similar purpose.

The agencies appreciate the specific comments submitted suggesting a stacked layout for all scales to improve readability at a quick glance. Although stacked scales may provide value when the slider bars are small and numerous, the agencies believe that the final layout is sufficiently clear to consumers and has the additional benefit of partitioning the information, such that it is easily findable by topic of interest. The agencies agreed with comments suggesting that dividing the label information into "chunks" on the label would enable consumers to readily find metrics on the label.

[1] Environmental Protection Agency Fuel Economy Label: Expert Panel Report, EPA420-R-10-908, August 2010.

The agencies have chosen to require a label that combines the cost-saving element of Label 1 and the GHG rating of Label 3 with key elements of the co-proposed Label 2, using a single additional color besides black and white.

**Organization:** Center for Biological Diversity (Center)

**Comment:**

**Center for Biological Diversity (Center)**

Changes to Proposed Label III. [EPA-HQ-OAR-2009-0865-7122.1, p.10]

Proposed Label III contains many of the same flaws found in Proposed Label II. It uses the same misleading sliding scale for CO<sub>2</sub> emissions (because of the class rating bracket), and similarly highlights MPG values rather than environmental ratings. If Proposed Label III is adopted, we encourage the Agencies to make the above-mentioned changes as well as the following additional alterations. The “five star” rating system for other air pollutants should be based on a scale of more than a “0 to 5” range, such as the “1 to 10” scale on Proposed Labels I and II to more accurately convey such important information. The “Environment Rating” title is also misleading and provides poor fuel consumption data to consumers because it lacks a scale or benchmark. The word “rating” itself implies that a scale exists, yet none can be found on the label. Fuel consumption information should be presented in a sliding scale similar to that found in Proposed Label I. [EPA-HQ-OAR-2009-0865-7122.1, p.10]

**Response:**

The agencies appreciate the specific comments on Label 3. We are not finalizing a star rating nor a one to five rating system for any of the scales, but are instead finalizing one to ten scales, consistent with the commenter's suggestion. To provide context for the rating systems for fuel economy and greenhouse gases, the final label includes values that describe the best fuel economy and greenhouse gas values.

**Organization:** Yarrow, Jon

**Comment:**

**Yarrow, Jon**

Label 1 is not clear enough and almost hides the familiar mpg values. [EPA-HQ-OAR-2009-0865-4246, p. 1]



Label 2 does not clearly distinguish between gasoline, electric etc and in dual fuel style is too busy with information. Environment ratings need to be clearly defined, ratings on a 1 -10 scale having a definition described elsewhere are arbitrary. [EPA-HQ-OAR-2009-0865-4246, p. 1]

Label 3 is favored as it instantly indicates which type of propulsion method the vehicle uses, the environment rating is clear and the star rating is easily compared, although somewhat arbitrary. My only real concern is that the fuel economy and greenhouse gas rating bar chart will conflict with the CARB EP label that also appears on our Monroney, much better to follow the 'How this vehicle compares' chart from label 2. [EPA-HQ-OAR-2009-0865-4246, p. 1]

**Response:**

To develop the final label, we considered input from public comments, the results of our market research, statutory requirements and other factors. The result is a label that we believe combines the best elements of the three designs we requested comment on in the proposed rulemaking. For example, we have chosen to require a label that combines the five-year fuel cost-savings element of Label 1, a fuel economy and GHG rating slider bar similar to Label 3 with key design elements of Label 2. We agree with this commenter that the mpg metric is familiar to consumers, and have chosen to prominently feature it in the final label design.

We also agree that it is undesirable to have conflicting environmental ratings on our label and California's Environmental Performance (EP) Label. We have worked closely with California's Air Resources Board (ARB) to develop a label that we believe meets their statutory requirements and would allow ARB to adopt the national label in place of its EP Label. For example, our final label includes both "smog" and greenhouse gas ratings relative to all new vehicles, using a one-to-ten format that is consistent with ARB's historical approach.

**Organization:** Steele, John M.

**Comment:**

**Steele, John M.**

Of the two labels, I strongly prefer option 2 for clarity and ease of finding the information I need to make a decision. [EPA-HQ-OAR-2009-0865-3276, p.1]

The technology or fuel type is better positioned in label 2 than label 1. The upper right corner is far more prominent. [EPA-HQ-OAR-2009-0865-3276, p.1]

The placement and size of CO2 labeling seems to far outweigh the 'other pollutants.' There is certainly both concern about global warming and uncertainty over its magnitude, and CO2's contribution. However, there is no doubt that present and likely levels of CO2 offer no direct threat as a suffocant or poison to human health, and are a vital gas to plants. The Criteria Pollutants regulated under the National Ambient Air Quality Standards are a direct threat to human, animal, and plant health in excess of their allowed concentrations and exceed those allowances in some of cities. The label should NOT portray CO2 as 'more important' than

criteria pollutants by area, position or font size in the label, and a better phrase than 'other pollutants' is needed. They sound quite important. [EPA-HQ-OAR-2009-0865-3276, p.1]

**Response:**

The agencies agree that the placement of the technology or fuel type is well-positioned in Label 2; hence, the final label retains this feature of the proposed Label 2. The agencies agree that "Other Air Pollutants" may not convey the serious health and environmental impacts that criteria pollutants impose; therefore the final label uses the term "Smog Rating". The greenhouse gas ratings are specifically required by EISA, and the statute calls for the label to include a designation of automobiles with the lowest greenhouse gas emissions. EISA requires that the agencies create a label with a rating system that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase, including a designation of automobiles with the lowest greenhouse gas emissions over the useful life of the vehicles and the highest fuel economy; "[1]

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[1] 49 U.S.C. 32908(g)(1)(a)(ii).

**Organization:** Ford Motor Company (Ford)

**Comment:**

**Ford Motor Company (Ford)**

Label Format: EPA and NHTSA should implement the 'Label 2' format with some modifications. Ford strongly believes the Label 2, or 'traditional' format, provides more benefit to the consumer in terms of transparency of fuel economy information, can accommodate change more readily, and is more robust from a national perspective. We are not in support of the Label 1 format which includes a letter grade system and vertical footprint. [EPA-HQ-OAR-2009-0865-7141.1, p.1]

The Label 1 option proposed by the agencies represents a significant departure from today's current label design. We do not believe the approach represented by Label 1 is in the best interest of consumers, dealers or manufacturers. [EPA-HQ-OAR-2009-0865-7141.1, p.2]

In general, Ford supports the Label 2 option, with several suggestions for improvement that are outlined in the 'Proposed Revisions to Fuel Economy Label Appearance' section of these comments. The measured fuel economy data are given more prominence on this label which provides the transparency consumers have requested and are comfortable with. Ford supports continued use of MPG results since they are a well understood metric that provides consumers with a more balanced comparison for vehicles within the same class. Continuing to feature the MPG results prominently will allow consumers to make informed decisions about the fuel economy leaders within a segment and help them purchase a vehicle that best fits their needs. Ford also believes it is very important that the fuel economy comparison, using a sliding bar

indicator, continue to show vehicle segmentation by class. [EPA-HQ-OAR-2009-0865-7141.1, p.3]

Ford supports the increased prominence of the combined city/highway fuel economy result on label 2, and we strongly support the continued inclusion of separate city and highway fuel economy values. Our market research continues to indicate consumers understand and like city, highway and combined values for comparison purposes; these values align with their individual driving habits. [EPA-HQ-OAR-2009-0865-7141.1, p.3]

Proposed Appearance Modifications [EPA-HQ-OAR-2009-0865-7141.1, p.5]

Ford recommends that the agencies adopt a label format that includes many of the features of Label 2, but with improvements to emphasize information that is of primary importance to the consumer for decision-making and comparison purposes. [EPA-HQ-OAR-2009-0865-7141.1, p.5]

For reference, please see the figures below to compare the PHEV label proposed in the NPRM with an example illustrating Ford's recommendations: [EPA-HQ-OAR-2009-0865-7141.1, p.5; See pp.5-6 of this comment summary for figures displaying the proposed NPRM PHEV Label 2 Option and the Ford Recommendations for PHEV Label]

Proposed PHEV modifications from the Label 2 format include the following: [EPA-HQ-OAR-2009-0865-7141.1, p.6]

1. Increase the relative size of charge range bar and reduce other slider bars. This will help consumers understand the bi-modal fuel efficiency nature of these types of vehicles. [EPA-HQ-OAR-2009-0865-7141.1, p.6]
2. Remove the consumption metric, gallons per 100 miles. [EPA-HQ-OAR-2009-0865-7141.1, p.6]
3. We advocate not differentiating between the PHEV architecture and recommend that the headings for this section be updated simply to 'Electric Assist' [EPA-HQ-OAR-2009-0865-7141.1, p.6]
4. We recommend a change to the annual cost calculations for PHEVs to provide information that is more representative of actual customers who will generally operate in both electric and gasoline modes, depending on driving conditions. Please see the 'Alternative PHEV Annual Cost Elements' section of these comments for more detail on these suggested calculation changes. [EPA-HQ-OAR-2009-0865-7141.1, p.6]

### **Response:**

The final label contains features of proposed Label 2. These features include prominently displaying the vehicle's combined MPG or MPGe (as well as city/highway MPG(e) on labels for most vehicle technologies), a horizontal landscape, and other design components.

For PHEV labels, we agree with the commenter that the charge & range bar is useful to consumers and have included it on the final label design. However, the size of the bar was limited by the overall dimensions of the label, other important information displayed on the PHEV label, and the desire not to make the final design too “busy” by eliminating too much blank space.

While we recognize the tradeoffs associated with adding fuel consumption to an already busy PHEV label, we believe that this is useful information for consumers. For the final PHEV labels, we are requiring fuel consumption separately for both gasoline (in gallons per 100 miles) and electricity (in kilowatt-hours per 100 miles). We believe that the combination of the MPGe metric (for those who want a simple comparative metric) and the separate fuel consumption metrics (for those who want to compare relative gasoline and electricity use) will help to satisfy different consumer needs.

For PHEVs, each mode contains the combined city/highway MPG or MPGe value, the fuel consumption value(s), and a title describing the fuel type (e.g., “Electricity,” “Electricity + Gasoline,” “Gasoline Only”) and the appropriate fuel type icons. We believe that this combination of information conveys in the most succinct and accurate way both the energy use that the consumer can expect, the fuels needed to achieve those values, and comparative MPG and MPGe metrics. Please also see our response in Section 4.2.2 of this document. For information on the annual fuel cost calculations for PHEV labels, please see our response in Section 4.2 of this document.

### **2.2.1. Label Footprint**

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Ford Motor Company (Ford)  
Union of Concerned Scientists  
Volvo  
Honda Motor Company  
BMW  
Honeywell

#### **Comment:**

##### **Alliance of Automobile Manufacturers (Alliance)**

“Actual Size” of Proposed Labels Is Inconsistent With Draft Regulatory Language [EPA-HQ-OAR-2009-0865-6850.2, pp.13]

Under Section 600.302-112(a) of the proposed rule, fuel economy labels would be required to be “rectangular in shape with a minimum height of 178 mm and a minimum width of 114mm.” The foregoing dimensions correspond to the footprint of the current fuel economy label. However, none of the “actual size” labels appearing in the proposed rule match this footprint. “Label 1,” in particular, would require a 30 percent increase in the overall label height in order to accommodate new information, thereby crowding out other elements of the Monroney label. To avoid requiring yet another separate vehicle label, it is critical that the final rule allow a label size and shape that does not conflict with the inclusion of safety and vehicle pricing information that is otherwise required on the Monroney label. [EPA-HQ-OAR-2009-0865-6850.2, pp.13-14]

##### **Association of International Automobile Manufacturers (AIAM)**

AIAM members support maintaining the landscape orientation for new labels and maintaining the same sized labels as currently required. Maintaining these elements will ease implementation and reduce costs of the new label requirements. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

##### **BMW**

###### **Concerns Regarding 'Label 1'**

'Label 1' is not practical for the BMW Group from a real estate and design perspective. The BMW Group has tried to harmonize the appearance and creation of the labels with all regulatory requirements considered while providing a common appearance for the customer. This follows the principle of having the same information visible on the same place on the label regardless of model year. In addition, the BMW Group will always provide the required 'Monroney' information on one label. A change to the EPA section to a different size other than the 4.5 x 7 inches will cause us not only to completely redesign the label, but also abandon the 'common appearance' concept. [EPA-HQ-OAR-2009-0865-7142.1, p.1]

## **Ford Motor Company (Ford)**

Proposed Revisions to Fuel Economy Label Appearance [EPA-HQ-OAR-2009-0865-7141.1, p.4]

Label Footprint [EPA-HQ-OAR-2009-0865-7141.1, p.4]

Ford recommends the use of the landscape footprint found in the Label 2 proposal; we have significant concerns with implementing the vertical format associated with the Label 1 proposal. Ford, like many manufacturers, incorporates the fuel economy label information into the larger Monroney window label. Along with the fuel economy information, the Monroney label also includes the government 5-star safety ratings, vehicle identification information and the applicable standard and optional equipment for each vehicle. We have found that Label 1 would require significant modifications to our current Monroney label design, would not benefit the consumer, but would increase the overall cost needed for implementation of the new fuel economy information. [EPA-HQ-OAR-2009-0865-7141.1, p.4]

In the example below [See pp.4-6 for two examples displaying the Foot Print Issue with vertical label], we highlight how the vertical format conflicts with our ability to display the full array of required information. Today's landscape footprint provides the flexibility to work with NHTSA 5-star rating footprint and the area required to display vehicle specific information required on the Monroney Label. [EPA-HQ-OAR-2009-0865-7141.1, p.4]

Ford therefore supports an option that will preserve the footprint of the current fuel economy label. Label 2 achieves this continuity in format and is preferred from that perspective. [EPA-HQ-OAR-2009-0865-7141.1, p.4]

## **Honda Motor Company**

Armed with information, consumers may make good judgments based on their own needs. We believe that the traditional landscape label with relevant information is what is most expected and needed by consumers. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 90.]

## **Honeywell**

The proposed portrait layout (as opposed to the more familiar and traditional landscape layout) further biases the consumer to rely upon the single letter grade metric. This will undermine the utility of all the other valuable information on the label. As currently designed, this other information appears to become the "fine print" that many consumers likely will overlook. [EPA-HQ-OAR-2009-0865-7095.1, p.4]

## **Union of Concerned Scientists**

We don't have a preference regarding a vertical or horizontal design. And I'm not referring to the specific labels you have in your rule, just the general idea of something horizontal or

vertically laid out, we don't have a preference, but we do think that it should include a letter grade scale. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 84.]

## **Volvo**

### Label Size Disparities in the Regulation

The label dimension requirements, in text and the graphic examples disagree significantly with each other in both size and proportion. Plainly, the new information and layout according to Option 1 cannot be accommodated within the existing label footprint. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

Volvo recommends that the footprint of the current fuel economy label be preserved, not expanded. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

### **Response:**

The agencies heard comments from the automakers that the vertical label orientation, as proposed on Label 1 in the preamble, would be very difficult to incorporate into the existing Monroney label. The existing label is in a landscape format and changing to a vertical layout would, at a minimum, require manufacturers to redesign their entire Monroney label. Some manufacturers thought that the vertical label would be impossible to integrate into the Monroney label and might require a separate label. All of the manufacturers were for integration of labels, not new labels.

While we did receive plenty of comments supporting the design of proposed Label 1 in general, we did not receive any strong arguments for a vertical layout over the horizontal layout. Considering that the vertical layout would result in a cost to the manufacturers, a significant change in Monroney label design, and that there was no strong support for a vertical label, the agencies decided to stay with the more familiar horizontal layout. In addition, the agencies decided to keep the overall dimensions of the label the same as the previous generation of labels so that manufacturers can use the same space on their Monroney labels.

### 2.2.2. Color

**Organization:** Volvo

**Comment:**

**Volvo**

Within the existing fuel economy landscape footprint, on all labels, a common, multicolor background design can be imprinted and then delineated, according to vehicle emission performance, with printed black lines, text, and shapes. [EPA-HQ-OAR-2009-0865-7123.1, p.3]

**Response:**

The agencies heard this comment from several manufacturers who were concerned with the costs and logistical challenges of printing with multiple colors. The easiest way to use color on the label is to print color on a pre-printed background that is consistent for all labels, then use black ink to print on top of the pre-printed background. The label design that we are finalizing does include color, but that color is limited to the slider bars and the border, and both the color and placement of color is consistent on all labels, regardless of vehicle technology. This will enable those manufacturers that wish to take advantage of pre-printed background colors to do so.

**Organization:** Priddy, RL

**Comment:**

**Priddy, RL**

The label for blended-mode PHEVs (Figure III-12) is likewise clear. My suggestion is to use a color between the electric green and the gasoline yellow to make the blending more obvious compared to the EREV and EVs. [EPA-HQ-OAR-2009-0865-3278, p.2]

**Response:**

The agencies discussed many options for blended PHEV labels due to their complexity of operation. In the end, the agencies decided to use a similar approach for blended PHEVs and EREVs on the label for simplicity, and because there are currently no blended PHEVs on the market to evaluate. In addition, the agencies decided to use only one color on the label.

**Organization:** Union of Concerned Scientists  
Center for Biological Diversity (Center)  
University of Pennsylvania Law School, Environmental Law Project



## **Comment:**

### **Center for Biological Diversity (Center)**

Lastly, while Proposed Label II contains some color, its use is much less prominent than in Proposed Label I which is color-coded according to the CO<sub>2</sub> emissions of the vehicle. The Agencies should take advantage of the relatively nominal costs of color by revamping the label's appearance, using colors to meaningfully and quickly convey environmental information to consumers. [EPA-HQ-OAR-2009-0865-7122.1, p.10]

### **Union of Concerned Scientists**

Additionally, we strongly support the decision to use color as part of the design—as a purely black-and-white label is much less likely to be eye-catching. [EPA-HQ-OAR-2009-0865-7132.1, p.3]

Additionally, we strongly support -- I'm saying 'strongly' because it's shocking that this has come up so many times already today. We strongly support the decision to use color as part of the design, as a purely black-and-white label would be less eye-catching. Frankly, we think it's a little bit silly for the OEM's to complain so much about having to use color because we think it's important -- and this is what they say -- they want people to see these labels as well. Well, if you really want a consumer to notice the label, you have to put some color into it. And as it has already been noted, the Environmental Performance label here in California does require at least one color, and they seem to be able to comply with that. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 86-87.]

### **University of Pennsylvania Law School, Environmental Law Project**

#### Use of Color in the Label

Consumers have been shown to respond well to different colors and simpler designs. In our label design, we adopt Label 1's use of color as a designation of vehicle rating, rather than Label 2's use of color to denote vehicle types. If the label will incorporate color at all, it is more meaningful to use it as a comparison tool than as a pure identifier. Real consumers will walk into showrooms and car lots looking for a clear and immediate way to differentiate between many vehicles, and a rating system that uses color is an effective way to achieve this. EPA and NHTSA have stated that the label's purpose is to provide "information that will be most useful for consumers in making informed decisions regarding the energy efficiency and emissions impacts of the vehicles they purchase." Using color to indicate a vehicle's relative strength in these specific categories therefore better reaches the agencies' purpose than a use of color that only identifies the fuel type use by a vehicle. [EPA-HQ-OAR-2009-0865-7171.1, p.3]

If public comment reveals that generating colored labels is too costly or burdensome on manufacturers, we strongly suggest that the agencies insist on retaining color in at least one part

of the label: the five-year fuel costs. On an otherwise colorless label, or even on a label that uses color alongside the letter grading system, a line of heavy red ink that reads “this vehicle costs” significantly more to fuel over five years than the average vehicle is likely to be a highly effective tool for directing consumer behavior. Consumers are likely to recognize that a line of red ink denotes a cost or loss to them relative to other vehicles they might purchase, and this single piece of information could become the most effective tool for guiding consumers away from the most environmentally unfriendly vehicles on the market. [EPA-HQ-OAR-2009-0865-7171.1, p.4]

Moreover, emphasizing vehicles that have higher costs than the average vehicle using red ink and the term “spends” or “costs” instead of “saves” tells consumers that they might be experiencing a loss relative to consumers who buy more fuel-efficient cars. One effect of the red ink would be to have consumers perceive savings they pass up as a loss since the possibility of loss can be an even stronger motivator than gain. This would probably be the most effective use of color on the entire label, and might in fact operate as the strongest motivator for consumers to choose more fuel-efficient vehicles. [EPA-HQ-OAR-2009-0865-7171.1, p.7]

### **Response:**

The agencies felt that adding color to the labels was imperative in drawing attention to the label and in communicating the information contained within the label. However, we also acknowledge that using multiple colors would require significant changes to the way vehicle labels are currently produced. Vehicle manufacturers were very concerned with printing with color inks on each label, which is what the initial designs likely would have required. Instead, the manufacturers preferred using color on a standardized, pre-printable background that could then be printed with black ink for each individual vehicle. The final label design reflects this approach.

The California label is also designed in such a way that the color on that label is pre-printed on a standard background, and is not currently printed using color inks for each vehicle. Vehicle manufacturers strongly advocated for a label design that would also meet California requirements, so that the separate California label could be eliminated. The California label is required to contain color, therefore the EPA label must contain at least one color to meet this request from the vehicle manufacturers.

Proposed Label I and Proposed Label II did use colors in different ways, as pointed out by several commenters. Proposed Label I used color to differentiate between vehicle ratings, while Proposed Label II used color to differentiate between technologies. In addition to printing costs, the agencies were also concerned that using color to differentiate vehicles could be problematic if colors began to fade. Red colors fade to orange, and green colors fade to yellow, which could cause confusion for consumers considering that orange and yellow labels were also proposed.

Because the agencies are only using one color on all labels, color on the label is now being used to highlight important information instead of differentiating between vehicles or technology. The design of the label leaves the application of color the same for all labels so

that color can be pre-printed as a standard background for all labels and does not require color ink printing for each vehicle. This did not leave the option of using colors for differentiation of specific data, such as the 5 year cost numbers.

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Hyundai Motor Company  
Securing America's Future Energy (SAFE)  
Richter Creative

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

The Agencies Should Not Require Color Labels.

The data presented in the NPRM does not show a clear consumer benefit from the addition of color. The proposed color spectrum lacks any universally recognized meaning, and the proposed labels are already too cluttered to add a narrative explanation of the color scheme. The popularity of tinted windows and propensity of color to fade in sunlight means that the colors will appear grey or faded on vehicles in dealer lots. And with nearly three million Americans suffering color blindness, the proposed addition of color may actually lead to confusion and misinterpretation. To the extent that the Agencies are seeking to “chunk” various categories of information, this could be achieved by boxing, rather than the addition of color. [EPA-HQ-OAR-2009-0865-6850.2, p.7]

**Association of International Automobile Manufacturers (AIAM)**

The use of orange or yellow colors could be easily misinterpreted by consumers as warnings. Therefore, these colors should be avoided. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

Fourth, the use of orange or yellow colors tend to easily be misinterpreted by consumers as warnings. And fifth, color labels are difficult to see and read with tinted windows. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 56.]

**General Motors (GM)**

Color can be discriminatory to a large part of the vehicle buying public. One in 76 people are color blind. Of those, over 90 percent cannot see red or green. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

Many new vehicles are produced with tinted windows. Many colors cannot be viewed accurately through tinted glass. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

The addition of color will require testing to determine the effects of how a variety of colors many change under solar loading. This new testing requirement would extend our necessary lead time. The 12-15 month timeframe assumes no problems with the performance of the color under these extreme conditions. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

Accurate lead time for color is nearly impossible to predict since the NPRM did not go into detail on specifications for color. The necessary specifications would include items such as Pantone identifier and requirements for exposure durability to sunlight. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

### **Hyundai Motor Company**

Another concern is the proposed use of orange or yellow and/or orange colors for the 'B' through 'D' grades could be misinterpreted by consumers as warnings, and the majority of vehicles would be labeled in these colors under the proposed distribution of grades. [EPA-HQ-OAR-2009-0865-7139.1, p.9]

Finally, color labels are difficult to see and read if tinted windows are supplied. [EPA-HQ-OAR-2009-0865-7139.1, p.9]

For these reasons, Hyundai believes color labels are challenging to implement. Our preference is to maintain a black and white label, and examples of Label Options 1 and 2 in black and white can be found in Figure 3. [EPA-HQ-OAR-2009-0865-7139.1, p.9; see p.5 of this comment summary for Figure 3 entitled, Suggested Changes to Label Options 1 and 2]

### **Richter Creative**

I've been a professional graphic designer for 25 years and I believe that the use of colors is novel but extremely prejudicial. From across the showroom a buyer will be able to see the large green, yellow, or red circle and, when given the option will, subconsciously if not outright consciously, tend to lean more toward the green circled car for a host of embedded sociological reasons. Green is go, enviro-friendly, people friendly, socially acceptable... red is stop, danger, angry, hot, and many other 'negatives'. By adding color to the design you add emotion. Take away the color and all that is left is factual information which is the point. Right? Let the car have the emotional pull on buyers. [EPA-HQ-OAR-2009-0865-1364, p.1]

### **Securing America's Future Energy (SAFE)**

On Label 2, color is used solely to convey the type of fuel used by the vehicle. That information, however, is duplicative of the information conveyed both in writing and by the icon on the top of the label. Once again, we do not believe that color is used to convey enough additional information to justify the complexity and cost of adding it to the label. SAFE also notes that many of the vehicles on which the labels will be placed are tinted, reducing the ability to distinguish between color and therefore its value. [EPA-HQ-OAR-2009-0865-7522.1, p.12]

We don't want this label to suffer the same fate of the color-coded threat level system used by the Department of Homeland Security, which is universally regarded as irrelevant. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 26]

**Response:**

The agencies felt that adding color to the labels was imperative in drawing attention to the label and in communicating the information contained within the label. However, we also acknowledge that using multiple colors would require significant changes to the way vehicle labels are currently produced. Vehicle manufacturers were very concerned with printing with color inks on each label, which is what the initial designs likely would have required. Instead, the manufacturers preferred using color on a standardized, pre-printable background that could then be printed with black ink for each individual vehicle. The only color that will be required is blue, which the agencies felt was a "neutral" color that did not have the positive/negative connotations that many commenters raised. The final label design reflects this approach and the agencies believe that this will not adversely affect the lead time required by manufacturers to implement the new label.

The California label is also designed in such a way that the color on that label is pre-printed on a standard background, and is not currently printed using color inks for each vehicle. Vehicle manufacturers strongly advocated for a label design that would also meet California requirements, so that the separate California label could be eliminated. The California label is required to contain color, therefore the EPA label must contain at least one color to meet this requests from the vehicle manufacturers.

Proposed Label I and Proposed Label II did use colors in different ways, as pointed out by several commenters. Proposed Label I used color to differentiate between vehicle ratings, while Proposed Label II used color to differentiate between technologies. In addition to printing costs, the agencies were also concerned that using color to differentiate vehicles could be problematic if colors began to fade. Red colors fade to orange, and green colors fade to yellow, which could cause confusion for consumers considering that orange and yellow labels were also proposed.

Because the agencies are only using one color on all labels, color on the label is now being used to highlight important information instead of differentiating between vehicles or technology. This also eliminates the concern about differentiating colors behind tinted glass or by those who are color blind. The design of the label leaves the application of color the same for all labels so that color can be pre-printed as a standard background for all labels and does not require color ink printing for each vehicle. This did not leave the option of using colors for differentiation of specific data, such as the 5 year cost numbers.

**Organization:** International Council on Clean Transportation (ICCT)

**Comment:**

**International Council on Clean Transportation (ICCT)**

For example, the studies show that a color-coded label more easily draws attention of customers and tends to have more of an impact on purchase decisions than a black and white label. [EPA-HQ-OAR-2009-0865-7118.1, p.3]

**Response:**

The agencies agreed that a colored label would more readily draw the attention of consumers, as opposed to a black and white label. The agencies proposed two different color schemes, with Proposed Label I utilizing color to differentiate vehicles by GHG rating, and with Proposed Label II using color to differentiate vehicle technologies. The agencies received many comments about the application of color, and ultimately decided that requiring color labels as proposed would impose a significant cost on vehicle manufacturers. Thus, the final label retains one color, blue, which the agencies felt was a "neutral" color that is effective to highlight desired parts of the label without strong positive/negative connotations. The labels are designed such that the color portions are in the same place for all labels, regardless of technology, so that any manufacturers that would like to take advantage of pre-printing color on the labels can do so (this was a common request from manufacturers).

As finalized, the fuel economy, environment, and GHG slider bars are all highlighted with color to grab the attention of consumers. The vehicle technology is also highlighted in color to alert consumers to the type of vehicle they are considering. The agencies felt that these were important parts of the label to highlight, and that doing so will help to communicate information more efficiently to consumers.

**Organization: BMW**

**Comment:**

**BMW**

The BMW Group prefers not to have a 2-color gradient fill, either with uni-color or color comparison bars. [EPA-HQ-OAR-2009-0865-7142.1, p.2]

'Label 2' uses a gradient 2-color fill for the vehicle comparison as well as environmental comparison scales. From our perspective, we see this gradient fill as potentially misleading since there is no connection between the color and the position of the score indicator for the actual vehicle. The BMW Group's current design tool does not support a gradient 2-color fill. Should this feature be required, a lengthy upgrade process would have to be initiated with the vendor. Funding and enough time for implementation will be needed. [EPA-HQ-OAR-2009-0865-7142.1, p.2]

**Response:**

The agencies are finalizing a design that incorporates color such that all color parts of the label can be pre-printed on a standard background label and color printing by the manufacturer is not required. We believe this should alleviate the concern raised by BMW. In addition, no other manufacturer was concerned with printing gradients, and the final rule allows for more lead time than initially proposed.

**Organization:** Suzuki Motor Corporation  
Merritt, Kevin

**Comment:**

**Merritt, Kevin**

The current sliding scales have an opaque numbers in them. Those numbers overlap color on the scale. If the sliders were moved up, then the color on these labels could be pre-printed. The current design would require just in time (color laser printers) to replace current mono printers. This could have significant costs implications for hardware and programming. [EPA-HQ-OAR-2009-0865-4723, p.1]

The sliding scale used has white letters. Because it overlaps the colored 'slider bar', this would require that the label be printed using a color printer. Preprinted color media would otherwise show through the lower half of text of the arrow slider. If the arrows were simply placed above the slider, then pre-printed stock could be used. Also is there a specification for the color used? (There are many shades of yellow... or could other colors be used... or could grey be used, allowing existing printers to be used?) [EPA-HQ-OAR-2009-0865-3705, p.1]

**Suzuki Motor Corporation**

Suzuki recommends changing the combined fuel economy bar so it does not contain variable colors and is much simpler to print similar to the current combined scale. Use of standard text, a bar line and a pointer as shown below can be easily incorporated. [EPA-HQ-OAR-2009-0865-6900.1, p.3]

**Response:**

The agencies designed the final label with the intent that any color could be pre-printed using a standard background. The use of color on the label is limited to the slider bar backgrounds and the vehicle type identifier in the upper right corner. All labels will use the same shade of blue. All other vehicle specific information that is likely to be printed just in time at the manufacturing plant or port of import can be printed in black and white on the preprinted color background. The agencies eliminated using white numbers and other label features that would require color printing. In addition, the agencies plan to provide an electronic template that will provide the specific shade of blue to use on the label.

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## 2.3. Additional Design Ideas

**Organization:** Argonne National Laboratory

**Comment:**

**Argonne National Laboratory**

Conventional Vehicle Label

Argonne offers two suggestions on the Conventional Vehicle Label design, which are shown below, for reference. The preferred approach is to modify Label 2 to highlight fuel consumption in the upper left quadrant suggesting the font size of the messages be reversed whereby, fuel consumption in gallons used every 100 miles be the predominant message and the mpg rating be downsized in font, in comparison. We urge that this be the beginning of the transition to fuel consumption replacing fuel economy. Similarly, the lower left slider scale should depict fuel consumption for the displayed value range. Depicting the exponential metric MPG in a linear scale slider bar provides more reinforcement of the “MPG Illusion.” A perhaps stylistic suggestion is to make all the slider bars consistent to make them all reflect a proportional “negative impact” thus making higher scores worse. Fuel costs, fuel consumption, greenhouse gas emissions, and criteria pollution are all “more is worse” indexes. Locating the zero point to the right for greenhouse gasses is fundamentally awkward. If this is the first time we are using slider bars for label information, the “more is worse” slider could be introduced and the public understand it is proportional to vehicle impacts, or “footprint.” [EPA-HQ-OAR-2009-0865-7172.1, p.5]

[See page 5 of this comment for two suggestions on the Conventional Vehicle Label design.]

The adoption of slider scales is a very useful means to display relevant information. Annual costs could also be shown on a slider bar scale. The depiction of the entire new vehicle fleet for the parameter of interest, with a highlight section for a specific category of vehicle is an admirable approach. This could be adopted for all the proposed slider bars, i.e., fuel consumption, greenhouse gases, other air pollutants and cost. [EPA-HQ-OAR-2009-0865-7172.1, pp.5-6]

What type of information belongs in the slider bars area? How should it look?

Best on Right: Agree that the best layout displays best results all the way to right. However vehicle impact is best conveyed through 'More is Worse' message (consumption, cost, emissions). Current opinion is that it is OK to put Zero on right as best case, as long as all bars are consistent. One problem: current smog emissions is 'Higher is Better,' this is remedied by removing this from slider bar area. [EPA-HQ-OAR-2009-0865-7572.1, p. 4; see commenter's example Slider Bar at page 4.]

Assorted Unit Basis: CO<sub>2</sub>(g/mi), fuel (Gallons per 100 miles), Costs (per year)...? Suggest introducing all the metrics important to assessing a vehicle's impact (on environment and wallet) on a yearly basis. Slider bar results are calculated using a Utility Factor for aggregate results

Much easier to understand if they are given as an annualized 'average.' For example fuel consumption per 100 miles will NOT be experienced by the consumer if they drive 100 miles in the vehicle. [EPA-HQ-OAR-2009-0865-7572.1, p. 4; see commenter's example Slider Bar at page 4.]

**Response:**

The agencies appreciate the comments about reversing the prominence of the fuel consumption value and decreasing the prominence of the MPG value; EPA agrees that a fuel consumption metric is a better tool for making economically sound decisions and recognizes that it will not become widely utilized if it is not first introduced on the label. Therefore, EPA is requiring the use of fuel consumption on the label--in the form of gallons per 100 miles for combined city/highway operation for liquid fuels--though in reduced prominence relative to the traditional MPG metric to allow consumers to become gradually familiar with the fuel consumption metric.

The agencies agree that depicting an MPG scale in a linear format may reinforce the "MPG Illusion"; therefore the agencies are finalizing a rating for fuel economy and greenhouse gases that depicts the fuel economy rating as a numeric one to ten rating based on each vehicle's 5-cycle combined fuel consumption. See the preamble, section III.D, for more details about the fuel economy and greenhouse gas rating methodology.

The agencies considered how to address that fact that different performance value metrics may have scales with different directions. The agencies decided to eliminate the potential for confusion by using only 1 to 10 rating scales on the label where a higher score (10) is defined as the preferable "Best" value.

With regard to the comment about placing annual fuel costs on a slider scale, the agencies did explore this option in our market research. However, due to the fact that the relative fuel costs are represented effectively in other formats, the agencies are not finalizing an additional slider bar for cost.

The agencies also explored describing all consumption metrics, such as CO<sub>2</sub>, cost and gallons consumed, on an annual basis. For consistency with other regulatory programs, such as the National Program for light-duty greenhouse gases (75 FR 25324), a grams per mile unit was retained for CO<sub>2</sub>. The agencies are finalizing gallons per 100 miles to introduce consumers to a linear fuel consumption metric, since we believe consumers will learn to understand how much fuel is used over a tangible, 100 mile, increment. For PHEVs the final label displays consumption metrics for both charge depleting and charge sustaining modes of operation. The agencies appreciate the concern that the slider bar value is a utilized value and is therefore not necessarily achieved by the driver at discrete intervals. The final label includes a fuel economy rating that is based on a utilized value because we believe that a utilized value is a fair method for comparisons. We understand that there may be higher consumption metric variability among individual driving patterns for PHEV owners, but we believed it was important to provide a consistent comparison metric across all vehicles. The final label displays this value as 1 to 10 rating rather than as an MPGe value which should address the commenter's concern

about implying fuel consumption precision. The agencies note that the annual fuel cost is calculated as the commenter suggests, as a utilized annual cost.

**Organization:** Siegel+Gale

**Comment:**

**Siegel+Gale**

Siegel+Gale suggests the EPA can improve the consumer-preferred horizontal design by: [EPA-HQ-OAR-2009-0865-0824.1, p.2]

Moving extraneous data to a website (e.g., gallon gas equivalent per 100 miles, entire range of mpg for all vehicles, greenhouse gases and other air pollutants) [EPA-HQ-OAR-2009-0865-0824.1, p.2]

Removing all non-essential logos and icons to reduce visual clutter [EPA-HQ-OAR-2009-0865-0824.1, p.2]

Using mpg as a primary data point and explain that, for a hybrid electric/gasoline vehicle, the first 50 miles are run by battery [EPA-HQ-OAR-2009-0865-0824.1, p.2]

Emphasizing operating cost rather than savings over time ? Providing a brief explanation of the purpose of the Smartphone bar code. [EPA-HQ-OAR-2009-0865-0824.1, p.2]

Giving more prominence to the benefits (i.e., “ability to calculate estimates personalized for your driving”) of visiting the fueleconomy.gov website at the bottom of the label. [EPA-HQ-OAR-2009-0865-0824.1, p.2]

**Response:**

EPA appreciates the specific suggestions provided by the commenter. EPA agrees that directing consumers to website is an appropriate way to make more information available than can easily fit on the label. However, many of the items identified by the commenter are in fact required by statute to appear on the label, such as a rating system that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles. Focus group results indicated that consumers trust a government source for fuel economy information; therefore the agencies believe it is important to retain government agency identification on the label to maintain the credibility of the label information. Many commenters and focus group participants responded positively to the icons, such as the gas pump and electric plug.

On the final label, the agencies have additionally incorporated the term "QR Code" near the smartphone interactive. Space limitation on the label prevented a more expansive explanation. However, QR Codes are becoming more familiar to consumers, and a quick Internet search immediately reveals the utility of a smartphone QR code; therefore the agencies believe that the

terms "Smartphone" and "QR Code" are sufficient for consumers with smartphones to quickly figure out how to download a QR code reader, scan the code, and reach the website.

**Organization:** California Air Resources Board (CARB)

**Comment:**

**California Air Resources Board (CARB)**

ARB also suggests including a statement that identifies motor vehicle usage as a primary cause of global warming and how emissions of those gases from motor vehicles may be reduced. On the Environmental Performance Label, ARB states that 'Vehicle emissions are a primary contributor to global warming and smog.' If the national label includes a space for upstream emissions, ARB may be able to include this statement there, or you could add this to the text at the bottom of the label. [EPA-HQ-OAR-2009-0865-7527.1, p.1]

Although we support using the gasoline template for conventional hybrids, we recommend that you identify the vehicle as a hybrid on the label. This will help consumers distinguish these vehicles from other conventional gas cars. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

As consumers begin seeing new technologies hit the dealer lots, we believe it would be helpful if the technology type were more prominently represented on the label. [EPA-HQ-OAR-2009-0865-7527.1, p.4]

We suggest that the label for all PHEVs have a space for all electric range whether it is zero or 50. This is a piece of information we believe consumers will be looking for when considering a PHEV. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

Please consider developing an icon for FFVs with a smaller gasoline tank and an icon for ethanol. This may help consumers recognize that the car they are buying can run on both gas and ethanol. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

**Response:**

In order to facilitate label harmonization, we have been working with the California Air Resources Board to develop a label that will meet California's requirements (see Section 10.1 of this document.) Therefore, the final label will require the statement, "Vehicle emissions are a significant cause of climate change and smog."

We agree that range is an important piece of information for potential purchasers of advanced technology vehicles since these vehicles typically cannot travel as far on a refueling as can a conventional gasoline vehicle, and the refueling infrastructure for non-liquid fuels is currently limited. Therefore, we are requiring the inclusion of range on all EV, PHEV, CNG, and hydrogen FCV labels. Additionally we are requiring an option for vehicle manufacturers to voluntarily include E85 range information on the labels for ethanol flexible fuel vehicles.

We also agree that the technology type is important information for consumers, and are requiring that it be prominently displayed in the upper right hand corner. However, the size of this header is limited by the overall size of the label, other important label content, and the desire to avoid making the label appear “too busy” by removing too much blank space. We have added “E85” above the gasoline icon to the header of FFV labels to help consumers recognize that these vehicles can run on both fuels.

We require that a conventional hybrid (operated on gasoline) be labeled as a “Gasoline Vehicle” since this is the fuel consumers will purchase to operate the vehicle. Any fuel economy and environmental benefits that result from the hybrid technology will be reflected on the label in the MPG estimate and various slider bars.

**Organization:** Securing America's Future Energy (SAFE)

**Comment:**

### **Securing America's Future Energy (SAFE)**

Rather than simply identifying problems with the labels, SAFE went a step further and developed solutions. SAFE worked closely with MSDS, a full-service branding and design firm, to enhance the design and structure to create informative, consumer-friendly labels. Together, we developed a modular label that conveys critical information on fuel consumption and cost across all vehicle types, while allowing for a more meaningful comparison of the selected vehicle, other vehicles in its class, and all vehicles on the basis of fuel costs and emissions. [EPA-HQ-OAR-2009-0865-7522.1, p.2]

In our comments, SAFE identifies those elements that we believe should be part of a fuel economy and emissions label, offers critiques of some of the elements that are part of the labels presented in the proposed rule, and offers its own label design, based on Label 2 in the NPRM. Two versions of the label, one intended for gasoline vehicles and one intended for electric vehicles, are depicted in Figures 1 and 2 below [See p.3 of this comment summary for Figures 1 and 2]. The entire set of labels is included in the body of these comments. High resolution copies of the labels are attached to the end of the PDF file that contains these comments. [EPA-HQ-OAR-2009-0865-7522.1, p.2; see p.24 of this comment summary for High Resolution copies of the labels]

If, as we hope, the agencies find that the labels we have designed offer improvements to the labels in the NPRM, SAFE and MSDS welcome the opportunity to continue assisting the agencies as they work with the design. [EPA-HQ-OAR-2009-0865-7522.1, p.4]

Label Design and Layout [EPA-HQ-OAR-2009-0865-7522.1, p.11]

SAFE has worked with MSDS to design a fuel economy and emissions label that incorporates the required elements and is based on Label 2 in the proposed rule, but which we believe improves on its design. SAFE and MSDS hope that the agencies find the design compelling. We

are available to adjust the design and share other ideas with the agencies if such assistance would be helpful. [EPA-HQ-OAR-2009-0865-7522.1, p.11]

SAFE and MSDS also recognize that there are different ways that some elements could be reported. For instance, in the quadrant of the label dedicated to fuel costs, one could report fuel cost per mile or fuel cost per 100 miles. Similarly, one could report GHG emissions in grams per mile, which may be more information than is needed for most consumers, or on a simple 1 to 10 scale. Obviously, if the agencies like the general template, individual elements in the design can be adjusted as appropriate. [EPA-HQ-OAR-2009-0865-7522.1, p.11]

SAFE and MSDS Label Design [EPA-HQ-OAR-2009-0865-7522.1, p.11]

The label that MSDS designed is based on the layout on Label 2 in the NPRM and is depicted in Figure 3 below [See p.13 of this comment summary for Figure 3 entitled, SAFE/MSDS Label for Gasoline Vehicles]. The basic template is one that should work for every type of vehicle. Equally important, although SAFE strongly supports the design as depicted in these comments, and believes that each element of the sample labels should be included on the final label, even if the agencies decide to include some different elements on the label, SAFE and MSDS strongly believe that our template clearly and concisely conveys a wealth of information to consumers. [EPA-HQ-OAR-2009-0865-7522.1, p.11]

The label includes larger, easier to identify icons to indicate the type of fuel consumed by the vehicle. The gas pump is universally recognized symbol which was revised to be more compatible with the typography on the label. For vehicles that draw electricity from the grid, we selected an electric bolt as it is a more widely used and recognized symbol than a plug, and more legible in this application. For compressed natural gas vehicles, we used a flame, which is also widely recognized. [EPA-HQ-OAR-2009-0865-7522.1, p.11]

The new design uses Helvetica Condensed as its font. In addition to being popular and readily available, it is a member of the Helvetica font family, which is commonly used in documents and maps issued by a number of authorities, including the DOT and EPA. Most importantly, when constrained to a small space, it offers greater legibility per square inch than the font used in the proposed Label 2. [EPA-HQ-OAR-2009-0865-7522.1, p.11]

The top half of each label contains two parts. The top left reports fuel economy and fuel consumption and the top right reports fuel costs. [EPA-HQ-OAR-2009-0865-7522.1, p.12]

The lower part of each label is the space in which key attributes of vehicles are compared to each other. We feel that stretching the comparison bars across the entire width of the label is an improvement over the proposed label. Because the comparison bar has a wider range, it exposes nuanced differences between vehicles more clearly than the short spectrums on the previous design. By placing each of the bars on top of each other instead of next to each other, there is a consistent worst/best scale that a consumer can use to compare vehicles to each other. [EPA-HQ-OAR-2009-0865-7522.1, p.12]

For each of the four data points depicted on the bars, the value for the vehicle is indicated by the black box. For elements that are reported as ranges, such as cost of operating a PHEV, the black box is widened to indicate that the actual value could be anywhere in the range depending on how the vehicle is operated. Thus, once one is familiar with the layout, even from a distance one can get a sense of how the vehicle rates simply by seeing if the boxes are to the right or left of the space. The boxes are easily visible from over 15 feet, which means that a consumer walking through a car lot can quickly glance at the label and get a sense of how the vehicle will perform. The design of the bars allows a consumer to see how the vehicle performs, how other vehicles in its class perform, and how all other vehicles perform, with respect to each reported element. [EPA-HQ-OAR-2009-0865-7522.1, p.12]

Finally, the SAFE/MSDS label is in black and white. SAFE was admittedly intrigued by the use of color in the labels that the agencies proposed, and appreciate that color can convey messages without taking up additional space. Upon further reflection, however, we realized most of the color used in proposed Labels 1 and 2 added little if any value to the labels. [EPA-HQ-OAR-2009-0865-7522.1, p.12]

[See EPA-HQ-OAR-2009-0865-7522.1, p.13-18 for comments pertaining to SAFE/MSDS' proposed labels for Gasoline Vehicles, Natural Gas Vehicles, Electric Vehicles, PHEV Extended Range Electric (Series) Vehicles, and PHEV (Predominantly Blended) Vehicles]

**Response:**

The agencies appreciate the specific comments and example labels provided. Much of the information on the top half of the labels submitted with this comment is similar to information on the final label. (Please see Section 3.6.1 and 3.6.2 for comments and responses on various cost values). The bottom portion of the commenter's label contains ideas that have merit; however, the multiple scales and the differentiating line elements are difficult to read when placed in a 4.5 x 7 inch label. The agencies agree that directional consistency among the rating scales is important and is finalizing all rating scales with a consistent 1 (worst) to 10 (best) scale. Although stacked rating scales may provide one method for quickly evaluating a vehicle, the agencies believe that the final layout of the rating scales is sufficiently clear to consumers and has the additional benefit of partitioning the information, such that it is easily findable by topic of interest. The agencies considered numerous fonts and design styles for the final label. The fonts that are being finalized are easily readable and are consistent with the overall label design.

**Organization:** Foster, Marcus

**Comment:**

**Foster, Marcus**

The abbreviations and symbols for units on your labels are a mess. For a start, the SI symbol for kilowatt-hour is 'kW-h', not 'kW-hrs'. For 'gallon' you have 'G' (in 'MPG') and 'gallons'; for mile, you use 'M' (in 'MPG') and 'mile'. At least you use the correct SI symbol 'g' for 'gram'. [EPA-HQ-OAR-2009-0865-4833, p. 2]

Why do you mix customary units (mile, gallon) and SI units (gram)? This is a recipe for confusion – remember the Mars Climate Orbiter? Either use all customary units, with emissions in oz/mile, or have the \*\*\*\*\* to switch to SI units completely. [EPA-HQ-OAR-2009-0865-4833, p. 2]

The average person struggles to understand and convert the reciprocal quantities ‘fuel economy’ and ‘fuel consumption’. You should wean Americans off the economy measure, because it is difficult to make comparisons about annual fuel usage. I suggest you take the plunge and adopt fuel consumption in L/100 km, like the rest of the world. [EPA-HQ-OAR-2009-0865-4833, p. 2]

**Response:**

The commenter is correct that the agencies are not using a single symbol or unit convention, such as the International System of Units (SI), for the fuel economy label. The reason is that the agencies endeavored to select the most common and familiar units, to avoid creating any unnecessary confusion for consumers. For instance, "MPG" is a shorthand term that most people recognize immediately as meaning "miles per gallon", but "G" in isolation would not necessarily read "gallons" to most people; therefore the agencies chose to use the term "gallons" when describing gallons per 100 miles, since this is a new and unfamiliar metric. Similarly, the agencies recognize that kW-h is the correct SI unit for kilowatt-hour; however, it is a common convention to abbreviate "hour" as "hrs" and it is also common to use kW-hrs when referring to the energy unit kilowatt-hours. The agencies considered "kW-hrs" to be the most consumer-friendly abbreviation for kilowatt-hours.

The final label does include a consumption metric on the label because EPA agrees that a fuel consumption metric is a better tool for making economically sound decisions and recognize that it will not become widely utilized if it is not first introduced on the label.

**Organization:** Tesla Motors

**Comment:**

**Tesla Motors**

Tesla also believes that additional comparative information should also be provided on the new label in a manner meaningful to consumers. For example, option 2 provides sliding scales for fuel economy compared to other vehicles generally and vehicles in a similar class. Other sliding scales include greenhouse gas measures and traditional pollutant measures. Such information can provide consumers with a “shortcut” analyses on fuel economy labels by providing an easy to understand comparison they would otherwise have to do by reviewing numerous labels with a single metric. While new to motor vehicles, such comparative scales have been used in the past and are familiar to consumers – specifically, EnergyGuide labels on home appliances provide information on a sliding scale demonstrating which appliances are more energy efficient versus other similar types of appliances. Just as the EnergyGuide labels provide useful comparative information, similar scales can be applied to motor vehicles as well. [EPA-HQ-OAR-2009-0865-6933.1, pp.2-3]



**Response:**

We agree that it is important to provide easy ways for consumers to compare fuel economy and environmental information across all vehicle technologies. The final label requires a slider bar, with a one-to-ten scale, to show how the vehicle's fuel economy and greenhouse gas emissions compare among all other vehicles. Information on the best and worst fuel economy for other vehicles in the same class (e.g., small SUVs) will also be provided on the label. Finally, the label will include a one-to-ten slider bar that shows how the vehicle's smog emissions compare among all vehicles.

**Organization:** F., Nick  
Mauldin, Ronald

**Comment:**

**F., Nick**

I have made some amendments to your design. The image can be found here:  
<http://www.flickr.com/photos/31385480@N05/4944096848/> [EPA-HQ-OAR-2009-0865-1323, p.1]

**Mauldin, Ronald**

Rather than trying to describe my recommended changes, I have completed an alternative design and have attached that design to this email. I believe you will find my combination label design to better meet the objectives of the label. If you are interested, I am available for consultation on a re-design of the label. [EPA-HQ-OAR-2009-0865-5795, p. 1, see p. 2 for suggested alternate label design.]

**Response:**

Thank you for the thoughtful design suggestions. EPA took all comments into consideration when setting forth the final label design.

**Organization:** University of Pennsylvania Law School, Environmental Law Project

**Comment:**

**University of Pennsylvania Law School, Environmental Law Project**

In this comment, we evaluate the relative strengths and weaknesses of these labels and propose an amalgam of Labels 1 and 2 as the ideal choice in light of the following considerations: aesthetics and ease of consumer use, as well as clarity of presentation of environmental impacts and benefits, fuel economy, fuel costs and savings, and likelihood of withstanding judicial review. [EPA-HQ-OAR-2009-0865-7171.1, p.2]

Our amended label design highlights the environmental impact of each vehicle by clearly listing relevant information under the term “Environment,” and by increasing the size of the GHG and Other Air Pollutants slider bars to make them much easier to read. [EPA-HQ-OAR-2009-0865-7171.1, p.5]

Our amended label design also eliminates the horizontal section of small, cramped boxes in which fuel economy is displayed in Label 1. These are confusing, difficult to read, and hinder vehicle comparisons by providing many pieces of information with no apparent visual hierarchy. Instead, we have highlighted gal/100mi., vehicle range for electric vehicles, and the slider bar that illustrates fuel economy in MPG/MPGe within vehicle class. Given the short time consumers spend viewing the label, our amended label allows them to find all relevant information more quickly, facilitated by better visual displays of fuel economy. At the same time, it allows a consumer inspecting a vehicle from a short distance to quickly locate the vehicle’s miles per gallon information, and, once they do, simultaneously presents them with the more useful gallons consumed per hundred miles metric. [EPA-HQ-OAR-2009-0865-7171.1, p.6]

EPA and NHTSA have provided a range of proposed automobile labels that would fulfill their statutory mandate. While each of these labels has strengths, we believe that a modification of Label 1 would most effectively convey information that would allow consumers to compare vehicles and understand their associated fuel costs and environmental impacts. Our proposed label, which is attached to this comment as Appendix A, utilizes some elements of Label 2, while maintaining the vertical layout, letter grade and prominently displayed 5-year fuel cost savings from Label 1. Our proposed label also includes important information such as gallons/100 mi., the annual fuel cost, and the MPG as situated within the range of all vehicles and the range for the particular class. We include a separate section labeled “Environment,” as appears in Label 2, for those consumers who wish to separately compare that information. While much of the same information appears on our label and the proposed Label 1, we believe that our proposal more clearly provides the consumer with a hierarchy of information in various categories by utilizing size and distinct topical sections. We believe that, with these modifications, the new fuel economy label will effectively convey useful information to future auto-buyers and encourage the purchase of more environmentally friendly vehicles. [EPA-HQ-OAR-2009-0865-7171.1, p.11]

[Appendix A can be found in Docket number EPA-HQ-OAR-2009-0865-7171.2.]

**Response:**

EPA appreciates the thoughtful comments and design suggestions. EPA agrees that the slider bars on Label 1 are likely to be more effective when the size is increased; therefore the final label includes slider bars that are larger in size than on proposed Label 1. EPA believes that the MPG and gallons per 100 mile values are easy to find on the final label. In addition, the final label contains information in a format that allows consumers to quickly find the category of information in which they are most interested.

### **3. Label Content (Metrics and Ratings Systems)**

**Organization:** Edison Electric Institute (EEI)

**Comment:**

**Edison Electric Institute (EEI)**

EEI recognizes that there is a legislative mandate for the label to include a rating system that “would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase ....” EISA, 49 U.S.C. 32908(g)(1)(a)(ii). EEI does not endorse or oppose a specific vehicle rating system. However, EEI encourages EPA and NHTSA to adopt a rating system that (a) is based on specific quantitative data, and (b) does not use symbols or terms that could skew consumers’ perceptions. For example, consistent with the familiar FTC Energy Guide yellow appliance efficiency labels, rating scales should be included, but not qualitative assessments like “best” and “worst.” [EPA-HQ-OAR-2009-0865-7117.1, p.5]

**Response:**

The ratings on the label will be based on quantifiable data as requested by the commenter. The greenhouse gas score, for example, is based on tailpipe CO2 emissions and the methodology for assigning a score can be found in the preamble. While the labels do include the term "best," we chose not include the term "worst."

**Organization:** National Automobile Dealers Association (NADA)  
National Association of Minority Auto Dealers (NAMAD)

**Comment:**

**National Association of Minority Auto Dealers (NAMAD)**

First, as the proposal correctly notes, the overwhelming majority of prospective light-duty purchasers focus on fuel economy only when fuel prices are relatively high and only as a relatively minor criteria when compared to other vehicle attributes. I believe that this reality will continue to be the case for model year 2012 and on into the future. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 41-42]

**National Automobile Dealers Association (NADA)**

First, as the joint proposal correctly states, most prospective light-duty vehicle purchasers only focus on fuel economy when fuel prices are relatively high, and only as a relatively minor criterion when compared to other vehicle attributes. I will tell you from being a Honda dealer we are definitely focused and driven on fuel economy; however, it is a function of price. That is what interests consumers. Right now, they're not that interested. Two years ago, top of the

mind. So like anything in life, we tend to remember what's happening right now, and then when it goes away, it's not the top news story, so to speak. Then we go away. The fuel economy information labels, we really need to leverage this reality and not fight it. It is the way it is. Second, even fewer prospective purchasers consider greenhouse gas and other emissions when shopping for new cars. That doesn't mean that they don't want cleaner and greener cars; it's just, basically, they recognize that new vehicles are cleaner and greener. Anything they trade in, the new car is going to be better. And again, NHTSA and EPA should strive to leverage that and not fight this. I believe in life you have to deal with things how they are and not sometimes how you hope they are. Third, prospective purchasers who focus on fuel economy or emissions performance tend to evaluate comparative information before coming into a dealership. 90 percent of all consumers -- and I think that's a low number -- look on the Web site, narrow their choices down. Everything you buy you look on the Web site before. If you want a camera, you look on the Web site. They are doing their homework before they go in, and they narrow it down to some choices. This simply reflects how new vehicle shopping is done these days. Customers use the Internet to look at comparative information and make preliminary purchase decisions in the comfort of their home or office -- I'm sure they're not doing it on work time -- before they arrive at the dealership to test-drive vehicles. Now, that doesn't mean the labels lack value or that dealers shouldn't print out the Department of Energy's Economy Guide for Purchasers who ask for one. It's just one more truth EPA and NHTSA must account for and accommodate. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 33-34.]

**Response:**

The agencies understand that consumer interest in fuel economy is directly correlated to the price of gasoline. Gasoline prices have fluctuated significantly over the last several years and currently stand at over \$4 a gallon for much of the United States, likely leading to a renewed consumer focus on fuel economy. Regardless of gasoline prices, the label is designed to efficiently convey fuel economy and environment information to consumers. As NADA commented, we do expect many consumers to do vehicle comparisons on the web, which is exactly why we are developing more detailed web comparison tools including an emission calculator and information on emissions that will be created by electricity generation.

**Organization:** Securing America's Future Energy (SAFE)

**Comment:**

**Securing America's Future Energy (SAFE)**

Information That Belongs on the Label [EPA-HQ-OAR-2009-0865-7522.1, p.4]

As a general matter, the most critical information on the label includes the following vehicle characteristics: 1) operating cost; 2) emissions profile; and 3) oil consumption. [EPA-HQ-OAR-2009-0865-7522.1, p.4]

**Response:**

The label will include information on fuel costs, but not maintenance costs. Maintenance costs are beyond the scope of this label. The label will also include information about greenhouse gases and combined smog emissions, and additional emissions information will be available on the website. Both fuel economy and fuel consumption numbers will be shown on the label.

### 3.1. Fuel Economy Performance & Consumption

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Environmental Defense Fund (EDF)  
Natural Resources Defense Council (NRDC)  
Diesel Technology Forum  
Toyota  
Electric Drive Transportation Association (EDTA)  
Edison Electric Institute (EEI)  
National Automobile Dealers Association (NADA)  
California Air Resources Board (CARB)  
Tesla Motors  
Securing America's Future Energy (SAFE)  
Institute for Policy Integrity - New York University School of Law  
Nissan  
National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)  
BorgWarner  
Argonne National Laboratory  
Center for Biological Diversity (Center)  
International Council on Clean Transportation (ICCT)  
Honda Motor Company  
National Petrochemical and Refiners Association (NPRA)  
U.S. Coalition for Advanced Diesel Cars  
Consumers Union  
National Wildlife Federation (NWF)  
University of Pennsylvania Law School, Environmental Law Project  
Natural Gas Vehicles for America (NGVAmerica)  
Smith, Houston  
Steele, John M.  
Priddy, RL  
California Cars Initiative  
Catania, Andrew  
Honeywell  
Foster, Marcus  
Johnson, Evan W.  
Siegel+Gale  
National Association of Minority Auto Dealers (NAMAD)  
Duoba, Mike  
United Transportation Advisors  
Community Environmental Council  
Abbat, Pierre

## **Comment:**

### **Fuel Economy Metric**

The agencies proposed to retain the current practice of placing MPG on the label for vehicles that use liquid fuels such as gasoline and diesel. There are two main reasons for this. First, representing the vehicle's fuel economy performance on the label with an estimate of miles per gallon is a core element of the fuel economy information requirements of EPCA, which specifically states that the label must display "the fuel economy of the automobile" [1] and defines "fuel economy" as "the average number of miles travelled by an automobile for each gallon of gasoline (or equivalent amount of other fuel) used, as determined by the Administrator." [2] Historically, the label has presented this information in terms of gallons of purchased fuel, since this is the most meaningful for the consumer. Thus, gasoline vehicle labels have historically displayed miles per gallon of gasoline, while diesel vehicle labels have displayed miles per gallon of diesel. [3] Second, consumers are very familiar with the MPG metric, as it has been the ubiquitous fuel economy metric for liquid fuels on vehicle labels since 1977.

Comments overwhelmingly supported the use of MPG for gasoline and diesel vehicles. The one major exception was the American Council for an Energy Efficient Economy, which advocated that diesel vehicle fuel economy values be calculated on an MPGe basis to reflect the higher energy content of diesel fuel.

The agencies proposed a range of options for ethanol flexible fuel vehicles, including maintaining the current policy of requiring only gasoline-based MPG on the label (with optional inclusion of E85-based MPG), requiring the addition of E85-based MPG, and requiring the addition of E85-based MPGe. Only a few commenters addressed ethanol flexible fuel vehicles, and most who commented on this option supported the current policy.

### **Fuel Consumption Metric**

In the past few years, many stakeholders and academics have suggested that a fuel consumption metric--such as gallons per 100 miles—could be beneficial on the fuel economy label as either a replacement for, or a complement to, MPG. This could serve to address the fact that, with fuel economy, there is a non-linear relationship between gallons (or gasoline-equivalent gallons) used over a given distance and MPG (or MPGe). Accordingly, a certain MPG improvement at a lower MPG level saves much more fuel (and thus money) than the same MPG improvement at a higher MPG level; this is known as the "MPG illusion." [4] These stakeholders suggest that the public would be better equipped to make economically sound purchasing decisions with a metric that directly reflects fuel consumption and, correspondingly, fuel costs. In response to these suggestions and concerns over the MPG illusion, the proposal introduced fuel consumption on the label, in the form of gallons per 100 miles for combined city/highway operation, as a complement to the MPG metric for liquid fuels.

Many comments were received on the general question of whether a fuel consumption metric should be added to gasoline vehicle labels and there was broad support for doing so, including,

among others, the Argonne National Laboratory, Association of International Automobile Manufacturers, Honda, Hyundai, Toyota, Center for Biological Diversity, International Council on Clean Transportation, Environmental Defense Fund, Natural Resources Defense Council, Consumers Union, American Automobile Association, Borg Warner, California Cars Initiative, Community Environmental Council, National Renewable Energy Laboratory, Securing America's Future Energy, University of Pennsylvania Law School, and the MIT Research Group. Most supporters cited the non-linearity associated with the MPG illusion, and suggested that it was important to begin the process of educating consumers about fuel consumption, while also keeping fuel economy metrics. There were a few opponents of including fuel consumption metrics, such as the California Air Resources Board, the Alliance of Automobile Manufacturers, Ford, and the National Automobile Dealers Association, who generally argued that fuel consumption was not important enough to warrant adding yet more numbers to the label.

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[1] 49 U.S.C. 32908(b)(1)(A). EISA also requires fuel economy information. See 32908(g)(1)(A).

[2] 49 U.S.C. 32901(a)(11).

[3] Similarly, for those manufacturers who elect to put E85 information on the label for a flexible-fueled vehicle, it would be displayed as miles per gallon of E85.

[4] An example of this “MPG illusion” is that a 20 MPG vehicle uses 25% less fuel than a 15 MPG vehicle, while a 40 MPG vehicles uses only 12.5% less fuel than a 35 MPG vehicle; that is, the same 5 MPG improvement will have different effects on fuel consumption (and fuel costs) depending on the starting point for the improvement. An extreme example is that, at a fuel economy of 1000 MPG, the fuel consumption is so minute (0.001 gallons per mile) that it no longer matters whether the fuel economy is increased to 1010 MPG, 2000 MPG, or even 1,000,000 MPG; the only fuel that can be further saved is some fraction of that 0.001 gallons per mile.

## **Response:**

### **Fuel Economy Metric**

The agencies are requiring the use of MPG for liquid fuels for the same reasons articulated in the proposal: historical implementation of the EPCA requirements, consumer familiarity, and the fact that these fuels are purchased by the gallon. We believe that changing to MPGe for the fuel economy of diesel vehicles would be very confusing to consumers, as label MPGe values would then be inconsistent with all consumer calculations of fuel economy (since diesel is sold in volumetric gallons) as well as fuel economy values shown on vehicle dashboard displays. The agencies are requiring a label for ethanol flexible fuel vehicles that is consistent with the principles of the current policy: all label metrics are based on gasoline operation, a statement is provided so that the consumer knows that the values are based on gasoline operation,[1] and



EPA is finalizing that manufacturers may voluntarily include fuel economy estimates on E85 (which would be based on miles per gallon of E85, given that E85 is a liquid fuel). [\[2\]](#)

### **Fuel Consumption Metric**

The widespread commenter support for including fuel consumption metrics echoed EPA's concerns about the MPG illusion. EPA agrees that a fuel consumption metric is a better tool for making economically sound decisions and recognizes that it will not become widely utilized if it is not first introduced on the label. Therefore, EPA is requiring the use of fuel consumption on the label--in the form of gallons per 100 miles for combined city/highway operation for liquid fuels--though in reduced prominence relative to the traditional MPG metric.

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[\[1\]](#) "Values are based on gasoline and do not reflect performance and ratings on E85."

[\[2\]](#) In addition, as required under EPA's authority in EPCA, the Fuel Economy Guide and web site will continue to provide the fuel economy estimates on E85, the driving range on E85, and information about how the performance might change when operating on mixtures of E85 and gasoline.

### **3.2. Greenhouse Gas Performance**

**Organization:** California Air Resources Board (CARB)  
Naghdi, Kamran Michael  
California New Car Dealers Association  
Energy Independence Now (EIN)  
National Association of Minority Auto Dealers (NAMAD)

#### **Comment:**

#### **California Air Resources Board (CARB)**

We recommend using a different scale for rating a car's greenhouse gas emissions. We believe it may be confusing for consumers to see two different scales on the label; one that uses a score for other pollutants, and one that uses an absolute value for greenhouse gas emissions. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 131.]

#### **California New Car Dealers Association**

I guess two suggestions that we would have would be to include more contextual information. On Label 2 you have the environment section which has greenhouse gas emissions on the zero to 850 scale and the other pollutants from 1 to 10. We would like to have a bracket showing how those scores compared to other vehicles in the same class. We think that would be helpful for consumers and helpful in informing our consumers how the vehicle compares. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 70-71.]

#### **Energy Independence Now (EIN)**

While fuel efficiency is a critical metric the consumer already uses to compare vehicles to one another, the introduction of a metric that accounts for all greenhouse gas emissions is equally important. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 122.]

#### **Naghdi, Kamran Michael**

I commed your idea for labelling the vehicles CO2 foot print. any such measures will create consumer and OEM awareness. [EPA-HQ-OAR-2009-0865-3497, p.1]

In my opinion, one needs to adopt a long term and whollistic policy. And that is what EcoCa has done. [EPA-HQ-OAR-2009-0865-3497, p.1]

In the USA, 1.5M workers drive to work, the production lines and paint shops are highly polluting when some of the OEMs claim to be producing zero emissions vehicles. [EPA-HQ-OAR-2009-0865-3497, p.1]

EcoCa, Greener All the Way, starts by providing pre-engineered, modular, free worker housing made next to the plant using Renewable Energy in order to reduce commuting. The factory can be powered 100% by renewable energy. Our three quadri-cycle, light weight, low cost vehicles (EcoCa Electric, EcoCA hybrid petrol/CNG and 340cc (US made engine) have the lowest petrol consumption for long distance driving) have true zero emissions all the way. [EPA-HQ-OAR-2009-0865-3497, p.1]

### **National Association of Minority Auto Dealers (NAMAD)**

Second, despite the new mandate set out in section 105 of EISA, even fewer prospective new vehicle purchasers consider a vehicle's greenhouse gas or other emissions when shopping. As with fuel economy, I do not expect emissions performance to play a significant role in most new vehicle purchase decisions in moving forward as the overwhelming majority of customers at least implicitly recognize that vehicles are highly regulated to meet strict fuel economy and emissions performance standards. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 42]

### **Response:**

The agencies are finalizing a label with a greenhouse gas rating on a 1-10 scale, consistent with the format of the smog rating. We feel that including this information is the best way to meet our statutory requirements in EISA and provide meaningful information to consumers.

The agencies decided to include information for within class comparisons in a text statement next to the combined Fuel Economy and Greenhouse Gas slider bar. The agencies considered label designs using a bracket to identify within class comparisons (as suggested by the California New Car Dealers Association) for the Fuel Economy slider bar, however for the final design the Fuel Economy and GHG ratings were merged on to one slider bar and the separate bracket for within class comparisons was not compatible.

The agencies agreed that GHG metric will be based on tailpipe CO<sub>2</sub>, emissions. The large majority of GHG emissions from the tailpipe of a vehicle are CO<sub>2</sub> and adding small amounts of other GHGs would not ultimately provide consumers with more information to compare vehicles.

### **3.2.1. Methodology**

**Organization:** Toyota

California Air Resources Board (CARB)

Securing America's Future Energy (SAFE)

National Wildlife Federation (NWF)

University of Pennsylvania Law School, Environmental Law Project

**Comment:**

**California Air Resources Board (CARB)**

We recommend that you include all greenhouse gas pollutants in a vehicle's total greenhouse gas emissions. [EPA-HQ-OAR-2009-0865-7527.1, p.3]

**National Wildlife Federation (NWF)**

Greenhouse gas emissions are a critical environmental performance measure, and one that will become increasingly central over the lifetime of the vehicles receiving these new labels. It also provides an important crosscutting metric that consumers can use to assess environmental performance across diverse technologies. Greenhouse gas emissions should be amongst the criteria most prominently displayed on the label. [EPA-HQ-OAR-2009-0865-7528.1, p.3]

**Securing America's Future Energy (SAFE)**

Emissions profile: Concerns about the environmental sustainability of fossil fuels have grown in prominence in recent decades. The Department of Energy reports that from an end-use perspective, the transportation sector is the single largest source of U.S. CO<sub>2</sub> emissions, having surpassed industrial emissions in 1999. In 2009, total domestic emissions from petroleum—70 percent of which is used in transport—were 2,306 million metric tons (40 percent of total emissions). At current levels, U.S. oil consumption in the transportation sector is simply inconsistent with even moderate goals for reducing economy-wide emissions of greenhouse gases. These concerns were central in EPA's decision to begin regulating greenhouse gas emissions from the light-duty fleet beginning in 2012, and the medium- and heavy-duty fleet beginning in 2014. [EPA-HQ-OAR-2009-0865-7522.1, p.5]

Light-duty vehicle emissions not only represent a substantial portion of the nation's carbon emissions, they also represent a substantial externality of operating a vehicle that many consumers may not take into account, or even be fully aware of. To help consumers understand the true environmental consequences of their choice in vehicle, and to assist consumers who want to drive cars with lower emission profiles, vehicles' emissions, of both carbon and criteria pollutants, should be included on the label. [EPA-HQ-OAR-2009-0865-7522.1, p.5]

## **Toyota**

Toyota agrees with the agencies proposal that the greenhouse gas information be based on CO2 emissions for the vehicle model type, rather than the carbon-related exhaust emissions (CREE) methodology. The use of CREE would only add a level of complexity that would not be conducive to public understanding of GHG emissions between vehicles. [EPA-HQ-OAR-2009-0865-6901.1, p.5]

## **University of Pennsylvania Law School, Environmental Law Project**

We concur with EPA and NHTSA that only CO2 emissions ought to be included in the greenhouse gas (GHG) performance values, due to the fact that (1) CO2 comprises approximately 95% of tailpipe GHG emissions, and (2) the inclusion of CH4 and N2O emissions, which are currently set at the same level for all vehicles rather than calculated according to individual vehicle's emissions, would add no meaningful information to the GHG performance values. [EPA-HQ-OAR-2009-0865-7171.1, p.4]

## **Response:**

The agencies agree with commenters that it is important to include greenhouse gas (GHG) information on the label, and in fact are required to include this information under the Energy Independence Security Act of 2007. The agencies agreed that the label will be based on tailpipe CO2 emissions. As the commenter from the University of Pennsylvania noted, CO2 makes up 95% or more of tailpipe GHG emissions, therefore adding other GHG emissions would complicate the label without providing the consumer with any significant additional information. The agencies agreed with Toyota that we do not want to introduce the complexity of carbon-related exhaust emissions (CREE) calculations into the labeling process.

### 3.2.2. A/C Credits

**Organization:** Toyota

California Air Resources Board (CARB)

Institute for Policy Integrity - New York University School of Law

International Council on Clean Transportation (ICCT)

University of Pennsylvania Law School, Environmental Law Project

**Comment:**

**California Air Resources Board (CARB)**

We recommend including air conditioning (A/C) credits as part of a vehicle's greenhouse gas emissions. This may give manufacturers more incentive to use advanced A/C systems on their vehicles. [EPA-HQ-OAR-2009-0865-7527.1, p.3]

**Institute for Policy Integrity - New York University School of Law**

The Agencies Should Take into Account Air-Conditioning Credits Earned by Manufacturers [EPA-HQ-OAR-2009-0865-7136.1, p.15]

Onboard air-conditioning systems contribute to greenhouse gas emissions through leakage of hydro fluorocarbon ("HFC"), and through the additional load running the air-conditioning places on the vehicle's engine, reducing fuel efficiency, and proportionally increasing emissions. Currently, manufacturers can generate credits towards their greenhouse gas compliance obligations by reducing leakage of HFCs from the air-conditioning. [EPA-HQ-OAR-2009-0865-7136.1, p.15]

The agencies should factor these credits into the greenhouse gas emissions values that appear on the fuel economy label. HFCs are a significant greenhouse gas, and manufacturers should be rewarded for reducing HFC leakage by having the credits they earned factored into the information customers see on the fuel economy label. Further, consumers should be informed, as much as possible, as to actual the environmental impact of the vehicles they drive. [EPA-HQ-OAR-2009-0865-7136.1, p.15]

In the unlikely event that the agencies find that that including air-conditioning credits in greenhouse gas calculations would significantly delay the rule, they should consider including this analysis in their post-promulgation research agenda. [EPA-HQ-OAR-2009-0865-7136.1, p.15]

**International Council on Clean Transportation (ICCT)**

Air Conditioning Credits for Greenhouse Gas Emissions [EPA-HQ-OAR-2009-0865-7118.1, p.6]

Greenhouse gas credits should not be included on the label for air conditioning. Air conditioning systems will move to systems with virtually no greenhouse gas emissions in the next 3 to 7 years, so the credits will become meaningless in a short period of time. Further, the contribution of air conditioning to overall greenhouse gas emissions is much smaller than the greenhouse gas emissions from production and disposal of the vehicle, which are also not included. [EPA-HQ-OAR-2009-0865-7118.1, p.6]

### **Toyota**

Toyota does not agree with the inclusion of an air conditioning (A/C) factor in the GHG performance used for labeling, originating from the AIC credits generated under the light duty vehicle GHG requirements. Including AIC related credits for reporting CO2 reductions would not reflect technical accuracy because these reductions are not measured tailpipe reductions. [EPA-HQ-OAR-2009-0865-6901.1, p.5]

### **University of Pennsylvania Law School, Environmental Law Project**

We do not believe that the letter grade should include any information about the A/C leakage of the car. A/C leakage is already figured into overall GHG emissions using the standard 5-part test. Therefore, allowing manufacturers to boost their letter grade by decreasing A/C leakage would essentially be “double dipping” and could convey false information to consumers. A more appropriate place to display information about A/C credits is on the website. [EPA-HQ-OAR-2009-0865-7171.1, p.4]

### **Response:**

The agencies decided that the label will reflect tailpipe emissions, and accordingly A/C credits will not be incorporated into the GHG emission numbers or GHG rating. There are two components of an air conditioning system that impact the GHG emissions of a vehicle, air conditioner efficiency and refrigerant leakage. Air conditioner efficiency, or how much energy the vehicle engine must provide to run the air conditioning system, does affect tailpipe GHG emissions and manufacturers choosing a more efficient air conditioner may see a reduction in the GHG label numbers. Air conditioner leakage credits will not be included in the label calculations, since the agencies decided the label should reflect tailpipe emissions. Reducing the amount of leakage and using refrigerants with less global warming potential are both targeted under the light duty GHG rules and other EPA air conditioning programs.

### 3.2.3. Units

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Ford Motor Company (Ford)  
Toyota  
American Council for an Energy-Efficient Economy (ACEEE)  
Institute for Policy Integrity - New York University School of Law  
Center for Biological Diversity (Center)  
Honda Motor Company  
University of Pennsylvania Law School, Environmental Law Project

#### **Comment:**

#### **Alliance of Automobile Manufacturers (Alliance)**

Measurement for GHG Performance [EPA-HQ-OAR-2009-0865-6850.2, p.12]

The Alliance agrees that GHG performance would be most transparent to the consumer if expressed in grams per mile. [EPA-HQ-OAR-2009-0865-6850.2, p.12]

#### **American Council for an Energy-Efficient Economy (ACEEE)**

Units for Representing Greenhouse Gas Emissions

Greenhouse gas emissions should be represented as annualized tons of CO<sub>2</sub> equivalent rather than grams per mile. The most compelling reason for expressing emissions in annual tons rather than grams per mile is that consumers are likely more familiar with the former presentation than the latter. This is borne out in comments noted in the Federal Register (58135): participants reported understanding the environmental information in general, but did not understand the meaning of 'grams of CO<sub>2</sub>'. [EPA-HQ-OAR-2009-0865-7135.1, p. 9]

Providing emissions in annual tons may be familiar to consumers from other contexts, whereas a grams per mile (CO<sub>2</sub> g/mile) representation requires the consumer to perform more calculations to yield a familiar metric. Given the limited viewing time of vehicle labels, it is unlikely that the proposed grams per mile presentation will yield useful information for the consumer. Furthermore, expressing the environmental rating in units of grams of carbon dioxide per mile does not allow for easy comparison with carbon emissions reported in other contexts, and therefore does not allow consumers a quick, easy means of understanding the magnitude of their vehicles' carbon emissions. [EPA-HQ-OAR-2009-0865-7135.1, p. 9]

While grams per mile might appear to have special relevance given that this is the unit in which GHG emissions from vehicles are now regulated, the gap ("shortfall") between grams per mile for purposes of compliance and real-world grams per mile would become a perennial source of confusion, as it has for fuel economy, if this is the unit used on the label. [EPA-HQ-OAR-2009-0865-7135.1, p. 9]



The second reason for expressing emissions in annual tons is an issue of framing. Expressing emissions in 'tons per year' has more impact than 'grams per mile' because a ton sounds like so much more than a gram. This difference may influence consumers' perceptions of the importance of including the new environmental metrics in their purchase decisions: if grams are perceived as insignificant, then the entire metric may be ignored. [EPA-HQ-OAR-2009-0865-7135.1, p. 9] Lastly, just as expressing fuel savings over five years conveys a better sense of the value of this benefit than, say, cents saved per mile, expressing emissions as annual tons is a more meaningful framing of environmental impact. [EPA-HQ-OAR-2009-0865-7135.1, p. 9]

### **Association of International Automobile Manufacturers (AIAM)**

Regarding the request for comments on use of “grams per mile” or some other metric for GHG, AIAM supports the use of grams per mile as the GHG performance metric. [EPA-HQ-OAR-2009-0865-7134, p.4]

### **Center for Biological Diversity (Center)**

Grams of CO<sub>2</sub> Per Mile is an Appropriate Metric for Tailpipe GHG Emissions. [EPA-HQ-OAR-2009-0865-7122.1, p.3]

New vehicle labels must contain GHG performance information. The Agencies propose to use grams per mile of CO<sub>2</sub> as the sole basis for GHG emissions performance in the Proposed Revisions. We agree that this choice can serve as a reasonable proxy, considering that CO<sub>2</sub> constitutes 95% of tailpipe GHG emissions and is applicable to all vehicles: the grams per mile metric pertains to electric vehicles, dual fuel vehicles, gasoline vehicles, and flex fuel vehicles alike. Because of its universal application, this metric allows consumers to evaluate the tailpipe emissions of each vehicle regardless of class designations. [EPA-HQ-OAR-2009-0865-7122.1, p.3]

Fourth, the grams of CO<sub>2</sub> per mile metric should be included in a larger font to highlight the metric's environmental importance and the direct correlation between fuel consumption and CO<sub>2</sub> emissions. [EPA-HQ-OAR-2009-0865-7122.1, p.9]

### **Ford Motor Company (Ford)**

We support the CO<sub>2</sub> information being presented on the label in absolute form (grams/mile) to help with transparency to the consumer. CO<sub>2</sub> values, in units of grams/mile, will directly relate to the performance of a vehicle and help with consumer introduction and acceptance of this new greenhouse gas performance metric. [EPA-HQ-OAR-2009-0865-7141.1, p.3]

### **Honda Motor Company**

In the case of CO<sub>2</sub>, we believe that the grams/mile data itself will become a key indicator for consumers. Combining or evaluating this data with other data is unnecessary and adds clutter to a label chock full of information. [EPA-HQ-OAR-2009-0865-6774.1, p.2]

CO2 Metric: The agencies seek comment on the type of metric for CO2, whether this should be in grams/mile, tons/year, or displayed on another scale entirely, such as a one through ten scale. Honda supports the use of a grams/mile metric. The grams/distance metric is gaining currency globally, and increasing consumer awareness of this value will be an important accomplishment of this label. The grams/mile metric will bring the consumer in-line with the policy discussion affecting their future vehicle choices. Furthermore, one through ten scales tends to be relative and not absolute values and change over time. If “ten” is the best on the scale, a score of six one year might be a score of five the next. Changing relative scales tend to decrease consumers’ confidence in the value of the information. Please see our prior discussion on upstream emissions. [EPA-HQ-OAR-2009-0865-6774.1, p.4]

### **Institute for Policy Integrity - New York University School of Law**

Carbon Dioxide Information Should be Presented in Tons Per Year [EPA-HQ-OAR-2009-0865-7136.1, p.16]

The fuel economy label should provide consumers with information about the vehicles they drive in a way that is salient and not confusing; this means that information should be presented as it is most commonly understood. With respect to carbon dioxide emissions, the information should be presented in tons per year rather than grams per mile. Grams per mile may lack salience. The ton is the most common metric for carbon emissions in the public discourse, and the principal sponsor of the program’s reauthorizing legislation mentioned emissions per year rather than per mile. Additionally, tons per year is the metric EPA already uses in its recommendations for how to calculate green house gas emissions for passenger vehicles. Given that consumers are already familiar with measuring greenhouse gases in tons, they will most readily understand the new vehicle labels if the agencies continue this practice. [EPA-HQ-OAR-2009-0865-7136.1, p.16]

### **Toyota**

Toyota supports EPA's proposal to use grams per mile as the metric to display greenhouse gas performance information on the label because it is consistent with the metric already under consideration for GHG emission standards and compliance for light duty vehicles. [EPA-HQ-OAR-2009-0865-6901.1, p.6]

### **University of Pennsylvania Law School, Environmental Law Project**

Carbon output measurements should continue to be depicted in grams per mile, rather than tons per year. Not only are consumers accustomed to thinking of vehicle fuel consumption and emissions in terms of “per mile,” this measurement is also very definite and allows the consumer to determine how much GHG a given car will release every year by simply multiplying this number by the number of miles they estimate they will drive that year. [EPA-HQ-OAR-2009-0865-7171.1, p.5]

**Response:**

The agencies agree with the majority of commenters that grams per mile is the appropriate metric for displaying greenhouse gas (GHG) emissions on the fuel economy label. We agree that grams per mile is analogous to the miles per gallon fuel economy number that has traditionally been, and remains, the focus of the fuel economy label. The final label design shows GHG emissions in grams per mile, in addition to the 1-10 rating scale. Additional metrics, such as tons per year, may be added to the website at a later time.

### 3.3. Fuel Economy and GHG Rating Systems

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Comparison of Median Values [EPA-HQ-OAR-2009-0865-6850.2, p.11]

The comparison to median values for each model year would lead to consumer (and manufacturer) confusion, especially if this would result in mid-year rating adjustments as new models are introduced or in a lower rating for the same vehicle in a later model year. [EPA-HQ-OAR-2009-0865-6850.2, p.11]

**Response:**

We agree that mid-year rating adjustments could lead to situations where vehicles sitting next to each other on the lot would have values that are not directly comparable, and that this would be undesirable. Therefore, we do not intend to adjust rating systems or median vehicle values mid-model year. We plan to provide guidance prior to each model years that will be used on for all vehicles of that model year. It is true that vehicles of different model years would then have ratings that are not directly comparable; however, we believe that it is more important that the rating systems and the median vehicle reflect the new vehicle fleet as it evolves than that vehicles of different model years have comparable ratings. For those who wish to compare vehicles across model years, the label and website provide MPG and g/mi values that can be directly compared.

**Organization:** International Council on Clean Transportation (ICCT)

**Comment:**

**International Council on Clean Transportation (ICCT)**

The studies also found that it is important to limit the number of grades and regularly adjust the requirements for each grade. [EPA-HQ-OAR-2009-0865-7118.1, p.3]

**Response:**

The final label design will have a 1-10 greenhouse gas rating instead of a letter grade. The scale will be evaluated annually, and adjusted if necessary.

**Organization:** Natural Resources Defense Council (NRDC)

Toyota

Securing America's Future Energy (SAFE)

AAA

EcoMotors International, Inc.  
California New Car Dealers Association

**Comment:**

**AAA**

Label 2 offers easy-to-read, sliding scales that provide consumers with a comprehensive overview of the environmental performance, and energy cost savings of the particular vehicle under consideration. These scales also are very similar to labels first affixed to cars being sold in California in 2009 as a result of a state law mandating both a Smog Score and Global Warming score. These labels have been widely accepted and adopted by thirteen other states across the country. As many consumers are already familiar with this configuration AAA supports its further utilization. [EPA-HQ-OAR-2009-0865-6914.1, pp.1-2]

**California New Car Dealers Association**

MR. MEDFORD: And finally, the last question I have is: The Congress requires us to have this rating scale for rating vehicles and we've done that, and the slider bar both for greenhouse gases and fuel economy, and we have this category of vehicles that the EPA uses to designate. Are you okay with that approach? MR. MORRISON: Yes. Our members have said that having the category -- we do like having the bracket within the slider bar. MR. MEDFORD: And you had mentioned for the greenhouse gases you don't like the words 'best' and 'worst,' and that's true for the fuel economy too? MR. MORRISON: Absolutely. If you look in our prepared testimony, we do include all of the labels, and on the last page we actually have the CARB label down there. And as you can see, there's the number down at the bottom. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 78.]

**EcoMotors International, Inc.**

The agencies seek comment on whether separate ratings should be provided for other emissions or whether a single combined rating for fuel economy, GHG and other emissions should be provided. [EPA-HQ-OAR-2009-0865-6851.1, p.6]

The Energy Independence and Security Act of 2007 (EISA) requires that each new vehicle be labeled with a rating system that includes 'a designation of automobiles with the lowest greenhouse gas emissions over the useful life of the vehicles; and the highest fuel economy.' EcoMotors favors transparency in vehicle labeling and believes that fuel economy, GHG emissions, and other emissions (if the agencies choose to include information on other pollutants) should be separately identified on vehicle labels. GHGs and other emissions should reflect upstream emissions from fuel production and distribution in order to achieve equity across different vehicle technologies. Consumers should be given the opportunity to weigh the relative importance of these metrics for themselves. [EPA-HQ-OAR-2009-0865-6851.1, p.6]

### **Natural Resources Defense Council (NRDC)**

MR. MEDFORD: This could be for any of you, but the law requires us to provide, you know, the scales that we have for both fuel economy and for criteria pollutants or smog emission pollutants, a rating for the entire fleet. And so we sort of have to do that and provide that. We also have considered at one point within that scale doing it by the category of vehicle you're buying, but it really does add sort of a level of complexity, and we decided not to do that in this proposal. Do you have a view about that? [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 35-36. This question posed by EPA was also answered by Ron Minsk, pp.33-37]

MR. TONACHEL: I think it's also a matter of emphasis, I think as I was pointing out, the letter grade is helpful because it can be used very quickly early in the buying process. But that doesn't take away the need to provide more detail in the label as well. I think you can cross a number of things that you provide in a label, which may not be the first thing that you look at, but that doesn't mean you shouldn't have them on there. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 37]

### **Securing America's Future Energy (SAFE)**

MR. MEDFORD: This could be for any of you, but the law requires us to provide, you know, the scales that we have for both fuel economy and for criteria pollutants or smog emission pollutants, a rating for the entire fleet. And so we sort of have to do that and provide that. We also have considered at one point within that scale doing it by the category of vehicle you're buying, but it really does add sort of a level of complexity, and we decided not to do that in this proposal. Do you have a view about that? [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 35-36; This question posed by EPA was also answered by Luke Tonachel of Natural Resources Defense Council, pp.37]

MR. MINSK: I thought that on one of them you actually -- you did.

MR. MEDFORD: Is that 3MM.

MR. MINSK: I thought it was on two you did. You had a bar, and then it had -- I thought that that was Label 2, and I think that makes a lot of sense.

MR. MEDFORD: Hang on a second. It shows a range, but it doesn't break it down by vehicle type.

MR. MINSK: On one of them. On Label 2 it does.

MR. MEDFORD: You think that's not too confusing or do you have a view about it? You like that?

MR. MINSK: I like that. I think we have to give people a lot more credit than we are. I mean, people aren't -- people are capable of understanding more than the letter A and B and C, and

they're capable of understanding, you know, all vehicles have a subset of vehicles. If we talk down to people, they'll act like we expect them to. If we talk up to them, they'll rise to the occasion.

[These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 35-37]

### **Toyota**

Separate absolute ratings for F/E, GHG, & other emissions - as is being proposed on EPA's Label Option 1 and Label Option 2, and uses the same information but is distinguished via a different format: Toyota agrees that representing the ratings separately for F/E, GHG, and other emissions could provide the consumer with a useful comparison of each category among vehicles. [EPA-HQ-OAR-2009-0865-6901.1, p.6]

All the remaining information displayed in the bottom portion of the label would be available to consumers who want to know the more detailed information. Toyota does not agree with EPA's view that that this approach is easily understood by consumers and simplifies the process of evaluating the overall energy efficiency and environmental impacts of the vehicles consumers are considering. Toyota sees that co-displaying the grade rating with corresponding scale bars will diminish the significance of any grading system because consumers would be unclear as to what the grading scale truly represents. [EPA-HQ-OAR-2009-0865-6901.1, p.12]

### **Response:**

The final label design maintains separate metrics for fuel economy, greenhouse gasses, and emissions that are precursors for smog. The agencies agreed that separate metrics are useful to consumers, and that including the separate information will help consumers make an informed vehicle decision. The slider bars that are used to show the relative rating of vehicles no longer show that a low rating is the "worst," though the high score does retain the "best" designation.

Two of the commenters approved of the metrics on the California vehicle label. The final label design was in fact developed to include metrics that meet the California labeling requirements, including a 1-10 greenhouse gas rating scale. California needs to determine whether this meets their labeling requirements. If so, this will allow for a harmonization of labels, which was a strong request from automakers.

Emissions due to electricity or other upstream activities will not be included on the label, but will be addressed on a website that will be launched with the new labels.

### **3.3.1. Fuel Economy Slider Bar and Range**

**Organization:** Argonne National Laboratory  
National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)  
Center for Biological Diversity (Center)  
Gates, Matthew  
Toyota

#### **Comment:**

#### **Argonne National Laboratory**

##### Exponential Data on Linear Scale

The slider bar is the one place where consumption must be provided. The sliding scale is designed to illustrate the differences among vehicles. Huge fuel savings will be hidden by small changes for low mileage vehicles and conversely, people will see exaggerated differences between high-mileage vehicles which actually represent very small amounts of fuel. [EPA-HQ-OAR-2009-0865-7572.1, p. 3; see commenter's Chevy Volt label at page 3]

#### **Center for Biological Diversity (Center)**

The “How This Vehicle Compares” sliding scale common to Proposed Labels II and III is misleading because it downplays the overall environmental impacts of the vehicle by placing the vehicle, graphically, within a class-derivative emissions bracket. We acknowledge that the Agencies are statutorily required to include a statement that conveys the fuel economy range for comparable vehicles, but this information need not be conveyed graphically. Rather, it should appear in text form and in a small font size. Proposed Label I displays this preferred format, and is the option we encourage the Agencies to adopt. [EPA-HQ-OAR-2009-0865-7122.1, p.4]

Third, as described above, the “How This Vehicle Compares” sliding scale used in Proposed Labels II and III is misleading. Although the scale includes all CO2 emissions, it downplays the overall environmental impacts of the vehicle by placing it, graphically, within a class-derivative emissions bracket. We acknowledge that the Agencies are statutorily-required to include a statement that provides the fuel economy range for comparable vehicles, but this statement should be made in text-form, and in a smaller font. Proposed Label I displays such a format, and is the choice we encourage the Agencies to adopt. [EPA-HQ-OAR-2009-0865-7122.1, p.9]

#### **Gates, Matthew**

I am pleased to see the proposed fuel economy labels, which are a step in the right direction. I particularly like the 'How this vehicle compares' and 'other air pollutants' bars, which remind me of similar bars on appliance stickers. [EPA-HQ-OAR-2009-0865-1179, p.1]



## **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

I similarly recommend against using MPG or MPGe for the comparison slider bars on the label since MPG does not provide a linear comparison. If multiple sliders are presented on the label I believe it would be less confusing and would aid in the information campaign if they all reflected consumption and emphasized the lower number was better (less cost, less fuel required, less emissions, etc). I do think that the relative comparability across all vehicle classes is a good idea, with a sub-bracket indicating the range of vehicles in the same class. [EPA-HQ-OAR-2009-0865-7222, p.3]

### **Toyota**

Label 2 displays the range of fuel economy of the applicable vehicle class, by means of a bracket on the slider bars, where as, Label 1 provides this information in text form. Toyota thinks that consumers will benefit most from understanding the fuel economy of the applicable vehicle class and EPA's graphical interpretation can be helpful in doing so. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

### **Response:**

The agencies have finalized a graphical approach to presenting MPG that does not show both the within class comparison as well as the comparison to all vehicles. The range of fuel economy of comparable vehicles is shown in text form, as suggested by the commenter, in an appropriate font size given the design of the label. The CBD is correct that EPA is statutorily required to show the range of fuel economy of comparable vehicles. The sliding scale for MPG that the agencies are adopting in the final rule show how the vehicle compares to all other vehicles. Thus the graphic meets the desires of the CBD to show the comparison to all vehicles as well as meeting the statutory requirement to show the range of fuel economy of comparable vehicles. The agencies believe that this approach is the best possible way to present the information, allowing viewers to easily and quickly see in a familiar graphical format how a given vehicle compares to the broad set of all vehicles while continuing to give consumers information about comparison to others in the same category. We chose to not relegate the within class comparison to fine print, as the CBD suggests, because we believe it would at best be putting useful information where consumers are unlikely to see it, and at worst could be misleading or interpreted as an attempt to hide information.

The agencies understand NREL's comment that MPG does not facilitate a linear comparison. However, the MPG slider bar is used to meet multiple statutory requirements, each of which requires a comparison using MPG. The agencies believe that the presentation of a fuel consumption rate on the revised label is a reasonable start to getting consumers to understand that consumption is a metric that is directly tied to the impact on a consumer's fuel expenses.

**Organization:** Toyota

**Comment:**

**Toyota**

Range of FIE of Comparable Vehicles [EPA-HA-OAR-2009-0865-6901.1, p.7]

EPCA requires that the label contain the range of FIE of comparable cars from all manufacturers. EPA's 2006 labeling rule provided a graphical element in an attempt to meet this requirement. However, EPA's 2010 focus groups reported that this information continues to be under-utilized by consumers in making vehicle purchase decisions. Based on the results reported by EPA, Toyota would support EPA's proposal to simply provide a text statement that would read 'Combined fuel economy for {insert vehicle class} ranges from XX to XX,' in order to meet the statutory obligations and keep the label simple and useful. [EPA-HA-OAR-2009-0865-6901.1, pp.7-8]

**Response:**

The agencies believe that either approach noted by Toyota can be understood by consumers, and the approach ultimately selected represents an attempt to strike the right balance between use of graphical elements versus use of text. The agencies agree that either approach will satisfy the statutory mandate.

### 3.3.2. GHG Rating Slider Bar

**Organization:** California Air Resources Board (CARB)  
Suzuki Motor Corporation

**Comment:**

**California Air Resources Board (CARB)**

We recommend using a different scale for rating a car's greenhouse gas emissions. We believe it may be confusing for consumers to see two different scales on the label - one that uses a 'score' for 'other pollutants' and one that uses an absolute value for greenhouse gas emissions. We found from our focus group research that consistent scales with the same rating system and value for best and worst are easier for consumers to understand. Therefore we recommend moving away from the absolute number on the greenhouse gas scale and moving toward a 1-10 rating similar to the scale used for 'other pollutants.' This would also avoid having to put 0 grams per mile of greenhouse gases for plug-in electric and fuel cell vehicles. [EPA-HQ-OAR-2009-0865-7527.1, p.3]

**Suzuki Motor Corporation**

Change the Greenhouse Gas bar to be similar like the California Environmental Performance Label (CEPL) Global Warming scale which uses a score from 1 thru 10 and does not have any colors except black text. Delete the text "Worst" and change from "Best" to "Cleanest" on the bar which can be pre-printed on the label. Change the rating number to be a simple printed number that is not enclosed within a pointer as proposed. See the sample Global Warming Score scale below. These changes will allow most manufacturers to use their current software and printers to print the new emission labels. [EPA-HQ-OAR-2009-0865-6900.1, p.3]

**Response:**

The agencies are requiring a relative greenhouse gas rating on a one to ten scale and an absolute greenhouse gas rating in text near the slider bar, both of which would be based on combined 5-cycle tailpipe CO<sub>2</sub> emission rates, as measured by EPA. The relative rating is intended to address the large number of comments received in support of a relative rating that allows a quick and easy assessment of a vehicle's relative environmental impact. While a letter grade rating can be readily understood, the agencies agree with some commenters' concerns that it may imply more meaning about overall vehicle attributes—an assessment of overall quality on a number of factors--than was intended. We recognize that the letter grade is a fairly significant departure from the current fuel economy label, which provides absolute numerical values and no relative ratings. The agencies believe that the one to ten rating fills a middle ground between the absolute numerical values of the current label and a letter grade rating, providing a similar ease of use without conveying any perceived value judgment that may be associated with a letter grade. Additionally, we agree that having consistent systems for the two environmental ratings on the label may help to minimize confusion and increase comprehension. A one to ten scale was one of the options proposed for the greenhouse gas rating and is being finalized on the label

for the smog rating; its use here would thus provide consistency between the environmental ratings on the label. Finally, the use here of a one to ten system is a logical extension of its use on the EPA Green Vehicle Guide web site and the California Environmental Performance Label, where it serves a similar purpose.

One challenge with a one to ten scale is that its directionality is not clear--that is, it is not immediately obvious if one or ten is the "best." It therefore lacks the clarity of a letter grade. For this reason, we are including the word "best" at the "10" end of the scale. We have not elected to use the word "cleanest" because doing so would not allow us to label all the slider bars in a consistent fashion; the more general term "best" is applicable across fuel economy as well as emissions, and we have thus retained it here. We have eliminated the word "worst" from the "1" end of the scale as unnecessary.

We have also adopted changes to the design of the slider bar that will allow printing with black ink on card stock pre-printed with the blue elements.

**Organization:** Argonne National Laboratory

**Comment:**

**Argonne National Laboratory**

One Slider, Two Pieces of Information

The debate between presenting greenhouse gas and tailpipe-only or total-cycle emission need not be in conflict on the label. Both pieces of information can be shown on the same slider. Once again fine print must be present to make sure that local emissions can be checked for a more accurate answer to consumer. But it must be noted that label information is used as a figure of merit summary and national averages WILL be important parameters for analysts (professional or lay) to compare a new technology vehicle's impact on society. [EPA-HQ-OAR-2009-0865-7572.1, p. 4; see commenter's new Volt label ANL suggestions at page 5.]

**Response:**

We have decided that the label is not the appropriate place to provide upstream emissions information. Please see section 4.1 for a thorough discussion.

**Organization:** California Cars Initiative

**Comment:**

**California Cars Initiative**

The plots of overall MPG, CO<sub>2</sub>, and other pollutants on bar graphs read very well, too; and customers can relate to these graphs as similar to what they have been seeing for years on appliances. A minor point: why not rate CO<sub>2</sub> in g/km instead of g/mile, as customers are unlikely

to relate to the absolute number anyway, and g/km is what is used throughout the rest of the world? [EPA-HQ-OAR-2009-0865-4695, p. 1]

**Response:**

We considered a wide array of metrics for use on the label. Although g/km has the advantage the commenter states, we decided not to adopt this approach because of its lack of consistency with the other values on the label, which are on the basis of miles.

### 3.3.3. Combined Fuel Economy & GHG Slider Bar on Label 3

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Proposal for Single GHG/Criteria Emissions Rating [EPA-HQ-OAR-2009-0865-6850.2, p.11]

The Alliance does not support capturing GHG and criteria pollutant emissions in a single rating. Doing so would only confuse two very different categories of pollutants: one is local, one is global; one is controlled through tailpipe emissions and improvements in fuel quality, while the other is a function of miles driven and grams per mile, and cannot be controlled at the tailpipe. The “Label 2” approach is best with its separate yet equally prominent scales for fuel economy, greenhouse gas emissions and other emissions. [EPA-HQ-OAR-2009-0865-6850.2, pp.11-12]

**Response:**

We agree that it is challenging to combine GHGs and other emissions into a meaningful scale. The rule finalizes separate ratings for each.

**Organization:** Renewable Fuels Association

**Comment:**

**Renewable Fuels Association**

While “Label 3” appears to offer the most information, it also appears the most cluttered and disorganized. Moreover, the proposed “Label 3” provides a combined metric for fuel economy and GHG performance. Combining these two metrics makes it difficult for consumers who may value GHG performance more than fuel economy (or vice versa) to make informed decisions and fair comparisons of the vehicle’s individual attributes. [EPA-HQ-OAR-2009-0865-6926.1, p.6]

**Response:**

Although greenhouse gases and fuel economy are related, this relationship varies from fuel to fuel; we have determined that it is difficult to have a rating that is meaningful across all fuels for both greenhouse gases and fuel economy. Therefore, the label is being finalized with ratings for fuel economy and for greenhouse gases, with one slider bar for both ratings. The ratings are defined such that gasoline vehicles will receive the same rating for both fuel economy and GHG, and may combine the ratings to show only one combined indicator on the slider bar. For other fuels, when the fuel economy and GHG rating are not the same, the agencies will require two indicators, one for fuel economy and one for GHG, on one slider bar.

**Organization:** Hyundai Motor Company

**Comment:**

### **Hyundai Motor Company**

Additionally, Label 3 lacks a comparative depiction of the vehicle's CO<sub>2</sub> rating compared to other models; we prefer Labels 1 and 2, which both include the comparison of CO<sub>2</sub> performance. [EPA-HQ-OAR-2009-0865-7139.1, p.6]

**Response:**

We have adopted greenhouse gas ratings that provide a comparative depiction of the vehicle's rating relative to all other new vehicles.

**Organization:** Toyota

**Comment:**

### **Toyota**

Alternative Label Design (Label 3) [EPA-HQ-OAR-2009-0865-6901.1, p.13]

EPA also seeks comment on a third label design that includes the same information as the other labels, but displays alternative ways of communicating the information. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

Toyota views the display of information on this proposal to be a distraction for consumers. In particular, the use of a combined greenhouse gas and fuel economy rating represented by one slider bar using a 1-10 rating scale further obscures the vehicle F/E and GHG performance, and the use of a star rating system might suggest a correlation with NHTSA's rating system. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

**Response:**

Although greenhouse gases and fuel economy are related, this relationship varies from fuel to fuel; we have determined that it is difficult to have a rating that is meaningful across all fuels for both greenhouse gases and fuel economy. Therefore, the label is being finalized with ratings for fuel economy and for greenhouse gases, with one slider bar for both ratings. The ratings are defined such that gasoline vehicles will receive the same rating for both fuel economy and GHG, and may combine the ratings to show only one combined indicator on the slider bar. For other fuels, when the fuel economy and GHG rating are not the same, the agencies will require two indicators, one for fuel economy and one for GHG, on one slider bar.

We also agree that a star system could be confused with NHTSA's vehicle safety rating system, and have therefore chosen to not adopt this approach.

### 3.3.4.1. Range (D to A+)

**Organization:** Natural Resources Defense Council (NRDC)

**Comment:**

**National Resources Defense Council (NRDC)**

The NRDC-proposed scheme could also better align the EPA/DOT rating scale with that of California. The NRDC scheme eliminates the A+ designation and reduces the letter grade scale from eleven levels (D to A+) to ten (D to A), which is same number used in the California Environmental Performance label. [EPA-HQ-OAR-2009-0865-6925.1, p.7]

**Response:**

The automotive manufacturers were very supportive of trying to harmonize the final label design with California's label requirements so that vehicles sold in California would not require an additional, unique label. The final label utilizes a 1-10 GHG rating scale instead of the proposed letter grades that meets the requests of the automakers and NRDC. California will need to determine whether our label meets their requirements.

**Organization:** Honeywell

**Comment:**

**Honeywell**

However, should the EPA/NHTSA move forward on 'Label Option 1', Honeywell would revise a letter system away from the 'A+ through D' proposal to a more objective approach such as 'A-J' or numerical system such as '1-10'. [EPA-HQ-OAR-2009-0865-7095.1, p.2]

In the Alternative, If EPA/NHTSA Adopts a Letter Grading System, Honeywell Recommends that Proposed Label Option 1 Incorporates the Following Suggested Improvements:

If EPA/NHTSA maintain the letter grade approach under the Final Rule, we recommend that they revise the rating system away from the A+ through D school-like approach, which comes with significant preconceived connotations in the United States. The vehicle label must be balanced graphically to provide consumers with a fair representation of the entire and distinct environmental information required by EISA. The Final Rule must not overemphasize a single indicator; particularly one that consumers do not easily understand and is based on factors likely unknown to most. While we applaud the agencies' attempt to simplify the information on the label through the utilization of a grading system, we are concerned that proposed Label Option 1 and its prominent display of the grade will overshadow the valuable information with which consumers are most comfortable. [EPA-HQ-OAR-2009-0865-7095.1, p.4]



While Honeywell agrees that a letter grade approach may provide a 'format the consumers will recognize,' American consumers have preconceived notions about letter grades, particularly when limited to a school-like range of A+ through D as proposed by EPA/NHTSA. In many communities, a grade of below an 'A' is often perceived as substandard and not satisfactory. A more neutral approach that expands or revises the letter ratings, such as A - J or 1 - 10 is preferable. [EPA-HQ-OAR-2009-0865-7095.1, p.4]

**Response:**

The final label includes a 1-10 GHG rating system, not the proposed letter grades, in response to this and other comments.

**Organization:** Center for Neighborhood Technology  
Duoba, Mike

**Comment:**

**Center for Neighborhood Technology**

CNT recognizes the serious amount of thought and work that has gone into the creation of the draft labels and applauds the people at EPA and NHTSA who formulated those ideas and did that work. The results are impressive and CNT celebrates them. But meaningful labels also have meaningful cutoff points that properly identify the most and least fuel-efficient vehicles. Rating distribution should not be too heavily weighted to the center. There should be thicker tails on the ratings distribution, more A's and D's, if not F's, and fewer B's and B-. Reworking the distribution scale would come closer to the truth that not all vehicles are above average. That, for the environment and for everyday affordability, some vehicles are indeed failing. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 84]

**Duoba, Mike**

I think we understood the need -- or I understood the need that we would need a better resolution to score these vehicles as a letter grade, that the issue we're having between putting this type of vehicle in a specific class and all of the vehicles together. We need more resolution, so I would support the proposal that Hyundai mentioned earlier where you have this zero to 100 scale. It looks like a grade that you would have on a test, just like a letter grade, and you're within a specific class of vehicles and you can still decide which one is better than the other. There will be no incentive for a better, higher performing SUV if they all get a score of or D- or D+ or whatever. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 104-105]

MR. MEDFORD: Okay. And you also suggested that we go to a zero-to-100 scale, not the letter grade because -- [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 115]

MR. DUOBA: I agree that more resolution is better. I noticed that everybody's got a different opinion within a class or not within a class. Well, in the information that's provided, we can do both, and that's what you need. And I think the slider bar with that whole section of SUVs or whatever is a good idea. Again, it's consumption-based and not miles-per-gallon-based. It will help out. If you have a higher resolution, that would be fine. I don't know whether or not a letter grade is going to hit home with more consumers than a number that's like at 95 versus an 85 or something like that. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 115-116]

**Response:**

The proposed rating methodology resulted in a distribution of vehicle scores that was concentrated near the center of the scale. Several commenters noticed this and asked the agencies to consider methods to "flatten" the distribution of vehicles in order to create more differentiation between the vehicles that make up the majority of the fleet. The agencies agreed with this request. The full methodology for determining the Fuel Economy and the GHG ratings is defined and discussed in detail in the preamble.

Essentially, the average vehicle is based on the expected CAFE fleet average for each year from 2012-2016, then the thresholds for the highest and lowest ratings are set by subtracting or adding two standard deviations (in terms of vehicle fuel consumption) from the mean, with the ratings in between defined by creating even sized "bins." This approach does flatten out the distribution of vehicles as suggested by several commenters.

**Organization:** Tesla Motors

**Comment:**

**Tesla Motors**

For example, the Agencies have proposed the use of a letter grade to rank vehicles (i.e., option 1). Tesla believes that this type of approach is commendable in that it provides the type of general comparative information useful to consumers, allowing them to make choices based on relatively simple, straightforward metrics. Combining the metrics familiar to consumers, along with new information, can greatly enhance consumer knowledge and allow them to make more informed choices. [EPA-HQ-OAR-2009-0865-6933.1, p.2]

**Response:**

The final label design will include a 1-10 GHG rating instead of the proposed letter grades, however we believe that this maintains the "simple, straightforward" metrics that Tesla prefers.

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Auerbach, Jan (Lane)  
Bullis, Kevin

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Moreover, in the case of an A+ vehicle, there would be absolutely no reason to reduce emissions below 76 grams per mile, the level for an A+.

Finally, we believe the A, B, C, D ranking is arbitrary and unnecessary. Consumers are more than capable of using the fuel economy CO2 and fuel consumed per hundred gallons to inform their decision.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 16.]

**Auerbach, Jan (Lane)**

Given this history, I believe the fuel economy label should display most prominently the fuel economy for the particular label and not try to encourage customers to look at other vehicles that might have a higher letter grade. It is most likely that all the vehicles that a customer is interested in looking at would be in the same general class of vehicles, so that all the vehicles they cared about would have a B or a C, making the comparison meaningless. If someone is out to buy an SUV, they are not going to start looking at a hybrid simply because the government decided that the one rates an A and the other a D. The government should be in the business of providing facts and not directing customers to particular vehicles. While the concept is well intentioned, I believe the result of the letter grade label will be that the label is ignored since the information on it that really is important is in too small type for people to find and focus on. I urge you to retain the prominence of the city and highway number and don't adopt the letter grade label concept. [EPA-HQ-OAR-2009-0865-4916, p. 1]

**Bullis, Kevin**

In the 'graded' option, the grades aren't precise enough to make comparisons between vehicles and can be misleading since actual emissions can vary substantially for PHEVs depending on how they're driven. Would a EV get an A and a PHEV a B, even though they would have identical emissions if a person drove only short distances in all-electric mode? If they got identical grades, on the other hand, this would hide the fact that the PHEV would use gasoline if it weren't recharged often. [EPA-HQ-OAR-2009-0865-3415, p.1]

**Response:**

The final label will have a 1-10 GHG rating instead of the proposed letter grade, in response to these and other comments. As described in the preamble, the methodology for defining the rating system has also changed in order to "flatten" out the distribution of ratings, resulting in more vehicles that score high (and low) ratings, and less vehicles clustered near the average ratings. The agencies believe that this will help to provide more resolution between the ratings while maintaining the simplicity of a 1-10 rating system.

The finalized label does provide information on within class fuel economy comparisons, as required by EPCA. The agencies decided not to make the GHG rating unique to each vehicle class because most consumers do shop across multiple vehicle classes, and the distinction between classes has become increasingly blurred with the proliferation of crossover type vehicles.

PHEVs present a unique challenge due to their unique and complex technology. PHEVs are capable of operating on electricity, gasoline, or a mixture of both fuels. How much of each fuel is consumed is highly dependent on many factors, including charging frequency, vehicle control strategies, trip lengths, etc. The final labels provide enough information that consumers can make decisions based on their own driving and charging habits, however the overall GHG rating will be based on standard test cycles, which is the appropriate means for comparing the vehicle with other vehicles. See the Preamble sections III.M and III.N for a detailed explanation of EV and PHEV test procedures. As more PHEVs come to market, the agencies will continue to evaluate PHEV technology.

**Organization:** Honda Motor Company

**Comment:**

**Honda Motor Company**

Other Emissions Performance Rating Systems: The agencies inquire as to the appropriateness of rating Other Emissions on a ten point scale (a scale similar to one shown in Table II.A.5-2). There is no clear way to show absolute numbers for these pollutants, since they are an amalgamation of many different pollutants. The ten point scale will vary as we move from Tier II to Tier III and from LEV II to LEV III. We prefer as absolute a scale as possible, especially one which shows the same scale for both cars and trucks. Currently there are different standards for cars and trucks and just as we recommend an absolute number for CO<sub>2</sub>, we recommend a scale as unchanging and consistent over time as possible. [EPA-HQ-OAR-2009-0865-6774.1, pp.4-5]

**Response:**

The agencies do not believe that it is scientifically sound to combine the emissions of very different air pollutants into a single absolute scale. We also received no comments in support of presenting these pollutants on individual scales on the label. Of the approaches considered, the ten point scale based on the set of emissions standards to which the vehicle is certified seemed to be the most readily understandable and to reasonably convey the relative emissions levels among new vehicles.

### **3.3.4.2. Methodology**

**Organization:** Lorenzo, Jose

**Comment:**

#### **Association of International Automobile Manufacturers (AIAM)**

AIAM is also concerned that the proposed vehicle rating system in Label does not allow consumers to distinguish differences among vehicles since over 80 percent of the vehicle models are closely grouped together in the middle of the proposed grading scale. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 55.]

#### **Consumers Union**

Recommendations

Our primary recommendation is to flatten the curve used for the letter grades to provide meaningful distinctions to consumers for cars in the middle of the curve and avoid overpacking the middle grades. Consumers buying vehicles on the extreme ends of fuel economy (such as plug-in electric vehicles or heavy SUVs) are probably aware they are on the extreme end of the fuel economy range. Making greater distinctions in the mid-range of the scale is likely to be more informative for most buyers than an overemphasis on the outliers. [EPA-HQ-OAR-2009-0865-7251.1, p.4]

#### **Lorenzo, Jose**

However, I prefer label 2 if the following explanation of the grade is accurate: 'Under the new system, electric vehicles would receive the highest grade (A+), plug-in electric hybrids would receive an A, and traditional hybrids an A-.' [EPA-HQ-OAR-2009-0865-7600, p.1]

**Response:**

The proposed rating methodology resulted in a distribution of vehicle scores that was concentrated near the center of the scale. Several commenters noticed this and asked the agencies to consider methods to "flatten" the distribution of vehicles in order to create more differentiation between the vehicles that make up the majority of the fleet. The agencies agreed with this request.

The final rating methodology bases the average vehicle on the expected CAFE fleet average for each year from 2012-2016, then the thresholds for the highest and lowest ratings are set by subtracting or adding two standard deviations (in terms of vehicle fuel consumption) from the mean, with the ratings in between defined by creating even sized "bins." This approach does flatten out the distribution of vehicles as suggested by several commenters. The full

methodology for determining the Fuel Economy and the GHG ratings is defined and discussed in detail in the preamble.

**Organization:** Renewable Fuels Association  
Honeywell  
Congress of the United States, U.S. House of Representatives

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Moreover, the A, B, C system is skewed toward electric vehicles while penalizing worthy advanced technology vehicles in other categories. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 12]

**Congress of the United States, U.S. House of Representatives**

Additionally, unlike the mpg metric, the proposed grading system is biased in favor of certain types of vehicles. The 'A' and 'A+' categories are reserved for a very narrow range of vehicles, i.e., battery electric vehicles and plug-in hybrids. However, a fuel efficient, clean diesel vehicle would be penalized a low or mediocre grade. Similarly, most fuel efficient SUVs and pickup trucks would rate no higher than a 'C+' [EPA-HQ-OAR-2009-0865-7541.1, p.1]

**Honeywell**

Honeywell is concerned that EPA/NHTSA's proposed letter grade approach [Label Option 1] may prejudice or confuse consumer-purchasing decisions and may tend to favor particular technologies (e.g., electric), prejudicing advanced technologies such as turbo downsizing. [EPA-HQ-OAR-2009-0865-7095.1, p.3]

**Renewable Fuels Association**

Moreover, we do not believe any vehicle option is deserving of the grade "A+," which is reserved for EVs in the proposed rule. A grade of "A+" implies that the vehicle has no climate impacts and is perfectly energy efficient. Obviously, no such vehicle exists. Further, we note that the grades of "A" and "A+" tentatively afforded to PHEVs and EVs are based, in part, on tailpipe emissions only and that upstream emissions are ignored in determining the grades. [EPA-HQ-OAR-2009-0865-6926.1, p.6]

**Response:**

The agencies are finalizing a 1-10 GHG rating system instead of the proposed letter grades. In addition, the agencies significantly changed the methodology used to define the rating system in order to "flatten" the distribution of vehicles, resulting in more vehicles getting higher (and lower) ratings, and fewer vehicles getting average ratings.

The final rating methodology bases the average vehicle on the expected CAFE fleet average for each year from 2012-2016, then the thresholds for the highest and lowest ratings are set by subtracting or adding two standard deviations (in terms of vehicle fuel consumption) from the mean, with the ratings in between defined by creating even sized "bins." This approach does flatten out the distribution of vehicles as suggested by several commenters. The full methodology for determining the Fuel Economy and the GHG ratings is defined and discussed in detail in the preamble.

Using this methodology, several vehicles achieve a 10 rating, including an EV, a PHEV, a CNG vehicle, a fuel cell vehicle, and more than one hybrid, so clearly the top rating is not reserved for EVs only. The Escape Hybrid scores a 9/10, so it is possible for SUVs to receive a high rating.

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Environmental Defense Fund (EDF)  
Ford Motor Company (Ford)  
Natural Resources Defense Council (NRDC)  
Hyundai Motor Company  
Diesel Technology Forum  
Toyota  
Union of Concerned Scientists  
Consumer Federation of America (CFA)  
National Automobile Dealers Association (NADA)  
California Air Resources Board (CARB)  
Sierra Club  
Securing America's Future Energy (SAFE)  
American Council for an Energy-Efficient Economy (ACEEE)  
Institute for Policy Integrity - New York University School of Law  
Nissan  
Center for Biological Diversity (Center)  
National Petrochemical and Refiners Association (NPRA)  
Consumers Union  
Metropolitan Washington Air Quality Committee (MWAQC)  
National Wildlife Federation (NWF)  
Natural Gas Vehicles for America (NGV America)  
American Petroleum Institute (API)  
Smith, Houston  
Pershey, Nick  
Encana Natural Gas Inc.  
Ree, Andree  
Catania, Andrew  
EcoMotors International, Inc.  
California New Car Dealers Association  
Occidental College

Energy Independence Now (EIN)  
IMPCO Technologies  
Kustin, Camille  
National Association of Minority Auto Dealers (NAMAD)  
Operation Free  
Center for Neighborhood Technology  
United Transportation Advisors

**Comment:**

Many comments were received on methodology of the various proposals for greenhouse gas rating systems on the label, covering a variety of topics. Most of these comments focused on the letter grade—or, more generally, any rating systems on the label—with a primary focus on the issue of ratings being within class or spanning all vehicle types.

Commenters in favor of ratings that span all vehicle types typically noted that the majority of consumers shop across more than one vehicle class, and that therefore the only way to provide comparable ratings is for the rating system to span all classes. Some commenters noted that people have individual ways to define vehicle class and that there is no single system that would address this various approaches. Commenters in support of ratings across all vehicles typically noted that providing ratings only within class would be confusing, and provided examples in which a higher-emitting vehicle received a better rating than a lower-emitting vehicle in a different class, commenting that a label displaying only within-class information would therefore be misleading. These commenters tended to note that the environment does not discriminate by vehicle class and that vehicle class has no bearing on the environmental impact of the emissions. Some commenters indicated that within class ratings would hamper the effectiveness of the new label and the likelihood that it would lead to better decision-making. They also commented that rating across all vehicle will still allow comparisons within class, or, more broadly, across all the vehicles in which the consumer is interested—such an approach meets the needs of consumers shopping within class as well as those shopping across classes. Some also noted that those who are interested in more differentiation than that provided by the ratings can use the actual MPG values or fuel costs to compare vehicles. Commenters in favor of ratings spanning all vehicles include ACEEE, CARB, CBD, CNT, CFA, CU, EIN, EDF, EcoMotors, Hyundai, MWAQC, NWF, NRDA, Occidental College, Sierra Club, and UCS, as well as many private citizens.

Commenters opposed to ratings that span all vehicles indicated that the goal of the label—to provide useful information for consumers—is best met through comparisons to similar vehicles. These commenters indicated that people buy vehicles that meet their needs and that therefore ratings within class are the most relevant and easy to use, and will enable consumers to identify the vehicles that rate better within their class. Some of these commenters felt that ratings across all vehicles would disparage those consumers who need a larger or more powerful vehicle, and that rating vehicles without holding attributes such as capacity or towing capability constant is not meaningful. Others stated that a scale across all vehicles would not provide adequate differentiation within a class, on the assumption that vehicles within a class tend to cluster in terms of energy use and environmental performance. Some of these commenters



noted that auto manufacturers take pride in offering vehicles that are leaders within their class, and that this incentive would be minimized if ratings are not class-specific. In addition, several commenters suggested that ratings across all vehicles would be inconsistent with the agencies' recent approach to fuel economy and GHG emission standards, which take vehicle footprint into consideration. The Alliance of Automobile Manufacturers made a case that EISA requires easy comparisons, that within-class comparison are the easiest and most useful, and that "EISA should not be interpreted as requiring a rating that does not recognize the variety of vehicles." Commenters in favor of class-specific ratings include AAM, CNCDA, DTF, Ford, GM, IMPCO, NAMAD, NADA, NGVAmerica, Nissan, SAFE, and UTA.

An additional comment that was raised, particularly with regard to the letter grade, is that it may imply, incorrectly, that it addresses a broad array of vehicle attributes, such as safety, quality, and performance. Many of these commenters went on to state that the letter grade focuses on a single attribute—GHGs—that people do not value, and that it is confusing by combining elements that consumers value differently and that don't track each other, such as GHGs and other emissions. These commenters include AAM, AIAM, API, EcoMotors, Ford, NAMAD, NADA, SAFE, and Toyota, as well as a number of private citizens.

Several commenters, including AAM, Diesel Technology Forum, EcoMotors, Ford, SAFE, and Toyota, suggested that the government should not make judgments about which factors should be the most important to the consumer, and instead should supply objective information on separate scales that the consumers can weigh for themselves.

On the other hand, some commenters, including ACEEE, CFA, EDF, NRDC, and Occidental College, stated that the letter grade provided a clear focus and was helpful by distilling complex information into a simple and concise rating. These commenters stated that such a rating empowers consumers to take environmental and energy impacts into account and to communicate those choices to manufacturers. Further, it allows manufacturers to readily market their vehicles with the best energy and environmental performance.

ACEEE supported the letter grade as clear and useful, but commented that it should not combine elements—rather, the label should clearly indicate that fuel economy performance and GHG performance may diverge. They stated that, while it was worthwhile to dispel the MPG illusion, that this could best be accomplished through annual fuel cost rather than the letter grade.

The method for rating diesel vehicles was raised by ACEEE and the Diesel Technology forum. ACEEE stated that it was appropriate for the ratings to reflect the higher carbon content of diesel fuel, and went on to suggest that diesel MPG should be based on energy content rather than volume—that is, that diesel fuel economy should reflect MPGe rather than MPG. Conversely, the Diesel Technology Forum stated that it would be unfair if the GHG rating for diesel vehicles were to reflect the higher carbon content of diesel fuel, since that rating would not reflect the higher mileage of diesels due to their greater energy content, and that doing so would reflect an anti-diesel bias on the part of the agencies.

Several commenters addressed the type of rating itself. ACEEE stated that categorical ratings—that is, discrete rather than continuous—have been found in the past to be the most effective at communicating basic information. CARB noted that consistent scales with the same rating system are the easiest to understand, and suggested using 1-10 scales for all ratings. They also noted a preference for discrete rather than continuous or absolute ratings.

As discussed elsewhere in this document, several commenters supported flattening the curve used for the letter grade rating—that is, that it would be helpful for consumers to have meaningful differentiation among vehicles if the ratings were spread out, with a greater proportion receiving the highest and lowest ratings than as proposed for the letter grade. In addition to those discussed elsewhere, these commenters also included AIAM, Consumers Union, and Hyundai. On the other hand, some, including ACEEE and Occidental College, commented that the curve is fine as proposed, or that it was too generous.

There were several comments on the treatment of advanced technology vehicles on the label. The Alliance stated that the letter grade rating system was skewed toward electric vehicles, while the Diesel Technology forum and many private citizens commented that the best letter grades are reserved for EVs and PHEVs. Toyota commented, accurately, that the ratings are not technology-specific; however, they went on to comment that the methodology used results in the better grades being applied only to advanced technology vehicles, and that this was inappropriate. ACEEE commented that the relative efficiencies of electric vehicles are important and that a rating based on tailpipe GHGs does not capture this. Nissan suggested that city fuel economy should be emphasized for EVs, since they will be primarily driven in the city. Several citizens suggested that rating systems be based on technology—that is, hybrids in one category, EVs, in another, and so on.

Consumers Union suggested that, while they supported comparing across all vehicles, it would be helpful for the MPG within class to be indicated on the label with the actual values rather than an unlabeled bracket on a slider bar.

NADA commented that the label 1 rating system does not allow comparisons of new vehicles to used vehicles, and that a rating system comparing all vehicles against each other would discourage the purchase of new vehicles if they do not appear to have an improved fuel economy performance. Conversely, CFA and EDF commented that ratings that change over time encourage manufacturers to continuously improve and reflect the changing fleet over time.

Finally, several citizens suggested specific rating systems, providing MPG ranges for each letter grade or rating.

### **Response:**

We are requiring, as proposed, ratings that span all vehicle classes for which labels are required. Although the agencies' consumer research indicates that many consumers narrow their vehicle choices early in the buying decision, our research also indicates that most do not focus narrowly on a single class. Focus group participants indicated that they shopped, on average, across two to three vehicle classes.<sup>[1]</sup> For these consumers to be able to compare

vehicles in different classes, the information must necessarily span those classes, or it will be of little use or, worse, misleading: a vehicle that is “best” in one class, in terms of the metrics presented on the label, may be less so when compared to other classes. For those consumers shopping across classes who wish to know the relative performance of those choices, a single all-vehicles rating system will enable them to make accurate comparisons across whichever vehicles they choose to shop. Such an approach would still be useful within a class, since each metric will differentiate vehicles regardless of their class.

Although the agencies agree that most consumers do narrow their vehicle their choices by vehicle type early in the buying decision, they do not focus narrowly on a single class, at least as defined by the EPA. Focus group participants indicated that they shopped, on average, across two to three vehicle classes.<sup>[1]</sup> For these consumers, a single rating system will enable them to make accurate comparison across whichever vehicles they choose to shop. Although the agencies agree with commenters that, for the most part, consumers do not shop across segments that are dramatically different from each other, our research finds people are often choosing between segments that are somewhat similar, such as a compact and a midsize, or an SUV and a cross-over. In order to compare vehicles in different segments, the information must necessarily span those segments or it will be of little use, or worse, misleading: a vehicle that is best in one class may be less so when compared to other classes. For those consumers shopping across classes who wish to know the relative performance of those choices, ratings must cross those classes.

Additionally, it is clear that segments are not easily definable across the population, as evidenced by the variety of ways on which vehicles are categorized today by consumer websites and magazines, manufactures, and government agencies. Many consumers are shopping for attributes beyond those described by vehicle segment or body class, and it does not appear to be possible to define that subset of characteristics universally.

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<sup>[1]</sup>Environmental Protection Agency Fuel Economy Label: Pre-Focus Groups Online Survey Report, EPA420-R-10-907, August 2010, p. 18.

Additionally, as discussed in the NPRM, NHTSA believes that the clearest interpretation of EISA is that fuel economy, GHG, and other emissions rating systems should apply to all automobiles rather than to specific classes. 49 U.S.C. 32908(g)(1)(A)(ii) states that the agency must develop label rating systems “that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase,” in clear contrast to EPCA’s requirement, codified at 49 U.S.C. 32908(b)(1)(C) that fuel economy range information be presented for “comparable automobiles.” 32908(g)(1)(A)(ii) also requires that rating systems include designations of the automobiles with the “lowest greenhouse gas emissions” and “highest fuel economy,” which NHTSA believes is most meaningfully fulfilled by designating the automobiles with the best GHG and fuel economy ratings in the entire fleet. Given this statutory language, NHTSA believes that it is reasonable and appropriate to conclude that if Congress had intended the 32908(g) rating systems to apply only within class, it would have used language more like 32908(b)(1)(C), and that therefore rating systems for

fuel economy, GHGs, and other emissions as described in 32908(g) should most reasonably apply to the entire fleet.

In order to satisfy EPCA requirements,<sup>[2]</sup> the label additionally indicates the range of fuel economy values for the relevant vehicle class. This approach allows those consumers who shop within one class to see the fuel economy of the vehicle under consideration relative to other vehicles within its class. The agencies also believe it addresses the concern of the commenters who argued that within-class comparisons might be more useful to certain consumers – in essence, the EISA and EPCA requirements, when combined, are able to provide consumers with both in-class and fleet-wide information on the metric that many have identified as most important to them.

We are requiring separate information for fuel economy, greenhouse gases, and other emissions. The agencies believe that this approach is clearly consistent with the language in EISA, is allowed under the EPCA provisions, and will best allow consumers to compare each of these elements. We are also requiring one to ten ratings to address the large number of comments received in support of a relative rating that allows a quick and easy assessment of a vehicle's relative environmental impact. While a letter grade rating can be readily understood, the agencies agree with some commenters' concerns that it may imply more meaning about overall vehicle attributes—an assessment of overall quality on a number of factors--than was intended. We recognize that the letter grade is a fairly significant departure from the current fuel economy label, which provides absolute numerical values and no relative ratings. The agencies believe that the one to ten rating fills a middle ground between the absolute numerical values of the current label and a letter grade rating, providing a similar ease of use without conveying any perceived value judgment that may be associated with a letter grade. Additionally, we agree that having consistent systems for the two environmental ratings on the label may help to minimize confusion and increase comprehension. Finally, the use here of a one to ten system is a logical extension of its use on the EPA Green Vehicle Guide web site and the California Environmental Performance Label, where it serves a similar purpose.

As far as diesels are concerned, we did not propose changes to the current practice of providing MPG in terms of volumetric fuel rather than energy content--that is, to change from MPG to MPGe, and thus we cannot make such a change in the final rule. Comments overwhelmingly supported the use of MPG for liquid fuels, and the agencies are requiring the use of MPG for liquid fuels for the same reasons articulated in the proposal: historical implementation of the EPCA requirements, consumer familiarity, and the fact that these fuels are purchased by the gallon. We believe that changing to MPGe for the fuel economy of diesel vehicles would be very confusing to consumers, as label MPGe values would then be inconsistent with all consumer calculations of fuel economy (since diesel is sold in volumetric gallons) as well as fuel economy values shown on vehicle dashboard displays. On the other hand, we continue to believe that it is appropriate for the GHG rating to reflect the carbon content of the fuel being combusted and, thus, its CO<sub>2</sub> emissions. We disagree that this accurate accounting of CO<sub>2</sub> emissions reflects an anti-diesel bias, particularly in light of the decision to show MPG rather than MPGe for diesels.

Regarding the form of the rating itself, the agencies agree that consistent systems are more understandable and useful, and that discrete, categorical ratings are effective for many consumers. Thus, we are finalizing the use of one to ten ratings on the label. While a letter grade rating can be readily understood, the agencies agree with some commenters' concerns that it may imply more meaning about overall vehicle attributes—an assessment of overall quality on a number of factors--than was intended. We recognize that the letter grade is a fairly significant departure from the current fuel economy label, which provides absolute numerical values and no relative ratings. The agencies believe that the one to ten rating fills a middle ground between the absolute numerical values of the current label and a letter grade rating, providing a similar ease of use without conveying any perceived value judgment that may be associated with a letter grade.

We also agree with the majority of commenters on this topic that the ratings should be technology-neutral.

We agree that presenting the range of fuel economy within a class is more useful when numerical values are provided, and the final label takes this approach.

We also agree with commenters that revising the rating systems over time to reflect the evolving fleet is the more appropriate approach. Otherwise, as the new vehicle fleet improves its fuel economy and emissions performance over time, "grade inflation" will make static ratings less and less meaningful. Although we acknowledge that this approach of revising rating systems to track the fleet makes them not comparable from one model year to the next, we note that the primary purpose of the label is to compare new vehicles against each other. For those consumers who wish to consider used vehicles, the absolute fuel economy and GHG emissions values can be used.

We thank those who submitted suggestions for rating systems, and appreciate the thoughtfulness, time and effort. As described above, we have chosen to base the ratings off of the profiles of the most recent model year, to, as closely as possible, have the ratings reflect the actual new vehicle fleet.

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[1] Environmental Protection Agency Fuel Economy Label: Pre-Focus Groups Online Survey Report, EPA420-R-10-907, August 2010, p. 18.

[2] 49 U.S.C. 32908 (b)(1)(C).

### 3.3.4.3. A/C Credits

**Organization:** Center for Biological Diversity (Center)  
Honda Motor Company

**Comment:**

**Center for Biological Diversity (Center)**

Automobile Manufacturers Should Not Include A/C Leakage Credits in GHG Performance on the Fuel Economy Label. [EPA-HQ-OAR-2009-0865-7122.1, p.4]

It is, of course, highly desirable for vehicle manufacturers to limit air conditioning system (“A/C”) leakage. Nonetheless, the Agencies should not include credits from limiting such leakage as part of the CO<sub>2</sub> value displayed on the fuel economy label. If A/C leakage credits are conflated with tailpipe CO<sub>2</sub> emissions, the CO<sub>2</sub> value appearing on the label would no longer be an adequate proxy for the fuel economy rating system. We agree that, because reduction of A/C leakage is an important step in limiting overall vehicle GHG emissions, A/C leakage reduction information should be available to consumers, but, to avoid confusion and prevent overcrowding of the label, we suggest that the relevant information be contained on the EPA fuel economy website. [EPA-HQ-OAR-2009-0865-7122.1, p.4]

**Honda Motor Company**

Inclusion of AC Credits: EPA asks for feedback about the inclusion of AC Credits in the CO<sub>2</sub> numbers. Although we don’t feel strongly about this issue, wouldn’t it be odd to present an EV as having negative CO<sub>2</sub> numbers? Such a result could rob the government of all credibility in the eyes of the public. [EPA-HQ-OAR-2009-0865-6774.1, p.3]

And lastly, with respect to upstream emissions, you asked about the inclusion of AC credits, air conditioning credits. EPA asked for feedback about whether or not to include AC credits in the CO<sub>2</sub> numbers. Although we don't feel strongly about this issue, wouldn't it be absurd to present an EV as having negative CO<sub>2</sub> numbers because we've included credits for air conditioning -- air conditioning credits? Such a result could rob the government of all credibility in the eyes of the public. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 93.]

**Response:**

The agencies decided that the label will reflect tailpipe emissions, and accordingly A/C credits will not be incorporated into the GHG emission numbers or GHG rating. There are two components of an air conditioning system that impact the GHG emissions of a vehicle, air conditioner efficiency and refrigerant leakage. Air conditioner efficiency, or how much energy the vehicle engine must provide to run the air conditioning system, does affect tailpipe GHG emissions and manufacturers choosing a more efficient air conditioner may see a reduction in the GHG label numbers. Air conditioner leakage credits will not be included in the label

calculations, since the agencies decided the label should reflect tailpipe emissions. Reducing the amount of leakage and using refrigerants with less global warming potential are both targeted under the light duty GHG rules and other EPA air conditioning programs.

#### **3.3.4.4. Proposal to Update Annually**

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

As the automobile dealers' testimony notes, dealers often have two or more model years of the same vehicle on the same lot. The requirement to adjust the letter grades annually can only add to consumer confusion, as shoppers find that side-by-side vehicles with the same GHG profiles receive different grades, depending on when each vehicle was manufactured. [EPA-HQ-OAR-2009-0965-6850.2, p.5]

**Response:**

The final label design does not include the letter grade. The agencies will review the GHG rating methodology annually to determine if the rating scale needs to change, and will adjust the scale *if necessary*. The scale is not expected to change unless the profile of the entire fleet has changed significantly. We believe that the confusion to the consumer will be minimal.



### 3.3.4.5. Other Comments on the Letter Grade

**Organization:** Alliance of Automobile Manufactures (Alliance)  
Environmental Defense Fund (EDF)  
Ford Motor Company (Ford)  
Natural Resources Defense Council (NRDC)  
Hyundai Motor Company  
Diesel Technology Forum  
Toyota  
Union of Concerned Scientists  
Consumer Federation of America (CFA)  
National Automobile Dealers Association (NADA)  
Sierra Club  
Securing America's Future Energy (SAFE)  
Institute for Policy Integrity - New York University School of Law  
Volvo  
BorgWarner  
Argonne National Laboratory  
Center for Biological Diversity (Center)  
Honda Motor Company  
National Petrochemical and Refiners Association (NPRA)  
U.S. Coalition for Advanced Diesel Cars  
Consumers Union  
AAA  
Renewable Fuels Association  
University of Pennsylvania Law School, Environmental Law Project  
American Petroleum Institute (API)  
Scheve, Elliot  
Steele, John M.  
Simon, Chris  
Hill, Joel  
Mauldin, Ronald  
Reger-Nash, Bill  
EcoMotors International, Inc.  
Johnson, Evan W.  
Siegel+Gale  
California New Car Dealers Association  
Occidental College  
Energy Independence Now (EIN)  
Scarborough, Christina  
Santos, Alejandra  
Schrader, Andy  
Kustin, Camille  
Haller, Bill  
National Association of Minority Auto Dealers (NAMAD)  
Operation Free

Center for Neighborhood Technology  
Illinois Student Environmental Coalition  
Nelson, Dennis R.  
United Transportation Advisors  
Community Environmental Council  
Lorenzo, Jose

**Comment:**

The agencies proposed several systems to address the EISA requirement for a rating that allows consumers to compare greenhouse gas emissions across new vehicles. Specifically, both labels 1 and 2 included an absolute rating scale that presented the specific GHG emission values for the vehicle in grams per mile, bounded by emission rates for the “best” and “worst” vehicles in the fleet in the model year. In addition, label 1 featured a prominent letter grade that reflected the relative levels of greenhouse gas emissions (and, accordingly, fuel economy, given the inverse relationship of GHG emissions and fuel consumption) on an A+ to D scale. The agencies also sought comment on label 3, which, like label 1, included a rating that reflected relative GHG emission rates; this approach substituted the letter grade with a numerical rating on a scale of one to ten. NHTSA sought comment on whether this would be an appropriate interpretation of EISA’s requirements. The agencies proposed that GHG ratings would be based on combined 5-cycle tailpipe CO<sub>2</sub> emission rates, as FE is measured for the label and as measured by EPA.

About two-thirds of the nearly 7000 public comments expressed a preference either for or against the letter grade, and nearly every one of the more detailed comments submitted by corporations and organizations addressed the topic, indicating the strong level of interest in this proposed element. As a general rule, the letter grade was supported by consumer organizations, environmental organizations, and academics; about half of the general public that commented on the letter grade supported it. Conversely, it was opposed by most auto companies, auto dealers and their organizations, federal laboratories, and about half of the general public that commented on this topic.

Commenters in favor of the letter grade spoke to its ease of use and eye-catching appeal; many said that it would be useful for those who do not find more detailed numerical information helpful or compelling and would, for the first time, take their needs into consideration on the label. The letter grade was likened to the New Car Assessment Program (NCAP) safety stars in its potential ability to spark public demand for new vehicle attributes—in this case, relative environmental and energy impact. For these commenters, the influential nature of the letter grade was viewed as a positive attribute.

On the other hand, those opposed to the letter grade commented that it implied an inappropriate value judgment of the vehicle, either in whole or in part. Many commenters indicated that letter grades, in particular, convey an assessment that is value-laden and not in accordance with the intent of the label. These commenters suggested that a prominent letter grade could be misleading, by implying an assessment of a vehicle’s overall quality on a number of attributes beyond greenhouse gas emissions and fuel economy. Finally, some commenters felt that its

prominence was problematic, either by minimizing other important label elements, such as MPG, or by overshadowing other label elements, such as the NCAP safety stars.

A few commenters stated that the absolute greenhouse gas rating in grams per mile was the most straightforward approach and felt that it would be helpful for those wishing to compare emissions across vehicles and clearly meet the EISA requirement. Others found the absolute scale unhelpful, stating that today's public has little awareness of greenhouse gas emissions rates. In particular, these commenters said that an absolute scale for GHGs would be confusing, given that the label also contained a one to ten rating for other emissions, and suggested that a consistent one to ten system for both ratings would be more understandable. Several commenters noted that one to ten ratings are readily understood and are in use today for vehicle emission ratings on both the EPA Green Vehicle Guide web site and on the California Environmental Performance Label, and that it would be logical to extend that approach to this label.

**Response:**

The agencies are requiring a relative greenhouse gas rating on a one to ten scale displayed on a slider bar and based on combined 5-cycle tailpipe CO<sub>2</sub> emission rates, as measured by EPA. The relative rating is intended to address the large number of comments received in support of a relative rating that allows a quick and easy assessment of a vehicle's relative environmental impact. While a letter grade rating can be readily understood, the agencies agree with some commenters' concerns that it may imply more meaning about overall vehicle attributes—an assessment of overall quality on a number of factors--than was intended. We recognize that the letter grade is a fairly significant departure from the current fuel economy label, which provides absolute numerical values and no relative ratings. The agencies believe that the one to ten rating fills a middle ground between the absolute numerical values of the current label and a letter grade rating, providing a similar ease of use without conveying any perceived value judgment that may be associated with a letter grade. Additionally, we agree that having consistent systems for the two environmental ratings on the label may help to minimize confusion and increase comprehension. Finally, the use here of a one to ten system is a logical extension of its use on the EPA Green Vehicle Guide web site and the California Environmental Performance Label, where it serves a similar purpose.

However, NHTSA did not conclude that a relative rating scale would, on its own, satisfy the EISA requirements for displaying GHG performance information<sup>[1]</sup> as discussed in the NPRM. We are therefore also requiring an absolute greenhouse gas rating that displays grams per mile of tailpipe emissions of CO<sub>2</sub> in text near the slider bar displaying the relative GHG rating. This approach clearly meets the EISA requirement for providing greenhouse gas performance information and indicating the lowest greenhouse gas vehicles. Additionally, this method of conveying information provides the level of detail and “just the facts” approach preferred by many commenters.

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<sup>[1]</sup> 49 U.S.C. 32908(g)(1)(A)(i).

### **3.3.5. Combined vs. Separate Ratings for Cars and Trucks**

**Organization:** Alliance of Automobile Manufacturers (Alliance)

Natural Resources Defense Council (NRDC)

Toyota

California Air Resources Board (CARB)

International Council on Clean Transportation (ICCT)

University of Pennsylvania Law School, Environmental Law Project

#### **Comment:**

#### **Alliance of Automobile Manufacturers (Alliance)**

If the “Label 1” combined MPGe range appears on a pickup truck with the “best” number based upon a subcompact car, the consumer will be misled into thinking that there are pickup trucks available that have the same fuel economy as a subcompact car. Resources such as the Fuel Economy Guide and the fueleconomy.gov website provide the best mechanism for conveying information for comparing fuel economy and greenhouse gas emissions across all types of vehicles (car/truck, gas/diesel/electric, automatic/manual, etc.). [EPA-HQ-OAR-2009-0865-6850.2, p.9]

#### **California Air Resources Board (CARB)**

We strongly support rating cars and trucks on an absolute scale. This gives consumers a straight forward way to compare all cars and trucks to one another no matter what type or size vehicle they are considering. This is also consistent with California’s label and therefore important to us as we consider adopting the National Label. [EPA-HQ-OAR-2009-0865-7527.1, p.1]

#### **International Council on Clean Transportation (ICCT)**

The agencies should not “rate” cars separately from light trucks unless the system moves to a footprint-based adjustment. Vehicles need to be rated either against all other vehicles or against vehicles in the same class. Either approach can be useful to customers. However, just rating cars and light trucks separately accomplishes neither. It would also be misleading and confusing to customers comparing similar vehicles classified separately as cars and light trucks, such as 2wd and 4wd SUVs. [EPA-HQ-OAR-2009-0865-7118.1, p.2]

#### **Natural Resources Defense Council (NRDC)**

Consumers are likely to consider multiple vehicle models and types, including both cars and trucks, because there are several models that meet their size requirements. However, within the same size or footprint there's also a wide variety of efficiency and greenhouse gas emission levels. And I've shown this in a figure that came with the testimony that you should have received. Essentially, buyers are looking for vehicles that hold a certain number of people and an amount of cargo. I looked at vehicles of the same footprint and compared their fuel economy and found that fuel economy can vary dramatically, and there's some examples also in the

testimony. I found that cars and trucks with the same footprint can vary by four grades levels or more. Having the same letter grade system makes it very clear which vehicles of varying types are most efficient with the same footprint size. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 19]

## **Toyota**

EPA is seeking comment on rating passenger cars separately from light duty trucks and is proposing to use the same definitions for cars and trucks, per NHTSA and 49 CFR Part 523. Toyota does not support separate ratings between cars and truck as this would allow for potential gaming. Also, it is unclear that customers will be able to comprehend the differences between cars and trucks in the context of GHG and CAFE. [EPA-HQ-OAR-2009-0865-6901.1, p.7]

## **University of Pennsylvania Law School, Environmental Law Project**

In order to provide consumers with accurate information about the true environmental costs of each vehicle, trucks and cars should absolutely not be graded using separate rating systems. Separating cars and light-duty trucks by using separate grading schemes would prove confusing and misleading to consumers, who would not be able to rely on vehicle letter grades as a broad indicator of overall vehicle performance. Instead, some trucks would receive very high grades even though their emissions and fuel economy profiles are inferior to many smaller vehicles. Using the same letter grade scale for all automobiles will give consumers the most accurate idea of the environmental impact and fuel costs of their vehicle relative to other vehicles on the market. [EPA-HQ-OAR-2009-0865-7171.1, p.5]

## **Response:**

The final label design does not treat cars and trucks separately for either the fuel economy rating or greenhouse gas rating. With the continuing proliferation of crossover type vehicles, the distinction between a traditional car and truck is increasingly blurred in the marketplace. In fact, for 2011 the National Highway Traffic Safety Administration (NHTSA) is changing the car/truck definition to better deal with small 2WD SUV or crossover type vehicles. In the past, these vehicles were classified as trucks under the definitions of CAFE, however after 2011 these vehicles will be treated as cars under CAFE, since they are generally smaller vehicles with limited off road capabilities, and many are based on traditional car platforms. The chart shown by NRDC in the comments also clearly illustrates that there is no clean division between cars and trucks in terms of footprint or fuel economy. Therefore, the agencies decided that ratings on the label should be based on the entire fleet. In the case of fuel economy, the label will also identify the range of fuel economy for the vehicle type (e.g. midsize sedan). The agencies believe that this combination of information will best inform the consumer of the fuel economy of the vehicle compared to the fleet as a whole and the vehicle within class.

### 3.4.1. Methodology

**Organization:** American Council for an Energy-Efficient Economy (ACEEE)

**Comment:**

#### **American Council for an Energy-Efficient Economy (ACEEE)**

Both separate and combined ratings for criteria pollutant emissions and greenhouse gas emissions have merit as elements of an environmental performance label. As the focus groups demonstrated, members of the public often express a preference for EPA or another knowledgeable party to combine all emissions into a single score in a fashion that reflects that party's judgment regarding the relative importance of the various pollutants. This could be done, for example, through the use of damage costs for each pollutant. That is not the approach suggested by EPA, however, either in the criteria pollutant rating system based on bins (Table II.A.5-2) or in the combined GHG and criteria pollutant emissions ratings (Table II.A.6-1), for which no quantitative basis is offered. We believe a separate rating for criteria pollutant emissions is preferable to this option. [EPA-HQ-OAR-2009-0865-7135.1, p. 4]

Treatment of criteria pollutant emissions

The low priority given to criteria pollutants on certain labels is problematic. Emissions of criteria pollutants are scored separately, leaving the consumer with no sense of how important these emissions may be to the overall environmental performance of the vehicle. Clearly, a case can be made that GHG emissions warrant greater emphasis than do criteria emissions at this juncture in vehicle regulation, especially as the two relate to consumer information. Yet criteria pollutants from vehicles remain a threat to public health, as evidenced by EPA's and ARB's deliberations on Tier 3 and LEV VIII. In fact, we fear that EPA may be shooting itself in the foot by sending a strong signal that criteria emissions are a minor environmental problem shortly before a new round of rulemaking requires car buyers to foot the bill for vehicles cleaner than today's. [EPA-HQ-OAR-2009-0865-7135.1, p. 8]

This problem is especially severe in Label 1. This label gives minimal real estate to criteria pollutants, reflecting their absence from the primary scoring scheme. Reducing cars' fuel consumption and greenhouse gas emissions does need to be prioritized at this time, but criteria pollutants remain a significant environmental issue and should not be marginalized in the new label design. As EPA considers a new round of tailpipe criteria pollutant standards, it would be counterproductive as well as inaccurate to send a message to consumers and to manufacturers that vehicles' emissions of these pollutants are no longer a threat large enough to warrant serious attention on an environmental label for vehicles. [EPA-HQ-OAR-2009-0865-7135.1, p. 9]

**Response:**

The agencies are requiring, as proposed and as supported by most comments, a label that displays a relative one-to-ten rating based on federal Tier 2 emission standards. We are also requiring the suggested name change from "other air pollutants" to "smog", as consumers are

already familiar with the connection between vehicle emissions and smog, whereas “other air pollutants” is not currently as meaningful. This will have the added benefit of promoting label harmonization by better aligning with the California Environmental Performance Label “Smog Score” that has been in existence for many years.

**Organization:** Union of Concerned Scientists  
California Air Resources Board (CARB)  
Natural Gas Vehicles for America (NGVAmerica)  
Catania, Andrew

**Comment:**

**California Air Resources Board (CARB)**

We believe that the term 'other pollutants' does not inform consumers about the type of pollutants included on that scale. It would be more informative to specifically state that they are smog-related emissions and that it is a score rather than an absolute number. [EPA-HQ-OAR-2009-0865-7527.1, pp.1-2]

We believe that the term 'other pollutants' does not inform consumers about the type of pollutants included on that scale. It would be much more informative to specifically state that they are smog-related emissions and that it is a score and not an absolute number. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 131-32.]

**Catania, Andrew**

In addition to carbon, the label fails to address Hazardous Air Pollutants (HAP's). The effects of these pollutants are far more severe to human health than those of greenhouse gasses, yet the only representation for HAP's on the label is a bar chart titled “other air pollutants.” A more detailed feature on the HAP's emissions should be added to the new label. [EPA-HQ-OAR-2009-0865-7425, p. 1]

**Natural Gas Vehicles for America (NGVAmerica)**

**Other Emissions**

The notice indicates that, for other pollutants, the focus will be on tailpipe emissions of criteria pollutants (NMOG, NOx, PM, CO and HCHO). The ratings system for other pollutants will be based on the emission certification standards for vehicles (Bins 1 – 8) with higher ratings assigned to vehicles in the lower bins and less favorable ratings to vehicles in higher bins. This proposal is fraught with a number of problems. The criteria pollutants do not all contribute to a common problem such as smog. Therefore, ratings based only on certification levels do not provide useful information. Certification standards also ignore upstream emissions. As with greenhouse gas emissions and energy consumption, the listing of “other pollutants” should include the full fuel cycle emissions. Given the prevalence of smog as a national problem and

general awareness of this issue, the “other pollutants” should be limited to pollutants that contribute to smog formation and the label rating for this should appear under the heading “Smog-Forming Pollutants.” [EPA-HQ-OAR-2009-0865-6921.1, p.7]

### **Union of Concerned Scientists**

We certainly support the inclusion, as required, of criteria pollutant emissions comparison information in some form. However, the term 'smog' is surprisingly absent in the draft labels. Consumers might not quickly comprehend what is meant by, quote, 'Other Air Pollutants,' unquote. We recommend incorporating the word 'smog' in some fashion in that element of the label wherever it happens to be placed on the label. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 87.]

[These comments were also submitted by as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 91]

### **Response:**

The agencies are requiring, as proposed and as supported by most comments, a label that displays a relative one-to-ten rating based on federal Tier 2 emission standards. We are also requiring the suggested name change from "other air pollutants" to "smog", as consumers are already familiar with the connection between vehicle emissions and smog, whereas “other air pollutants” is not currently as meaningful. This will have the added benefit of promoting label harmonization by better aligning with the California Environmental Performance Label “Smog Score” that has been in existence for many years.

**Organization:** Gas Technology Institute (GTI)  
Metropolitan Washington Air Quality Committee (MWAQC)

### **Comment:**

#### **Gas Technology Institute (GTI)**

EPA is proposing a scale for “Other Air Pollutants” to provide a single rating which combines ozone/smog precursors (NO<sub>x</sub>, NMOG, NMHC, and THC), particulate matter, formaldehyde, and carbon monoxide. Additional criteria pollutants include SO<sub>x</sub>, ozone, and lead. In addition, the EPA eGRID database includes mercury emissions from power plants. To combine these complex and separate pollution issues into a single scale is confusing and misleading. Separate ratings for each pollutant will allow consumers to make more informed decisions regarding the direct impact of their vehicle. Unlike GHG emissions, which are a global issue, ozone and acid rain are regional issues. Limiting individual pollutants will be a greater priority depending on local areas of concern. For example, due to the high priority of ozone/smog in non-attainment areas, it may be more accurate and useful for consumers to know the level of ozone/smog precursor emissions produced by a vehicle than an overall rating that includes other pollutants. [EPA-HQ-OAR-2009-0865-6858.1, p. 11]



Separate ratings for each pollutant will provide the best, most defensible information for different objectives and regions. However, due to limited space on the vehicle fuel economy label and the need for clarity, this information may need to be published in the web-based tool to provide the desired detail for the consumer on these individual pollutants and their health effects. [EPA-HQ-OAR-2009-0865-6858.1, p. 11]

Separate ratings for Other Air Pollutants will provide the best, most defensible information for different objectives and regions. [EPA-HQ-OAR-2009-0865-6858.1, p. 15]

### **Metropolitan Washington Air Quality Committee (MWAQC)**

Additionally, with regard to the label title of 'Fuel Economy and Environmental Comparison,' MWAQC believes that health effects from conventional air pollutants emitted from automobiles (i.e., NO<sub>x</sub>, VOC, PM<sub>2.5</sub>, NO<sub>2</sub>, air toxics) are an important component of 'Environmental Comparisons.' The proposed labels give information on emission rates for greenhouse gases, yet a generic 1 to 10 ranking is used for all 'other air pollutants' considered collectively. We urge you to consider adding more details on the environmental comparisons for conventional air pollutants from different vehicles to further assist consumers to make informed purchasing decisions. [EPA-HQ-OAR-2009-0865-5848.1, p.1]

### **Response:**

The agencies proposed and requested comment on a one-to-ten rating for “other emissions” in which each rating is associated with a bin from the federal Tier 2 emissions standards, or the comparable California emissions standard, based on the fact that it was impossible to provide a single aggregated rating reflecting an absolute scale, and that separate absolute rating scales would have been unduly cumbersome to present on the label. The majority of comments received were supportive of the proposed option, indicating that it was a reasonable approach to distilling complex information and was consistent with the approach used on the EPA Green Vehicle Guide web site and the California Environmental Performance Label. Several commenters advocated changing the name on the label from “other air pollutants” to the term “smog,” which they felt was more meaningful for the general public and would be even more directly consistent with the California Environmental Performance Label. Finally, a few comments suggested that “other air pollutants” should be disaggregated and displayed separately for each air pollutant.

The agencies are requiring, as proposed and as supported by most comments, a label that displays information on "other air pollutants" as a relative one-to-ten rating based on federal Tier 2 emission standards. We are also requiring the suggested name change from "other air pollutants" to "smog", as consumers are already familiar with the connection between vehicle emissions and smog, whereas “other air pollutants” is not currently as meaningful. This will have the added benefit of promoting label harmonization by better aligning with the California Environmental Performance Label “Smog Score” that has been in existence for many years. We did not pursue disaggregating the smog pollutants, as it would have been unduly cumbersome to present on the label, and our market research indicated that most consumers were not interested in that level of detail. The label web site on

"fuelconomy.gov" will provide the specific air pollutant levels associated with the each rating for those who are interested in this level of detail.

### 3.4.2. Slider Bar on Labels 1 & 2

**Organization:** Argonne National Laboratory

**Comment:**

**Argonne National Laboratory**

Slider Bar Unnecessary

The purpose of the slider bar is to graphically place in context the relative performance of the labeled vehicle. This is unnecessary for a scale that is already normalized from 1 to 10. Everybody understands a 1-10 scale. Use the slider bars for other important vehicle attributes. [EPA-HQ-OAR-2009-0865-7572.1, p. 3; see commenter's Chevy Volt label at page 3]

**Response:**

The majority of comments received were supportive of the proposed option of showing "other air pollutants" on a 1-10 scale using a slider bar, indicating that it was a reasonable approach to distilling complex information and was consistent with the approach used on the EPA Green Vehicle Guide web site and the California Environmental Performance Label. Out market research also indicated that consumers liked the graphical representation of a slider bar to show the 1-10 scale.

**Organization:** Merritt, Kevin

**Comment:**

**Merritt, Kevin**

The current sliding scales have an opaque numbers in them. Those numbers overlap color on the scale. If the sliders were moved up, then the color on these labels could be pre-printed. The current design would require just in time (color laser printers) to replace current mono printers. This could have significant costs implications for hardware and programming. [EPA-HQ-OAR-2009-0865-4723, p.1]

The sliding scale used has white letters. Because it overlaps the colored 'slider bar', this would require that the label be printed using a color printer. Preprinted color media would otherwise show through the lower half of text of the arrow slider. If the arrows were simply placed above the slider, then pre-printed stock could be used. Also is there a specification for the color used? (There are many shades of yellow... or could other colors be used... or could grey be used, allowing existing printers to be used?) [EPA-HQ-OAR-2009-0865-3705, p.1]

**Response:**

The finalized label was designed to allow for pre-printing, with only one color (blue) added in addition to black and white. Please visit [fueleconomy.gov](http://fueleconomy.gov) to see the finalized label.

**Organization:** Suzuki Motor Corporation

**Comment:**

**Suzuki Motor Corporation**

Change the Other Air Pollutants bar to a SMOG bar that is similar to the California Environmental Performance Label SMOG Score which uses a scale from 1 thru 10 in black text. Delete the text “Worst” and change the text from “Best” to “Cleanest” which can be pre-printed on the label. Change the rating number to be a simple number that is not enclosed within a pointer as proposed. See the sample CEPL Smog Score below. These changes will allow most manufacturers to use their current software and printers to print the new emission label requirements. [EPA-HQ-OAR-2009-0865-6900.1, p.3]

**Response:**

The agencies are requiring, as proposed and as supported by most comments, a label that displays a relative one-to-ten rating based on federal Tier 2 emission standards. We are also requiring the suggested name change from "other air pollutants" to "smog", as consumers are already familiar with the connection between vehicle emissions and smog, whereas “other air pollutants” is not currently as meaningful. This will have the added benefit of promoting label harmonization by better aligning with the California Environmental Performance Label “Smog Score” that has been in existence for many years. The agencies have streamlined the label's appearance, so that auto manufacturers will have the option of preprinting the labels.

**Organization:** Union of Concerned Scientists

**Comment:**

**Union of Concerned Scientists**

SMOG: Fourth, UCS certainly supports the inclusion of the criteria pollutant emissions comparison information in some form. However, the term ‘SMOG’ is surprisingly absent in the draft proposed labels. Consumers might not quickly comprehend what is meant by ‘other air pollutants’. We propose incorporating the word ‘smog’ into that element of the label. [EPA-HQ-OAR-2009-0865-7132.1, p.3]

**Response:**

The agencies are requiring the suggested name change from "other air pollutants" to "smog", as consumers are already familiar with the connection between vehicle emissions and smog, whereas “other air pollutants” is not currently as meaningful. This will have the added benefit

of promoting label harmonization by better aligning with the California Environmental Performance Label “Smog Score” that has been in existence for many years.

### **3.4.3. Star Rating on Label 3**

**Organization:** Association of International Automobile Manufacturers (AIAM)  
Hyundai Motor Company  
California Air Resources Board (CARB)  
California New Car Dealers Association

#### **Comment:**

#### **Association of International Automobile Manufacturers (AIAM)**

While AIAM members have not reached a consensus on a preference for the two proposed labels, we have reached the consensus that the alternative Label, on which the agencies sought comments, is not supported due to the fact that the five-star rating in Label, again, would be easily confused with NHTSA's five-star label, which is also, of course, on the Monroney label. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 54-55.]

#### **California Air Resources Board (CARB)**

We suggest that you do not use the 5-star rating in Label 3. It may be confusing with other star ratings and it does not provide a large enough range to really compare vehicles. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

#### **California New Car Dealers Association**

Finally, to finish on Label 3, we think it's comprehensive like Label 2, but we think it may be confusing when you have the stars. We think the consumer may be a bit confused in comparing the vehicle's environmental performance with the crash safety, the crash worthiness. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 71.]

#### **Hyundai Motor Company**

Label 3

Hyundai does not prefer the third alternative label design (Label 3) due to the inclusion of the five-star rating. A 5-star rating is used on the NHTSA's New Car Assessment Program Label, and we believe that the use of another label with a 5-star rating could create misunderstanding related to the meaning of the stars. [EPA-HQ-OAR-2009-0865-7139.1, p.6]

#### **Response:**

The agencies are finalizing a label that includes ratings on a 1-10 scale, not a 5-star rating system that was proposed on label option #3. The agencies agree with all the commenters that there would be too much potential to confuse a star rating system on the fuel economy and

environment label with NHTSA's 5-star safety ratings, which have been included on the Monroney label for many years.

### **3.4.4. Overall Energy & Environmental Rating**

**Organization:** Edison Electric Institute (EEI)  
American Council for an Energy-Efficient Economy (ACEEE)  
International Council on Clean Transportation (ICCT)  
Honda Motor Company  
Natural Gas Vehicles for America (NGVAmerica)

#### **Comment:**

#### **American Council for an Energy-Efficient Economy (ACEEE)**

In any case, an overall environmental rating of a vehicle should reflect both types of pollution, because both remain significant environmental problems. [EPA-HQ-OAR-2009-0865-7135.1, p. 4]

#### **Edison Electric Institute (EEI)**

Fuel economy and emissions performance data should not be merged because it would be misleading as consumers vary dramatically in their driving habits. Instead, the website should allow consumers to estimate a merged value based on driver-specific assumptions. [EPA-HQ-OAR-2009-0865-7117.1, p.3]

#### **Honda Motor Company**

We are unclear what rationale would be used to balance CO<sub>2</sub> and Other Pollutants into one rating. In some regions, local pollutants are of greater consumer concern than CO<sub>2</sub>, for example. In the near term, a 50% weighting for CO<sub>2</sub> and Other Pollutants might seem sensible, but as LEV III and Tier III emerge, other Pollutants are likely to be viewed as trivial, and the weighting will change. Absolute scales like the actual CO<sub>2</sub> impact of a vehicle are clearly more helpful. [EPA-HQ-OAR-2009-0865-6774.1, pp.1-2]

#### **International Council on Clean Transportation (ICCT)**

ICCT believes that separate ratings for GHG and other pollutants are better than a single, combined rating. We appreciate and support the agencies' desire for simplicity, but in this case we believe a single rating would be more confusing than useful. Consumers would not be able to tell if the vehicle is efficient or is clean without referring to additional information. Another concern is that a single rating could lead consumers to believe there is no difference between GHG emissions and pollutants that directly affect local air quality. Separate ratings would also facilitate the introduction of incentive programs linked to emissions in the future. For example, Japan has a dual-rating system on their labels that determines the tax incentive amount for efficient and clean vehicles. Finally, separate ratings would be consistent with the labeling program already implemented in California. [EPA-HQ-OAR-2009-0865-7118.1, p.2]



## **Natural Gas Vehicles for America (NGVAmerica)**

NGVAmerica supports separate ratings for different factors instead of combining them (e.g., combining GHG and fuel economy). Therefore, we support the label 2 over label 3 in this respect. [EPA-HQ-OAR-2009-0865-6921.1, p.5]

### **Response:**

The agencies are finalizing labels that include ratings for greenhouse gases and smog separately. The agencies agree with all the commenters that providing separate ratings for greenhouse gases and "other air pollutants" provides clarity and transparency for those wishing to take these factors into consideration. There was little to no support for a rating that combined greenhouse gases with either fuel economy or other emissions. Commenters on this topic also stated that there was no clear methodology for incorporating emissions of other air pollutants with greenhouse gases and did not support the proposed methodologies. Lastly, the agencies believe that this approach is clearly consistent with the language in Energy Independence and Security Act and will provide consumers with a more direct way to compare each of these elements.

### 3.5. SmartWay Logo

**Organization:** Alliance of Automobile Manufacturers (Alliance)

Toyota

California Air Resources Board (CARB)

University of Pennsylvania Law School, Environmental Law Project

EcoMotors International, Inc.

#### **Comment:**

#### **Alliance of Automobile Manufacturers (Alliance)**

SmartWay Logo

The Agencies should not utilize the SmartWay logo as an indicator of the overall environmental performance, since this would present the same problems affiliated with the letter grades. [EPA-HQ-OAR-2009-0865-6850.2, p.12]

#### **California Air Resources Board (CARB)**

We like the idea of a Smartway logo on the label to identify the cleanest cars available. We think consumers would respond well to this idea and it would allow those consumers interested in considering the environment in their purchase decision to have a tool to easily do so. However, before we support this concept, we would be interested in seeing the criteria for determining what cars would get this identifier. [EPA-HQ-OAR-2009-0865-7527.1, p.3]

If you do implement the Smartway logo, we recommend it be a required element of the new label, not voluntary. Without consistency, it loses its meaning and impact. [EPA-HQ-OAR-2009-0865-7527.1, p.4]

#### **EcoMotors International, Inc.**

EPA and NHTSA ... seek comment on utilizing the SmartWay logo as an indicator of 0 high level of overall environmental performance. ... The agencies are seeking comment on whether to require or optionally allow the SmartWay logo on the label for applicable vehicles... Specifically the agencies seek comment on whether including the SmartWay logo would be helpful to consumers on Q label that already addresses fuel economy, GHGs, and other emissions in other formats. [EPA-HQ-OAR-2009-0865-6851.1, p.7]

The SmartWay logo was included on labels reviewed by focus groups for the rulemaking. The agencies have indicated that most participants understood that the logo could be used to quickly identify vehicles that were 'environmentally friendly,' without having to review the rest of the environmental information on the vehicle label. [EPA-HQ-OAR-2009-0865-6851.1, p.7]

Whether use of the SmartWay logo is required, or made optional, it must be applied across a level playing field. This means that any award based on emissions must reflect upstream

emissions for all vehicles. Awarding the SmartWay 'environmentally friendly' designation to vehicles with significant upstream emissions issues clearly would be deceptive. The agencies should also consider the environmental challenges associated with disposal of electric vehicles' depleted battery packs before awarding these automobiles an 'environmentally friendly' designation. [EPA-HQ-OAR-2009-0865-6851.1, p.7]

## **Toyota**

SmartWay Logo [EPA-HQ-OAR-2009-0865-6901.1, p.7]

EPA intends to utilize the SmartWay logo as an indicator of a high level of overall environmental performance. While Toyota supports the SmartWay logo in its current use on EPA's Green Vehicle Guide, Toyota sees no value to changing the way SmartWay is used by including it on the label. Furthermore, Toyota is concerned that the value could be diminished if the logo were to become incorporated on an already 'busy' fuel economy label. [EPA-HQ-OAR-2009-0865-6901.1, p.7]

## **University of Pennsylvania Law School, Environmental Law Project**

We believe that use of the Smartway logo would help consumers identify the top 20% of environmentally friendly vehicles. We propose that the logo be an optional feature vehicle manufacturers can add if they so choose. On our amended label design, the Smartway logo would appear on the bottom right of the label, alongside the agency logos. Alternately, the Smartway logo could appear as a sticker to be attached to the vehicle separately. [EPA-HQ-OAR-2009-0865-7171.1, p.5]

## **Response:**

Given the extensive amount of information required to appear on the label, and the label's small dimensions, the agencies decided there was not sufficient amount of available space to include the SmartWay logo at this time. Consumers will be encouraged to use the greenhouse gas and smog ratings on the label should they wish to get an environmental snapshot of a vehicle's emissions.

### **3.6. Fuel Cost Information**

**Organization:** Center for Neighborhood Technology

**Comment:**

**Center for Neighborhood Technology**

Transportation costs are the second highest expenditures for American families next to housing, but people don't generally recognize this because the costs are disaggregated into a tank of gas here, a car payment there, and a repair or city sticker in between. The recession has stripped many Americans of their livelihoods, eroded savings, and plunged many further into debt. Americans now need every chance they can get to save. Labels that reward greater fuel economy offer one of those chances. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 81-82]

**Response:**

We have sought to provide a label that assists consumers in finding fuel-efficient vehicles that meet their needs. While the label is not going to solve economic disruptions in the country, we hope that it will help consumers with their transportation expenditures.

### 3.6.1. Annual Fuel Cost

**Organization:** Argonne National Laboratory  
Priddy, RL

#### **Comment:**

#### **Argonne National Laboratory**

##### Bookended Costs

Yearly costs will never be experienced for all-electric because limited range is not compatible with driving 15,000 miles per year. Unless vehicle is unrealistically stopping to charge constantly. In this case this metric is a only of interest as a comparative measure. Suggest making it cents per mile. [EPA-HQ-OAR-2009-0865-7572.1, p. 3; see commenter's Chevy Volt label at page 3]

##### Per Mode, Costs are Per Mile

Because the costs here are broken out by mode, we can not expect this to be an experienced value. What is needed here are units allowing a comparative illustration - cents per mile. For the Volt, it is easy to see that there is a costs savings in the electric mode compared to the fuel-only mode. That is all that is needed here. Annualized results will never be achieved in only one mode so do not set up consumers for disappointment. [EPA-HQ-OAR-2009-0865-7572.1, p. 4; see commenter's new Volt label ANL suggestions at page 5.]

#### **Priddy, RL**

The EREV (Figure III-11) label ably explains a complex concept. The line below the two MPG boxes, showing a car driving first “All Electric,” then “Extended Range (gas)” is inspired. It clearly shows how the vehicle is powered, with arrows from the electric and extended range miles to the two MPG boxes with electric and gasoline icons, and the 240-Volt charge time shown next to a battery. The “nameplate capacity” of the battery (the basis for federal incentives), is also of value and could be included inside a larger battery icon. Crucially, the boxes show both the “cost per year if always run in All Electric,” which an EREV driver rarely exceeding the daily charge range would approach. And it includes the worst-case “cost per year if always run in Gas Only” mode. This latter number would apply only for an unusual driver who decided not to bother spending 15 seconds plugging and unplugging when an outlet was available. [EPA-HQ-OAR-2009-0865-3278, p.2]

#### **Response:**

Due to space constraints on the label, the final label does not reflect approximate fuel costs for each mode of operation for PHEVs, but instead uses a utility factor derived annual fuel cost assuming operation in both charge depleting and charge sustaining modes. This value satisfies

the EPCA requirement for annual fuel cost and provides the consumer with a single metric to compare among different vehicle types.

**Organization:** Association of International Automobile Manufacturers (AIAM)

Toyota

California Air Resources Board (CARB)

American Petroleum Institute (API)

**Comment:**

**American Petroleum Institute (API)**

New vehicle labels should provide straightforward and concise information, especially for fuel costs. For example:

For gasoline/diesel vehicles: Fuel for this vehicle costs \$X per year.

For electric vehicles: Fuel for this vehicle costs \$X per year.

For PHEVs: Fuel for this vehicle costs \$X per year when run in gasoline-only mode.

Fuel for this vehicle costs \$X per year when run in gasoline plus electric mode.

For FFVs: Fuel for this vehicle costs \$X per year when run on gasoline.

Fuel for this vehicle costs \$X per year when run on E85. [EPA-HQ-OAR-2009-0865-7250.1, p.6]

**Association of International Automobile Manufacturers (AIAM)**

AIAM supports keeping the “annual fuel cost” on the label and not including the fuel savings statistics. This latter type of information could be available on the website, but it is difficult to add more information to the label because of limited space. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

**California Air Resources Board (CARB)**

Some Labels use the term Annual Fuel Cost while others say Cost per Year. We recommend only using one of these terms. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

**Toyota**

Annual Fuel Cost [EPA-HQ-OAR-2009-0865-6901.1, p.7]

Recognizing the EPCA requirement to continue to display annual fuel cost, EPA requests comments on how to improve consumer understanding of this information. Toyota supports the inclusion of annual fuel cost in its current form. [EPA-HQ-OAR-2009-0865-6901.1, p.7]

**Response:**

EPA agrees that annual fuel cost information should be provided in a straightforward and consistent manner. Therefore EPA is finalizing a label that places annual fuel cost in a consistent location across all labels and uses the succinct and easily understandable phrase "annual fuel cost". The language and format are a natural evolution from the current fuel economy label, implemented in model year 2008; therefore EPA believes that consumers should be able to continue to easily locate and use the annual fuel cost value.

The agencies also have concerns about label space, but EPA believes that the utility of the five-year fuel cost or savings compared to the average vehicle outweighs the concerns expressed by commenters. Although the literature is mixed, many studies have indicated that consumers may significantly undervalue (or overvalue) potential fuel savings when deciding which vehicle to purchase.<sup>[1]</sup> One reason may be that consumers have difficulty accurately estimating fuel costs and savings over time.<sup>[2]</sup> The proposed five-year fuel cost or savings value clearly demonstrates the total comparative fuel costs and savings over a timeframe that many vehicles are owned. Including it on the label will help consumers to more easily weigh the long-term payback benefits of purchasing a more fuel efficient vehicle or a vehicle that operates on a less expensive fuel.

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<sup>[1]</sup> Greene, David L. "How Consumers Value Fuel Economy: A Literature Review," EPA Report EPA-420-R-10-008, March 2010, p.vi-ix.

<sup>[2]</sup>For evidence that consumers may make mistakes estimating the fuel savings associated with higher fuel economy, see: Turrentine, Thomas S. and Kurani, Kenneth S. "Car buyers and fuel economy?" Energy Policy 35:1213-1223 (2007) and Larrick, R.P. and J.B. Soll, "The MPG illusion," Science 320:1593-1594 (2008). For a more complete discussion of reasons consumers may undervalue future fuel savings, see 75 F.R. 25510-25513; and Helfand, Gloria, and Wolverton, Ann, "Evaluating the Consumer Response to Fuel Economy: A Review of the Literature," U.S. Environmental Protection Agency, National Center for Environmental Economics Working Paper 09-04 (2009), p.23–30, available at <http://yosemite.epa.gov/EE/epa/eed.nsf/WPNumber/2009-04?OpenDocument> (last accessed 3/18/11).

**Organization:** Ford Motor Company (Ford)  
National Automobile Dealers Association (NADA)  
Center for Biological Diversity (Center)  
Honda Motor Company  
Siegel+Gale

**Comment:**

**Center for Biological Diversity (Center)**

A statement of annual fuel costs is also a valuable metric and should continue to be included on the label. Although some focus groups have concluded that consumers care less about overall fuel costs than a calculation of what they will save in buying a particular vehicle, a fuel cost statement allows customers to compare the operating costs of different vehicles, regardless of which technology or fuels the vehicles employ. This value is, therefore, a useful consumer tool and should not be altered. [EPA-HQ-OAR-2009-0865-7122.1, p.7]

Second, the “Annual Fuel Cost” number should be replaced with a “fuel savings” figure, similar to that found in Proposed Label I because consumers tend to prioritize savings over costs, and thus the savings metric can more effectively convey that vehicles with fewer CO2 emissions will save consumers more money. [EPA-HQ-OAR-2009-0865-7122.1, p.9]

**Ford Motor Company (Ford)**

Ford recommends the inclusion of the annual fuel cost on the label. However, we do not believe that the fuel consumption metric shown on the proposed label (gallons per 100 miles) will be value added to the customer. This proposal would add an unnecessary element to the label and conflict with the overarching intent for the label to be simple and easy to understand. [EPA-HQ-OAR-2009-0865-7141.1, p.3]

**Honda Motor Company**

Annual Fuel Cost: The agencies ask if this is the most useful metric. Honda believes that Annual Fuel Cost is the most useful metric for consumer comparing vehicles with different Powertrain technologies. Is a 40 mpg diesel better than a 33 mpg gasoline vehicle? The answer is not obvious, until one has the annual fuel cost metric for both vehicles. Even when the fuel prices used to calculate annual fuel cost are out of date, consumers can easily adjust the annual fuel cost metric. If one annual fuel cost is \$1,100 based on \$3.00/gallon fuel, a consumer can easily increase the annual fuel cost by 10% if current or anticipated prices in the customer’s region have increased by 10%. If Label design #2 is used, the size and dominance of the Annual Fuel Cost is appropriate. If label design #1 is used, we suggest that Annual Fuel Cost information replaces the Fuel Savings information due to its superior consumer utility (see #3). [EPA-HQ-OAR-2009-0865-6774.1, p.5; see p. 2 of this comment summary for #3 entitled, Fuel Savings]

**National Automobile Dealers Association (NADA)**

However, NADA suggests that the assumptions used to calculate the annual fuel economy cost metric be retained on the label. But it is with respect to the label's comparative information that NADA has the most to suggest:

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 35.]



## **Siegel+Gale**

The cost-per-year to run a vehicle ranked as the second most important consideration behind mpg. [EPA-HQ-OAR-2009-0865-0824.1, p.2]

### **Response:**

EPA appreciates the comments supporting the retention of annual fuel cost on the label. EPA will continue to require annual fuel cost and its underlying assumptions on the label. This satisfies the EPCA requirement and provides continuity with the historical approach to annual fuel cost, which is used by some consumers as a comparative tool. EPA agrees that, as vehicle technologies diverge and it becomes increasingly challenging to find comparative metrics, fuel cost is a useful point of comparison. EPA will continue its practice of issuing annual guidance updating the mileage and fuel cost assumptions, in consultation with the Department of Energy.

**Organization:** National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)  
Natural Gas Vehicles for America (NGVAmerica)  
Johnson, Ken  
California Cars Initiative

### **Comment:**

#### **California Cars Initiative**

I believe it would be better and more accurate if a higher price than \$2.80 per gallon was put on gasoline, as even U.S. and international oil agencies now expect the price of oil (unlike electricity and natural gas) to increase significantly over the five-year span in question. Also, there is a very strong argument for using the 36.4 kWh per gallon high heat value of gasoline instead of the 33.7 kWh low value that these labels use, as the extra energy included in the high value is that required to vaporize the water vapor in the exhaust; energy that could conceivably be condensed and recovered in an extra-efficient gasoline vehicle. But these are relatively minor quibbles with an otherwise-outstanding set of labels. [EPA-HQ-OAR-2009-0865-4695, p. 1]

Starting with the gas/diesel vehicle (Figure III-9 in the Federal Register notice), the gas pump is a nice touch next to the MPG figure and associated annual fuel cost. [EPA-HQ-OAR-2009-0865-4695, p. 1]

Gallons per year (e.g. at 15,000 miles per year) would be even better, as it would show very clearly that the huge-seeming 50 MPG difference between 50 and 100 MPG is a difference of 150 gallons in a year, while the much smaller-seeming 10 MPG difference between 10 and 20 MPG is a difference of 750 gallons -- five times as much -- over the same time. [EPA-HQ-OAR-2009-0865-4695, p. 2]

## **Johnson, Ken**

Report assumed fuel price and discount rate in footnotes. Use a realistic fuel price for lifecycle costs, not \$2.80/gal. The CAFE rulemaking assumed \$3.18/gal between 2010 and 2030. Labels should be periodically revised to reflect updated EIA projections. [EPA-HQ-OAR-2009-0865-3507, p. 1]

## **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

Annual fuel cost does provide one consumption-based metric already, but the uncertainty of the input assumptions for each particular consumer underscores the importance of reporting fuel efficiency on a parallel consumption basis (making mental calculations easier for the consumer since they involve multiplication instead of division). I would also recommend making the assumptions that go into the annual fuel cost calculations more static (for instance, by taking the fuel cost averaged over the past five or ten years). This would help avoid confusion since consumers frequently encounter vehicles from more than one model year at the same dealer. For instance, when comparing a more efficient current model year vehicle to a less efficient vehicle from the previous model year, the current and proposed label approach can actually make the wrong vehicle look more efficient on the basis of annual fuel cost if there is a large increase in fuel price from one year to the next. [EPA-HQ-OAR-2009-0865-7222, p.3]

## **Natural Gas Vehicles for America (NGVAmerica)**

Fuel Costs – Annual Fuel Costs, Five Year Savings [EPA-HQ-OAR-2009-0865-6921.1, p.7]

EPCA (42 USC 32908 (b) (1) (B) requires that the label provide annual estimated fuel costs. As shown above, this figure is computed based on the combined fuel economy of the vehicle and assumes the vehicle travels 15,000 miles per year. Fuel costs are based on the average national prices for fuels (e.g., 2008 price for gasoline was \$2.80). [EPA-HQ-OAR-2009-0865-6921.1, pp.7-8]

### **Response:**

EPA will continue its practice of issuing annual guidance updating the mileage and fuel cost assumptions, in consultation with the Department of Energy. Gasoline and diesel fuel cost values have historically been based on national projections from the U.S. Energy Information Administration and are intended to represent at the pump costs to consumers rather than life-cycle costs. Providing static cost estimates over a number of years has merit, so that the fuel costs on the labels can be compared among numerous model years. However, the focus group research indicated that consumers are already skeptical of annual fuel cost estimate. This skepticism arose from the recognition that the value was based on assumptions of fuel prices and annual miles driven, which many felt would not be personally applicable to their own driving patterns. Less frequently updated cost assumptions are likely to lead to cost assumptions that consumers perceive as inaccurate and therefore not applicable to their situation. Therefore, EPA continues to believe that annual projected cost assumptions are generally the correct balance to

ensure that the assumptions are current but are stable for purposes of cost comparisons among the same model year vehicle.

In addition to the gallons per 100 mile metric, EPA believes that the annual fuel cost and the five year relative savings value will provide useful information for consumers who seek to compare the effect of vehicle fuel consumption differences when shopping for new vehicles.

**Organization:** F., Nick

**Comment:**

**F., Nick**

Making yearly estimates of cost made little sense to me. Whilst it's a useful guide for electric or Gas cars, it doesn't work for plug-in hybrids because the cost of running the car changes depending on the distance travelled in each journey. You could have 2 people who travelled the same distance in a year but spent wildly different amounts of money to fuel the car because they travelled different distances in each journey. One could be using solely electricity whilst the other used a large quantity of gas during longer journeys. [EPA-HQ-OAR-2009-0865-1323, p.1]

**Response:**

The commenter is correct that the annual fuel cost may vary significantly depending on the relative use of gasoline and electricity. However, EPA is requiring the retention of annual fuel cost and its underlying assumptions on the label to satisfy the EPCA requirement and provide continuity with the historical approach to annual fuel cost, which is used by some consumers as a comparative tool. EPA believes that, as vehicle technologies diverge and it becomes increasingly challenging to find comparative metrics, fuel cost is a useful point of comparison

**Organization:** University of Pennsylvania Law School, Environmental Law Project

**Comment:**

**University of Pennsylvania Law School, Environmental Law Project**

Since the inclusion of annual fuel cost is required by statutory mandate, we suggest placing a smaller fuel cost estimate in the fuel economy section, alongside the gal/100 mi. information. By placing fuel costs in this section, where there is an accompanying slider bar situating a vehicle on a fuel economy spectrum, the label will provide consumers with a visual illustration that allows them to compare the efficiency of that particular vehicle to others in its class. [EPA-HQ-OAR-2009-0865-7171.1, p.7]

**Response:**

EPA agrees that it is important to help consumers draw connections between fuel efficiency and relative fuel cost. The commenter's suggestion to co-locate the fuel cost estimate with fuel

consumption and the fuel economy slider bar has merit. EPA has located the annual cost metric near the fuel economy and greenhouse gas rating which should facilitate a consumer's connection between efficiency and cost.

### 3.6.2. Relative Fuel Savings or Costs on Label 1

**Organization:** Johnson, Ken

**Comment:**

**Johnson, Ken**

Recommendation: Report the discounted present value (in dollars) of the vehicle's projected LIFECYCLE FUEL CONSUMPTION (including electricity for PHEV's), instead of the 5-year savings relative to an 'average' vehicle. Reasons: (1) Fuel savings alone would create fuel-economy incentives OVER TWICE the regulatory incentive of new CAFE standards if consumers fully valued lifecycle fuel savings. [See my publication 'Going Beyond CAFE Standards ...,' <http://ssrn.com/abstract=1624672>.] Lifecycle fuel savings is the most important performance metric in influencing consumer choice. DO NOT REINFORCE CONSUMERS' SHORT-SIGHTEDNESS BY REPORTING ONLY SHORT-TERM COSTS AND BENEFITS! (2) Savings relative to an 'average' vehicle is not a useful metric because 'average' is ambiguous. Over what category of vehicles is the average taken? (An average over all vehicles is not meaningful for rating vehicles in different utility classes.) Is it a footprint-weighted average? Or a sales average? In any case, I don't care how a vehicle compares to some hypothetical 'average,' because the 'average' is not among my choice options. All I care about is how any two particular purchase options that I am considering compare. [EPA-HQ-OAR-2009-0865-3507, p. 1]

Also, use a realistic discount rate (e.g., 5%, consistent with the CAFE rulemaking -- or a lower value, consistent with current economic conditions). [EPA-HQ-OAR-2009-0865-3507, p. 1]

**Response:**

Preamble Section III.G.2 discusses these issues. EPA considered using economic projections of lifetime fuel cost savings for this calculation, but concluded that doing so might make the calculations unnecessarily confusing or dubious to consumers while providing limited additional value. Many people in the public think in terms of simple calculations or payback periods when considering long-term costs or savings. As EPA learned from the focus groups, consumers are skeptical of any calculations involving fuel costs, because the price of fuel fluctuates greatly, and personal driving habits also vary. In addition, consumers may be skeptical that the resale market will adequately compensate them for fuel-efficient vehicles. While using discounted lifetime fuel costs will affect the magnitude of the values, it will not change the direction of the results (that is, whether a vehicles "saves" or "spends"). Our hope is that consumers will recognize that this value is most useful for comparison purposes, and not as an exact measure of actual fuel costs.

The agency chose to use a comparison to an "average" vehicle to emphasize the comparison role of this value. EPA believes that communicating to consumers a vehicle's fuel costs relative to the costs of the average new model offered for sale, and over a timeframe commensurate with vehicle ownership, will highlight the importance of future fuel costs and

allow them to be more readily factored into the buying decision. To further clarify the average vehicle reference point, explanatory text is added to the label which says “The average new vehicle gets X MPG and costs \$Y to fuel over 5 years.” EPA believes that this additional text should aid consumer understanding about the reference point. Consumers will still be able to compare two vehicles in a straightforward fashion: one vehicle will save/cost more than the other, relative to the “average” vehicle.

For consistency, EPA will use the same reference point that is used to define the break between a rating of 5 and a rating of 6 on the fuel economy and greenhouse gas scale (see Section III.D). The term “average” is represented by the label MPG value that corresponds with the projected CAFE level for the fleet for that same model year. That is, the vehicles indicated on the label as “you save” in fuel costs over five years will have a fuel economy that is better than the projected average level for the fleet for that model year, while those indicating “you spend” will be below the projected average. The five-year average cost will be calculated for this average vehicle, using the same annual mileage and gasoline fuel cost assumptions used for the annual cost estimate, multiplied by five years. As discussed above, the agencies are not discounting future fuel savings, to keep the calculation simple.

**Organization:** Environmental Defense Fund (EDF)  
Natural Resources Defense Council (NRDC)  
Union of Concerned Scientists  
California Air Resources Board (CARB)  
Sierra Club  
Securing America's Future Energy (SAFE)  
National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)  
National Wildlife Federation (NWF)  
University of Pennsylvania Law School, Environmental Law Project  
Natural Gas Vehicles for America (NGVAmerica)  
Community Environmental Council

**Comment:**

**California Air Resources Board (CARB)**

We recommend that you incorporate the five year fuel cost/savings into the final label design in a way that is very visible to consumers. We believe it will help consumers considering an advanced technology vehicle with a higher price tag see that this higher price could be offset with lower fuel costs. It also alleviates the problem of the miles per gallon illusion since it lays out the cost or savings of the car right on the label. [EPA-HQ-OAR-2009-0865-7527.1, p.1]

While we believe fuel consumption is a more accurate way for consumers to compare vehicles, if consumers don't understand the information, it is meaningless. It also adds more numbers and units to an already crowded label. We believe that the five year cost/savings provides consumers with the same type of information, but in a way that they can understand and use in their purchasing decision. [EPA-HQ-OAR-2009-0865-7527.1, p.1]

First, we recommend that you incorporate the five-year-fuel cost savings into the final label design in a way that is very visible to consumers. We believe it will help consumers considering an advanced technology vehicle with a higher price tag to see that this higher price could be offset with lower fuel costs. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 130.]

### **Community Environmental Council**

We also like the new calculation of 5 years of fuel costs, rather than the previous 1 year. This more easily allows consumers to compare costs over the time they will likely own the vehicle.[EPA-HQ-OAR-2009-0865-4668, p.1]

### **Environmental Defense Fund (EDF)**

LABEL INFORMATION- LABEL 1 PROVIDES THE CONSUMER WITH MORE INFORMATION [EPA-HQ-OAR-2009-0865-6927.1, p.6]

In the Agencies' online surveys and focus group discussions, participants responded that annual fuel cost is the second most important factor on the label, after fuel economy. And online respondents also indicated that the most compelling factor to purchase a more fuel-efficient vehicle is "to save money". Responding to these consumer concerns, the expert panel recommended that annual fuel costs be presented as savings. "Talk about savings (over five years). Be explicit. We talk about the cost of buying and operating vehicles. Help individuals understand what they will save by buying a more efficient vehicle." [EPA-HQ-OAR-2009-0865-6927.1, pp.6-7]

Economists have found that consumers perceive information more powerfully when it is framed in terms of losing something as opposed to gaining the same thing. Therefore, empowering consumers with information about savings will help consumers better understand the options before them, resulting in more informed consumer purchasing decisions. As such, we respectfully request that the Agencies display fuel savings on the final label, no matter which design is chosen. [EPA-HQ-OAR-2009-0865-6927.1, p.7]

Label 1 also goes further and explains money saved at the pump over five years, a key point of comparison for American families. EPA's proposed Label 1 gives consumers what they need and sets fuel efficiency, environmental performance, and fuel cost in context among all vehicles. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 61.]

Likewise, EPA focus groups show that consumers did not tend to limit themselves to one class or type of vehicle when shopping. EPA's Phase II report noted that, 'When asked if it was important to be able to compare across different types of vehicle technologies, virtually every participant said yes. They indicated that they wanted to use the information to compare different vehicles across technologies in their consideration and therefore be able to make an informed decision.' EPA's proposed Label 1 responds to these concerns and sets fuel efficiency and environmental performance and fuel costs in context among all vehicles. [These comments

were also submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 49-50]

### **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

Label option 1 in the current proposal includes the good suggestion to show relative fuel savings or cost over a five year time period; the acknowledged longer time horizon for vehicle purchase decisions supports this argument to smooth out the year-to-year variability in the fuel cost assumption and make it easier to compare vehicles of two different model years. [EPA-HQ-OAR-2009-0865-7222, p.3]

### **National Wildlife Federation (NWF)**

Both the cost associated with driving the new car or truck and the five year costs or savings relative to the average vehicle

As discussed previously, relative costs or savings spur consumer thought regarding overall value and tradeoff opportunities in a way that showing fuel cost alone does not. New vehicle window labels are one of the best opportunities to get consumers clear information that allows them to understand and balance the cost of using a vehicle over time against the cost of purchase or other variables. Households deserve clear information on opportunities to save. Cost per mile (or per 100mi) could also be a valuable addition to data conveyed on the label. [EPA-HQ-OAR-2009-0865-7528.1, p.3]

The economy's important. Clearly, NWF has been a tireless advocate for clean energy and transportation policy that helps households and revitalizes communities, builds jobs, and helps the economy. Energy costs are also a major part of household budgets, particularly for lower income households. But while the relative upfront price of various vehicles is quite evident, the relative fuel costs and savings over time are less clear. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 64-65]

Every extra dollar saved on fuel is a dollar that could be spent on other household purchases. We want to see those dollars spent locally. They circulate much more robustly here in the Midwest than they do overseas where we get the majority of our oil, or our fuel. Especially here in the Midwest, many consumers also understand the intimate connection between new cars and jobs, whether it's the Ford Chicago assembly, auto manufacturing in and around Ann Arbor where I work, in Toledo, Ohio, where I live. We understand the connection between cars and jobs. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 65]

And polling shows that consumers believe that advanced clean energy technologies means new jobs and data on willingness to pay to capture those jobs suggests that they value acting to secure those benefits to our communities. Without data on relative fuel costs and savings, it's hard for consumers to assess the trade-offs between higher upfront costs and fuel savings over



time. Looking at just costs may lead consumers into a false choice to which they short-change their individual and community economic best interests. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 65-66]

Clearly articulating relative cost savings help make the value of fuel economy more concrete, and helps consumers make the core economic trade-offs that are important to them, whether between fuel and other purchases or community benefits, or between vehicle cost and fuel savings, or between vehicles. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 66]

### **Natural Gas Vehicles for America (NGVAmerica)**

NGVAmerica supports showing how much a particular vehicle will save or cost in dollars over a five-year period. This information will help consumers better understand the long-term economics of using certain fuels like natural gas. However, we believe that economic comparisons should be made with reference to the performance of other vehicles within the same class. We support including this information on Label 2. [EPA-HQ-OAR-2009-0865-6921.1, p.8]

The notice indicates that the labels will continue to display annual fuel costs because the statute requires this information. However, the agencies are interested in whether more useful cost data could be provided (e.g., cost per month, five-year cost, cost per mile). Only proposed Label 1 includes a new metric for fuel costs, providing the five-year savings compared to an average vehicle. As proposed, Labels 2 and 3 do not include this information but the notice indicates the five-year cost figure could be moved to these other labels in the final rule. [EPA-HQ-OAR-2009-0865-6921.1, p.8]

We note that the factors considered above represent national averages and that actual fuel prices, miles driven, as well as the proportion of miles traveled on-highway and city will vary significantly for individual consumers. We raise this here to point out that national averages can be used and already are used in the labels. Therefore, national averages also could be used to develop information about upstream emission and energy consumption. [EPA-HQ-OAR-2009-0865-6921.1, p.8]

### **Natural Resources Defense Council (NRDC)**

Five-year operational costs should be included to facilitate vehicle comparisons.

NRDC supports the inclusion of the five-year operational cost comparison to the average vehicle of the full car and light truck fleet. Similar to the letter grade, the colored 'spend' and 'save' designations, along with the actual monetary value, are easy to understand and relieve the consumer from the complex task of doing cost calculations. It also allows consumers to see how their fuel savings can offset any incremental cost from purchasing a more advanced, cleaner vehicle like a hybrid. Because the five-year operational cost is presented simply, it can

also be effective early in the vehicle purchase process when buyers are considering the largest variety of vehicles. [EPA-HQ-OAR-2009-0865.1, p.8]

### **Securing America's Future Energy (SAFE)**

Operating cost: Vehicle operating cost is perhaps the most important of these three metrics for consumers because the purchase of a new vehicle is a significant economic decision. In fact, for many people, a vehicle is the second most valuable thing they own, after their home. [EPA-HQ-OAR-2009-0865-7522.1, p.4]

While all vehicle purchasers must be aware of the cost of purchasing a new vehicle, it is also critical to understand the cost of operating the vehicle if one is to understand its total cost of vehicle ownership. As we move to vehicle technologies in which the ratio of capital to operating costs may shift towards higher capital and lower operating costs, it is particularly important to ensure that consumers have accurate information about vehicle operating costs. Despite the financial magnitude of the initial purchase of a new vehicle, consumers often fail to take proper account of a vehicle's total operating costs at the time of purchase. [EPA-HQ-OAR-2009-0865-7522.1, p.4]

The consequences of this behavior are, perhaps, most stark with respect to consumers' frequent failure to take full account of a vehicle's fuel economy at the time of purchase. Stated simply, consumers regularly exhibit an unwillingness to make an additional up-front investment in fuel economy that clearly will pay for itself over the life of the vehicle. This is not surprising; consumers typically seek a payback in investments in energy efficiency far shorter than the life of the appliance or vehicle in question, implying that consumers are either using very high discount rates or that they have a fundamental misunderstanding of the calculation. [EPA-HQ-OAR-2009-0865-7522.1, p.4]

Understanding the tradeoff between capital and operating costs will be even more important in the future. Alternative technology vehicles will often cost more up front and less to operate due, in substantial part, to lower fuel costs. For instance, EVs will require a substantial premium in the purchase price due to the cost of a battery, but they will consume 2 to 4 cents of electricity per mile versus the 10 cents per mile of gasoline consumed by the average light-duty vehicle. The situation is similar for natural gas vehicles, which require a premium up front in exchange for lower fuel costs. [EPA-HQ-OAR-2009-0865-7522.1, pp.4-5]

On Label 1, the agencies proposed reporting the difference between the vehicle's fuel costs over five years and that of the median vehicle. SAFE strongly supports inclusion of that or similar data on the label, because it facilitates consumers' calculation of the total cost of owning and operating a vehicle. Reporting fuel costs or savings over five years makes sense although it is far shorter than the average life a vehicle, because it is a longer payback period than most consumers implicitly require today and it is about equal to the length of time that new cars are typically owned by their first owner. [EPA-HQ-OAR-2009-0865-7522.1, p.5]

Similarly, the agencies assume that electricity for electric vehicles will cost 12 cents per kWh because that is about the national average price for residential electricity. Yet many utilities are

offering substantially lower rates for off-peak vehicle charging. Pacific Gas & Electric, for instance, whose EV and PHEV charging rates are depicted in Figure 8, [See p.19 of this comment summary for Figure 8 entitled, Pacific Gas & Electric Rate for Electric Vehicle Charging] are offering off-peak power for 5.0 to 6.4 cents per kWh. Many other utilities, particularly in areas likely to have larger concentrations of EVs and PHEVs, are offering similar rate schedules. [EPA-HQ-OAR-2009-0865-7522.1, p.19]

SAFE is not suggesting that EPA and NHTSA adjust the rate assumptions for electricity at this point in time, but request that the agencies commit to revisiting the issue as soon is as appropriate based on the penetration of EVs and PHEVs into the market, so that the information on the labels reflect how the vehicles are really being used. [EPA-HQ-OAR-2009-0865-7522.1, pp.19-20]

The five-year operating cost. We believe that any vehicle label, no matter which design, should include information of the five-year operating cost or the difference in the five-year operating cost for the average vehicle. Consumers are notoriously bad at calculating payback on investments in energy efficiency. This information will help consumers understand that efficiency often pays for itself. Proving the data over a five-year period makes sense because it's the average length of time that first vehicle owners keep their car. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 29]

### **Sierra Club**

Clearly communicated economic costs of operating a new vehicle and savings from efficiency

While the up-front costs of a new vehicle are readily apparent, consumers are much less likely to have a clear understanding of the operational costs of a new vehicle and the cost savings associated with a more efficient vehicle. We support the inclusion of prominent cost-savings and also support the inclusion of operating costs, possibly in the form of expected annual fuel costs. Specifically, we support the inclusion of a five-year savings value shown in proposed Label 1. Such a value provides a much more powerful value than annual fuel costs, which are easily discounted by consumers. Regarding calculation, we support applying the gasoline fuel price to the average miles driven over the first five years of a vehicle's life and comparing it to the same cost for the median vehicle. [EPA-HQ-OAR-2009-0865-7221.1, pp.2-3]

The label should also include how much more a vehicle owner will spend or save over five years at the pump because of the vehicle's fuel economy. [EPA-HQ-OAR-2009-0865-7223.1, p. 1]

Question 2: Label 1 compares the consumer savings and cost of a specific vehicle to the savings cost of an average vehicle. Do you think this is important information to include? 2,953 out of the 3,289 respondents said that that information should be included in the label. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 98.]

The Sierra Club supports the consumer cost savings information as provided on the letter grade label. Giving consumers this more comprehensive assessment of how much they will spend or save at the pump is a valuable addition to the annual fuel costs now provided on labels. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 101.]

Number two, I definitely like the idea of a five-year cost estimate because that is often how long someone anticipates owning a new car they buy, but again, some considerations. We try to get simple, and things seem to get more complicated. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 142-143.]

### **Union of Concerned Scientists**

**FUEL SAVINGS/COSTS:** Finally, UCS fully supports the inclusion on the label of the dollar amount of savings—or additional amount that would be spent—in fuel costs (over five years). This would no doubt be a very helpful and straightforward piece of comparison information for consumers and, therefore, should be prominently displayed on the label. [EPA-HQ-OAR-2009-0865-7132.1, p.3]

Finally, we support the inclusion on the label of the dollar amount of savings -- or additional amount that would be spent, as the case may be, in fuel costs. I think that's especially highlighted on your Label design. We think that's a very important -- an important piece of information for consumers that will help them in their car buying decision. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 88.]

We would not want that to be based on just a single year, that dollar amount might be too small to really send a message to consumers. And so the five-year time frame seems to make sense. I own my cars for 10 to 12 years at a time, so five years seems to be a good compromise for that metric. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 88.]

### **University of Pennsylvania Law School, Environmental Law Project**

#### **Fuel Costs and Savings**

The price of fuel is perhaps the most pervasively displayed price in the economy. Most fuel stations advertise their prices on large signs that can be seen from moving vehicles. Consumers discriminate between fuel retailers based on these visible prices. They also react to day-to-day price changes and willingly switch where they buy gas when prices change. Consumers may well share the federal government's broader concerns about reducing oil consumption, increasing renewable energy supplies, and cutting carbon dioxide emissions, but their day-to-day behavior is much more directly impacted by the fuel costs that affect their pocketbooks. As a result, we recommend that EPA display the five-year cost savings prominently, just below the

letter grade. Our design is similar to Label 1 in this respect, but somewhat enlarges the five-year cost savings compared to Label 1. [EPA-HQ-OAR-2009-0865-7171.1, p.7]

Consumers are more likely to choose fuel-efficient vehicles if the cost savings associated with fuel economy are displayed prominently on the label. Consumers are more motivated by savings than costs, and tend to discount costs. It is not that individuals are incapable of thinking long-term, but that individuals have a tendency to value the present and discount the future. A study done on the marketing of energy-saving appliances found that the best way to induce consumers to consider the long-term costs of a product, also called the “life cycle costs,” over the initially more expensive present costs was to “[lower] customers perceived initial costs and increase awareness of life cycle costs.” By informing consumers of their savings, the label will highlight the benefits of buying a more fuel-efficient vehicle and will also discount the higher initial cost of a more fuel-efficient car. [EPA-HQ-OAR-2009-0865-7171.1, p.7]

### **Response:**

EPA appreciates the comments in support of the five year relative fuel savings or cost. EPA agrees that this metric provides a valuable and tangible comparison among vehicles of varying efficiencies and fuel types. Although the literature is mixed, many studies have indicated that consumers may significantly undervalue (or overvalue) potential fuel savings when deciding which vehicle to purchase.<sup>[1]</sup> One reason may be that consumers have difficulty accurately estimating fuel costs and savings over time.<sup>[2]</sup> The proposed five-year fuel cost or savings value clearly demonstrates the total comparative fuel costs and savings over a timeframe that many vehicles are owned. Including it on the label will help consumers to more easily weigh the long-term payback benefits of purchasing a more fuel efficient vehicle or a vehicle that operates on a less expensive fuel.

EPA agrees that fuel cost assumption variations among different model years could present challenges when fuel prices change dramatically from one year to the next; however, as with annual fuel cost assumptions, it is important for consumers to be able to feel that the cost assumptions on the label are currently relevant. Therefore, EPA is retaining the ability to revise these assumptions in annual guidance.

EPA's market research considered cost per mile (or per 100 miles) as a potential metric. While this idea has merit, EPA believes that most consumers use cost metrics as a comparison tool; therefore annual fuel cost and the five year relative savings value will adequately provide this type of comparison.

EPA agrees that electricity rates may vary by the time of day. However, as the commenter mentioned, it is difficult to predict future consumer charging patterns and future regional and specialized electricity rates. None of the fuel prices on any of the labels can reflect these sorts of factors and fluctuations, and as such the label assumptions on any label may or may not approximate what an individual is spending. The primary purpose of the fuel price is to determine an annual fuel cost for the purpose of comparing vehicles, and EPA believes that at this point, a national average projection for electricity costs is generally sufficient for this purpose.

We are requiring, as proposed, ratings that span all vehicle classes for which labels are required. Although the agencies' consumer research indicates that many consumers narrow their vehicle choices early in the buying decision, our research also indicates that most do not focus narrowly on a single class. Focus group participants indicated that they shopped, on average, across two to three vehicle classes.<sup>[1]</sup> For these consumers to be able to compare vehicles in different classes, the information must necessarily span those classes, or it will be of little use or, worse, misleading: a vehicle that is "best" in one class, in terms of the metrics presented on the label, may be less so when compared to other classes. For those consumers shopping across classes who wish to know the relative performance of those choices, a single all-vehicles rating system will enable them to make accurate comparisons across whichever vehicles they choose to shop. Such an approach would still be useful within a class, since each metric will differentiate vehicles regardless of their class.

For a discussions about upstream emission please see the Upstream Emissions section of this document.

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<sup>[1]</sup>Environmental Protection Agency Fuel Economy Label: Pre-Focus Groups Online Survey Report, EPA420-R-10-907, August 2010, p. 18.

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<sup>[1]</sup> Greene, David L. "How Consumers Value Fuel Economy: A Literature Review," EPA Report EPA-420-R-10-008, March 2010, p.vi-ix.

<sup>[2]</sup>For evidence that consumers may make mistakes estimating the fuel savings associated with higher fuel economy, see: Turrentine, Thomas S. and Kurani, Kenneth S. "Car buyers and fuel economy?" Energy Policy 35:1213-1223 (2007) and Larrick, R.P. and J.B. Soll, "The MPG illusion," Science 320:1593-1594 (2008). For a more complete discussion of reasons consumers may undervalue future fuel savings, see 75 F.R. 25510-25513; and Helfand, Gloria, and Wolverton, Ann, "Evaluating the Consumer Response to Fuel Economy: A Review of the Literature," U.S. Environmental Protection Agency, National Center for Environmental Economics Working Paper 09-04 (2009), p.23–30, available at <http://yosemite.epa.gov/EE/epa/eed.nsf/WPNumber/2009-04?OpenDocument> (last accessed 3/18/11).

**Organization:** Alliance of Automobile Manufactures (Alliance)  
Ford Motor Company (Ford)  
Hyundai Motor Company  
Center for Biological Diversity (Center)  
Honda Motor Company  
Steele, John M.  
California New Car Dealers Association

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Fuel Costs versus Fuel Savings [EPA-HQ-OAR-2009-0865-6850.2, p.11]

The Alliance supports displaying the annual fuel cost – a metric that consumers understand– but opposes the proposal to display annual and five-year fuel savings. The display of such information is not required by statute. It would add clutter to an already complex label, and consumers are unlikely to understand what their fuel savings are being compared against. [EPA-HQ-OAR-2009-0865-6850.2, p.11]

If the Agencies require that fuel savings be included in the label, they should do so in a way that compares vehicles in the same vehicle class. They should also limit the calculation to a single year, since a five-year savings calculation would be subject to year-to-year fluctuations in fuel prices, changes in the value of the U.S. dollar, and periodic changes in the discount rates used to estimate consumer savings. The best way to educate consumers on five-year and monthly fuel costs, and annual, five-year value and/or monthly values for fuel savings, would be on a website that incorporates an appropriate calculator and explain these variables. The web-based calculator should take into account how much the vehicle is driven, how it is driven, and what fuels are used. [EPA-HQ-OAR-2009-0865-6850.2, p.11]

**California New Car Dealers Association**

We also are concerned with the arbitrary fuel savings figure that you had asked about. Label 1 includes a fuel savings figure comparing fuel costs for the labeled vehicle to a median vehicle for the model year over five years. And this is based upon driving 15,000 miles a year with gasoline at \$2.80 a gallon. The calculation is completely arbitrary and, again, fails to take into account the needs of a particular consumer. Comparing fuel costs for an eight-passenger SUV to that of the most popular vehicle of that year, which is probably going to be a five-passenger sedan, is of no value to a family of eight. Seeking to compare fuel costs, which we don't discourage, we believe that the agency should compare the labeled vehicle to the median vehicle in that same class. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 69-70.]

**Center for Biological Diversity (Center)**

The Inclusion of Fuel Costs and Savings are Useful Consumer Tools, but Should More Accurately Reflect the True Statistical Calculation. [EPA-HQ-OAR-2009-0865-7122.1, p.6]

Proposed Label I's prominent display of fuel savings compared to the median vehicle is a useful means of conveying energy and gas savings to consumers. Emphasizing this monetary value encourages consumers to consider the long-term monetary benefit of purchasing alternative fuel vehicles with better fuel consumption rates. We support the placement and inclusion of this information in Proposed Label I. 6 [EPA-HQ-OAR-2009-0865-7122.1, p.6]

The language advanced in this section of Proposed Label I is slightly misleading, however. The “average” vehicle fuel economy value displayed is not actually the average (or mean) value. Rather, the monetary savings displayed on the Label are based on the median vehicle fuel economy value.<sup>7</sup> The Agencies should explain how using the median rather than the mean fuel economy value impacts the expected savings amounts. In any event, the Agencies should accurately state whether the comparison they chose is to the median or to the mean.

This would be an appropriate location for providing the “gas guzzler” tax information. Gas guzzler tax information should be listed on the fuel economy label in a manner that would quickly and easily convey the tax assessment to the consumer.

In the interest of accuracy and transparency, if the Agencies retain the median value, they should also explain what the fuel savings would be if the actual mean savings amount were calculated, even if this information is only provided on the fuel economy web site.

### **Ford Motor Company (Ford)**

Regarding the annual cost and five year cost saving elements being added to this format, our marketing information indicates only an annual cost would be value added to consumers. The five year cost savings would not be meaningful to most consumers, due to 1) their relatively short-term (annual and/or monthly) focus, and 2) the challenges in developing accurate long-term cost projections, given market fluctuations associated with fuel prices and currency. [EPA-HQ-OAR-2009-0865-7141.1, p.3]

### **Honda Motor Company**

Fuel Savings: The five-year fuel savings (or spending) compared to the average vehicle is proposed new information for the label. Honda does not support this new metric for the following reasons: [EPA-HQ-OAR-2009-0865-6774.1, p.2]

a) The labels are already crowded with information and Fuel Savings is simply an extension of the Annual Fuel Cost information. [EPA-HQ-OAR-2009-0865-6774.1, p.2]

b) The Fuel Savings information provides consumers with two misleading pieces of information at the same time: first it compares the annual fuel savings to a mythical average vehicle which may or may not exist and which may or may not be a relevant comparator for the consumer, and secondly the five year term of the Fuel Savings may or may not be relevant for the period of time the consumer plans to own their vehicle. [EPA-HQ-OAR-2009-0865-6774.1, p.2]

### **Hyundai Motor Company**

Sixth, although EPA proposed a vehicle operating cost metric, Hyundai does not support an operating cost metric as we believe the metric will be confusing to the customer. Despite the proposed description to accompany the saving or cost value, the consumer is not likely to understand which vehicle is the average used for comparison. The terms 'saves' and 'spends'



that would accompany the operating cost metric may also be confusing and not properly portray the meaning of the operating cost metric. Hyundai prefers the use of an annual fuel cost, as is already required on the current fuel economy label, and Hyundai suggests that EPA consider adding a five-year fuel cost on the label to give consumers fuel costs over several years of ownership. In addition, a five-year fuel cost will be more comprehensive than the operating cost, because it is not relative to an average vehicle. Examples of adding a five-year fuel cost are shown in Figure 3. [EPA-HQ-OAR-2009-0865-7139.1, p.4; see p.5 of this comment summary for Figure 3 entitled, Suggested Changes to Label Options 1 and 2]

Considering additional metrics that may be useful for comparisons across vehicle types, Hyundai could support the following additions to the label: a 'cost-per-mile' metric, MPGe, and/or the vehicle's range. [EPA-HQ-OAR-2009-0865-7139.1, p.5]

**Steele, John M.**

As I prefer label 2, I did not comment on the 'over five year figure' in label 1. I found it confusing as I am not sure what the average vehicle is, and you have jumped from one year to five years and absolute fuel cost to a delta fuel cost. Label 2 does not contain this confusing element and is another reason to prefer it. [EPA-HQ-OAR-2009-0865-3276, p.2]

**Response:**

EPA believes that the utility of the five-year fuel cost or savings compared to the average vehicle outweighs the concerns expressed by commenters. Although the literature is mixed, many studies have indicated that consumers may significantly undervalue (or overvalue) potential fuel savings when deciding which vehicle to purchase.<sup>[1]</sup> One reason may be that consumers have difficulty accurately estimating fuel costs and savings over time.<sup>[2]</sup> The proposed five-year fuel cost or savings value clearly demonstrates the total comparative fuel costs and savings over a timeframe that many vehicles are owned. Including it on the label will help consumers to more easily weigh the long-term payback benefits of purchasing a more fuel efficient vehicle or a vehicle that operates on a less expensive fuel.

In response to concern that the median vehicle and the average vehicle are not the same, EPA is finalizing a reference vehicle estimate that represents the label MPG value that corresponds with the projected achieved CAFE level for the fleet for that same model year. For consistency, EPA is finalizing the same reference point that is used to define the break between a rating of 5 and a rating of 6 on the fuel economy and greenhouse gas scale (see Section III.D). The vehicles indicated on the label as “you save” in fuel costs over five years will have a fuel economy that is better than the projected average level for the fleet for that model year, while those indicating “you spend” will be below the projected average. The five-year average cost will be calculated for this average vehicle, using the same annual mileage and gasoline fuel cost assumptions used for the annual cost estimate, multiplied by five years. As proposed, this reference five-year cost value representing the average vehicle will be published in EPA guidance, along with the upcoming projected fuel costs and annual mileage assumptions.

While EPA agrees that some consumers may not fully understand the reference point for the five-year cost or savings value, EPA nevertheless believe that showing relative costs or savings has significant value in helping consumers understand that fuel efficiency can substantially affect the relative operating costs among vehicles. In particular, EPA believes that communicating to consumers a vehicle's fuel costs relative to the costs of the average new model offered for sale, and over a timeframe commensurate with vehicle ownership, will highlight the importance of future fuel costs and allow them to be more readily factored into the buying decision. To further clarify the average vehicle reference point, the "Compared to the average vehicle" text is being increased in prominence. In addition, explanatory text is being added to the label which says "The average new vehicle gets X MPG and costs \$Y to fuel over 5 years." The agencies believe that this additional text should aid consumer understanding about the reference point.

EPA considered using five-year fuel cost (annual fuel cost multiplied by five-years) instead of the comparative five-year cost or savings value. However, as discussed above, EPA concluded that showing the relative costs or savings has additional merit that is not immediately gleaned from a five-year cost value. EPA and the Department of Energy provide similar information online for appliances as part of their Energy Star program.<sup>[4]</sup> In addition, since annual fuel cost is required to be on the label, consumers can easily use the information on the label to calculate their own five-year fuel costs, if desired.

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[1] Greene, David L. "How Consumers Value Fuel Economy: A Literature Review," EPA Report EPA-420-R-10-008, March 2010, p.vi-ix.

[2] For evidence that consumers may make mistakes estimating the fuel savings associated with higher fuel economy, see: Turrentine, Thomas S. and Kurani, Kenneth S. "Car buyers and fuel economy?" *Energy Policy* 35:1213-1223 (2007) and Larrick, R.P. and J.B. Soll, "The MPG illusion," *Science* 320:1593-1594 (2008). For a more complete discussion of reasons consumers may undervalue future fuel savings, see 75 F.R. 25510-25513; and Helfand, Gloria, and Wolverton, Ann, "Evaluating the Consumer Response to Fuel Economy: A Review of the Literature," U.S. Environmental Protection Agency, National Center for Environmental Economics Working Paper 09-04 (2009), p.23-30, available at <http://yosemite.epa.gov/EE/epa/eed.nsf/WPNumber/2009-04?OpenDocument> (last accessed 3/18/11).

[3] Specifically, the mean CO<sub>2</sub> value will be calculated, which will then be converted to a gasoline MPG value.

[4] For example see "Savings Calculator" at: [http://www.energystar.gov/index.cfm?fuseaction=find\\_a\\_product.showProductGroup&pgw\\_code=CW](http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW) (last accessed 3/17/11). This spreadsheet allows users to estimate the potential savings from using Energy Star-qualified clothes washers instead of conventional clothes washers.

**Organization:** American Petroleum Institute (API)

**Comment:**

**American Petroleum Institute (API)**

The letter grades based on comparisons with 'average vehicles' can lead to mistaken conclusions about the role of alternative fuels in fuel cost savings highlighted on the sticker. For example, in Figure 111-7 at 75 Fed. Reg. 58121, the example label for the CNG vehicle (which appears to be a Honda Civic) suggests a savings over 5 years of \$6100. However, if actual fuel economy values from the EPA Fuel Economy Guide are used for present gasoline and CNG. [EPA-HQ-OAR-2009-0865-7250.1, p.5]

Civics, along with assumed costs of \$2.80 per gallon of gasoline and \$1.45 per gge for CNG from the NPRM, the actual savings over 5 years are about \$3200/ roughly half that stated on the sticker. It appears that the comparison with an 'average vehicle' is doubling the savings, and the customer could mistakenly conclude that this is all a result of CNG use. This also appears to be the case for other alternative fuel and electric vehicle stickers. The proportion of the alternative fuel by itself in the fuel cost savings values should be made clear so that consumers can fairly weigh the fuel cost savings against the other differences among vehicles. [EPA-HQ-OAR-2009-0865-7250.1, p.6]

**Response:**

The comparison to the average vehicle is not intended to be simply a cost comparison among fuel types of similar vehicle models, as the example in comment demonstrates. It is intended to represent difference between the approximate cost to fuel the subject vehicle for five years and the approximate average cost to fuel the average efficiency vehicle over five years. Since the majority of vehicles offered for sale today are gasoline vehicles, a gasoline cost assumption is used to determine the average cost to fuel the average vehicle over five years. Should greater market penetration of alternative fuels occur, EPA may wish to re-address the five year average cost in the future to ensure that the average cost also captures the cost assumptions for other fuels.

**Organization:** Consumers Union

**Comment:**

**Consumers Union**

Fuel costs

CU would suggest a scale for the fuel costs instead of the save/spend numerical value. The numerical value in isolation can be a little confusing if consumers do not know what the baseline or scale is, especially for consumers looking only at cars that have the “spend” number and may not realize the scale goes into the positive. Although the label includes a small

explanatory description, the number is dramatically more visible and the explanation may not receive adequate attention. [EPA-HQ-OAR-2009-0865-7251.1, pp.2-3]

**Response:**

To ensure that consumers fully understand the baseline against which the subject vehicle is being compared, explanatory text is being added to the label which says “The average new vehicle gets X MPG and costs \$Y to fuel over 5 years.” The agencies believe that this additional text should aid consumer understanding about the reference point. The commenter's idea about adding a scale has merit; however, the agencies believe that that it is important to limit the number of visual "slider bars" on the label, so that the label is simple and readable.

**Organization:** Toyota

**Comment:**

**Toyota**

Relative Fuel Savings or Cost [EPA-HQ-OAR-2009-0865-6901.1, p.7]

Based on the expert panel recommendation, NHTSA and EPA are proposing to include a five year fuel savings value as shown on Label Option 1. The proposal would use the fuel economy value for a projected median vehicle for that model year and the referenced five year fuel cost would be derived from the fuel price and average mile driven over the first five years. If EPA were to provide this additional label information, Toyota would like to suggest that EPA consider combining the information via text or a bar chart that shows, ' ... annual fuel cost per year is \$XXXX versus the average cost of \$YYYY, resulting in savings over 5 years of \$ZZZZ.' [EPA-HQ-OAR-2009-0865-6901.1, p.7]

Label 1 provides new fuel cost savings information not seen on any other label designs. Secondary only in prominence to the letter grade, and immediately below the letter grade, Label 1 displays the 5-year fuel cost of the vehicle in comparison to the average vehicle and cost savings information comparison is based on 5-years. The proposal would use the fuel economy value for a projected median vehicle for that model year and the referenced five year fuel cost would be derived from the fuel price and average mile driven over the first five years. If EPA were to provide this additional label information, Toyota suggests that there is potential for mischaracterization or possible confusion by having two different cost values displayed (EPCA required annual fuel cost and the proposed relative fuel savings). [EPA-HQ-OAR-2009-0865-6901.1, p.12]

**Response:**

To ensure that consumers fully understand the baseline against which the subject vehicle is being compared, explanatory text is being added to the label which says “The average new vehicle gets X MPG and costs \$Y to fuel over 5 years.” EPA believes that this additional text should aid consumer understanding about the reference point. EPA plans to reduce the

potential for confusion created by having both annual fuel costs and the relative five year save or spend values on the label by displaying the five year save or spend value and the annual fuel cost in distinct locations on the label with prominent differentiating text.

### **3.6.3. Other Options**

**Organization:** Johnson, Ken

**Comment:**

**Johnson, Ken**

Bottom line: Make sure the consumer really understands how many gallons of fuel consumption, how much fuel cost, and how many tons of CO2 they are committing to OVER THE VEHICLE'S FULL LIFECYCLE. [EPA-HQ-OAR-2009-0865-3507, p. 1]

**Response:**

It is very difficult to accurately predict the lifetime and the mileage of individual vehicles. For this reason, the agency is finalizing a label with emissions information on a per mile basis and cost data on an annual and 5-year basis. We feel that this is the most useful presentation of data for the majority of consumers.

**Organization:** Argonne National Laboratory  
Scheve, Elliot

**Comment:**

**Argonne National Laboratory**

Highlighting consumption will provide the best form of information. We should be migrating to consumption for the future (like most other countries.) [EPA-HQ-OAR-2009-0865-7572.1, p. 6; see commenter's new Volt label with consumption suggestions at page 6.]

**Scheve, Elliot**

I recommend following the energy usage information that is on home appliances. Even going as far as printing the average price of fuel per gallon, and showing how much it costs to drive 10,000 miles a year. Some vehicles require premium fuel and those costs should be accounted for too. That way with a plug in hybrid or full electric, you can use the average cost per kW, and use that to compute the costs to drive 10,000 miles per year. [EPA-HQ-OAR-2009-0865-2580, p.1]

Or break it down into cost/mile to operate. This would take into account added costs with diesels that need urea fluid for exhaust aftertreatment. [EPA-HQ-OAR-2009-0865-2580, p.1]

**Response:**

The new labels will, for the first time, include a fuel consumption metric for consumers. The agencies agree that fuel consumption is an important metric for consumers to begin understanding.

The agencies only have authority to give cost information for fuels, not other operating fluids or maintenance. The labels do use the correct cost information for vehicles requiring premium fuels or electricity.

**Organization:** Sierra Club  
Securing America's Future Energy (SAFE)  
National Petrochemical and Refiners Association (NPRA)

**Comment:****National Petrochemical and Refiners Association (NPRA)**

LIFECYCLE COSTS SHOULD BE ON A COMPARABLE BASIS. [EPA-HQ-OAR-2009-0865-6773.1, p.4]

For EV/PHEV infrastructure, charging costs should be included - there is no reference to that in the current proposal. [EPA-HQ-OAR-2009-0865-6773.1, p.4]

The fuel cost estimates should be on a tax parity basis. Consider the example: an EV has 3 miles/kWh with an electricity cost of 12 c/kWh. If an equivalent vehicle had 25 mpg test cycle fuel economy, then the 50 cpg road tax would be equivalent to  $[50 \text{ cpg}/(25 \text{ mpg}) \times 3 \text{ miles/kwh}] = 6 \text{ c/kWh}$  (additional fees) - a 50% increase in EV/PHEV costs (still lower than gasoline, but higher than indicated in the proposal). [EPA-HQ-OAR-2009-0865-6773.1, p.4]

**Securing America's Future Energy (SAFE)**

Finally, SAFE supports inclusion on the label of fuel cost on a per mile basis, as depicted on the labels in Figures 1 and 2. This is a simple metric to which consumers can easily relate. Moreover, it can easily be compared to fuel consumption, which allows consumers to consider both costs and fuel consumption as part of their purchasing decisions. [EPA-HQ-OAR-2009-0865-7522.1, p.5]

**Sierra Club**

I understand you're constrained to using the U.S. Energy Information Agency projections on gasoline prices, even though all of us know that they are ridiculous the farther out they get, only assuming a nominal inflation rate increase. All of us who remember gas lines back in the 1970s and have seen how gasoline prices can spike, it kind of makes you wonder is that valid to a consumer's decision. One of my reasons for buying a pure battery-electric car is to be independent of gas stations when that next occurs. Number two, when we talk about five-year

costs, the cost of servicing the vehicle becomes a meaningful difference. A pure battery electric car does not need to have oil changes, other fluid changes, pumps, all kinds of mechanical stuff replaced, brakes, belts, et cetera. One of the benefits of a hybrid like a Prius that's not talked about, it doesn't use up brakes because it uses electric regenerative braking. I have never replaced brakes in nearly a hundred thousand miles. So these are important parts of the cost of operating the car that you can overlook if you only talk about the fuel costs. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 143.]

**Response:**

Fuel costs on the final label will be presented as an annual number and the agencies will include a 5 year cost/savings number in addition. We feel that an annual number is more useful and will resonate with the average consumer better.

At this point, there is not enough information about taxes on electricity for electric vehicles to address this on the label, though we could consider this on future versions of the fuel economy label.

There are certainly other benefits to alternative vehicles, but they do not belong on the fuel economy label. We will update the gas prices used on the label annually so that all vehicles of one model year can be compared. While we understand how volatile gas prices have been, we cannot continually change the label numbers or the cost comparison numbers would quickly become useless to consumers.



### **3.7. Other Label Text**

**Organization:** DieselGreen Fuels

**Comment:**

**DieselGreen Fuels**

Regarding diesel vehicles - vehicles made in 2012 need to show their compatibility with current common biodiesel blends - ULSD (B0), B5, and B20. If information overload is a concern, cut out B5 and only show B20, if that vehicle is supported by the OEM with B20. This is critical information since the customer's fuel choice will profoundly affect the emissions output, and consequently, the overall score. Please explain the EPA's plans to create a sticker that would show the score with and without the use of biodiesel blends. [EPA-HQ-OAR-2009-0865-1376, p.1]

**Response:**

The agencies are not aware of any requirement relating to the fuel economy label that "vehicles made in 2012 need to show their compatibility" with biodiesel blends. Dual fuel vehicles that are designed to operate on B0 and on B20 will be treated the same way current dual fuel gasoline-E85 vehicles are, i.e., the label will display only those values associated with use of the conventional fuel (i.e., B0). There is simply not enough real estate on the label to display complete information regarding the operation of dual fuel vehicles on an alternative fuel such as E85 or B20, and there is no statutory requirement to include this information on the fuel economy label. However, like current flexible fuel vehicles, data and emission scores regarding operation on alternative fuels will likely be included both in the annual Fuel Economy Guide and on the EPA/DOE website [www.fueleconomy.gov](http://www.fueleconomy.gov).

**Organization:** Suzuki Motor Corporation

**Comment:**

**Suzuki Motor Corporation**

The language in this statement contains the average fuel price (\$2.80 per gallon) which must be updated annually based on EPA requirements. Since the fuel price will need to be updated annually it would be better if the entire statement be moved right below the Annual Fuel Cost value which can then be updated and printed at any time. [EPA-HQ-OAR-2009-0865-6900.1, p.3]

**Response:**

EPA understands that placing the fuel price assumption in the fine print at the bottom of the label may make it potentially more difficult to update, and that it means if that portion of the label is on preprinted stock that includes the fuel price then that stock will not be able to be

carried over to the next model year. However, EPA had to balance the placement of the fuel cost assumptions with the need to keep the upper portion of the label as simple as possible, and we do not believe that placing these assumptions in the "fine print" will create significant problems.

### **3.8. Gas Guzzler Tax Information**

**Organization:** International Council on Clean Transportation (ICCT)

**Comment:**

#### **International Council on Clean Transportation (ICCT)**

ICCT supports the agencies' proposal to place the gas-guzzler tax information on the label. The agencies should also consider including other incentive information, such as the federal tax credits for hybrids and other advanced vehicles. [EPA-HQ-OAR-2009-0865-7118.1, p.2]

**Response:**

EPA appreciates ICCT's support for continuing to meet our statutory requirements regarding gas guzzler taxes. While ICCT's suggestion is a reasonable one, EPA has determined that it is simply not a practical one to implement. Though we would limit the content to federal incentives, even that proves to be difficult to implement. The hybrid incentives to date, for example, have frequently been tied to dates that are determined when the manufacturer reaches a specific volume of hybrid sales. For example, the credit program in the 2005 Energy Policy Act specified a maximum credit amount that would start phasing out when the manufacturer reached sales of 60,000 hybrids. Toyota hit the 60,000 mark in June of 2006, meaning that the tax credit for Toyota hybrids would be gone by October of 2007. However, the fuel economy label is simply not agile or flexible enough in real time to be able to adequately account for these sorts of changes, given that labels may be printed long before the vehicles reach the dealers. For example, cars could be on the dealer lots stating a given tax credit on the date that the tax credit amount changes to perhaps half of the stated amount, and from that point on the labels would be incorrect, a situation that the agencies prefer to avoid.

#### **4. Label Content for Advanced Technology Vehicles**

**Organization:** Electric Drive Transportation Association (EDTA)  
Edison Electric Institute (EEI)  
Securing America's Future Energy (SAFE)  
Nissan

#### **Comment:**

##### **Edison Electric Institute (EEI)**

The proposed revised labels, however, could have the opposite effect, disadvantaging electric vehicles (EVs), including hybrid electric vehicles and plug-in hybrid electric vehicles (PHEVs) because their fuel economy and emissions data is unlike that of conventional vehicles, with which consumers are familiar and comfortable. EPA and NHTSA should strive to ensure that information about EVs and PHEVs on labels does not confuse consumers or prejudice technologies. [EPA-HQ-OAR-2009-0865-7117.1, p.3]

##### **Electric Drive Transportation Association (EDTA)**

The window labels for EVs and PHEVs should serve three main purposes: (1) enable consumers to make a quick comparison of fuel economy and emissions across various categories of vehicles, including a comparison of electric-drive vehicles to conventionally fueled vehicles; (2) introduce consumers to new measures that are unique to electric-drive vehicles; and (3) lead consumers to a web-based platform where consumers can find more detailed information, customized to their own driving habits and geographic location. [EPA-HQ-OAR-2009-0865-7137.1, p.2]

Equally important, the window labels for EVs and PHEVs should not mislead consumers by providing oversimplified measures that grossly overstate or understate the emissions and energy usage that would be caused by a particular consumer's usage of an EV or PHEV. Nor should they overwhelm consumers with a mass of detailed data and unfamiliar metrics, which might actually result in consumers absorbing less information than they would with a simpler label. [EPA-HQ-OAR-2009-0865-7137.1, p.3]

##### **Nissan**

The information that is provided about new technologies and particularly the electric portion of new power trains, will be critical to developing consumer acceptance of those technologies. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 98]

##### **Securing America's Future Energy (SAFE)**

Treating Grid-Enabled Vehicles Differently [EPA-HQ-OAR-2009-0865-7522.1, p.18]

Advanced technology vehicles offer extraordinary opportunities to transform our energy future. To usher that future in, however, we must recognize that the vehicles operate differently from conventional vehicles in some key respects, and that consumers will interact with them differently as well. Whether natural gas, electric, or hydrogen powered, such vehicles will have different capital to operating expense ratios, employ different fueling infrastructure and technologies, be fueled in different places (including at home), support different business models (subscriptions for fuel by the mile or unlimited access to power for a fixed fee), and have different environmental consequences. [EPA-HQ-OAR-2009-0865-7522.1, p.18]

It is an exciting opportunity, but one that requires some non-traditional thinking at times. Just as the businesses that promote this technology have to think about different business opportunities and ways to communicate those opportunities to potential customers, and just as consumers may have an opportunity to rethink about how they use their cars (fueling frequently at home on a daily basis instead of paying for expensive gasoline at a station on a weekly basis), regulators have to adjust as well. In this context, the agencies need to take into account how these new technologies will be used. [EPA-HQ-OAR-2009-0865-7522.1, pp.18-19]

**Response:**

Electric vehicles (EVs) and Plug-In Hybrid Vehicles (PHEVs) operate using technology that is fundamentally different from the internal combustion powered vehicles that currently make up over 99% of the light duty fleet. With nearly every manufacturer planning to release an EV or PHEV, clearly this is the time to develop methods to teach consumers about the new technologies and how to compare them against traditional technologies. The agencies are finalizing new labels in part to meet the challenges created by these exciting new vehicles.

The labels being finalized are technology neutral, based on tailpipe carbon dioxide emissions, and use metrics and graphics that resonate with consumers to both educate and inform consumers without being overly complicated. In addition, we are creating a customizable web site that will allow consumers to learn more about these new vehicles, their tailpipe emissions, and the related upstream emissions due to electricity production. As new technologies continue to come to market, the agencies will continue to evaluate the best way to communicate important aspects of the technology to consumers.

#### 4.1.1. Upstream Emissions

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Natural Resources Defense Council (NRDC)  
Massachusetts Institute of Technology  
Toyota  
Union of Concerned Scientists  
Electric Drive Transportation Association (EDTA)  
Edison Electric Institute (EEI)  
California Air Resources Board (CARB)  
Sierra Club  
Tesla Motors  
Securing America's Future Energy (SAFE)  
American Council for an Energy-Efficient Economy (ACEEE)  
Nissan  
National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)  
Abengoa Bioenergy  
Argonne National Laboratory  
Center for Biological Diversity (Center)  
Gas Technology Institute (GTI)  
American Public Gas Association (APGA)  
Honda Motor Company  
National Petrochemical and Refiners Association (NPRA)  
U.S. Coalition for Advanced Diesel Cars  
National Wildlife Federation (NWF)  
Renewable Fuels Association  
University of Pennsylvania Law School, Environmental Law Project  
National Propane Gas Association (NPGA)  
Natural Gas Vehicles for America (NGV America)  
Thomas, Sandy  
American Petroleum Institute (API)  
Gates, Matthew  
Steele, John M.  
Thain, Bruce  
Encana Natural Gas Inc.  
Mitsubishi  
Hunter, Robert S.  
Jobe, Jonathan  
California Cars Initiative  
Foster, Marcus  
Laclede Gas Company  
EcoMotors International, Inc.  
Bullis, Kevin  
Cleeves, Monty

Occidental College  
Energy Independence Now (EIN)  
IMPCO Technologies  
Scarborough, Christina  
Duoba, Mike  
Abbat, Pierre

**Comment:**

In the proposal, the agencies recognized that upstream emissions are associated with the production and distribution of all automotive fuels used by motor vehicles, that certain emerging automotive fuels might have very different upstream vs tailpipe emissions characteristics, that providing accurate upstream emissions values for individual consumers can be a complex challenge, and that whether, and if so how, to account for these upstream GHG emissions was an important decision.

The agencies proposed to limit the label to tailpipe-only for both GHG emissions and Other Air Pollutants, while providing much fuller information on upstream GHG emissions on a web site. In addition, the agencies requested comment on alternative options for the label that, in addition to presenting tailpipe GHG emissions, refer to or identify in some manner the upstream GHG emissions associated with fuel production and distribution. One such alternative would continue to base the label GHG emissions value on tailpipe emissions values only, but would supplement the numerical value with a symbol or asterisk and explanatory text such as “the only CO<sub>2</sub> emissions are from electricity generation” (for EVs), “does not include CO<sub>2</sub> from electricity generation” (for PHEVs), or “the CO<sub>2</sub> emissions listed here are from gasoline combustion only and do not reflect the use of renewable biofuels” (for ethanol flexible fuel vehicles). A second alternative for the label would be to, in addition to providing a tailpipe-only GHG emissions value, also provide a numerical value for upstream GHG emissions associated with production and distribution of the fuel(s) used by the vehicle. The agencies identified many challenges associated with developing a single numerical value for upstream GHG emissions (for example, for electricity, significant regional variability in electricity feedstocks and GHG emissions, potential changes in feedstocks and GHG emissions over time, and differences between daytime and nighttime charging on GHG emissions), and asked for comments on how the agencies would best address these complexities on a consumer label.

The agencies received a large number of comments on this topic, almost all of which focused primarily on the upstream GHG emissions issues associated with the electricity used in EVs and PHEVs. Because many of the individual comments were quite lengthy and generally made the same points, this section summarizes the primary arguments made by those who supported and opposed the proposal to provide only tailpipe GHG emissions on the vehicle label.

The following commenters supported the proposal to include tailpipe-only GHG emissions on the label, and also generally supported the proposal to include more detailed information on upstream GHG emissions on a web site: Alliance of Automobile Manufacturers, BMW, California Cars Initiative, Center for Biological Diversity, Edison Electric Institute, Electric Drive Transportation Association, Ford, General Motors, Mitsubishi, National Automobile

Dealers Association, Nissan, Securing America's Future Energy, Tesla Motors, Toyota, and University of Pennsylvania Law School.

Nearly all automakers who commented on this topic supported the proposal. The Alliance of Automobile Manufacturers stated: “This approach has never been taken with regard to upstream petroleum industry emissions associated with the production and delivery of gasoline and diesel.... To now require that labels reflect upstream emissions would create a dramatic inconsistency with all other fuels, whether fossil or renewable. This approach would treat plug-in electric vehicles differently than other end uses of electricity, making vehicle manufacturers uniquely responsible for reporting emissions over which automakers have no control. Furthermore, such a policy could discourage future sales of plug-in electric vehicles; once upstream emissions are added in, the GHG emissions for electric vehicles are only marginally lower than other, less expensive technologies....This does not mean that consumers should be uninformed of upstream emissions; only that an on-line upstream emissions ‘calculator’ is a better tool for evaluating such emissions.” Nissan “strongly supports the decision to reflect the greenhouse gas comparison as CO<sub>2</sub> g/mile from the tailpipe. The purpose of the label is to provide consumers with information about the vehicle itself....Including information on the electric vehicle labels that is not included on the gasoline vehicle labels, or presenting information that raises questions regarding the consistent comparison of two vehicles that cannot be answered with the label information, will serve only to confuse the market place and to devalue the significant environmental benefits of electric vehicles....The challenge for electric and other advanced technology vehicles will be to gain a place in the market beyond the first wave of early adopters and into the broader consumer market....The Expert Panel also suggested that the information on the label should be geared towards “the already engaged” with an eye towards making those already concerned about the environmental impact of tailpipe emissions “ambassadors” to the broader community. (Expert Panel, p. 10). The LEAF’s initial purchasers are just such ambassadors and have been clamoring for the Zero Emissions Vehicle sticker to be prominently displayed on their cars. These ambassadors, the vanguard of those consumers for whom environmental benefits contribute to their vehicle choice, need the proper tools to promote electric vehicles. Devaluing the environmental benefits effectively mutes these voices by not providing them with the information necessary to help move the market towards zero emission vehicles.”

EV and PHEV advocacy organizations generally supported the proposal as well, and the Electric Drive Transportation Association stated that: “[T]he fuel economy and emissions estimates on the label should be based solely on tailpipe emissions, as they are for all other conventional and alternative fuel vehicles. The reason to maintain the focus on tailpipe emissions is not simply a matter of maintaining a consistent approach for all vehicle types – although that clearly is an important consideration. The more fundamental reason is that upstream emissions vary too much to be reflected in a single number on a vehicle label. Attempting to include upstream emissions on the label would confuse, not inform, the consumers....To educate consumers about upstream emissions, the window label could include a brief statement that advises the consumer of potential upstream emissions and directs the consumer to the [www.fueleconomy.gov](http://www.fueleconomy.gov) website for further information.”



The Center for Biological Diversity was one environmental group that supported the proposal, “[b]ecause this proposed treatment is consistent with the way CO<sub>2</sub> is measured for all other vehicles, it is a useful consumer tool. Including upstream emissions for EVs only would introduce unnecessary confusion, and the uniform grams per mile metric *from tailpipes only* would lose some of its comparative value. However, we suggest that the tailpipe caveat – which renders the information accurate – be more prominently displayed (for instance, by means of bolding and/or a larger font).”

The following commenters opposed the proposal to provide tailpipe-only GHG emissions and advocated that the agencies should include upstream GHG emissions on the label as well: Abengoa Bioenergy, American Council for an Energy Efficient Economy, American Petroleum Institute, American Public Gas Association, Argonne National Laboratory, Borg Warner, California Air Resources Board, EcoMotors International, Encana Natural Gas, Energy Independence Now, Environment America, Gas Technology Institute, Honda, IMPCO Technologies, Laclede Gas, Massachusetts Institute of Technology, National Petrochemical and Refiners Association, National Propane Gas Association, Natural Resources Defense Council, National Wildlife Federation, Natural Gas Vehicles for America, New York University School of Law, Occidental College, Renewable Fuels Association, Safe Climate Campaign, Sierra Club, U.S. Coalition for Advanced Diesel Cars, Union of Concerned Scientists, as well as several private individuals including, among others, Pierre Abbat, Kevin Bullis, Monty Cleeves, Mike Duoba, Marcus Foster, Matthew Gates, Robert Hunter, Jonathan Jobe, Christina Scarborough, John Steele, and Sandy Thomas.

Nearly all environmental groups who commented on this topic supported the concept of including upstream GHG emissions on the label. The Natural Resources Defense Council (NRDC) stated that the agencies “should modify the label ratings and GHG numerical values to represent the impact of electricity production emissions. The agencies’ proposal to label plug-in electric vehicles with zero gCO<sub>2</sub>/mile for all-electric operation is confusing and misleading.” The Union of Concerned Scientists “strongly recommends” accounting for upstream GHG emissions on the label and suggested that “the failure to incorporate upstream emissions in the data on the label could lead consumers who are concerned about emissions to make adverse decisions due to the lack of all the relevant information at hand. The American Council for an Energy Efficient Economy (ACEEE) “strongly disagrees with the agencies’ proposal to consider only tailpipe emissions in assigning vehicles greenhouse gas scores and regards this as the single most problematic feature of the proposal. . . . For purposes of providing consumer information, there is no justification for mischaracterizing emissions information in this way, even temporarily. The label is not, or should not be, a means of boosting sales of a given technology, but should rather be a tool to improve understanding. . . . [Ignoring upstream GHG emissions] is especially unhelpful in the context of a label that prominently features a rating of vehicles based on their (tailpipe only) GHG emissions.” Finally, ACEEE cited a recent National Academy of Sciences panel that recommended that DOE and FTC consider the merits of adding full fuel cycle energy and GHG impacts to Energy Guide labels.

Honda was one automaker that supported including upstream GHG emissions on the label, stating that “[t]he Motor Vehicle Fuel Economy Label is not an appropriate place to promote incentives. . . . [and ignoring] upstream emissions is similarly misleading and unhelpful.”

EcoMotors International argued that a tailpipe-only value “falsely suggests that there are no environmental repercussions associated with the use of electricity as a fuel, [is] inherently inequitable, [is] limited, misleading vehicle information at the expense of technology neutrality, [and] could sway consumers’ marketplace decisions in order to enhance sales of EVs and PHEVs.”

Fuel advocacy organizations other than those representing electric drive vehicles generally supported including upstream GHG emissions. A typical comment was from the Renewable Fuels Association (RFA): “The proposal by EPA and NHTSA to present only tailpipe GHG emissions on the label misleads consumers and misrepresents the true climate impacts of various vehicle options. . . .the effect of omitting full fuel lifecycle GHG emissions, including upstream emissions, from vehicle labels would be to deceive consumers about the true climate impacts of their vehicle purchasing decisions.” RFA was one of the few commenters to address upstream issues for fuels other than electricity. RFA stated that “if EPA and NHTSA opt to base the GHG performance information on the label on tailpipe emissions only, and if the agencies provide manufacturers with the option to display vehicle performance information while operating on E85, special consideration should be given to the fact that the majority of tailpipe emissions associated with operating an FFV on E85 are considered ‘biogenic’ and ‘carbon neutral.’ It is a matter of long-standing EPA policy that biogenic CO<sub>2</sub> emissions be treated as carbon neutral for the purpose of reporting of GHG emissions.”

The Massachusetts Institute of Technology’s On the Road Research Group stated that: “We recognize that some stakeholders may support the zero emphasis on upstream emissions as a way to enhance incentives for consumers to buy (and for manufacturers to produce) PHEVs and EVs. However, incentives to develop such vehicles are already present in consumer tax credits and existing Corporate Average Fuel Economy (CAFE) calculations and duplication in vehicle labeling schemes is unnecessary. Furthermore, the provision of accurate information to consumers is the primary role of labels and any incentive to consumers or manufacturers should not come at the expense of this primary objective.”

At the Los Angeles public hearing, the California Air Resources Board (ARB) stated that its state law "does require that upstream emissions be included in the greenhouse gas information provided on the label. Having this information reflected on the label is necessary in order to adopt the national label in California." ARB later indicated that, in the interest of a unified national label, this requirement could be met through a label statement about additional emissions and reference to a web site where upstream values could be obtained.

While most supporters of including upstream GHG emissions on the label generally supported basing upstream values on the electrical consumption of the vehicle, appropriate transmission losses, and a national average powerplant GHG emissions factor, two commenters offered alternative approaches. NRDC suggested that the label CO<sub>2</sub> value for both EVs and PHEVs be an asterisk instead of a numerical value, and the asterisk would be coupled with label text directing the consumer to the web site for customized, regional-based upstream GHG emissions values. In addition, any letter grade for a plug-in electric vehicle would assigned using a national average grid emissions value, with the resulting letter grade marked with an asterisk (for example, **A\*** or **B\***) indicating that there is some variability in the rating due to the regional

differences in electricity production. The joint comment from Sierra Club/Environment America/Safe Climate Campaign supported “a fair adjustment of emissions from electricity, as California did in determining that electric vehicles emit 130 grams per mile of CO<sub>2</sub> in the Pavley Clean Car standards,” which is, essentially, a universal upstream GHG emissions factor for all vehicle operation off of the electric grid.

Finally, while most of the comments on the tailpipe-only versus upstream issue focused on GHG emissions, a few of the same commenters also raised the same issue in the context of the Other Air Pollutants rating as well. On this question, the comments were split.

**Response:**

The agencies are finalizing a label which, as was proposed, will be limited to tailpipe-only for both GHG emissions and the Smog Rating, but will have more prominent text to better emphasize the tailpipe-only metric, with the following statement, "Producing and distributing fuel also creates emissions; learn more at [fuelconomy.gov](http://fuelconomy.gov)." Detailed information (including regional-specific values, when appropriate) regarding upstream GHG emissions for fuels will be provided on a web site.

The agencies considered the merits of arguments both for and against inclusion of upstream emissions information on the label itself and ultimately concluded that retaining a tailpipe-only approach is more appropriate for this consumer-oriented label. While the agencies acknowledge, as discussed above, that substantial GHG emissions can be created during the upstream production and distribution of various automotive fuels, our reasoning for adopting a tailpipe-only approach starts with the fact that the label’s fundamental purpose is to present information about the vehicle itself, rather than on a broader system. Emissions from the tailpipe fall under the automaker’s control; they are a result of the product that the manufacturer produces. The label is aimed at providing useful information for consumers to help in choosing between the products made by auto manufacturers. The consumer’s use of the information on the label can thereby influence the manufacturer’s actions with respect to the vehicle attributes they can control. Upstream emissions, on the other hand, are part of a broader system of fuel extraction, processing, and distribution, and as such are not as directly related to the emissions from the product on which the label appears. The purpose of the label, in the agencies’ interpretation, is not to present information on emissions associated with an entire process, but rather to provide data on emissions from a particular vehicle. This appears to be the case for other sectors, as well: the agencies are unaware of other legally required consumer product labels sold in the U.S. that incorporate fuel production or upstream values. By statute, EPA tailpipe emissions standards must be met throughout the “useful life” of the vehicle. The agencies believe this is what Congress intended when it included the “useful life” language in the EISA labeling provision, which supports basing a GHG emissions rating on tailpipe-only emissions.

The agencies agree that information on a vehicle’s upstream GHG emissions may be useful for consumers, even if it is not central to the purpose of the label. We also concluded that including upstream GHG emissions on a web site instead of the label is a more appropriate way to communicate information regarding upstream emissions to consumers. Because of the substantial variation in GHG emissions associated with electricity production from region to

region, a label that presented a single national average of upstream GHG emissions could be more likely to confuse consumers rather than help them, particularly if consumers are aware that their regional electricity generation mix is different from the national average, and could thereby detract from the label's purpose. Due to different electricity generation fuels and technologies, this level of variation is significant: from one region to another, the highest-to-lowest upstream average GHG emission ratios are roughly 3-to-1.[1] If examined from a utility-by-utility perspective, the ratio is even greater, at 75-to-1.[2] For a national label to present a single national average would be misleading and inaccurate given such a wide range. The agencies are aware of arguments that variation is also present in the gasoline prices used to calculate fuels costs and/or savings on the label, but the typical range in regional gasoline prices is much narrower (approximately 1.25-to-1)[3] than the range in upstream GHG emissions, and therefore adopting a single average value for national gasoline prices seems more appropriate.

Even if the agencies were to conclude that including upstream GHG emissions on the label were appropriate, given our concerns that a national-average upstream value might not be helpful, we do not believe that it would be practical for the label to present regional-specific upstream data for every vehicle sold. Under that scenario, automakers would not only need to reflect regional differences in power generation fuel mixes but would also need to consider how state regulations could affect emissions from electricity generation in the future; that is, a label that adequately reflects expected GHG emissions over the vehicle's useful life would need to project future changes in electric utility emission rates on a regional-specific basis, which would be challenging to accomplish in a meaningful way. Further, producing individualized labels would be difficult and would introduce additional complexity and costs for manufacturers, which the agencies did not account for in our proposal.

However, the agencies believe that it is important and beneficial to provide information on upstream GHG emissions to consumers for various advanced technology vehicles and are in the process of developing a web site in order to make such information available. We believe that providing such data on a web site has advantages over presenting upstream information on the label. A web site allows consumers to access regionally specific data on upstream emissions and allows the agencies to present further information on methodologies as needed. The information can also be updated more quickly as new data becomes available. Further, presenting the information online, rather than on the label, allows the label to present more comprehensive information in a clearer, simpler manner, which we believe will benefit consumers.

Finally, the agencies agree with those commenters who suggested a more clear indication that the both the GHG emissions and Smog Rating values presented on the label represent tailpipe-only emissions. In response, the agencies are adopting a label with more prominent "tailpipe only" text as well as a statement that "Producing and distributing fuel also creates emissions; learn more at fueleconomy.gov."

In summary, the agencies are requiring a label with a tailpipe-only GHG emissions rating as well as more clear and prominent text that the rating includes only tailpipe GHG emissions and that the consumer can go to the web site for detailed information on upstream GHG emissions.

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[1] Pechan & Associates, Inc., “The Emissions & Generation Resource Integrated Database for 2010 (eGRID2010 version 1.0) year 2007 Summary Tables,” prepared for the U.S. Environmental Protection Agency, Washington, DC, March 2011.

[2] M. J. Bradley & Associates. (2010). Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States.

[3] See [www.gasbuddy.com](http://www.gasbuddy.com) USA City Averages where, as of February 22, 2011, the highest city gasoline price was \$3.65 per gallon in Honolulu, Hawaii and the lowest city gasoline price was \$2.94 per gallon in Billings, Montana. This represents a high-to-low range of 24 percent. This range could be slightly greater if the highest price reflected rural areas.

#### **4.1.2. Website**

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Ford Motor Company (Ford)  
Electric Drive Transportation Association (EDTA)  
Sierra Club  
Securing America's Future Energy (SAFE)  
American Council for an Energy-Efficient Economy (ACEEE)  
Nissan  
Center for Biological Diversity (Center)  
International Council on Clean Transportation (ICCT)  
Gas Technology Institute (GTI)  
Honda Motor Company  
Renewable Fuels Association  
BMW  
American Petroleum Institute (API)  
Mitsubishi  
Ree, Andree  
Johnson, Ken  
Laclede Gas Company  
EcoMotors International, Inc.  
National Association of Minority Auto Dealers (NAMAD)

#### **Comment:**

##### **Alliance of Automobile Manufacturers (Alliance)**

An on-line calculator of upstream emissions should allow a consumer to enter information about this vehicle, his location, and his charging routine and obtain information about the emissions associated with the electricity that he consumes. The electrical generating mix varies significantly across the nation. Providing state or regional averages for carbon emissions per unit of electricity would give consumers more meaningful information than a national average could provide. Similarly, the generating mix used in each locality varies significantly throughout the day. Providing consumers information about how emissions differ depending on time of use would also be more informative. [EPA-HQ-OAR-2009-0865-6850.2, pp.6-7]

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 17; These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 13]

##### **American Council for an Energy-Efficient Economy (ACEEE)**

EPA proposes to include information about upstream emissions and related issues on a web site, which could tailor results to the buyer. We strongly support this proposal, but disagree with the agencies view that “the web site is the better place, compared to the label, to address the complex issues associated with electricity generation and lifecycle emissions more

generally” (58106). Such a site cannot counteract misleading information on the vehicle label, since many consumers will not take the next step of visiting the web site. The problem is aggravated for Label 1, which is dominated by the letter grade, because even those going to the web for additional information will not be able to adjust a vehicle’s letter grade to reflect the information they find on the web. [EPA-HQ-OAR-2009-0865-7135.1, p. 6]

### **American Petroleum Institute (API)**

The EPA also notes that customers can also go to a website to get further information about 'upstream' electricity emissions and energy use. However, it would be best to put some reasonable U.S. average value on the sticker itself and refer the customer to the website to get added information for his/her specific situation and region of the country. This is consistent, for example, with using a U.S. average retail electricity cost of 12 cents per kWh for the fuel cost calculations in the sticker - as is being proposed by the EPA - despite substantial regional electricity cost variations. [EPA-HQ-OAR-2009-0865-7250.1, p.3]

### **BMW**

#### Upstream Emissions

A pre-condition for placing upstream emissions on a website is that the website is maintained by the Federal Government, and that the content shows a clear separation of responsibilities between vehicle manufacturers (tailpipe emissions) and energy suppliers (electricity production). The content of the website needs to be neutral and independent from the treatment of electric vehicles in the GHG regulation. [EPA-HQ-OAR-2009-0865-7142.1, p.3]

### **Center for Biological Diversity (Center)**

However, we believe that information concerning the upstream emissions (and, as soon as possible, the life cycle emissions) of all vehicles – EVs, PHEVs, vehicles using biofuels and conventional vehicles alike – must be made available to consumers, at a minimum, as part of the additional information provided by dealers and on the fuel economy web site. As suggested by the Massachusetts Institute of Technology, the complexities inherent in calculating these emissions in light of variables such as regional differences, time of day, or electricity-generating unit fuel sources provide no excuse for lack of disclosure. For EVs and PHEVs, for example, they can be addressed by providing an estimated national average value of CO<sub>2</sub> emissions per kWh, as long as those estimates are regularly updated to track continuing improvements in electricity-generating facilities’ GHG emissions reduction technologies. We believe the web site can and should also disclose the regional variations in GHG emissions associated with electricity production, as well as ways in which consumers themselves can reduce their driving-related carbon footprints stemming from electricity use (for example, use of residential solar installation, driving habits, etc). The prominent display of regional differences of CO<sub>2</sub> emissions per kWh based on the regional EGUs’ fuel source use is crucial both to allow meaningful comparison-shopping for consumers and to foster EGU fuel switching and transition to clean energy generation as quickly as possible. We also agree with MIT’s proposal that the Agencies develop an online analogue to the current labeling program

which includes comprehensive upstream emissions information for all vehicles, and pursue other efforts that promote disclosure of GHG emissions information to consumers as widely as possible. [EPA-HQ-OAR-2009-0865-7122.1, p.8]

### **EcoMotors International, Inc.**

[The agencies] seek comment on our current view that the web is the better place, compared to the label, to address the complex issues associated with emissions associated with electricity generation and lifecycle emissions more generally. [EPA-HQ-OAR-2009-0865-6851.1, p.9]

The agencies say they are trying to 'strike a balance' on advanced technology vehicle labels - 'providing sufficient information to be helpful and credible (too simple runs the risk of misinformation with such complex technologies), without trying to 'do everything' on the label (which could be a source of confusion for many consumers).'19 This argument against including comprehensive, objective information on vehicle labels is not supported by actual experience with American consumers. For example, many consumers were initially confused when the Food and Drug Administration began requiring that complex nutritional information appear on food product labels. The Nutrition Facts label includes a substantial amount of information to assist the consumer at the point of purchase. Over time, people have learned how to read and use this valuable information in their purchasing decisions. And over time, those same consumers will learn how to read comprehensive information on vehicle labeling. [EPA-HQ-OAR-2009-0865-6851.1, p.9]

In addition, providing lifecycle emission information on a web site, as opposed to a vehicle label, does not provide consumers with the information they need 'at the point of purchase,' as required by statute. 49 U.S.C. §32908 (g)(1)(A)(ii) (emphasis added). The agencies have acknowledged that 'many consumers will not visit the Web site' they propose to rely upon to achieve 'accuracy and disclosure' on this environmental issue, and that 'more consumers will look at the label than at the Web site.' 75 FR 58106, 58107. [EPA-HQ-OAR-2009-0865-6851.1, p.10]

### **Electric Drive Transportation Association (EDTA)**

Make Web-Based Data More Readily Accessible and Customer-Focused [EPA-HQ-OAR-2009-0865-7137.1, p.2]

The members of EDTA agree that it is valuable to include a link on the label that allows the consumer to access web-based data. EDTA recommends that the website provide data in an interactive format that allows the consumer to customize projections based on their own likely usage of the vehicle. For example, the website should allow the consumer to enter data about their vehicle usage patterns and receive projections of fuel economy, vehicle range, charging and/or refueling times, and other matters based on those assumptions. Effective use of the website is the key to achieving a simpler label while also giving consumers access to detailed information about their likely personal experience with a vehicle. [EPA-HQ-OAR-2009-0865-7137.1, p.2]



We expect that the website will be an increasingly important source of information about emerging technologies in general, and electric drive, in particular. To ensure that consumers can receive the most timely and useful information in this format, we also recommend establishing ongoing opportunities for industry participation in developing and updating the content of the website. Specifically, we request that EPA and NHTSA establish a forum within which the industry and other stakeholders can (1) participate in the initial development of changes to the website, (2) provide ongoing input regarding improvements to the content and format of the website, and (3) bring concerns to the agencies' attention if the website contains information that is inaccurate or potentially misleading. [EPA-HQ-OAR-2009-0865-7137.1, p.2]

To educate consumers about upstream emissions, the window label could include a brief statement that advises the consumer of potential upstream emissions and directs the consumer to the [www.fueleconomy.gov](http://www.fueleconomy.gov) website for further information. If information is provided about upstream emissions, it is preferable to provide that information on the website, which provides greater capacity to educate the consumer and can provide a more accurate estimate of emissions. [EPA-HQ-OAR-2009-0865-7137.1, p.3]

Further, if upstream emissions are included on the label for EVs and PHEVs, the same should be done for all vehicles, including vehicles that use conventional petroleum-based fuels. [EPA-HQ-OAR-2009-0865-7137.1, p.3]

### **Ford Motor Company (Ford)**

Upstream Emissions: Ford agrees with the agencies that upstream emissions information should not be added to the fuel economy label. Among other things, regional differences in the sources and processes used to generate fuel make it difficult to provide meaningful information on a label. Other informational mechanisms, including websites, would be better suited to educating and informing consumers of upstream CO<sub>2</sub> effects and regional sensitivities. [EPA-HQ-OAR-2009-0865-7141.1, pp.1-2]

Upstream Emissions [EPA-HQ-OAR-2009-0865-7141.1, p.3]

Ford supports the agencies' proposal not to include upstream emissions in the greenhouse gas results represented directly on the label. Because upstream greenhouse gas emissions differ significantly based on local and regional fuel sources (oil, coal, natural gas, hydroelectric), we believe it would be impossible for automobile manufacturers to make an accurate determination of these emissions for inclusion on vehicle labels. However, to provide consumers with information on upstream emissions, Ford agrees with the recommendation to reference online calculation tools, such as the GREET model or other accepted sources. We believe the use of the language on Label 2 'Visit [www.fueleconomy.gov](http://www.fueleconomy.gov) to calculate estimates personalized for your driving and to download the Fuel Economy Guide' and the proposed inclusion of Smartphone Quick Response (QR) codes also provides a path for consumers to incorporate upstream emissions. Furthermore, Ford believes usage of the wording 'tailpipe only' to represent the GHG emissions on the label is a well understood way to inform the consumer that upstream emissions are not included. [EPA-HQ-OAR-2009-0865-7141.1, p.3]

## **Gas Technology Institute (GTI)**

EPA acknowledges the need to include source energy consumption information for consumer use, albeit on a website rather than the label. As a complement to the EPA approach, the source fuel economy (SFE) of vehicles can be calculated based on the product of point-of-use miles per gallon gasoline equivalent (tank to wheels) and the full-fuel-cycle energy of the vehicle fuel (well-to-tank). Using the SEEAT tool and national average conversion factors, GTI researchers have calculated source-based SFE's for each of the vehicle options that permit more rational comparisons of vehicle efficiencies than the point-of-use fuel economy (MPGGe) currently used by EPA in the proposed labels. SFE is calculated as the product of the MPGGe and the overall efficiency of the source fuel (GGe/Source GGe). A higher SFE indicates a higher efficiency for the vehicle taking into account the source energy of the fuel. This factor could also be used as an "Asset" rating to provide information about how a vehicle uses energy relative to like vehicles of the same size.[EPA-HQ-OAR-2009-0865-6858.1, pp. 6-7]

Vehicle Fuel Economy (MPGGe) \* Fuel Source Energy Efficiency (GGe/ Source GGe) = Source Fuel Economy (Miles/Source GGe) [EPA-HQ-OAR-2009-0865-6858.1, p. 7]

As shown in Figure 3 [See docket number 6858.1, p. 8 for Figure 3.], plug-in hybrid (PHEV) and gasoline hybrid vehicles (HEV) have the highest SFE of all the vehicles, about 27 miles per source energy gasoline gallon equivalent (MPSGGe). The other vehicles are slightly lower with the gasoline vehicle having the lowest SFE, 19 MPSGGe. Although the electric vehicle (EV) has the highest site-based fuel economy (76.88 MPGGe), the source energy efficiency of electricity is significantly less than that of the other fuels, as shown in Figure 4[See docket number 6858.1, p. 8 for Figure 4.], resulting in a mid-range SFE (23.4 MPSGGe).[EPA-HQ-OAR-2009-0865-6858.1, p. 7]

SFE will enable consumers to compare vehicles to identify the most/least efficient relative to current technology. Using SFE can help a consumer identify which vehicle options have the greatest potential to reduce their impact on the nation's primary energy use. SFE provides more relevant information than point-of-use energy fuel economy to help EPA meet its stated efficiency goals. SFE also enables more equitable treatment of hybrid vehicles and renewable technologies. [EPA-HQ-OAR-2009-0865-6858.1, p. 7]

## **Honda Motor Company**

Alternative Caution and Website: Finally, in the event that EPA decides not to include upstream emissions, Honda suggests that EPA consider language similar to that required on the Australian Energy Consumption Label: "this label only relates to CO2 emissions measured [on vehicles] ... CO2 emissions can also be generated at the power source when vehicles are being recharged, unless 100% renewable energy is used." In any event, we strongly urge the EPA to provide well-to-wheel emissions on their website which could be customized to reflect the region in which the consumer resides. Interactive web information could make the educational process more comprehensive and accurate for each customer (including fuel prices, etc.). [EPA-HQ-OAR-2009-0865-6774.1, pp.3-4]

## **International Council on Clean Transportation (ICCT)**

Website Links to Electronic Labels [EPA-HQ-OAR-2009-0865-7118.1, p.5]

The new vehicle purchase process is very different that it was when fuel economy labels were first implemented more than three decades ago. Many potential buyers conduct research and compare vehicle features, including fuel economy, through commercial websites, such as Edmunds.com. Thus, in many cases they will have made their initial purchase decisions before they see the labels at the dealership. [EPA-HQ-OAR-2009-0865-7118.1, p.5]

It is necessary to change with the times and require websites designed to help sell vehicles to include electronic label images, or prominent links to such images, as part of the broader information shown for each model. In China, a website established by the Ministry of Industry and Information Technology to provide buyer fuel consumption information already includes electronic labels with broader information for each model. Electronic labels will be increasingly important in the future and provisions should be implemented as quickly as possible. [EPA-HQ-OAR-2009-0865-7118.1, p.6]

### **Johnson, Ken**

On the website, provide a graph of actual past fuel price trends and assumed future projections (inflation-adjusted). The graph should also show previous years' EIA projections to give the consumer realistic information on how reliable the fuel price projection is. Provide a simple graphical utility for recalculating the lifecycle fuel cost based on a different fuel price (e.g. AEO high- or low-price scenario) or discount rate (e.g. 3% or 7%). [EPA-HQ-OAR-2009-0865-3507, p. 1]

### **Laclede Gas Company**

Granted, providing an indicator of other “upstream “emissions is inherently more complex than limiting disclosure to emissions emanating out of vehicle exhaust pipes. However, listing of a eGRID program and necessary adjustment factors thereof for complete “well-to-wheels” analyses. Supplemental web site for more detailed information regarding such upstream emissions is not a substitute for providing such information at the point-of-sale via labels. By the agencies' own admission, 'more consumers will look at the label than at the website.' Laclede concurs that only a small minority of consumers will visit the website and this underscores the need to educate via labels. Therefore, Laclede urges the agencies to disclose full fuel cycle emissions on vehicle labels and use the website to further explain to the public how full fuel-cycle efficiencies and emissions are derived. Furthermore, such a supplemental web site should strive to provide transparent, robust and up-to-date information; preferably localized for the consumer. The underlying data for the sources for powering vehicles electricity should be based upon the EPA’s eGRID program and necessary adjustment factors thereof for complete 'well-to-wheels' analysis. [EPA-HQ-OAR-2009-0865-7138.1, p.3]

The basic concept of EPA and NHTSA is to provide this information to consumers via a future web site rather than on a label. While Laclede acknowledges the complexity of this subject,

given the extremely limited “real-estate” of a label, everyone recognizes the impact value of “first impressions” (i.e., the label.). Laclede contends that fuel economy and emissions labels should not be used for promotional purposes, based upon what is or is not disclosed and/or the emphasis therein. This is a problem without a simple solution. However, it is also an opportunity to educate consumers about such complexities which represents a “higher calling” that the EPA and NHTSA should follow. The EPA and NHTSA should replace the concept of tailpipe emissions for the comprehensive approach of full fuel-cycle emissions. By doing so, portrayal of other emissions could be omitted; thus, freeing up crowded ‘real estate’ on the label for the purpose of disclosing lifecycle emissions. [EPA-HQ-OAR-2009-0865-7138.1, pp.5-6]

If consumers do not know what these major “criteria” emissions are and want to learn (as they should), the label could direct them to a website. Such a website could also regionalize fuel economy estimates for alternative fuels. Laclede endorses the concept of consumer education for a well-informed citizenry. Issues of “embedded energy,” within the construction of vehicular components, while not recommended as the dominate feature of a website, should not be ignored either. This is especially true of “advanced” (e.g., lithium) battery packs, etc. which tend to exhibit extensive and adverse environmental impacts. A supplemental website could be used for such purposes. [EPA-HQ-OAR-2009-0865-7138.1, pp.6&10]

### **Mitsubishi**

Make web-based data more readily accessible and customer-focused, (EDTA) [EPA-HQ-OAR-2009-0865-6934.1, p.1]

### **National Association of Minority Auto Dealers (NAMAD)**

MS. DUNHAM: Mr. Roberts, I had a question for you. You sounded -- well, I think your comments were pretty clear that you called rankings. Sounds like sort of -- the number of different rankings that we've proposed in addition to the letter grades. Is there a role for those rankings somewhere like on the Web or someplace else or are you -- do you think people, consumers can or are already using the Web to do their own comparison without the rankings? [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 58]

MR. ROBERTS: Absolutely. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 58]

### **Nissan**

The information provided to consumers on the label through government Web sites and by ratings organizations is going to define the extent to which consumers are willing to give electric-driven vehicles a try. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 100]

## **Ree, Andree**

One more idea: Point more people to the Fuel Economy site. I love that site. And provide a letter grade for a combination of the vehicle we have (or are looking at ) AND the other information we enter, such as annual miles. [EPA-HQ-OAR-2009-0865-3469, p.2]

And there is HOW the vehicle is driven, also a short piece on the fueleconomy.gov site. Driving like a lunatic uses more gas. [EPA-HQ-OAR-2009-0865-3469, p.2]

## **Renewable Fuels Association**

In lieu of providing full well-to-wheels GHG emissions information on the label itself, EPA and NHTSA propose to make available “much fuller information” and “a more complete discussion on energy generation and lifecycle analysis” on a web site (presumably EPA’s www.fueleconomy.gov). 75 Fed. Reg. at 58,106. It is highly unlikely that consumers will consult the web site, or even be aware of its existence, as they make vehicle purchasing decisions. As EPA and NHTSA acknowledge, “...more consumers will look at the label than at the Web site...” 75 Fed. Reg. at 58,107. Therefore, we believe it is critical that information regarding the vehicle’s full fuel lifecycle GHG emissions is made available to the consumer on the label itself. [EPA-HQ-OAR-2009-0865-6926.1, p.3]

EPA and NHTSA acknowledge in the proposal that “...while tailpipe-only emissions provide important information, a significant number of consumers may want, or benefit from, access to information on the total upstream GHG emissions associated with the operation of their vehicles.” 75 Fed. Reg. 58,105. The agencies further recognize that “[c]onsumers might seek, or benefit from, a label that allows for simple and accurate comparisons across vehicles on the total upstream GHG emissions, in addition to tailpipe emissions.” 75 Fed. Reg. at 58,105. Despite these admissions, the agencies seek comment on the feasibility and usefulness of including both tailpipe and upstream GHG emissions for vehicle options only on the web site. [EPA-HQ-OAR-2009-0865-6926.1, p.4]

We agree that consumers would benefit most from a straightforward estimate of the well-to-wheels direct GHG emissions impacts associated with operating each vehicle option. However, we disagree with EPA and NHTSA that well-to-wheels GHG emissions information should only be made available on the web site; rather, we believe EPA and NHTSA should present these estimates on the vehicle labels themselves. Providing full lifecycle emissions estimates on the labels would allow consumers to make informed “apples-to-apples” comparisons of the direct GHG impacts associated with different vehicle options, whereas comparisons of tailpipe-only emissions provide only a partial picture of the GHG impacts of various vehicles. [EPA-HQ-OAR-2009-0865-6926.1, p.4]

## **Securing America's Future Energy (SAFE)**

The emissions and operating cost calculations on the Web site. I'm just going to mention one point here, and that is when you're calculating the carbon emissions, we believe that it's critical to use the average mix of generation resources in each state or region, not to rely on -- I'm

sorry. But you should rely on the marginal fuel that is most likely to be used to charge the vehicle. Such emissions profile of the average mix in a state may vary significantly from the emissions profile of the marginal kilowatt hour that's used to charge the vehicle. And we recommend looking at the work that was done in Oak Ridge National Lab, for instance, that has calculated this data in the past. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 28-29]

MS. DUNHAM: I've got a couple starting with Mr. Minsk. You referenced the Oak Ridge study on marginal electricity production. Do you have a site listed in your comments? [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 32]

MR. MINSK: I do not have a site listed here, but I will both e-mail it to y'all and I will make a - I think I could probably submit very quickly just a short comment to the record electronically. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 33]

MS. DUNHAM: That's fine. If you plan to submit written comments by November 22nd. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 33]

MR. MINSK: I'll be glad to. It will be cited in our written comments. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 33]

MS. DUNHAM: That would be great. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 33]

MR. MINSK: Maybe even attached. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 33]

## **Sierra Club**

EPA has indicated that it could provide consumers with information on electricity and its emissions on the Web site, but we urge that the labels provide this information and then use the Web as the opportunity to provide detailed regional information to further aid consumers in their decisions. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 101.]

### **Response:**

The agencies have decided not to launch a new website in support of the final rule publication and the roll out of the new labels. The website content on the new label will be highlighted on and integrated within the government's existing comprehensive vehicle web site - [fueleconomy.gov](http://fueleconomy.gov). The agencies decided that [fueleconomy.gov](http://fueleconomy.gov) already had brand equity with the general public and has many of the tools consumers need to make informed vehicle

purchases. In terms of new information on fueconomy.gov -- The website will feature a calculator where consumers can evaluate the greenhouse gas impact of their electric vehicles and plug-in hybrid electric vehicles. This calculator will contain regional emission factors based on the EPA's eGRID database. The eGRID program tracks actual emissions from U.S. power plants to come up with greenhouse gas (GHG) emission factors specific to the mix of electricity generation in each region of the country. Initially, the calculator will use annual average emission rates and will not address marginal electricity generation or time of day differences, though we may add that capacity in the future. Consumers will be able to enter their zip code to get GHG emissions estimates that are specific to the area that they live in, and for the generation mix that currently supplies electricity in their region. In the future, we may enhance the calculator to allow consumers to enter their individual driving and charging habits to further customize their personal emissions rate.

For information on why the agencies are finalizing a label which, as proposed, will be limited to tailpipe-only for both GHG emissions and Smog emissions, see Section 4.1 of this document.

## 4.2. Electric Vehicles (EVs) and Plug-in Hybrid Electric Vehicles (PHEVs)

**Organization:** National Automobile Dealers Association (NADA)

**Comment:**

**National Automobile Dealers Association (NADA)**

For plug-in vehicles, NADA supports label information indicating all electric and total vehicle range, along with battery charge time. [EPA-HQ-OAR-2009-0865-6940.1, p.7]

**Response:**

The final PHEV labels will show the all electric range, total range, and battery charge time.

**Organization:** Ford Motor Company (Ford)

**Comment:**

**Ford Motor Company (Ford)**

Alternate PHEV Annual Cost Elements [EPA-HQ-OAR-2009-0865-7141.1, p.10]

The annual cost elements shown on the PHEV label could be confusing to consumers, because they are calculated using driving conditions which are not representative. For example, we expect that most people who purchase a plug-in will plug it in on a regular basis, and will not travel an entire year without using any electricity – so the annual cost assumptions in the 'gas only' box are not relevant to the plug-in customer. Also, most plug-in vehicles will have some gas usage, so assuming that all energy to drive occurs in charge depleting mode could also be unrepresentative. In the case of plug-ins with charge depleting range less than 15 miles, this would also imply 1,000 charges per year, which is three to four charges per day, to achieve 15,000 miles per year in charge depleting mode; Ford believes this is an unrealistic assumption for consumers at this point in time. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

To alleviate these concerns, Ford proposes that the PHEV label contain annual costs calculated based on charging and distance assumptions of an example customer. For example, maintain the 15,000 mile per year assumption, but add an assumption that the average customer will fully charge their PHEV 340 times per year (this value could be updated, as more PHEV data becomes available). This standard set of assumptions could then be used to calculate electricity costs and gasoline costs, which would be displayed individually on the label, along with the total annual cost. Having separate electric and gas costs is something that respondents to our surveys found valuable, and would allow customers to modify the annual cost estimates to correct for different gas or electricity costs, if they so desired. [EPA-HQ-OAR-2009-0865-7141.1, p.10]



**Response:**

EPA agrees that the proposed cost information for all electric and all gasoline modes was confusing, and it has been removed in the final version of the label. The label will retain a 5 year cost/savings number and an annual fuel cost number based on standard driving schedules. EPA considered the proposal by Ford, but at this time EPA does not have enough information to make an educated decision about how consumers will drive and charge PHEVs, and even less information about how PHEV all electric range will affect charging habits. Therefore, the cost numbers will be based on testing methods currently available.

**Organization:** California Air Resources Board (CARB)

**Comment:****California Air Resources Board (CARB)**

For plug-in hybrids we support showing performance information about each individual operating mode as you do in your proposal. However, we also support making the combined fuel economy based on the average driver more visible to consumers. This number provides a single, bottom-line value for comparing a plug-in hybrid to other vehicle types. We also support using SAE guidance for determining the combined fuel economy for the 'average driver.' [EPA-HQ-OAR-2009-0865-7527.1, p.4]

**Response:**

The final PHEV labels will show fuel economy information for each operating mode and the overall combined fuel economy rating on the slider bar. The overall number is more prominent than proposed, however it is still small in comparison to the fuel economy rating of each operating mode. The agencies felt that all of the information is important, however PHEVs present a unique challenge due to the complexity of the vehicles and the agencies did not want to crowd the label any more than was necessary.

#### 4.2.1. Energy Consumption (e.g., MPGe, kWhrs/100 miles)

**Organization:** Alliance of Automobile Manufacturers (Alliance)

Ford Motor Company (Ford)

Hyundai Motor Company

Toyota

Electric Drive Transportation Association (EDTA)

Edison Electric Institute (EEI)

National Automobile Dealers Association (NADA)

California Air Resources Board (CARB)

Tesla Motors

Securing America's Future Energy (SAFE)

Institute for Policy Integrity - New York University School of Law

Nissan

National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)

Argonne National Laboratory

Center for Biological Diversity (Center)

Honda Motor Company

University of Pennsylvania Law School, Environmental Law Project

Natural Gas Vehicles for America (NGVAmerica)

BMW

American Petroleum Institute (API)

Smith, Houston

Gates, Matthew

F., Nick

Woon, Michael

Priddy, RL

Mopsik, Frederick I.

California Cars Initiative

Heinzmann, John David

Wong, Jeffrey

Foster, Marcus

Laclede Gas Company

EcoMotors International, Inc.

Energy Independence Now (EIN)

National Association of Minority Auto Dealers (NAMAD)

Duoba, Mike

Abbat, Pierre

**Comment:**

#### **Fuel Economy Metric**

For those vehicles that do not use liquid fuels--such as EVs, PHEVs operating on electricity, and CNG vehicles<sup>[1]</sup>-- we proposed to use miles per gallon of gasoline-equivalent (MPGe).

This metric is similar to MPG, but, instead of presenting miles per gallon of the vehicle’s fuel type, it represents miles per amount of energy used, conveyed as the gallons of gasoline that have the equivalent amount of energy. We proposed MPGe for three reasons. First, as previously noted, EPCA requires a fuel economy value for all labels, defined as the miles travelled for each “gallon of gasoline (or equivalent amount of other fuel) used.” [2] Second, non-liquid fuels are not typically dispensed by the gallon, which makes it challenging to derive a metric reflecting gallons dispensed. However, a gasoline-equivalent gallon—that is, the amount of energy in the non-liquid fuel that is equivalent to that in a gallon of gasoline—can be derived for each fuel type.[3] Third, consumer groups preferred some type of comparative fuel economy metric that could be used across technologies, and MPGe allows such a comparison.[4]

On the other hand, the agencies discussed in the proposal that MPGe has some drawbacks for a fuel such as electricity: electricity is never purchased by the gallon, and MPGe requires the conversion of electricity to an energy-equivalent amount of gasoline, a fuel which is very different in many ways. An alternative approach for such vehicles that the agencies considered is miles per unit of purchased fuel—for example, miles per kilowatt-hour. Such a metric would be in terms of the fuel that the consumer purchases, which could be more useful for calculating fuel costs and for comparing with other vehicles of the same technology, but would not be comparable across technologies. The agencies specifically asked for comments on the merits of using MPGe for non-liquid fuels.

The agencies received many comments on the use of MPGe as a fuel economy metric for non-liquid fuels, and the comments were split with respect to support and opposition. The supportive comments focused on the value of having a metric that consumers could use to compare across technologies and which was similar to the MPG metric with which people are accustomed. A representative sample of MPGe supporters includes the California Air Resources Board (“support[s] using MPGe for consistency across all labels”), Toyota (an appropriate parameter that can be used for comparison among all technologies”), Nissan (“a comparative tool”), Tesla (“MPGe will allow direct comparison”), Ford (“agrees...to use the MPGe metric when operating in electric mode), and Eco-Motors (“supports conversion of electrical usage to a gasoline equivalent in order to assist consumers in making better vehicle comparisons”). Additional supporters of MPGe included the Edison Electric Institute, Electric Drive Transportation Association, Energy Independence Now, and National Wildlife Federation. Some MPGe support was more nuanced, such as Hyundai (“could support MPGe”), and the Center for Biological Diversity (“while not flawless, MPGe values are undeniably useful...and can be used as a comparative tool”).

Those opposed to the use of MPGe for non-liquid fuels directly challenged whether it was, in fact, a good comparative tool for consumers. Argonne National Laboratory stated that the label “[s]hould not mislead consumers into thinking that one can convert kWh of electricity to gasoline in the same fashion as converting miles into km or gallons into liters. By suggesting this could be the case misleads and confuses the public and is scientifically flawed.” Securing America’s Future Energy claimed that “MPGe is an arbitrary metric that promotes efficiency for efficiency’s sake. Few people would understand what it meant. If they did understand it, even fewer would care.” Honda argued that “MPGe is problematic. If it solves some

problems, it creates others. We believe the most useful metric that can be provided to consumers is ‘miles per purchased unit of energy.’” Other general opponents included the American Petroleum Institute, National Renewable Energy Laboratory, and University of Pennsylvania Law School. Finally, Gas Technology Institute, Laclede Gas Company, and Natural Gas Vehicles of America, among others, raised “full fuel cycle” or “lifecycle” concerns, pointing out that it takes about three units of fossil fuel energy to make one unit of electricity, and that MPGe obfuscates this fact.

### **Fuel Consumption Metric**

For non-petroleum fuels, EPA proposed to include fuel consumption based on the units in which each fuel is sold. For example, CNG is sold in gasoline-equivalent gallons; we proposed the fuel consumption metric of gasoline-equivalent gallons per 100 miles. Similarly, for EVs and PHEVs with all-electric operation, EPA proposed to show fuel consumption in kilowatt-hours per 100 miles. For blended PHEVs, the agencies proposed gallons of gasoline equivalent per 100 miles, which represents the inverse of MPGe and combines the two fuels into one consumption metric; for the sake of reducing label clutter, EPA proposed to not show separate electricity and gasoline consumption values.

The issue of the specific fuel consumption metrics for most types of vehicles that operate on non-liquid fuels generated little comment, with the exception of PHEVs operated in blended mode. EPA received a few comments on how to treat those PHEVs that have blended operation where electricity and gasoline are used simultaneously. The commenters who opposed the general use of MPGe, cited above, also generally opposed the gasoline equivalent gallons per 100 miles metric for blended PHEVs for similar reasons, explicitly or implicitly pointing out that the gasoline equivalent gallons per 100 miles metric would not allow a PHEV shopper or owner to compare the relative use of electricity and gasoline use. The National Renewable Energy Laboratory summarized this argument, "the vehicle's actual consumption of different fuels should not be inextricably combined together (into arguably irrelevant units) such that a consumer who understands how a PHEV operates cannot decipher how much gasoline and how much electricity the vehicle really consumes." Several commenters (including National Renewable Energy Laboratory, Argonne National Laboratory, California Cars Initiative, and Toyota) suggested that labels for blended PHEVs should report both electricity and gasoline consumption.

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[1] While the agencies did not propose explicit labels for hydrogen fuel cell vehicles (FCVs), we are including a label design for FCVs because the label design issues for FCVs are very similar to those for other dedicated, non-petroleum vehicles such as CNG vehicles and EVs. In addition, the agencies have designed FCV labels in the past on an as-needed basis. The agencies did not propose, and are therefore not finalizing, fuel economy and range test procedures for FCVs. Test procedures will continue to be as specified by the EPA under the authority of 40 CFR 600.111-08(f), which allows the Administrator to prescribe “special test procedures” under certain circumstances. However, the agencies expect to continue to specify the use of SAE J2572, (“Recommended Practice for Measuring Fuel Consumption and Range

of Fuel Cell and Hybrid Fuel Cell Vehicles Fuelled by Compressed Gaseous Hydrogen”). Manufacturers of FCVs should continue to work with the agencies to ensure that the procedures are applied according to the agencies requirements.

[2] 49 U.S.C. 32901(a)(11).

[3] While some non-liquid fuels are sold on a gasoline-equivalent basis (e.g., CNG), some are not (e.g., electricity), and some are not yet widely sold as a vehicle fuel (e.g., hydrogen),

[4] Environmental Protection Agency Fuel Economy Label: Phase 3 Focus Groups, EPA420-R-10-905, August 2010, p. 35.

## **Response:**

### **Fuel Economy Metric**

The agencies are requiring the use of MPGe as the fuel economy metric for non-liquid fuels. Although we understand the concern of some commenters over using energy equivalency for different types of fuels, we continue to believe that one of the primary purposes of the label is to allow such comparisons, and to do so with metrics that do not allow direct comparisons would diminish the usefulness of the label. We believe that the purpose of the fuel economy metric on the label is not to address the differing effects of obtaining and using different fuels, or to consider the energy losses of converting from one to another, but rather to address the energy use of the vehicle itself. We have also concluded, as a result of the market research that was undertaken for this rulemaking, that many consumers are likely to find it most useful to have an energy metric that allows them to compare vehicle energy efficiency across fuel types; the MPGe metric accomplishes this goal as well. In addition, as discussed above, there is a statutory requirement to provide a fuel economy metric per “equivalent amount of other fuel,” which MPGe clearly provides.

### **Fuel Consumption Metric**

EPA continues to believe that the metrics for vehicles other than blended PHEVs are reasonable and appropriate and are therefore requiring the proposed approaches for EVs and all-electric operation for PHEVs (kilowatt-hours per 100 miles) and for CNG vehicles (gasoline equivalent gallons per 100 miles). The agencies are similarly requiring kilograms per 100 miles as the consumption metric for hydrogen FCVs, since hydrogen is sold by the kilogram.

While EPA recognizes the tradeoffs associated with adding yet more values to an already busy PHEV label, upon further consideration, EPA agrees with the commenters who suggested that consumers need to be able to differentiate between electricity and gasoline use in a blended PHEV. This will allow the consumer to assess and weigh the relative use of each type of energy as they deem appropriate. In addition, the fuel consumption metric for all other fuels is being finalized on the basis of the units in which the fuel is purchased, and it is reasonable to adopt a parallel approach for blended PHEVs. Accordingly, EPA is requiring fuel consumption separately for both gasoline (in gallons per 100 miles) and electricity (in kilowatt-hours per 100

miles) for a blended PHEV, rather than the gasoline-equivalent gallons per 100 miles as proposed. EPA believes that the combination of the MPGe metric (for those who want a simple comparative metric) and the two separate fuel consumption metrics (for those who want to compare relative gasoline and electricity use) will help to satisfy different consumer needs.

#### 4.2.1.1. City and Hwy vs. Combined MPGe

**Organization:** Ford Motor Company (Ford)

Toyota

Electric Drive Transportation Association (EDTA)

Edison Electric Institute (EEI)

Nissan

Wong, Jeffrey

#### **Comment:**

#### **Edison Electric Institute (EEI)**

Finally, to ensure that the superior city performance of electric and plug-in hybrid electric vehicles is not obscured, labels should include separate city and highway values for all vehicles. [EPA-HQ-OAR-2009-0865-7117.1, p.3]

Labels Should Include Separate City/Highway Values for EVs and PHEVs. [EPA-HQ-OAR-2009-0865-7117.1, p.10]

The rulemaking notice requests comment on whether “to require the use of separate city and highway fuel economy values for conventional vehicles, but to not do so, in some or all cases, for advanced technology vehicles” (namely, EVs and PHEVs). *Id.* The notice identifies two potential reasons for presenting only the combined city/highway value on the label for EVs and PHEVs: (a) there may be less of a difference between city and highway values for these types of vehicles, relative to conventionally fueled vehicles, and (b) omitting the separate city and highway values would simplify the label for EVs and PHEVs, thus reducing the “number of numbers” on the vehicle label. See *id.* [EPA-HQ-OAR-2009-0865-7117.1, p.10]

Presenting a single combined city/highway fuel economy number for EVs and PHEVs may simplify the vehicle label, but it will obscure the superior city performance of EVs or PHEVs operating in “primary electric” mode or “all electric” mode. Because EPA will be performing “city” and “highway” fuel economy tests for all conventional and advanced technology vehicles, and because such information is provided on current labels, it is both possible and preferable to provide city and highway fuel economy data for all types of vehicles. This is a “market neutral” approach to data dissemination, and will provide the most benefit to consumers. [EPA-HQ-OAR-2009-0865-7117.1, 10]

#### **Electric Drive Transportation Association (EDTA)**

Separate City/Highway Values for EVs and PHEVs [EPA-HQ-OAR-2009-0865-7137.1, p.5]

The rulemaking notice requests comment on whether “to require the use of separate city and highway fuel economy values for conventional vehicles, but to not do so, in some or all cases, for advanced technology vehicles” (EVs and PHEVs). The notice identifies two potential reasons for presenting only the combined city/highway value on the label for EVs and PHEVs: (a) there

may be less of a difference between city and highway values for these types of vehicles, relative to conventionally fueled vehicles, and (b) omitting the separate city and highway values would simplify the label for EVs and PHEVs. [EPA-HQ-OAR-2009-0865-7137.1, p.5]

EDTA recommends that in addition to providing a combined city/highway value, the new labels also include separate city and separate highway fuel economy values on the labels for EVs and PHEVs. This will make the labels for EVs and PHEVs similar to conventional vehicle labels. These values should be included as both combined and separate numbers because they are well-known to consumers, and because they allow for a more direct comparison of fuel economy between conventional and advanced-technology vehicles. In addition, including separate city and highway values serves an important educational function by giving consumers a better understanding of the similarity or difference between these values for EVs and PHEVs. [EPA-HQ-OAR-2009-0865-7137.1, p.5]

### **Ford Motor Company (Ford)**

Advanced Technology Vehicle Labels [EPA-HQ-OAR-2009-0865-7141.1, p.6]

Ford strongly supports the agencies efforts to standardize the label formats for advanced technology vehicles such as PHEVs and BEVs which will soon enter the marketplace. For PHEVs, Ford agrees with the proposal to use the MPGe metric when operating in electric mode. Ford supports the emphasis of a combined city/highway estimate on these labels as opposed to split city and highway results, which would require four separate listings and make the label unnecessarily complicated. We recommend range and recharge values be increased in scale based on market assessments we have conducted. [EPA-HQ-OAR-2009-0865-7141.1, p.6]

### **Nissan**

Electric vehicles are most likely to be used in urban traffic. The city MPGe values, therefore, should be more prominently displayed. Charge and range information for City use should also be included. [EPA-HQ-OAR-2009-0865-6922.1, p.3]

### **Toyota**

Fuel Economy Performance [EPA-HQ-OAR-2009-0865-6901.1, p.4]

Representing the vehicle's fuel economy performance on the label with an estimate of miles per gallon is a requirement of EPCA. In addition, EPA and NHTSA have determined that continuing to display the fuel economy values on the label would also meet the new requirements of EISA. However, the agencies are now seeking comment on whether or not the labels that emphasizes combined city/highway MPG values over separate city and highway MPG values would be sufficiently helpful to consumers. Furthermore, if combined MPG becomes the agencies direction, comment is sought as to whether city and highway values should continue to be displayed at all. [EPA-HQ-OAR-2009-0865-6901.1, p.4]



Toyota believes that the combined number should be provided on all labels as the basis for comparison, and that the city and highway numbers could be provided elsewhere, either on a website or in the fuel economy guide. This approach would ensure consistency and fairness in advertising the label values and also have the benefit of simplifying the comparison between different technologies. [EPA-HQ-OAR-2009-0865-6901.1, p.5]

**Wong, Jeffrey**

The Pure electric label should break down range into city miles and highway miles and combined city and highway miles and not to confuse with mpge. Perhaps it should contain caveats for air conditioning/heater use as significantly affecting range as well. [EPA-HQ-OAR-2009-0865-4847, p. 1]

**Response:**

Because of the relative simplicity of the EV label relative to the PHEV label, the agencies felt that the EV label could emphasize combined city/highway fuel economy, but provide individual city and highway estimates as well. Thus the final EV label contains all three estimates. However, the agencies find agreement with Ford's comments, in that the PHEV label is necessarily complex and including four new estimates (two per mode) would be counter-productive. City and highway data will be available from other sources, including EPA websites. Should a PHEV arrive on the market for which there is a large difference between the city and highway results, EPA has the authority to determine that the existing label regulations do not portray the fuel economy of such a vehicle accurately, and a special label could be designed to better reflect the vehicle's performance.

EPA believes that the range and charging information are presented in an appropriate scale and prominence. Elevating the prominence is not possible without decreasing the prominence of something else, and the agencies believe that the final label strikes the right balance between presenting key information in a highly prominent way to facilitate quick comparisons, but also including more information for those who want to spend more time gathering information.

To facilitate printing of pre-printed labels and for consistency, the agencies chose disclaimer language that can be used universally across all vehicle technologies. To the extent that some technologies may be affected by heating, air conditioning, or other factors more than other technologies, the agencies believe this information will be widely known and presented to consumers in other forums, including by the manufacturer.

#### **4.2.2. Method to Combine Gasoline and Electricity Use**

**Organization:** Ford Motor Company (Ford)

Toyota

Electric Drive Transportation Association (EDTA)

Sierra Club

American Council for an Energy-Efficient Economy (ACEEE)

Argonne National Laboratory

#### **Comment:**

##### **American Council for an Energy-Efficient Economy (ACEEE)**

We also support merging gasoline and electricity performance of PHEVs for fuel economy ratings and for GHG ratings using a utility factor-based approach, assuming fuel economy and GHG emissions are properly defined. [EPA-HQ-OAR-2009-0865-7135.1, p. 7]

##### **Argonne National Laboratory**

Fuel consumption shall be separated from electric consumption because data must represent a prediction of actual fuel gallons consumed over a year. [EPA-HQ-OAR-2009-0865-7572.1, p. 4; see commenter's example Slider Bar at page 4.]

Fuel and electricity shown separately. It is easy to see in these slider bars that over the course of a year, the vehicle will be consuming both sources of energy. Undoubtedly, a PHEV will be compared to a non-plug-in and a BEV. This information will help do this, and in units that prevent confusion. Philosophically, all the slider bars provide 'Vehicle Impact' comparisons. [EPA-HQ-OAR-2009-0865-7572.1, p. 4; see commenter's new Volt label ANL suggestions at page 5.]

##### **Electric Drive Transportation Association (EDTA)**

Include Separate Values for Each Driving Mode (not “Merged Values”) on PHEV Labels [EPA-HQ-OAR-2009-0865-7137.1, p.4]

The proposed labels for PHEVs include separate fuel economy values for each mode of operation for PHEVs – i.e., electric-only and gasoline-only, or electric/gas blend and gasoline-only. The rulemaking notice requests comment on whether the label should instead include a single “merged value” that represents the fuel economy performance experienced by the “average driver.” This merged value would be based on assumptions about the amount of time the vehicle is operated in each mode (e.g., gasoline-powered and battery-powered). [EPA-HQ-OAR-2009-0865-7137.1, p.5]

While a merged value would be easier for consumers to understand, it also has the potential to be highly misleading because consumers may vary greatly in their driving habits. A better approach is to provide the two separate values on the label (as shown in the proposed labels in

this rulemaking), and to provide a web-based tool that enables consumers to estimate a merged value based on user-specified assumptions. [EPA-HQ-OAR-2009-0865-7137.1, p.5]

### **Ford Motor Company (Ford)**

For PHEVs, Ford does not believe that separate labels are needed to differentiate between series and blended architectures ('All Electric' vs. 'Electric + Gas'). The average customer purchasing a PHEV should not be expected to understand the distinction. Usage of one format, such as 'Electric Assist,' is recommended to avoid unnecessary complexity and confusion. The data presented on each label will more appropriately distinguish fuel economy and range performance between PHEV designs. Our recommended approach is consistent with the conventions used for gas vehicles, where different architectures (FWD vs. RWD, automatic vs. manual transmission, etc) all receive the same label format, quantities and calculations. [EPA-HQ-OAR-2009-0865-7141.1, pp.6-7]

### **Sierra Club**

But I do find in looking at a couple of different proposed versions of, you know, both with the letter and then one that didn't, I found the combined electric-plus-gas rating kind of confusing. Because it's obviously based on assumptions about what share is electric, what share is gasoline, and it doesn't tell me -- you know, let's say I do buy a plug-in hybrid but I run most of the time in all-electric mode. I found it confusing just to look at that sticker. So, you know, you need to know what percent of all electric use is assumed, and I would like a pure electric rating. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 142.]

### **Toyota**

Methodology for Merged Values for PHEVs [EPA-HQ-OAR-2009-0865-6901.1, p.11]

EPA believes the appropriate method for combining the operation of vehicles that can operate with more than one fuel would be a weighted average of the appropriate metric for the two modes of operation. Toyota agrees and supports the methodology developed by SAE and DOE to predict the fractions of total distance driven in each mode of operation (electricity and gas), using the term 'utility factor' (UF). The UF methodology is defined under SAE J2841. [EPA-HQ-OAR-2009-0865-6901.1, p.11]

Also, EPA proposed that the PHEV label in this series provides separate annual cost estimates for both the electric and gas modes of operation. Toyota customers require this information because they want to understand the costs specifically associated with operating the vehicle either when operating on electricity or in hybrid mode. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

In the proposal, the Agencies laid out the advantages and disadvantages of "merged" values for PHEVs, i.e., single values for metrics such as fuel economy, fuel consumption, greenhouse gas emissions, or cost that would combine the various potential PHEV operating modes (electricity

only, electricity plus gasoline, and/or gasoline only) based on an approach for combining operating modes for an "average driver." In the sample labels in the proposal, merged values were shown for some metrics (such as fuel economy and greenhouse gas emissions) and not for others (such as fuel consumption and cost/cost savings). The agencies asked for comment.

The agencies only received a few comments on this topic. The American Council for an Energy Efficient Economy and Toyota generally supported the concept of putting merged values on labels based on the SAE "utility factor" approach, though Toyota also explicitly supported the display of separate annual cost estimates on both electric and gasoline modes. The Edison Electric Institute and the Electric Drive Transportation Association opposed the general use of merged values on labels due to the variability associated with individual drivers, and argued that the web site was a better way to address merged values for individual drivers.

**Response:**

The agencies are finalizing labels which do show merged values for the PHEV metrics of fuel economy, greenhouse gas emissions, and cost/cost savings, but not for fuel consumption. We understand the concerns associated with the variability associated with individual drivers, and in fact intend to use our web site to allow individual consumers to customize results for their own situations. Still, we believe it is important to show a merged fuel economy value because of the strong desire of consumers to have a comparative fuel economy metric. For greenhouse gas emissions and cost/cost savings, the agencies have concluded that it is more effective to show a single merged value for these two metrics than to show two or three values for each metric, as the latter could lead to PHEV labels which would have far too much information for most consumers to understand. We believe there is little to be gained by showing a merged value for fuel consumption, since that is simply the inverse of the merged value for fuel economy.

### 4.2.3. Driving Range

**Organization:** Hyundai Motor Company

**Comment:**

**Hyundai Motor Company**

EPA allows a modified 5-cycle equation (3-cycle) for determining highway fuel economy if specified conditions are met per §600.115-08(b)(2)(iii)(B) and proposes to maintain this allowance for PHEVs (§600.114-0S and §600.114-12). Hyundai supports allowance of the modified 5-cycle equation but is concerned because, unlike the other calculations for determining city and highway fuel economy, EPA does not propose a related carbon related exhaust emissions (CREE) equation for the modified 5-cycle. Without the addition of a CREE equation, manufacturers would have to perform all 5-cycles for the CREE, even if they are only required to perform 3-cycles for the fuel economy equation. EPA should add a CREE equation that would apply for the modified 5-cycle. [EPA-HQ-OAR-2009-0865-7139.1, p.12]

**Response:**

Hyundai either misunderstands the regulations related to carbon-related exhaust emissions (CREE), or perhaps intended for this comment to apply to CO<sub>2</sub>. The CREE emission standards are "2-cycle" standards, similar to CAFE values, and with only one exception CREE will never need to be determined on a 5-cycle basis. (The single exception is when 5-cycle values are being determined for the purpose of determining and demonstrating the greenhouse gas emission benefit of "off-cycle" technologies for the purpose of meeting greenhouse gas emission standards.)

Their comment is relevant with respect to CO<sub>2</sub> label values, however. While the label does not require a calculated CREE value, it does require a calculated CO<sub>2</sub> value. Label MPG values, of course, are determined using one of three approaches: the derived 5-cycle equations, the complete 5-cycle method, or the modified (or 3-cycle) 5-cycle approach. Appropriate equations have been finalized such that both fuel economy and CO<sub>2</sub> may be determined using each of these methods.

**Organization:** International Council on Clean Transportation (ICCT)

**Comment:**

**International Council on Clean Transportation (ICCT)**

Our primary suggestion is to use the same 5-cycle label adjustment requirements for electric vehicles as is currently used for conventional vehicles. Range is an extremely important factor in consumer purchase decisions for electric vehicles and there are sound reasons why in-use adjustments are larger for low consumption vehicles in general. Electric vehicles also require

additional energy consumption to heat the cabin during cold weather operation. [EPA-HQ-OAR-2009-0865-7118.1, p.1]

Downward 5-Cycle Adjustment for BEVs and PHEVs [EPA-HQ-OAR-2009-0865-7118.1, p.3]

The more important aspect of the proposed rule is that plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs) will be included in the labeling system for the first time. It is extremely important that this be done properly, even more important than the fuel economy adjustments for conventional vehicles. This is because range is one of the primary considerations for customers considering PHEV and BEV purchases and is more important than the fuel economy ratings for conventional vehicle purchasers. If the label does not properly reflect real-world range, this will lead to customer dissatisfaction both with the vehicle and with the fuel economy labeling system. [EPA-HQ-OAR-2009-0865-7118.1, p.3]

Range is also an important input into the California ZEV mandate and, for PHEVs, into the CAFE standards. Longer-range vehicles will generate more credits under the ZEV mandate and the range determines the proportion of electric driving for determining overall CAFE ratings for PHEVs. While these programs currently use the range calculated from the test results, it would be more accurate to base the calculations on the real-world range. If this improvement were made to either or both of these programs in the future, it would make it even more important to have realistic real-world range adjustments. [EPA-HQ-OAR-2009-0865-7118.1, p.3]

Instead of emphasizing the importance of the label adjustments for PHEVs and BEVs, less accurate provisions were proposed. Conventional vehicles are required to conduct 5-cycle testing and may only use the MPG-based equations if the 5-cycle testing falls within certain criteria. PHEVs and BEVs are granted two additional options. One is to provide vehicle-specific real world range data collected from in-use vehicles. The second is to use the MPG-based equations without validation from 5-cycle testing. Worse, the MPG-based equation would be capped at a 30% adjustment for the FTP, again without any validation from 5-cycle testing. [EPA-HQ-OAR-2009-0865-7118.1, pp.3-4]

Given the importance of the real-world range, the exemption from 5-cycle testing is inexplicable. The cost of conducting 5-cycle testing is small compared to the need for accurate range calculations. In addition, both the exemption from 5-cycle testing and the cap on the MPG-based adjustment are inappropriate for PHEVs and BEVs, for three reasons: [EPA-HQ-OAR-2009-0865-7118.1, p.4]

(1) Most loads not captured on the FTP and highway tests are relatively constant across a range of vehicles: [EPA-HQ-OAR-2009-0865-7118.1, p.4]

Aerodynamic loads go up with vehicle speed on all vehicles [EPA-HQ-OAR-2009-0865-7118.1, p.4]

Aggressive driving is not difficult for high-power vehicles and has a larger impact on lower-performance, higher efficiency vehicles [EPA-HQ-OAR-2009-0865-7118.1, p.4]

Cold temperatures generate higher engine friction, higher air density, more fuel enrichment, longer engine warmup times, and defroster use [EPA-HQ-OAR-2009-0865-7118.1, p.4]

The initial cooling requirements for air conditioning are similar across all vehicles [EPA-HQ-OAR-2009-0865-7118.1, p.4]

Short trips increase the relative amount of fuel used for engine warmup and A/C cooldown [EPA-HQ-OAR-2009-0865-7118.1, p.4]

These relatively constant off-cycle loads mean that the lower the baseline fuel consumption, the larger the percentage impact on in-use fuel economy. The shape of the MPG-based equation simplify reflects this reality and generates larger adjustments for lower fuel consumption vehicles. It has nothing to do with the technology on the vehicle, just the nature of vehicle and accessory loads. [EPA-HQ-OAR-2009-0865-7118.1, p.4]

(2) There is good reason to believe that the off-cycle loads will be much larger on BEVs than on conventional vehicles with the same fuel consumption. This is because of cabin heating at cold ambient temperatures. On vehicles with internal combustion engines, the cabin is heated using waste heat from the engine that is otherwise lost to the cooling system. No additional energy is used to provide cabin heat, beyond that needed to run the fan inside the cabin. This situation does not exist for BEVs, which will need to supply power from the battery pack to heat the cabin. There are ways to mitigate the energy used to heat the cabin, but unless BEVs are required to conduct 5-cycle testing the label values – and range – will not reflect such strategies. [EPA-HQ-OAR-2009-0865-7118.1, p.4]

(3) All testing is conducted with almost new batteries. However, there is normal degradation in battery energy capacity over time. This will reduce the range of the vehicle over time, which is not captured in the fuel economy testing. The proper solution is to require 5-cycle testing with batteries representative of 5-year old batteries. While ICCT understands that testing with 5-year old batteries would be very difficult and may not be feasible, it is important that the overstatement of range at least is limited to this factor and is not multiplied by further range overstatements. [EPA-HQ-OAR-2009-0865-7118.1, p.4]

Given the solid reasons why labeling shortfall increases as baseline fuel consumption goes down and the high value associated with the range calculation, PHEVs and BEVs should be treated identically to conventional vehicles and should not be given additional options to comply, especially the options to use the MPG-based equation without validation with 5-cycle testing and capping the adjustment on the MPG-based equation. [EPA-HQ-OAR-2009-0865-7118.1, pp.4-5]

The proposed option for allowing adjustments based on vehicle-specific real world range data collected from in-use vehicles is reasonable in concept. However, it would be unfair to allow it only for PHEVs and BEVs. More importantly, it is very difficult to collect data that properly represented year-around operation throughout the nation. Any provision to allow real-world data collection should be promulgated through rulemaking, in order to allow for comments and consideration of the many difficult issues in designing such a program. [EPA-HQ-OAR-2009-0865-7118.1, p.5]

**Response:**

EPA agrees that electric vehicles should be subject to the same 5-cycle label adjustments as conventional vehicles. Since 2008, all vehicles, including alternatively fueled vehicles, have been subject to either 5-cycle testing or the derived 5-cycle adjustment. The derived 5-cycle adjustment is an empirical adjustment used to convert 2 cycle ftp/ highway FE data into expected 5-cycle FE. This derived 5-cycle method was developed using 615 vehicles spanning model years 2003 to 2006. Of the 615 vehicles, 14 were hybrid electric vehicles and none of them were battery electric vehicles. None of the vehicles tested displayed the relatively higher fuel economy, in miles per gallon of gasoline equivalent, of an electric vehicle. Since the derived 5-cycle adjustment is a non-linear equation that corrects the FE increasingly with higher two-cycle FE, EVs would experience potentially much larger downward adjustments than conventional vehicles. Faced with either extrapolating the derived 5-cycle equation beyond the empirical data used in developing the derived 5-cycle or with capping the 5-cycle adjustment near the highest FE used in the derived 5-cycle development, EPA chose to cap the downward adjustment in FE. This derived 5-cycle cap will be optional to all vehicles that are eligible to use the 5-cycle adjustment, regardless of technology, until the derived 5-cycle equation is revisited with vehicles having representative higher fuel economies.

Another option to derived 5-cycle adjustments would have been to require testing on all 5-cycles for BEV FE label values. This was deemed as beyond the scope of this rule. Current referenced battery electric test procedures call for BEVs to be driven over repeat test cycles until the battery is functionally empty. The battery is then recharged and the consumption and FE are calculated using recharge energy (including soak and parasitic losses) and distance driven. To test this way on all 5-cycles would add possibly hundreds of miles of required testing to each vehicle configuration. In addition, new soak and test procedures are needed to address 20 degree, US06, and SC03 testing. The 5-cycle FE equation would also require adjustment since it was developed using bag specific emissions. For conventional vehicles, these emissions are relatively insensitive to fuel tank level whereas both EV and PHEVs have shown varying electric consumption with battery state-of-charge. To address concerns with BEV and PHEV range and consumption values, EPA will continue to monitor the light duty fleet as it develops, including in-use testing. EPA will also continue to pursue shortened EV and PHEV test procedures in order to quantify 5-cycle type operation without incurring undue testing burden.

**Organization:** Abbat, Pierre

**Comment:**

**Abbat, Pierre**

The energy consumption per distance for the electric car is equivalent to 760.6 J/m. Assuming 41 kJ/g heat of burning gasoline and 0.72 g/mL density, the gasoline car consumes 2640 J/m. [EPA-HQ-OAR-2009-0865-7588, p.1]



**Response:**

This commenter believes that the electricity consumption of an EV should be expressed in joules per meter. EPA finds that this would not be a useful metric for consumers because consumers are not familiar with joules. Electricity is sold in kilowatt-hours, and a uniform approach across the final labels has been to present fuel consumption in the same units that the fuel is purchased in. EPA believes this is a necessity to allow consumers to understand the potential costs of a given rate of fuel consumption. Use of a unit that is poorly understood by consumers would be counter-productive.

**Organization:** Toyota

Electric Drive Transportation Association (EDTA)

Edison Electric Institute (EEI)

California Air Resources Board (CARB)

Securing America's Future Energy (SAFE)

American Council for an Energy-Efficient Economy (ACEEE)

Nissan

National Renewable Energy Laboratory (NREL), Center for Transportation Technologies &amp; Systems (CTTS)

Honda Motor Company

National Petrochemical and Refiners Association (NPRA)

U.S. Coalition for Advanced Diesel Cars

Natural Gas Vehicles for America (NGVAmerica)

BMW

Neighbour, Rob

Mitsubishi

Ree, Andree

IMPCO Technologies

Duoba, Mike

**Comment:****American Council for an Energy-Efficient Economy (ACEEE)**

Driving Range Information. The agencies propose to include vehicle range on the labels for alternative technology vehicles. For some vehicles, including EVs and CNG vehicles, the range is the distance the vehicle can travel between refuelings. The range of a PHEV, on the other hand, would be defined as the distance through which the battery is providing electricity from the grid to the vehicle. The meaning of range is thus very different for a PHEV, which will likely travel further than a comparable conventional before needing to be refueled. Thus while the proposed range information is an important characteristic of a PHEV, it would be confusing if used in this way on the label, and detrimental to PHEVs. In addition, we believe that determining the range of a PHEV is quite complicated, notwithstanding EPA's claim to the contrary. In particular, the range will vary by drive cycle. For both of these reasons, we recommend not including a range for PHEVs on the label. [EPA-HQ-OAR-2009-0865-7135.1, p. 7]

ACEEE supports the proposal to cap the downward adjustment of miles per gallon (and therefore range) for EVs at 30% until more evidence is available. We are unclear however on why this cap on downward adjustment is mentioned in the discussion of range and not in the discussions of energy use, fuel economy, or GHG emissions. [EPA-HQ-OAR-2009-0865-7135.1, p. 7]

## **BMW**

In addition, we are concerned with showing of the "All Electric Range" as additional information on the label together with the display of the 'Charge Depleting Range.' The reason is that the two numbers for the range of the vehicles may be confusing to the customer. The "All Electric Range" implies that the vehicle can achieve that range under most circumstances. Certain drivability conditions (i.e. hard acceleration, emission control strategy, climate control operation, etc.) will affect that value and thus mislead the customer. [EPA-HQ-OAR-2009-0865-7142.1, p.2]

For the case of pure electric vehicles with a gasoline emergency mode (i.e., with a very small and downsized internal combustion engine to provide extended range), the label should deliver the information about the additional range through the gasoline mode (e.g. +100 miles in gasoline mode). Such information should be located next to the range bar of the electric vehicle. [EPA-HQ-OAR-2009-0865-7142.1, p.2]

## **California Air Resources Board (CARB)**

We believe that the graphic on Label 2 showing driving range for EVs and PHEVs misrepresents this information. The driving range that appears on the far right can be misinterpreted as the maximum range for all EVs. We recommend you eliminate this graphic all together and just represent range as a number as you do in Label 3. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

## **Duoba, Mike**

What we haven't talked too much about is the battery electric vehicles and plug-in hybrid vehicles. First thing I want to mention is that the second label that has the PHE bar that shows the range and associated consumption metrics is a very good tool. I think that there's the two labels, and one has that and one doesn't. If you want to educate the consumers, even the ones who are never thinking about an advanced vehicle, they can look over the label and say, Now I get what these cars are all about. For 30 miles they have this operational mode. So I think that's really important to keep that -- so no matter what design you go with, whether the letter grade is predominantly displayed or not, keep that. That's a very important tool I think. I don't think there's enough room in the first label to do that. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 105-106]

But either way, the drive cycle which is where we base what our fuel economy is an assumption of a range speed and acceleration rates we're going to encounter. The urban drive schedule is an assumption. It's an assumption. And based on the assumption, you'll score a certain number. And even the five cycle fuel economy label that we're talking about includes a certain assumption that you'll be driving in cold weather or hot weather or, as you know, people in

Arizona -- I'm still speculating on a five cycle label. But somehow, you know -- which includes a lot of heater usage. I'm not going to use the heater hardly at all, maybe a month or so in the winter. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 108-109]

### **Edison Electric Institute (EEI)**

Driving range data for electric and hybrid electric vehicles should not be a static figure, and should address differing usage and charging patterns. This type of customer-specific data is best presented on the website. [EPA-HQ-OAR-2009-0865-7117.1, p.7]

Driving Range Data for Electric and Hybrid Electric Vehicles Should Consider Usage and Charging Patterns. While it will be useful to consumers to provide driving ranges for EVs and driving range in all-electric/primary electric mode for PHEVs, it must be noted that estimates of range will vary based on a driver's charging and driving habits. Driving range gives the maximum distance that can be traveled before a battery is so depleted that the vehicle can no longer function properly. Users of EVs and PHEVs will typically recharge the battery before it is fully depleted (much as people refill their gasoline storage tanks when fuel indicators are near 1/4 tank). Charging the battery is likely to become, for most users, a matter of routine. Therefore, driving range can best be understood relative to typical daily usage, and meaningful projections will incorporate a consumer's anticipated usage. In this instance, again, an interactive web-based program, rather than a static vehicle label, would allow a consumer to compare driving range to the user's anticipated usage of the vehicle, and would provide the data most relevant to a particular consumer. [EPA-HQ-OAR-2009-0865-7117.1, pp.7-8]

For clarity and comparability, all vehicle labels should include a "Maximum Driving Range" that reflects the maximum range based on the total energy capacity of the vehicle. For example, for a PHEV with an all electric range of 50 miles and a gasoline engine range of 300 miles, the maximum driving range statistic on the label would be 350 miles. Such information could be provided based on the "blended" city/highway fuel economy projections, with specific city only or highway only maximum driving ranges shown on the web site. [EPA-HQ-OAR-2009-0865-7117.1, p.8]

### **Electric Drive Transportation Association (EDTA)**

Include "Maximum Driving Range" on the Label [EPA-HQ-OAR-2009-0865-7137.1, p.4]

EDTA agrees that driving range is important information for consumers, and that this information should be included on the window label. In our members' experience, consumers are interested in knowing the driving range in each mode for a PHEV. Therefore, if the label includes driving range, it should show the maximum range in each mode (e.g., all-electric range and gasoline-powered range). [EPA-HQ-OAR-2009-0865-7137.1, p.4]

Education also plays an important role in helping consumers to understand driving range relative to their own driving habits. It is likely that users of EVs and PHEVs will typically recharge the battery well before it is fully depleted, much as people refill their gasoline storage tanks when

fuel indicators are near 1/4 tank. Charging the battery is likely to become, for most users, a matter of routine. Therefore, driving range can best be understood relative to typical daily usage. This information can be provided most effectively via an interactive function on the [www.fueleconomy.gov](http://www.fueleconomy.gov) website, which would allow the reader to compare driving range to the user's anticipated usage of the vehicle. [EPA-HQ-OAR-2009-0865-7137.1, p.4]

### **Honda Motor Company**

30% adjustment factor for electric vehicles: EPA seeks comment on their proposal for the downward 5-cycle adjustment for EVs and PHEVs. Honda supports the 30% adjustment factor for electric vehicles and the portions of plug-in hybrid electric vehicles that have AER or eAER. Our experience with a fleet of NiMH battery electric vehicles in the 1990's confirms that the 30% discount is a modest assessment. In the next few years as OEMs gather more data, and more vehicles are tested on the 5 mode tests, this 30% discount could be adjusted, if necessary. [EPA-HQ-OAR-2009-0865-6774.1, p.6]

### **IMPCO Technologies**

There are a couple of topics that we do support. In particular, one is the economic cost or the savings. The current labels indicate the expected average fuel cost of operating a vehicle. EPA has proposed changing this information to include the average savings, or approximate, of vehicles over a five-year period compared to an average vehicle, and we support this proposal. The next is driving range information for alternative fuel vehicles. The proposal would include driving range information for alternative fuel vehicles. We support including information on the label about the driving range of different alternative fuel vehicles because we consider driving range to be an important performance factor for alternative fuel vehicles. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 136-137.]

### **Mitsubishi**

Include 'maximum driving range' on the label. (EDTA, Alliance) [EPA-HQ-OAR-2009-0865-6934.1, p.1]

### **National Petrochemical and Refiners Association (NPRA)**

Label 1 is misleading by not stating the vehicle driving range, which should be comparable to EVs and PHEVs. [EPA-HQ-OAR-2009-0865-6773.1, p.3]

### **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

On pg. 58109 comment is requested on the proposed downward 5-cycle adjustment for EVs and PHEVs. It was not entirely clear, but I assume the adjustments discussed in this section would apply both to the range calculation and to the fuel/electricity consumption values reported on the label? Given uncertainty about the performance of initial PHEVs, I endorse the suggestion to

accept real-world performance data from manufacturers for consideration in the adjustment calculations. Based on such operation information, EPA might also consider permitting manufacturers to apply the adjustments in the form of increased CD fuel and/or electricity consumption separately, rather than using the combined MPGe as the adjustment basis. Note that the post-adjustment electricity and fuel consumption, AND adjusted cycle-by-cycle depletion distances should be used for the UF calculations. For more discussion on PHEV adjustments see <http://www.nrel.gov/docs/fy09osti/46251.pdf> and the attached pdf. [EPA-HQ-OAR-2009-0865-7222, p.4]

On. Pg. 58110 comment is requested on displaying information on multiple vs. combined operating modes. Generally I agree with the approach to provide information on the different modes (though assert that the information should be specific to the actual fuel used), and that combined information for quantities such as annual cost estimates should be calculated on the basis of UF weighting as further described below. [EPA-HQ-OAR-2009-0865-7222, p.4]

### **Natural Gas Vehicles for America (NGVAmerica)**

Drive Range [EPA-HQ-OAR-2009-0865-6921.1, p.9]

We support including driving range information for the alternative fuel vehicles. Driving range is an important consideration for consumers who buy vehicles. However, we do not think that EPA/NHTSA and FTC should provide duplicative information, so FTC should no longer require this information. [EPA-HQ-OAR-2009-0865-6921.1, p.9]

### **Neighbour, Rob**

'Range' should say 'Range to Empty'. (Managing expectations). [EPA-HQ-OAR-2009-0865-0807, p.1]

### **Nissan**

The standard disclaimer for individual variation should, in the case of all vehicle types with electric vehicles, include a reference to driving range. [EPA-HQ-OAR-2009-0865-6922.1, p.3]

### **Ree, Andree**

Years back my buddy bought a Prius. And I had an old VW Cabriolet. Who pollutes more? Well, if we had the same driving habits, it would obviously have been my VW. But he drove a LOT, and I didn't drive much at all. Turns out comparing his habits to mine, with our respective vehicles, he pollutes a lot more than I do. [EPA-HQ-OAR-2009-0865-3469, p.2]

My driving habits should be reflected along with my car. [EPA-HQ-OAR-2009-0865-3469, p.2]

Same with the F-rated exotic sports cars. If someone bought one, and kept it mostly for show, but never drove it...they could earn a better grade. On the showroom floor, as is, they would suck for

mileage and pollution. But once in the hands of a driver/owner, that owner has the ability to modify their own usage of the vehicle. [EPA-HQ-OAR-2009-0865-3469, p.2]

I think that could be very useful for ALL drivers, that kind of information. I can foresee articles on turning your C graded vehicle into a B+ vehicle. With all sorts of driving tips, driving less, driving during off hours (less stopping means less gas used, less pollution while at an idle). So people realize it's not just the car, it's them. And that a hybrid isn't a free pass to an A grade if it's driven 200,000 miles a year. And that a gas guzzling vehicle can move up several grades if used sparingly. [EPA-HQ-OAR-2009-0865-3469, p.2]

As we want to consider the overall effect on the environment of this specific driver at the wheel. [EPA-HQ-OAR-2009-0865-3469, p.2]

### **Securing America's Future Energy (SAFE)**

Vehicle Range: The agencies have proposed reporting vehicle range on labels for electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs) because: 1) focus groups wanted the information; 2) it is a critical factor in determining what a buyer gets for their investment in a vehicle; and, 3) it is easy to measure. These reasons do not adequately support inclusion of range on an already crowded label. [EPA-HQ-OAR-2009-0865-7522.1, pp.8-9]

The fact that the information is a critical piece of information about the operation of an EV or PHEV is important, but also explains why it need not be included on the label. In short, anyone who is purchasing an EV or PHEV is going to inquire about vehicle range as a first order issue. In fact, for EVs, it may be the most important factor in determining whether or not consumers adopt the technology. While somewhat less important for PHEVs because they have unlimited range, consumers who pay a premium for vehicles that operate solely on electricity are likely to care how far the car will run on electricity because it directly effects the underlying economics of operating the vehicle. [EPA-HQ-OAR-2009-0865-7522.1, p.9]

If the agencies choose to keep the range of EVs and PHEVs on the label, SAFE thinks that it should also include information about range on CNG vehicles. Though CNG vehicles typically have range that is between that of EVs and gasoline-powered vehicles, there are fewer than 1,000 CNG fueling stations in the nation (as compared to over 160,000 gasoline stations) and fewer than half of all CNG stations are open to the public. Moreover, they are not evenly distributed around the nation, with 23 states having five or fewer stations. Thus, drivers of CNG vehicles would reasonably have concerns about access to fuel, which is directly tied to vehicle range. If, therefore, vehicle range is reported for EVs and PHEVs, it also should be reported for CNG vehicles. [EPA-HQ-OAR-2009-0865-7522.1, p.9]

### **Toyota**

Toyota agrees with the agencies proposal that manufacturers use the same five cycle methodology currently utilized for fuel economy labeling purposes in order to determine GHG values for purposes of the new label. This approach allows manufacturers to calculate CO2 emission rates using the same approach used for label fuel economy values and offers

correlation, as is evidenced between label values for MPG and those seen in actual use. [EPA-HQ-OAR-2009-0865-6901.1, p.5]

Driving Range Information (including 5-Cycle Adjustment) [EPA-HQ-OAR-2009-0865-6901.1, p.10]

Toyota's customers view range information as an important consideration in making their purchase decision. Toyota supports the inclusion of driving range information on the label for advance technology vehicles. Consistent with this approach, Toyota would hope that the Federal Trade Commission label requirement for alternative fuel vehicles could be satisfied and lead to the elimination of a redundant label requirement. [EPA-HQ-OAR-2009-0865-6901.1, p.10]

EPA is in the process of determining the appropriate adjustment factor to use in converting 2-cycle test values for range to 5-cycle test values for vehicle labels. Currently EPA provides two options: 1) submitting 5-cycle test data, and 2) using MPG-based, derived 5-cycle equations. However, since there was no EV or PHEV data when the equations were derived, EV s would experience a downward adjustment if the MPG-based equation in option 2 were used. In recognition of this situation, EPA is proposing a new set of options to establish the appropriate 5-cycle range adjustment for EV s and the electric portion of PHEV operation. They Include: (1) Provide full 5-cycle test data, (2) Provide vehicle specific real world range data collected from in-use vehicles, or (3) Use an MPG-based equation which would be capped by the worst case gasoline vehicle in the current database. Of the options presented, Toyota feels that option (3) represents the best short term option. However, Toyota would like EPA to consider utilizing an MPG-method for EV s, like that employed on conventional vehicles, which establishes vehicle efficiency based on in-use data. Toyota recommends that the value of the cap be retained until sufficient EV test data is collected where an appropriate EV cap can be decided, as opposed to EPA's intent to continue to use gasoline vehicle data for the cap. Furthermore, SAE is now revising 11634 (including 5-cycle) and Toyota would like to see EPA harmonize their efforts with SAE. [EPA-HQ-OAR-2009-0865-6901.1, p.10]

### **U.S. Coalition for Advanced Diesel Cars**

The Agencies agree that certain factors, including driving habits and conditions, can significantly alter a car's fuel economy. Purchasers would be better informed if the new labels easily referenced how vehicles compare under certain driving conditions. [EPA-HQ-OAR-2009-0865-7130.1, p.3]

### **Response:**

EPA is requiring the inclusion of range on all non-petroleum and advanced technology vehicle labels, e.g., for CNG, EV, PHEV, and hydrogen FCV vehicles. As supported by commenters, EPA continues to believe that range is an important piece of information for potential purchasers of these vehicles, since they typically cannot travel as far on a refueling as can a conventional gasoline vehicle, and the refueling infrastructure for non-liquid fuels is currently limited. EPA also agrees with several commenters that including range on the new fuel economy and environment label may set the stage for possible future action by the Federal Trade Commission

to withdraw its separate cruising range label for alternative fuel vehicles. In response to some commenters' concern about the ability to generate meaningful range estimates for PHEV labels, EPA recognizes that the real-world variability in PHEV range values, particularly in the all-electric or battery assist mode, will be much higher than with conventional vehicles. Nevertheless, a laboratory-based repeatable test gives a basis for comparison, despite real-world variability. EPA's market research suggests that many consumers want an objective comparative metric for range that they can use to determine whether an advanced technology vehicle might be right for them.

EPA will be applying the 30% adjustment noted in the proposal to all metrics on the label, including fuel economy, consumption, range, and CO<sub>2</sub> values. Thus all values will be expressed in "5-cycle" terms.



#### 4.2.4. Battery Charging Time

**Organization:** Alliance of Automobile Manufactures (Alliance)

Toyota

Electric Drive Transportation Association (EDTA)

Edison Electric Institute (EEI)

California Air Resources Board (CARB)

Tesla Motors

Securing America's Future Energy (SAFE)

American Council for an Energy-Efficient Economy (ACEEE)

Nissan

Honda Motor Company

Consumers Union

BMW

Smith, Houston

Neighbour, Rob

F., Nick

Woon, Michael

California Cars Initiative

#### **Comment:**

#### **Alliance of Automobile Manufactures (Alliance)**

##### Range and Charge Time

For vehicles that utilize electricity, the Alliance agrees that it is appropriate to show on the label the all electric range, total vehicle range, and time to charge the battery. [EPA-HQ-OAR-2009-0865-6850.2, p.12]

#### **American Council for an Energy-Efficient Economy (ACEEE)**

Battery charging time depends heavily on the voltage at which the charging is done, so this must be specified if there is any requirement to display battery charging time on the label. Battery charging efficiency depends on charging voltage as well, with higher efficiencies occurring at lower voltage, so the energy usage of plug-in vehicles should also specify a voltage assumption. [EPA-HQ-OAR-2009-0865-7135.1, p. 7]

#### **BMW**

Relative to a 'Charge Time' value, performance of the recharging station needs to be considered. Using a single figure for charging time requires some information about the preconditions of the charging station. Customers may complain that the actual charging time is much longer than what is shown on the label. It may be appropriate to include a 'Charging Time' range. [EPA-HQ-OAR-2009-0865-7142.1, p.2]

## **California Air Resources Board (CARB)**

We suggest that you do not include charging time on the labels. This information varies greatly between vehicles depending on the size of the battery and the type of charging used (i.e., level 1, 2 or 3). We believe this information should be provided to consumers by the individual manufacturers. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

On the label, we believe that you should remove the chargeable time, since this can vary depending on the battery size, the type of charger used, and most drivers will not typically charge to 100 percent capacity. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 132.]

## **California Cars Initiative**

The Electric Vehicle (BEV) label (Figure III-10) is great, too, though I would like to see the following additional numbers: the battery capacity in kWh, perhaps inside the battery, and the charge rate that results in the given charge time, e.g. 1.4 kW or 3.3 kW ('1.4 kW from 120VAC at 12A' or '3.3 kW from 240VAC at 14A' would be more complete but too complex). [EPA-HQ-OAR-2009-0865-4695, p. 2]

## **Consumers Union**

Additional label components

For the plug-in vehicle label, the charge time is not included. This is an important piece of information for consumers, and CU recommends its inclusion. The smart phone bar code will be a great tool for consumers to find additional information and hopefully, be able to compare several choices at once. [EPA-HQ-OAR-2009-0865-7251.1, p.3]

## **Edison Electric Institute (EEI)**

Similarly, battery charging data – unrelated to fuel economy – is best presented on the website. If included on the label, it should provide data on different voltage charging times. [EPA-HQ-OAR-2009-0865-7117.1, pp. 2-3]

Battery Charging Time Is Important, but Should Not Be Included on the Label. [EPA-HQ-OAR-2009-0865-7117.1, p.8]

It is important to inform consumers about battery charging time, as well as the time it would take to refuel any alternative or conventional vehicles. This information should be provided on the web site—and not on the label—as it has no impact on fuel economy. If included on the label, estimates of battery charging time could be misleading to consumers, especially if expressed as a single number based on an as-yet-undetermined “average” driver’s use and charging equipment. The battery charging time that is experienced by the consumer will vary based on the level of charging input (120 Volts v. 240 Volts v. 480 Volts), and based on the user’s charging routines. If drivers charge the battery without waiting for it to become fully

depleted, the actual charging time will be materially less than the maximum charging time. [EPA-HQ-OAR-2009-0865-7117.1, p.8]

If included on the label, EEI recommends that the label indicate the charging time for a specified voltage charging level (e.g., x hours at 240 Volts; 2x hours at 120 Volts). However, such estimates should only be included if the refueling time is shown for all types of vehicles, not just vehicles with electric drive systems. EEI also recommends that the website allow the reader to estimate actual charging or refueling time based on user-specified assumptions about driving and charging habits. [EPA-HQ-OAR-2009-0865-7117.1, p.9]

### **Electric Drive Transportation Association (EDTA)**

Use the Website to Educate Consumers about Battery Charging Time [EPA-HQ-OAR-2009-0865-7137.1, p.4]

The members of EDTA agree that it is important to inform consumers about battery charging time as well as the time it would take to refuel any alternative or conventional vehicle. However, estimates of battery charging time could be misleading to consumers if expressed as a single number based on an “average” driver’s usage patterns and charging equipment. The battery charging time that is experienced by the consumer will vary based on the type of charging station (120 Volts vs. 240 Volts vs. 480 Volts), and based on the user’s charging routines. If users charge the battery without waiting for it to become fully depleted, the actual charging time will be materially less than the maximum charging time. [EPA-HQ-OAR-2009-0865-7137.1, p.4]

Because actual charging times will vary greatly among consumers, EDTA recommends using the [www.fueleconomy.gov](http://www.fueleconomy.gov) the web site as the principal means for consumers to estimate the charging time that they will experience. The website should allow the reader to estimate actual charging or refueling time based on user-specified assumptions about driving and charging habits. If it includes these capabilities, the website will provide the most effective means of giving consumers access to accurate estimates of charging times. [EPA-HQ-OAR-2009-0865-7137.1, p.4]

If the label is required to include an estimate of charging time, EDTA recommends that the label also indicate the voltage assumed for the estimate of charging time, and/or show the charging time as a range rather than as a single number. [EPA-HQ-OAR-2009-0865-7137.1, p.4]

### **F., Nick**

I also think you should make it clear that the cars take different amounts of time to charge depending on the number of volts and amps used to charge them. You should probably give the charge times for level 1, 2 and 3 chargers. If you do this though you need to make it clear that level 3 charging will be very hard to find and that only level 1 and 2 can be conducted from the person’s home. [EPA-HQ-OAR-2009-0865-1323, p.1]

## **Honda Motor Company**

Recharge Time and Range: Recharge Time and Range are acceptable to put on the label as long as other more vital fuel-economy related information is not compromised (e.g. city and highway fuel economy and consumption metrics may be more useful). With respect to Range, we believe all ranges should be discounted by 30%, as noted above in 12)c)iv). [EPA-HQ-OAR-2009-0865-6774.1, p.6]

## **Neighbour, Rob**

'Charge Time' is NOT a single number. Should become: [EPA-HQ-OAR-2009-0865-0807,p.1]

'Charge Time from Empty: 120v- 12 hours, 240v, 4 hours, 440v, 20 min', [EPA-HQ-OAR-2009-0865-0807, p.1]

OR

'Charge Time From Empty: Level 1 (120v)- 12 hours, Level 2 (240v)- 4 hours, Level 3(440v)- 25 min'. [EPA-HQ-OAR-2009-0865-0807, p.1]

## **Nissan**

Finally, the label should allow for a reference to 240 volt charge time, when available, rather than 120 volt time. As the agencies suggest, the charge time reflected on the label should be consistent with that suggested in the owner's manual. [EPA-HQ-OAR-2009-0865-6922.1, p.3]

## **Securing America's Future Energy (SAFE)**

For instance, the proposed labels in the NPRM reported charging time based on use of a 110 volt charger that is expected to come with most vehicles. A substantial portion of EV and PHEV drivers, however, are likely to install Level II, 220 volt charging equipment to accelerate the charging process. We added that information to the label to reflect the manner in which EVs and PHEVs are likely to be used instead of a "worst case" approach. [EPA-HQ-OAR-2009-0865-7522.1, p.19]

Lastly, battery performance. The proposed labels indicate how long it will take to charge a battery fully discharged in grid-enabled vehicles. The time that is used to calculate is based upon a 110 volt Level I charger, which will be included with the purchase of every vehicle. The label should also include how long it would take to charge the vehicle with a Level II charger, which many people will install in their homes and will be the technology in nearly all public charging taking place, while noting that the cost of purchase and installation of those charges is not accounted for in the operating cost of the vehicle. Early data supports that a very high percentage of people who buy these vehicles intend to purchase a charger. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 32]

## **Smith, Houston**

However, in my technical opinion, it will be found that 'recharging efficiency' will be dependent on recharge RATE, i.e., 120 VAC [at 20 Amps], 240 VAC [at 30 Amps], or 'QUICK CHARGE' [? volts at ? Amps] ... ultimately resulting in DIFFERENT energy requirement (? kWh) to recharge for a given distance. This can only be resolved by predefining either a 'standard', 'average' or 'worst case' charging methodology for reporting the value 'kWh/100 miles' for the Monroney. Insufficient technical data is available to recommend a preferred approach. [EPA-HQ-OAR-2009-0865-0477, p.2]

Also, many utilities have 'peak demand charges' ... billing the highest kW experienced with a duration greater than, say 1/10 hour for example, multiplied by some established rate, usually seasonally dependent. In my case, the multiplier is between \$4~\$6/kW depending on the season. With peaks in the 6 kW range, potentially a \$36/month additional cost ... leads me to believe the 'plug-in' Monroney must also present 'peak kW demand' existing during recharging for durations greater than 6 minutes. This parameter is ALSO most certainly dependent on recharge rate also, i.e., recharge method dependent ... requiring a uniformly defined recharging methodology for Monroney value of 'PEAK kW' comparability. [EPA-HQ-OAR-2009-0865-0477, p.2]

## **Tesla Motors**

Appropriate use of websites is also important in that some information is simply too detailed to be included on the label. For example, in the owner's manual of the Tesla Roadster, the Company provides a chart of predicted charge times for the battery pack under varying voltages and states of discharge. Tesla provides this detailed information because use of a single charge mode for a fully drained battery pack is misleading. That is, specifying a charge time utilizing an 110v – 120v outlet assumes a single mode (Tesla has multiple modes) and that users will completely drain their batteries before recharging. Instead, Tesla data based on actual customer use of Roadster vehicles demonstrates that consumers are more likely to conduct “top off” charges at home on a regular basis. Specifically, Tesla customers are using their vehicles more akin to cell phones where use is based on daily driving (i.e., on average, nine miles per day) and recharging on a nightly basis. As a result, listing a charge time based on a single charge mode with a drained battery on the label is not reflective of real world use and misleading. Use of websites for this detailed information will assist in ensuring consumers have access to the most accurate and applicable information possible, while avoiding misleading metrics. The Agencies must be careful, however, not to simply use websites as a “dumping ground” for extraneous information. Any information placed on the website must meet the specific goal of providing additional useful information such as defining new metrics in appropriate context, or allow consumers to access situation specific measures based on consumer specific inputs. [EPA-HQ-OAR-2009-0865-6933.1, p.4]

## **Toyota**

Battery Charging Time Information [EPA-HQ-OAR-2009-0865-6901.1, p.10]

EPA focus group participants expressed strong interest in including information on charging time on labels for EV s and PHEV s. As a result, EPA is seeking comments on this approach. Toyota's customers have identified that charging time information is an important consideration in making their purchase decision. Toyota supports the inclusion of charging time information on the label for advance technology vehicles. However, in order to provide a meaningful comparison EPA should limit the charge time specifically to one standard that is applicable to all vehicles. [EPA-HQ-OAR-2009-0865-6901.1, pp.10-11]

Toyota supports that the electric vehicle label in this Label 2 series provides the battery charging time. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

### **Woon, Michael**

I am writing to express appreciation for the detailed stickers, particularly the PHEV and EV stickers which convey so much necessary information. I was even surprised to see charge time! (though charge time needs to include 120V or 220V, as some people may not have 220V available). [EPA-HQ-OAR-2009-0865-3163, p.1]

### **Response:**

Battery charging information was included on two of the three EV and PHEV label designs in the proposed rule. As noted in the proposal, EPA believes that the amount of time it takes to charge an EV or PHEV battery is a core consumer utility parameter. This was widely supported by the focus groups, where participants often expressed a strong interest in seeing battery charging information on the EV and PHEV labels. EPA proposed that the label include battery charging time using a standard wall outlet supplying 110 volts, with an option for the manufacturer to alternatively specify a 240 volt charge time if the higher voltage is recommended or required by the manufacturer.

A majority of commenters on the subject, including automotive manufacturers and consumer groups, supported including charge time information on the label. Some of these commenters suggested that charge time should be based on 240V, as this would be consistent with the recommendation in the owner's manual and would reflect the manner in which EVs and PHEVs are likely to be typically charged. Several comments suggested that a range of charge times should be provided, given the possible use of different voltage levels. A minority of commenters, largely comprised of electric vehicle manufactures and advocacy organizations, suggested that charging information should not be on the label, largely because of concerns of oversimplification of the range of possible charge times given charging conditions, as well as label overcrowding. These commenters suggested that the charging information could be provided on EPA's web site instead.

EPA is requiring charging time information on the label of EVs and PHEVs, with one key difference from the proposal. The final regulations require that manufacturers display charging time based on the use of a dedicated 240 volt charging system, and the option of displaying charging time based on the use of a standard 110 volt wall outlet is available only to vehicles that can not be charged using 240 volts. It is our belief that the owners of many of these

vehicles will, in a significant majority of cases, install dedicated 240 volt outlets to use for charging their vehicles.[\[1\]](#) Doing so will dramatically decrease the amount of time it takes to charge the battery, thus minimizing one of the perceived limitations of vehicles that use electricity and maximizing the utility and availability of the vehicle.

#### **4.2.5. PHEVs as Dual Fuel Vehicles**

**Organization:** F., Nick

Toyota

Edison Electric Institute (EEI)

California Air Resources Board (CARB)

National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)

Center for Biological Diversity (Center)

Honda Motor Company

#### **Comment:**

##### **California Air Resources Board (CARB)**

We suggest that the technology description for PHEVs should be Plug-In Hybrid Electric Vehicle and not Dual Fuel Vehicle: Gasoline and Electricity. This Dual Fuel title could very easily be confused with the conventional hybrids on the road today that are often referred to as gas-electric hybrids. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

##### **Center for Biological Diversity (Center)**

Dual Fuel Vehicle Label I, Option 2 for PHEVs Provides Consumers the Most Information, and Should be Adopted. [EPA-HQ-OAR-2009-0865-7122.1, p.6]

Dual fuel vehicles, or plug-in hybrid electric vehicles (“PHEVs”), will emit different levels of CO<sub>2</sub> depending on how they are used. The Proposed Label I, Option 2 for PHEVs (Fig.III-6) provides consumers with the most information and is consistent with other alternative fuel vehicle labels. For instance, this option displays how many grams of CO<sub>2</sub> per mile will be emitted when running on gasoline only, as well as the blended use of gas and electric sources of energy (for the first 50 miles). We encourage the Agencies to adopt this format for PHEV labels. [EPA-HQ-OAR-2009-0865-7122.1, p.6]

##### **Edison Electric Institute (EEI)**

Fuel Economy and Emissions Performance Information for PHEVs Should Not Be Merged. [EPA-HQ-OAR-2009-0865-7117.1, p.9]

The proposed rule requests comment on whether the label should include a “merged value” fuel economy and emissions performance of PHEVs, reflecting the combined performance of both operating modes. See 75 Fed. Reg. 58110. The merged value also would represent the fuel economy and emissions performance experienced by the “average driver,” based on assumptions about the amount of time the vehicle is operated in each mode (gasoline-powered, battery-powered or combined). While a single number would be easier for consumers to understand, it has the potential to be highly misleading because consumers may vary dramatically in their driving habits. For example, a “merged value” for a PHEV calculated by assuming that the driver



is driving in the “electric mode” for 50 percent of the time and “gasoline mode” for the other 50 percent, will be very misleading to consumers that will be driving the “electric mode” for 90+ percent of the time. A better approach is to provide a tool on the website that enables consumers to estimate a merged value based on driver-specific assumptions. [EPA-HQ-OAR-2009-0865-7117.1, p.9]

### **F., Nick**

I think you need a separate sticker design for a Prius and for a Chevrolet Volt. The technology is different, and having them both covered by one sticker could lead to confusion for the consumer. For the Prius you need to talk about blended electric and gas driving, but for the Volt you can get away with the simpler idea of an electric mode and a gas mode. [EPA-HQ-OAR-2009-0865-1323, p.1]

### **Honda Motor Company**

Two labels for PHEVs: There are several issues we would like to address regarding PHEVs: [EPA-HQ-OAR-2009-0865-6774.1, p.5]

Series and Blended PHEVs: The agencies have proposed different labels for series and blended types. It is Honda’s strong belief that such distinctions will become increasingly blurred and unnecessary. There is no SAE definition of an “extended range electric (series) type” vehicle. As we think ahead to the various technologies which may be deployed, the agencies may be creating another distinction ripe for gaming. Some PHEVs may be able to follow UDDS in all-electric mode, but not US06. Others may be able to follow US06 for some short periods but not always in all electric mode. And still other designs may be able to perform US06 in electric mode, however, there may be some driving conditions under which the engine could engage. As we learn more about battery chemistries and durability, the distinctions between series and blended may be more problematic than we realize. [EPA-HQ-OAR-2009-0865-6774.1, p.5]

### **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

Pages 58102-58104 provide introductory information on advanced technology vehicles and request comment on consistent labeling of PHEVs whether or not they qualify as a “dual-fueled” vehicle. I agree with the premise of applying such simplicity and consistency in PHEV labeling, but believe that the proposal injects an unnecessary degree of complexity with the EREV vs. PHEV distinction (in my opinion “EREV” can be considered as a particular PHEV design subcategory and need not be established as a separate vehicle type; such a vehicle can simply be identified as consuming no petroleum fuel during CD operation). As acknowledged in the same section, the line between the two can easily blur. Furthermore, a PHEV that is just tested over the FTP and HFET may have sufficient battery power to complete those cycles all-electrically, but may operate as a blended PHEV in real-world driving that typically requires more power than that demanded by the FTP and HFET. Based on the proposal, there would be a disconnect for consumers of such a vehicle between the label guidance (that the vehicle would operate all-electrically during the CD mode) and their actual experience (that the engine frequently assists

during CD mode). See also the below related comments on applying adjustments to PHEV CD consumption and range estimates. [EPA-HQ-OAR-2009-0865-7222, p.3]

## **Toyota**

EPA Statutory Requirements [EPA-HQ-OAR-2009-0865-6901.1, p.8]

PHEVs are considered as dual fueled automobiles under 49 U.S.C. 32901 (a)(9), when exhibiting a minimum driving range of 7.5 miles under the EPA urban test cycle and 10.2 miles when operated on the EPA highway test cycle. The statutory requirement for dual fueled vehicle labels requires that the fuel economy be indicated as the average number of miles traveled by an automobile for each gallon of gasoline (or equivalent amount of other fuel) used. In order to meet this statutory requirement, the electricity used is converted and reported as MPGe. For simplicity and consistency, the agencies plan for all PHEV fuel economy labels to contain information required for dual fueled vehicles under the statute, regardless of dual fuel classification. [EPA-HQ-OAR-2009-0865-6901.1, p.8]

Toyota support only one label format for PHEV, and not two as EPA has proposed. Two different formats, one for extended range PHEV and the other for blended PHEV adds complexity to the labels, can be confusing to those not familiar with the technology, and would be unnecessary because the information can be easily incorporated into one label format for all PHEVs. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

In the proposal, the agencies talked about two "distinct types" of PHEVs: extended range electric vehicle (EREV) PHEVs, which operate exclusively on the battery as long as the battery is above the minimum charge level, and blended PHEVs, which generally run on a mix of electricity and gasoline while the battery is above the minimum charge. Sample labels were shown for both, with the same label name of "Dual Fuel Vehicle: Gasoline-Electricity." The sample PHEV labels were very similar, except that the EREV PHEV label had an "All Electric" mode of operation while the blended PHEV had an "Electric + Gas" mode of operation.

Several automakers, including Ford, Honda, and Toyota, commented that they believe there should be one PHEV label, not two. For example, Honda stated that "Some PHEVs may be able to follow UDDS in all-electric mode, but not US06. Others may be able to follow US06 for some short periods, but not always in all electric mode. And still other designs may be able to perform US06 in electric mode, however, there may be some driving conditions under which the engine could engage." Ford recommended "usage of one format, such as 'Electric Assist.'

Also, the California Air Resources Board suggested that the label name for PHEVs should be "Plug-in Hybrid Electric Vehicle."

## **Response:**

The agencies agree that there should be a single label concept for PHEVs. There is almost an infinite number of possible PHEV designs, and we agree that it does not make sense to try to have discreet labels for each. On the other hand, we believe it is appropriate to try to provide the

information that would be of most direct interest to the consumer. One piece of information that we believe is useful is whether a vehicle can operate exclusively on electricity or not. We believe there will be some consumers who will be very interested in displacing gasoline with electricity, and who will want to know whether they can take some trips that will be gasoline-free. The agencies agree with the commenters that this issue is complicated by the need to use certain test procedures that may not fully reflect the full range of consumer driving behavior and conditions, and that therefore some consumers may not always achieve label results. The agencies believe that PHEV labels will continue to evolve as more PHEVs designs are commercialized.

In response to the comment from the California Air Resources Board, the agencies have revised the name of the PHEV label to "Plug-In Hybrid Vehicle, Electricity-Gasoline."

#### **4.2.6. "Your actual mileage and costs will vary" Statement**

**Organization:** Honda Motor Company  
Laclede Gas Company

**Comment:**

**Honda Motor Company**

Disclaimer: The agencies sought comment on the appropriateness of the current disclaimer “your actual mileage will vary depending on how you drive and maintain your vehicle.” Currently some ad hoc disclaimers are required, which were not discussed in the NPRM. Specifically, Honda’s Fuel Cell Electric Vehicle, the FCX Clarity, was required to add the following language to the standard disclaimer: “Your actual mileage will vary depending on how you drive and maintain your vehicle, particularly affected by ambient temperature and the use of heating and air conditioning.” Honda hopes that if this additional language is applied, it should be applied across the board to all vehicles and vehicle technologies, otherwise, this language should be dropped from Fuel Cell Electric Vehicles. We do not believe that Fuel Cell Electric Vehicles should be singled out for this disclaimer. [EPA-HQ-OAR-2009-0865-6774.1, p.7]

**Laclede Gas Company**

The statement “Your actual mileage will vary depending on how you drive and maintain your vehicle,” should be revised for vehicles that use grid-generated electricity to read: “Your actual mileage and associated electrical power plant emissions will vary depending on how you drive and maintain your vehicle and how electricity is generated in your region. For additional information see (provide EPA website). [EPA-HQ-OAR-2009-0865-7138.1, p.5]

**Response:**

To simplify label design and implementation, the agencies are finalizing disclaimer text that is uniform across all vehicle technology types. The finalized language reads "Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle." The agencies do not believe it is necessary to incur the additional complications of having technology-specific disclaimer language.

### 4.3. Flexible Fuel Vehicles

**Organization:** California Air Resources Board (CARB)

**Comment:**

**California Air Resources Board (CARB)**

We suggest that for Flex Fuel Vehicles (FFV) you include the values for both gasoline and ethanol similar to what you do for plug-in hybrids. This would allow consumers to easily recognize a vehicle as an FFV and it would provide important information for both fuels. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

**Response:**

The agencies have finalized labels for FFVs that allow consumers to easily identify the vehicle as an FFV. With respect to including gasoline and ethanol fuel economy values, please see the response in section 4.3.2.

**Organization:** Raab, Michael

**Comment:**

**Raab, Michael**

One other issue the EPA has pointed to is that many flex fuel cars run on gasoline as opposed to E85. Whether they do or do not should not be a consideration for the fuel efficiency labels, which should be based on empirical measurements. A similar argument could be made for electric cars: if people forget to plug them in, or cannot plug them in long enough to charge sufficiently, then they run purely on gasoline. These anecdotal arguments have no place in the evaluation and only the facts should be presented to consumers. [EPA-HQ-OAR-2009-0865-3279, pp.1-2]

**Response:**

Consistent with the desires of the commenter, the values on the label are based on empirical measurements and do not consider the extent to which the vehicle may (or may not) operate on E85. We would note, however, that the degree to which E85 is used to fuel FFVs is hardly anecdotal. It is easy to determine from the amount of E85 that is produced and the number of ethanol-capable vehicles on the road roughly how much these vehicles are using ethanol.

**Organization:** Renewable Fuels Association

**Comment:**

**Renewable Fuels Association**

Labels for Flexible Fuel Vehicles (FFVs) should continue to reflect their fuel economy when operated on gasoline, but should include a statement regarding the benefits of operating the vehicle on E85. [EPA-HQ-OAR-2009-0865-6926.1, p.6]

EPA and NHTSA discuss three options for the labeling of FFVs. We generally support the first option, which is “to make no changes to the current requirements for FFV labels...,” meaning FFV labels should continue to reflect their fuel economy when operated on gasoline. However, we also recommend a slight modification to this option that would require that FFV labels display the explanatory statement proposed as part of the second option discussed by EPA and NHTSA. That statement says, “Using E85 uses less oil and typically produces less CO2 emissions than gasoline.” 75 Fed. Reg. at 58,111. We believe this is the most suitable option, given that the majority of FFVs continue to be operated predominantly on E10, but also recognizing that consumers may want additional information on the benefits of operating the vehicle on E85. [EPA-HQ-OAR-2009-0865-6926.1, p.6]

**Response:**

Consistent with RFA's comment, the final rule will continue to reflect the fuel economy of an FFV when operated on gasoline. However, we are maintaining the existing option allowing manufacturers to choose to display fuel economy information for operation on E85, and we are adding an additional option allowing manufacturers to display the driving range of the vehicle on both fuels. This latter option is to facilitate the potential harmonization of the EPA label with the FTC alternative fuel vehicle label, although the decision remains with the FTC as to whether the content of the EPA label is sufficient to meet their statutory requirements. Although the additional statement requested by RFA is accurate, EPA found that the desire to present as clean and uncluttered label as possible out-weighed the addition of more text. EPA believes that many people will continue to use fueleconomy.gov for fuel economy information, and that resource contains a great deal of information about the use of alternative fuels and their benefits.

**Organization:** Smith, Houston

**Comment:**

**Smith, Houston**

Further, extended range vehicles like the Volt will require “dual ratings” similar to the current flex fuel label to allow inclusion of the ICE fuel consumption rate in “extended range” mode. This would also require emissions data for this mode as well. [EPA-HQ-OAR-2009-0865-0477, p.3]

**Response:**

The agencies have finalized labels consistent with these comments. The PHEV labels display efficiency metrics for the operation using only the internal combustion engine, and separately for the operation of the vehicle when it's using a fully charged battery.

### **4.3.1. Proposal to Base Label Information on Gasoline Operation**

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
California Air Resources Board (CARB)  
American Council for an Energy-Efficient Economy (ACEEE)  
Abengoa Bioenergy  
Honda Motor Company  
National Petrochemical and Refiners Association (NPRA)  
American Petroleum Institute (API)

#### **Comment:**

#### **Abengoa Bioenergy**

FFV Labels Should Note Benefits of Operating on Ethanol Blends

EPA and NHTSA discuss three options for the labeling of FFVs. We generally support the first option, which is “to make no changes to the current requirements for FFV labels...,” meaning FFV labels should continue to reflect their fuel economy when operated on gasoline. However, we recommend that labels for FFVs specifically note that the GHG data provided is based on gasoline as a fuel source, and that the FFV labels be required to add the explanatory statement proposed as part of the second option discussed by EPA and NHTSA that, “Using E85 uses less oil and typically produces less CO2 emissions than gasoline.” 75 Fed.Reg. at 58,111. This would give deference to the fact that the majority of FFVs continue to be operated predominantly on E10, but would also recognizing that consumers way want additional information on the benefits of operating the vehicle on E85. [EPA-HQ-OAR-2009-0865-7140.1, p.2]

#### **Alliance of Automobile Manufactures (Alliance)**

Flexible Fuel Vehicle (FFV) Reporting Should Be Optional. [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

Currently, manufacturers may voluntarily include the fuel economy estimates (and estimated annual fuel costs) for the alternative fuel on the label, in addition to the gasoline information. The Alliance supports continuing the current requirements for FFV labels and continuing to use the fueleconomy.gov website and the Fuel Economy Guide to provide information on E85. [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

#### **American Council for an Energy-Efficient Economy (ACEEE)**

ACEEE supports the suggested approach to merged gasoline and biofuel values for fuel economy and GHG performance, in which the vehicle is assumed to run on 100 percent gasoline, except when the manufacturer can demonstrate that a certain percentage of its vehicles are in fact running on E85. We note that this approach, consistent with that used for



light-duty GHG standards for 2016 and after model year vehicles, could be adapted for plug-in vehicles. In that case, manufacturers might be required to use a national average electricity generation mix for the power used to charge their vehicles' batteries unless they were able to demonstrate the use of a lower-emissions generation mix for their vehicles. [EPA-HQ-OAR-2009-0865-7135.1, pp. 7-8]

#### **American Petroleum Institute (API)**

If FFV fuel economy while operating on E85 is added to the FFV labeling requirement, 75 Fed. Reg. 58111 suggests adding text to the label such as, 'While the E85 MPG values are lower than the gasoline MPG values, the use of E85 is typically slightly more energy efficient than the use of gasoline.' Although carefully controlled laboratory studies sometimes show a small impact, it is often within the uncertainty of the measurements as FFVs are not optimized to operate on E85 as a dedicated ethanol vehicle might be. Addition of such a statement to the FFV label would need to include the actual percentage improvement and be supported with appropriate testing and documentation. [EPA-HQ-OAR-2009-0865-7250.1, p.6]

#### **California Air Resources Board (CARB)**

We suggest for flex-fuel vehicles that you include the values for both the gasoline and ethanol, similar to what you do for plug-in hybrids. This will allow consumers to equally recognize that the vehicle actually is a flex-fuel vehicle and would provide important information for both fuels. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 133.]

#### **General Motors (GM)**

##### **Flex Fuel Vehicles (FFV)**

GM supports the agencies' option number one to make no changes to the current optional requirements for FFV labels and continue to use fueleconomy.gov and the Fuel Economy Guide to provide information on E85 use to consumers. Consistent with the current requirements, EPA and NHTSA would finalize regulations that would allow manufacturers to display the E85 fuel economy values on the label on a voluntary basis. [EPA-HQ-OAR-2009-0865-6924.1, p. 5]

#### **Honda Motor Company**

In fact, for E85 it would lead to the perverse result that E85 would have a higher mpg-equivalent than its actual E85 miles per gallon, and yet customers would never experience the mpg-e. We know that consumers do not like new metrics and may be more comfortable initially with the mpg-e metric. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 90.]

## **National Petrochemical and Refiners Association (NPRA)**

THE INFORMATION FOR A FFV SHOULD BE BASED ON GASOLINE OPERATION.  
[EPA-HQ-OAR-2009-0865-6773.1, p.3]

EPA understands that E85 is not widely available. Furthermore, the Agency concluded “that, on average, FFV owners were only tapping into about 0.2% of their vehicle’s E85/ethanol usage potential last year” (74 FR 25012). Therefore, FFVs are overwhelmingly refueled with gasoline. The label can include information on E85, but it should also include information on gasoline so as not to mislead consumers. [EPA-HQ-OAR-2009-0865-6773.1, p.3]

### **Response:**

The agencies are requiring a label for ethanol flexible fuel vehicles that is consistent with the principles of the current policy: all label metrics are based on gasoline operation, a statement is provided so that the consumer knows that the values are based on gasoline operation, and manufacturers may voluntarily include fuel economy estimates on E85 (which would be based on miles per gallon of E85, given that E85 is a liquid fuel). In addition, manufacturers may optionally include the driving range on gasoline and on E85. As with the required range information on non-petroleum and advanced technology vehicles, the FTC will need to make a formal decision as to whether vehicles with these labels meet the FTC label requirements. Additional information regarding the performance of the vehicle while operating on E85 will continue to be available via other sources such as the Fuel Economy Guide.

The agencies chose to not include a statement on the label regarding the benefits of using ethanol for a variety of reasons. The labels already contain a lot of information, and the agencies are concerned about information overload. More importantly, however, is the fact that every fuel may have a differing set of advantages and disadvantages, and the agencies ultimately decided that it was not appropriate to highlight the advantages of one alternative fuel and not others. Agency websites and other resources can be used to determine the potential advantages and disadvantages of alternative fuels relative to the circumstances of any individual consumer.

The agencies are not finalizing the concept of merging gasoline and biofuels performance based on the usage of biofuels. While this approach may be appropriate for the GHG emission standards program, the agencies concluded it was premature to adopt such a concept in the labeling program. The labeling program requires comparable, repeatable, and transparent methodologies to the extent possible, and it may not be desirable to have labels that “blend” gasoline and biofuel performance values at differing rates. Doing so would compromise the comparability of the metrics on the label.

EPA is continuing the approach of specifying MPG values, not MPG-equivalent. As stated in the preamble to the final rule, EPA believes it is important in the case of liquid fuels to use units that relate to how consumers purchase the fuel. Consumers purchase gallons of gasoline, diesel fuel, and E85, and using MPGe for diesel or for E85 simply takes the metric a step

further away from helping the consumer understand the fuel use of the vehicle and the impact on fueling costs. We believe that changing to MPGe for the fuel economy of diesel or E85 vehicles would be very confusing to consumers, as label MPGe values would then be inconsistent with all consumer calculations of fuel economy (since these fuels are sold in volumetric gallons) as well as fuel economy values shown on vehicle dashboard displays.

### **4.3.2. E85 Operation**

**Organization:** Abengoa Bioenergy  
Renewable Fuels Association

**Comment:**

**Abengoa Bioenergy**

We also urge EPA and NHTSA to give automobile manufacturers the option to voluntarily include information on vehicle labels regarding fuel economy and fuel costs of operating FFVs on E85 rather than on unblended gasoline, provided that this information is based on metrics and values approved by EPA. Manufacturers should be required to use the miles per gallon of gasoline equivalent metric discussed by EPA and NHTSA in the proposal in order to uniformly account for the “slightly higher miles per unit of energy that an FFV achieves on E85 relative to gasoline.” 75 Fed.Reg. at 58,112. [EPA-HQ-OAR-2009-0865-7140.1, pp.2-3]

**Renewable Fuels Association**

Manufacturers should continue to have the option to voluntarily include information reflecting the FFV’s performance when operating on E85. However, if manufacturers voluntarily display this information, it must be based on common metrics and values determined by EPA through established vehicle testing protocols. [EPA-HQ-OAR-2009-0865-6926.1, p.6]

We agree that automobile manufacturers should continue to have the option to voluntarily include information reflecting the FFV’s fuel economy and estimated fuel costs when operating on E85, and we agree that this voluntary allowance should extend to displaying GHG emissions impacts. However, we believe that if manufacturers choose to display E85 fuel economy information on FFV labels, it must be displayed consistently and must be based on common metrics and values determined by EPA through established testing protocols. That is, individual manufacturers should not be allowed to display their own calculations of fuel economy, fuel cost, and GHG emissions for FFVs operating on E85; rather, this information should be provided by EPA to manufacturers who wish to voluntarily display it on the label. [EPA-HQ-OAR-2009-0865-6926.1, pp.6-7]

We also recommend that if manufacturers choose to voluntarily display fuel economy information on FFV labels pertaining to the use of E85, they should be required to use the miles per gallon of gasoline-equivalent metric discussed by EPA and NHTSA in the proposal. As outlined in the proposal, this method would provide a “way to quantitatively account for the slightly higher miles per unit of energy that an FFV achieves on E85 relative to gasoline.” 75 Fed. Reg. at 58,112. [EPA-HQ-OAR-2009-0865-6926.1, p.7]

**Response:**

EPA is continuing the currently allowed option to voluntarily include E85 fuel economy and annual cost values. As is the case with all fuel economy values, these values are determined

using EPA test procedures and calculation methods. However, EPA is continuing the approach of specifying MPG values, not MPG-equivalent. As stated in the preamble to the final rule, EPA believes it is important in the case of liquid fuels to use units that relate to how consumers purchase the fuel. Consumers purchase gallons of gasoline, diesel fuel, and E85, and using MPGe for diesel or for E85 simply takes the metric a step further away from helping the consumer understand the fuel use of the vehicle and the impact on fueling costs. We believe that changing to MPGe for the fuel economy of diesel or E85 vehicles would be very confusing to consumers, as label MPGe values would then be inconsistent with all consumer calculations of fuel economy (since these fuels are sold in volumetric gallons) as well as fuel economy values shown on vehicle dashboard displays. The agencies proposed a range of options for ethanol flexible fuel vehicles, including maintaining the current policy of requiring only gasoline-based MPG on the label (with optional inclusion of E85-based MPG), requiring the addition of E85-based MPG, and requiring the addition of E85-based MPGe. Only a few commenters addressed ethanol flexible fuel vehicles, and most who commented on this option supported the current policy. The agencies are requiring a label for ethanol flexible fuel vehicles that is consistent with the principles of the current policy: all label metrics are based on gasoline operation, a statement is provided so that the consumer knows that the values are based on gasoline operation, and EPA is finalizing that manufacturers may voluntarily include fuel economy estimates on E85 (which would be based on miles per gallon of E85, given that E85 is a liquid fuel).

**Organization:** American Council for an Energy-Efficient Economy (ACEEE)

**Comment:**

**American Council for an Energy-Efficient Economy (ACEEE)**

For FFVs, ACEEE does not support addition of the statement that “the use of E85 is typically slightly more energy efficient than the use of gasoline” on the label (58111). FFVs are required to operate at least as efficiently on E85 as on gasoline to be considered dual fueled vehicles, so it is possible that manufacturers tune their FFVs to operate slightly less efficiently on gasoline in order to meet this requirement. Optimization of vehicles running on ethanol may indeed lead to superior energy efficiency, but unless there is some real evidence that such efficiency gains have been realized, no claims of this kind are warranted for FFVs. [EPA-HQ-OAR-2009-0865-7135.1, p. 7]

**Response:**

Consistent with ACEEE's comment, the final rule will continue to reflect the fuel economy of an FFV when operated on gasoline and will not include the statement referenced by ACEEE. Although the additional statement requested by RFA is accurate, EPA understands the concerns of ACEEE, and in addition we found that the desire to present as clean and uncluttered label as possible out-weighed the need to consider more text. EPA believes that many people will continue to use fueleconomy.gov for fuel economy information, and that resource contains a great deal of information about the use of alternative fuels and their benefits, and that a statement about the benefits of E85 is not needed or required on the label.

**Organization:** Wasserman, Seth

**Comment:**

**Wasserman, Seth**

I am concerned about the ratings for flex-fueled vehicles which the new system does not accommodate. The old system would show the range on gasoline, and the range on ethanol, but not the gasoline range when running on ethanol. This is the opposite of what is happening with hybrids and partial electrics. With the hybrid/partial electric the mileage displayed on the window is the gas mileage with the electric assistance. With the ethanol sticker the mileage displayed is the ethanol number, not the gas range with the ethanol assistance. In other words apples to oranges. A hybrid is just a gas car with batteries assisting and an E85 vehicle is another type of hybrid - a gas car that has ethanol assisting. [EPA-HQ-OAR-2009-0865-4564, p. 1]

There needs to be parity. So if there is a MPGe category for electric, there needs to be an MPGe for ethanol. As an example: according to the EPA rating a 2010 Chevy HHR flex-fuel with a 16 gallon tank goes 360 miles or gets 25mpg combined on gas (does not specify E0 or E10) and goes 259 miles or gets 18mpg combined on E85. To someone unfamiliar this looks like a deficiency because the alternate fuel gets a 'worse' number than the fuel we are trying to eliminate/conserves. There needs to be another number shown because when that car went 259 miles on E85, it only used 2.4 gallons of actual gasoline (15% of the 16 gallons of E85) meaning it had a MPGe of 108. [EPA-HQ-OAR-2009-0865-4564, p. 1]

**Response:**

An E85 vehicle is not a hybrid "gas car that has ethanol assisting." The commenter appears to misunderstand both the current labeling program (which shows driving range for no vehicle technologies) and the vehicle technologies and as a consequence it is not clear what they would suggest.

The comment regarding using an MPGe value for ethanol is addressed in section 4.3.2.

**Organization:** Steele, John M.

**Comment:**

**Steele, John M.**

I am surprised that there is no rating information for E85 in FFV. Congress has mandated enormous amounts of ethanol, more than can be used in E10, so there must be some plan to push E85. Yet no information on E85 performance is provided to consumers who buy an FFV. Ignoring this looks more wrong in light of the proposals to make sense of alternative fuel ratings for plug-in hybrids. It does not seem right to give consumers information on both fuels in some dual fuel situations and not in others. [EPA-HQ-OAR-2009-0865-3276, p.2]

**Response:**

It is correct that the current EPA fuel economy label does not provide information regarding ethanol. However, that information is available in a number of places. First and foremost, every new FFV today displays a label required by the FTC that shows the vehicle driving range on gasoline and on ethanol, allowing a direct comparison of the performance of the two fuels for a given vehicle. In addition, ethanol performance information is available at [www.fueleconomy.gov](http://www.fueleconomy.gov) and in the annual Fuel Economy Guide published jointly by EPA and DOE. Finally, the new regulations allow manufacturers to optionally include ethanol mpg values and comparative driving range information for both fuels. The agencies expect to see some adoption of the optional driving range information because it will likely enable manufacturers to avoid also reporting the duplicative FTC label.

**Organization:** Raab, Michael

**Comment:**

**Raab, Michael**

I would like to comment on the proposed fuel economy label for flex fuel cars, as it compares to electric cars and others, which also can use an alternative fuel source. [EPA-HQ-OAR-2009-0865-3279, p.1]

The current proposals for the 'fuel economy' of electric cars are unfair relative to flex fuel cars. Like flex fuel (E85 compatible) cars, electric or hybrid electric cars also use gasoline, but instead of using ethanol to supplement the gasoline, they use electricity, the majority of which comes from coal. From a greenhouse gas perspective, electric cars run primarily on gasoline and coal, as opposed to flex fuel cars, which run primarily on ethanol and gasoline. The problem with the proposed fuel efficiency labels, is that they credit electric and hybrid cars with the energy benefit from electricity (coal), to their gasoline efficiency, but do not do the same for ethanol. [EPA-HQ-OAR-2009-0865-3279, p.1]

For example, while the first 40 miles of driving of the Chevy Volt come from the electrically charged battery, the estimated next 260 miles come from gasoline. To deliver the remaining 260 miles of driving, Edmunds reports that the Volt will use its 8 gal gas tank, which would equate to ~32.5 mpg for the majority of the range (best case, even if you attributed the full 40 miles to the gasoline engine), these cars at best should be rated at ~37.5 mpg; certainly not the 230 mpg claimed by Chevrolet. If the same basis for a flex fuel car was used to calculate its mileage as was used to calculate the ~37.5 mpg for the Volt, that is, the flex fuel car was credited for the mileage contributed by ethanol to its range the same way the Volt electricity (coal) was credited to its range, the flex fuel car would have dramatically better fuel efficiency. Consider this example, a flex fuel Ford Escape gets ~23 mpg on E85. However, only 15% of that mileage is attributable to gasoline, thus if the car is credited for the ethanol contribution in the same way that the Volt was credited with the electric contribution, the flex fuel Ford Escape would get ~153 mpg, as compared to the ~37.5 mpg of the Volt. [EPA-HQ-OAR-2009-0865-3279, p.1]

The most fair way to compare these cars is not on a mpg basis, but on an energy/ mile basis, which needs to be measured, not calculated, given the different inefficiencies between batteries and liquid fuels. For example, take a Chevy Volt with a dead battery and empty tank, then measure how much energy is required to charge the battery, how much energy is in the fuel used to fill the tank and run the car until it stops. Do the same thing with the flex fuel car and simply report numbers as energy/ mile (or the inverse, miles/ unit energy). It will take people some time to get used to these, but they will quickly understand that the more miles/ unit energy is what they are interested in (or more likely, the more miles per unit cost). On this basis, the differences between cars will most be determined primarily by their weight, and secondarily by their particular propulsion system, but the numbers will be more comparable across all car for a given class. [EPA-HQ-OAR-2009-0865-3279, p.1]

**Response:**

The agencies agree with the commenter that it is inappropriate to "credit" EVs and PHEVs with the energy from electricity in a way that misrepresents the vehicle. The final PHEV labels present fuel efficiency and consumption in an appropriate way by showing the energy use in each mode, without attributing the miles driven using electricity to the gasoline mpg value.

While the labels present a variety of ways to compare vehicles and technologies, there may be other ways that consumers may want to compare vehicles. To the extent that existing government websites do not facilitate these comparisons, the agencies will strive to offer other comparative metrics (such as energy/mile, which is essentially the MPG-equivalent approach used for some fuels) in the future.



#### **4.4. Compressed Natural Gas Vehicles**

**Organization:** California Air Resources Board (CARB)

**Comment:**

**California Air Resources Board (CARB)**

We recommend that you add the vehicle's range to the compressed natural gas (CNG) label. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

We suggest that you remove the gas pump from the CNG label and only include an icon for CNG. The gas pump may cause consumers to believe the car can run on both gas and CNG. [EPA-HQ-OAR-2009-0865-7527.1, p.5]

**Response:**

EPA agrees with CARB that the label for CNG vehicles should include the vehicle range, and as such the final regulations require driving range on the label. The display of driving range will be identical to the range display for other dedicated alternative fuel vehicles, such as EVs and fuel cell vehicles. While consumers are used to understanding the typical driving range that can be achieved by conventional gasoline and diesel vehicles, EPA believes that it is important that consumers understand the driving range of alternative fuel vehicles, especially in cases where the range is less than the typical gasoline vehicle and where refueling opportunities are more limited. We also agree with CARB that using a traditional gas pump to represent CNG vehicles may be potentially misleading, and as such we are finalizing labels that use a unique icon to indicate that the vehicle is fueled by CNG.

#### **4.5. Dual Fuel Natural Gas & Gasoline Vehicles**

**Organization:** Natural Gas Vehicles for America (NGVAmerica)

**Comment:**

**Natural Gas Vehicles for America (NGVAmerica)**

Dual-Fueled CNG Vehicles [EPA-HQ-OAR-2009-0865-6921.1, p.8]

The notice indicates that since there is only one OEM NGV currently available and that vehicle is a dedicated vehicle (Honda Civic GX), there are no plans to propose a label for dual-fuel CNG vehicles. However, the notice includes an extensive discussion of requirements and proposed changes to the labels for dual-fuel E85 vehicles. Much of the discussion is relevant to CNG dual-fueled vehicles. The current label for dual-fuel vehicles does not require that manufacturers provide any information on the fuel economy of the vehicle when operating on the alternative fuel. This is because EPCA only requires information on the fuel economy of the dual-fuel vehicle when operating on gasoline. Manufacturers, however, may voluntarily include the alternative fuel's fuel economy on the label. EPCA does require that the Fuel Economy Guide (which is published by DOE) include information about the fuel economy, performance and driving range of the vehicle when operating on the alternative fuel. [EPA-HQ-OAR-2009-0865-6921.1, p.8]

The notice includes two alternative approaches for dual-fuel vehicles: 1) keep the current label format; 2) require inclusion of additional information, including the fuel economy of the vehicle when operating on the alternative fuel. [EPA-HQ-OAR-2009-0865-6921.1, p.8]

In anticipation that additional NGV models, including dual-fuel vehicles, will be made available in the future, we offer the following comments on the dual-fuel labels. We support revising the current labels so that they include fuel economy and emission performance data of the vehicle when operating on the alternative fuel as well as gasoline. The need for such information should be without question. Consumers of such vehicles need to understand how the vehicle will perform on alternative fuel. How else can they make an educated decision regarding the merits of owning and operating such vehicles? The alternative fuel information should be provided in a font size that is at least as large, or perhaps even larger than, the information displayed for gasoline operation. Providing this information should be mandatory not discretionary. As to how the information is depicted and how the ratings are done, we have addressed those issues elsewhere in this document (e.g., show MPGe and show total energy, show tailpipe GHG emissions and upstream emissions or simply show full fuel cycle GHG emissions, rating comparisons should be within class not to average vehicle). [EPA-HQ-OAR-2009-0865-6921.1, p.9]

**Response:**

The agencies are not finalizing a label for dual-fueled CNG vehicles, consistent with the proposal. However, should such a vehicle enter the market, the label will likely be modeled

upon the dual-fuel gasoline-ethanol label described in this final rule. The agencies have chosen to finalize labels that do not mandate the display of information relating to the alternative fuel, rather, we have made it optional to display the driving range of both fuels on the label. Although manufacturers have not typically used the current option to display MPG on both gasoline and ethanol, such comparative information has been available on a label required by the FTC for alternative fuel vehicles. EPA believes that providing the option to display driving range on both fuels will enable the FTC to reevaluate their requirement and potentially allow manufacturers who choose to put the optional information on their labels to avoid the duplication of the FTC label. If this becomes the case, then we believe that manufacturers will take advantage of the ability to consolidate information and use the option to include comparative driving range information on dual-fuel vehicle labels. The agencies found that the available space on the label is simply insufficient to provide all information - from mpg to fuel cost and greenhouse gas emissions and ratings, etc. - for each fuel that the vehicle can operate on. As the commenter notes, some of this comparative information is available in the Fuel Economy Guide and on [www.fueleconomy.gov](http://www.fueleconomy.gov), and the agencies expect to continue the practice of providing complete information for each fuel for dual-fuel vehicles. This includes the various new ratings on the new labels.

Finally, the agencies chose not to finalize a label for dual-fuel CNG-gasoline vehicles because there are no such vehicles being certified today. The agencies would rather address a label for this technology approach in a way that allows some flexibility to address any potential unique characteristics of the technology when it does come to market, rather than locking in a label that might not work for a future and potentially unforeseen way of combining CNG and gasoline operation.

## 4.6. Miscellaneous

**Organization:** Argonne National Laboratory

**Comment:**

**Argonne National Laboratory**

Label Scope and Objective

A label shall provide the following important information: fuel usage, electricity usage, operational fuel and electricity usage costs, greenhouse gas emissions, criteria pollution (smog-forming pollution). Of course the above vary according to vehicle mode and usage scenario. [EPA-HQ-OAR-2009-0865-7572.1, p. 2]

How should this information be given? There are two ways to express the above data on a label. However, a decision is to be made for each parameter how that information is expressed. 1. Data expressed in a way to allow easy relative comparisons to other vehicles. 2. Data expressed that can and will be experienced by the consumer. For a given piece of information (in given usage scenario), it must be decided if the information is used to compare vehicles or to predict the consumer experience. [EPA-HQ-OAR-2009-0865-7572.1, p. 2]

**Response:**

These comments were made as part of a short Powerpoint presentation that gave specific comment not on the label rulemaking, but on the interim label that appeared on the 2011 Chevrolet Volt. That label was modeled largely after "Label 2" in the proposed rulemaking. In general for the Volt and other PHEVs, the commenter will find that the final label does in fact include most of the elements they recommend. The label includes both a metric that can be used to compare to other vehicles and technologies (MPGe) and a metric that is an estimate of real-world energy consumption in units relevant to how the consumer purchases the fuel (kwhrs per 100 miles for electricity, and gallons per 100 miles for gasoline).

#### **4.6.1. Other Advanced Technology Vehicles**

**Organization:** Association of International Automobile Manufacturers (AIAM)

Hyundai Motor Company

Toyota

California Air Resources Board (CARB)

California Fuel Cell Partnership

Energy Independence Now (EIN)

Abbat, Pierre

#### **Comment:**

#### **Abbat, Pierre**

There should also be a sample label for hydrogen cars, for when they become available. Hydrogen will be sold in kilograms. [EPA-HQ-OAR-2009-0865-7588, p.1]

#### **Association of International Automobile Manufacturers (AIAM)**

With respect to the advanced technologies covered by the proposal, AIAM believes EPA and NHTSA should include labels for fuel cell electric vehicles along with other advanced technologies covered by the proposal. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 56.]

#### **California Air Resources Board (CARB)**

We recommend that you develop a label for hydrogen fuel cell vehicles during this rulemaking process. Hydrogen fuel cell vehicles are already certified in California and will be coming in greater numbers by mid-decade. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

We also recommend that you develop a label for hydrogen fuel cells during this rulemaking. Hydrogen fuel cell vehicles are certified in California and will be coming in greater numbers by mid-decade. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 133.]

#### **California Fuel Cell Partnership**

We commend the EPA and NHTSA for the work that went into the proposed changes to the motor vehicle fuel economy label. We did, however, notice the absence of a label for hydrogen fuel cell vehicles. With one fuel cell vehicle certified by the EPA and the anticipation of more as we move towards commercialization it is essential that the consumer be able to compare these vehicles utilizing a similar fuel economy label. [EPA-HQ-OAR-2009-0865-6852.1, p. 1]

We strongly recommend that the EPA and NHTSA develop a fuel economy label for hydrogen fuel cell vehicles, as the electric vehicle label is clearly for plug-in battery electric vehicles and will not fulfill the needs of the upcoming hydrogen fuel cell vehicle fleet. Again, we appreciate the work that has gone into the proposal and the opportunity to comment, and look forward to the proposed label for hydrogen fuel cell vehicles. [EPA-HQ-OAR-2009-0865-6852.1, p. 1]

### **Energy Independence Now (EIN)**

Along those lines, in our review of the proposed labels, we note one glaring hole; that there is no label for hydrogen fuel cell vehicles. While we believe this was likely an oversight, we want to stress the importance of preparing for the deployment of fuel cell electric vehicles into our national fleet. According to the California Fuel Cell Partnership's most recent annual survey of its members, we can expect approximately 450 fuel cell vehicles to be on the road by; 4,200 by 2015; and 54,300 by 2018. And they won't be, obviously, available in every area at first, but we can expect availability to expand each year, and so we think it's important to be prepared. Furthermore, the Honda Clarity fuel cell vehicle has already been -- had its fuel economy certified. And at the recent Chicago public hearing Hyundai hinted that they intend to deploy commercial fuel cell vehicles in 2012, which is in the time frame of this label. And the majority of other OEMs also maintain programs aimed at commercial deployment. So that's my first point, that EPA should develop hydrogen fuel cell labels, in this label development effort, to facilitate the smooth transition of this important low-emission technology into the marketplace. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 120-121.]

### **Hyundai Motor Company**

We recommend that EPA move forward in this rulemaking with a method to assess the fuel efficiency of fuel cell vehicles. This technology has been in development for many years and is well understood at this point so that a methodology can be developed now in anticipation of the introduction of these vehicles. We prefer that the label methodology be available well in advance of when these vehicles are introduced. [EPA-HQ-OAR-2009-0865-7139.1, p.6]

MR. MEDFORD: And then you also said -- I missed the time for the introduction of the fuel cell vehicle that you said there should be a special label provided. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 87]

MS. BAKKER: We intend to use some fuel cell vehicles on a small scale in 2012. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 87]

MR. MEDFORD: As a part of your regular retail sales or demonstration program? [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 87]

MS. BAKKER: Perhaps beyond a demonstration program. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 87]

## **Toyota**

EPA and NHTSA's NPRM addresses label designs that are more appropriate for advanced technology vehicles that will be commercialized in the next few years -namely EVs and PHEVs. As the agencies are redesigning labels, Toyota would like to see label designs address fuel cell technology vehicles. Even though commercialization may be a little farther off for these vehicles, addressing the requirements of this technology now would be another positive step toward promoting the awareness and introduction of these vehicles. [EPA-HQ-OAR-2009-0865-6901.1, p.8]

## **Response:**

While EPA did not propose explicit labels for hydrogen fuel cell vehicles (FCVs), we are including a label design for FCVs in the final rule. The agencies agree with the commenters. In fact, several fuel cell vehicles have already been certified and labeled by EPA. Because the label design issues for FCVs are very similar to those for other dedicated, non-petroleum vehicles such as CNG vehicles and EVs, a general label design is readily available to serve as the basis for an FCV label. Like EVs, the overall efficiency metric will be in MPGe terms, with consumption provided in units of kilograms of hydrogen per 100 miles. Also like EVs and other dedicated alternative fuel vehicles, the label for FCVs will include the driving range of the vehicle. However, EPA did not propose, and is therefore not finalizing, fuel economy and range test procedures for FCVs. Test procedures will continue to be as specified by EPA under the authority of 40 CFR 600.111-08(f), which allows the Administrator to prescribe "special test procedures" under certain circumstances. However, EPA expects to continue to specify the use of SAE J2572, ("Recommended Practice for Measuring Fuel Consumption and Range of Fuel Cell and Hybrid Fuel Cell Vehicles Fuelled by Compressed Gaseous Hydrogen"). Manufacturers of FCVs should continue to work with EPA to ensure that the procedures are applied according to EPA requirements.

**Organization:** U.S. Coalition for Advanced Diesel Cars

## **Comment:**

### **U.S. Coalition for Advanced Diesel Cars**

Separate Labels for Diesel and Gasoline Vehicles will Provide Consumers with More Accurate Fuel Economy Data. [EPA-HQ-OAR-2009-0865-7130.1, p.7]

Clean diesel vehicles, on average, provide consumers with at least 30% better fuel economy over conventional gasoline vehicles and a 25% reduction in GHG emissions. These numbers are similar to the benefits provided by Flex Fueled Vehicles (FFV). The Agencies have decided to propose different labels for a variety of different technologies including Electric, Plug-in Hybrid Electric, Flex Fuel, and Compressed Natural Gas. Yet, the Agencies have decided to

place Diesel-powered vehicles onto the same label with conventional gasoline cars, which leads the consumer to believe there is no difference between the two technologies. [EPA-HQ-OAR-2009-0865-7130.1, p.7]

The Coalition believes that the fuel economy savings and the reduced GHG emissions of diesel powered vehicles warrant a separate label or a label that distinguishes and compares the fuel economy and GHG emissions of diesel vehicles to gasoline models to better inform consumers. Providing a direct comparison will also bring the new labels closer to compliance with the requirements of EISA. [EPA-HQ-OAR-2009-0865-7130.1, pp.7-8]

**Response:**

Although the agencies are finalizing labels that do in fact make a distinction between diesel and gasoline vehicles, it is unclear how the commenter would have the diesel labels differ from gasoline labels. While the finalized labels prominently identify diesel vehicles, the metrics on the label are fundamentally the same as those for other vehicles using liquid fuels. The agencies believe that the labels accomplish what the commenter is requesting by having the comparisons on the label (MPG, CO<sub>2</sub>, and smog) be relative to all vehicles, including gasoline and other technologies.

**Organization:** American Council for an Energy-Efficient Economy (ACEEE)

**Comment:**

**American Council for an Energy-Efficient Economy (ACEEE)**

Advanced Technology Vehicle Labels

EPA notes that “the issues associated with and the decisions that we make about labels will go a long way toward preparing us to address labels from other advanced technologies in the future.” Knowing how decisions made in one context can carry forward, to bad effect, to entirely different circumstances, we strongly support this observation and urge the agencies to treat advanced technology vehicles in a way that makes sense not only for the vehicles appearing in the market today but also for those yet to arrive. ACEEE supports the principles the agencies set out for advanced technology labels, including objectivity, balance of accuracy and simplicity, equity across technologies, and ability to reduce confusion. We do not believe the agencies proposal is uniformly consistent with these principles, however. [EPA-HQ-OAR-2009-0865-7135.1, p. 4]

**Response:**

The agencies appreciate ACEEE's support for our general stated principles. The agencies have responded to ACEEE's specific concerns that the proposal does not meet the stated principles in the appropriate sections of this document.



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#### **4.6.2. Technology Neutrality**

**Organization:** BorgWarner

**Comment:**

**BorgWarner**

As a supplier of multiple advanced technologies, BorgWarner supports a technology neutral approach. We believe there is no single 'silver bullet' technology or powertrain that will work for all consumers. It will take a combination of several advanced technologies to meet the varied needs of consumers seeking more fuel efficient and environmentally friendly vehicles. [EPA-HQ-OAR-2009-0865-7531, p.1]

**Response:**

The agencies acknowledge the comment from BorgWarner. There are many new and promising technologies coming to the marketplace, and that it will take a combination of these technologies to meet the needs of consumers. The final label rule and the greenhouse gas rating system were designed to be technology neutral and to apply to a technologically diverse light duty fleet.

## 5.1. URL on Label 1

**Organization:** Association of International Automobile Manufacturers (AIAM)  
Environmental Defense Fund (EDF)  
Hyundai Motor Company  
Massachusetts Institute of Technology  
Electric Drive Transportation Association (EDTA)  
Edison Electric Institute (EEI)  
Tesla Motors  
Scarborough, Christina

### **Comment:**

#### **Association of International Automobile Manufacturers (AIAM)**

AIAM supports the continuation of the “MPG” metric on the label, since most consumers are familiar with it. However, AIAM also supports the inclusion of a fuel-consumption metric on the label. We agree that this type of metric is new to most consumers. Nevertheless, given the significant new standards for greenhouse gases and fuel economy for the 2012-2016 MY and the need for even more stringent standards in the future, it is more important now than ever before to educate and inform consumers about fuel efficiency. We believe that a tutorial on the relevance and use of this new metric would be a worthwhile addition to the “fuel economy” website. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

AIAM agrees with the agencies’ assessment that many consumers use the Internet to gather information to make vehicle purchase decisions, and AIAM supports the inclusion of the fuel economy website address on the new label. It is also important for federal and state agencies to have consistent information on their websites to avoid consumer confusion. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 54 ln 1-8.]

Labels should include a prominent link to the website. In addition to the data described above, this website should provide an interactive format that allows the consumer to customize projections based on their own likely usage of the vehicle. For example, the website should allow the consumer to enter data about their vehicle usage patterns and receive projections of fuel economy, vehicle range, charging and/or refueling times, and other matters based on those assumptions. Effective use of the website is the key to achieving a simpler label while also giving consumers access to detailed information about their likely personal experience with a vehicle. [EPA-HQ-OAR-2009-0865-7117.1, pp.4-5]

#### **Edison Electric Institute (EEI)**

Metrics that are unfamiliar to consumers and require explanatory information are more appropriately made available on a website, as proposed. See *id.* at 58084. Similarly, usage and

performance estimates that will vary greatly among different types of users, such as driving range and charging/refueling time, should be available in a customizable format on the website to ensure that consumers can access information that is relevant to their anticipated needs and uses, rather than rely on a static average developed for the label. EPA and NHTSA should involve stakeholders in the design of this website and make provisions to ensure that the information it provides to potential customers is regularly updated. [EPA-HQ-OAR-2009-0865-7117.1, p.4]

### **Electric Drive Transportation Association (EDTA)**

Other sources of information – especially the internet – also play an increasingly important role as a source of information for consumers. The key to a successful redesign of the window label is to re-think the role of the label: it is one tool in the toolkit; it is not the sole, or even primary, means of educating the consumer. The label should be used to highlight key facts, while directing the consumer to other sources with more detailed information, including [www.fueleconomy.gov](http://www.fueleconomy.gov). [EPA-HQ-OAR-2009-0865-7137.1, p.1]

### **Environmental Defense Fund (EDF)**

Innovative Outreach Campaign Important in Light of Changing Purchase Process [EPA-HQ-OAR-2009-0865-6927.1, p.9]

As discussed above, the purchase process for most consumers has changed, beginning earlier and off the lot. Because consumers are arriving at the dealerships already armed with information, it is important that EPA make efforts to provide the fuel economy label and related information to consumers earlier in the purchase process. We support the EPA's proposal to drive consumers to EPA's website. Specifically, we support the expert panel's idea for EPA to develop a "simple" URL- something consumers can easily remember and conveys a message in the URL itself. [EPA-HQ-OAR-2009-0865-6927.1, p.9]

### **Hyundai Motor Company**

Fourth, EPA proposes to prominently add the fuel economy website address on label Option 1 based on the assumption that consumers may use the Internet for gathering information to make their vehicle purchase decisions. Hyundai supports the inclusion of this information but recommends reducing the size of the font and moving the website information to near the bottom of the label (see Figure 3 for a depiction) to provide additional space for other fuel efficiency information. [EPA-HQ-OAR-2009-0865-7139.1, p.4]

Fifth, Hyundai supports the addition of a fuel consumption metric, like gallons per 100 mile, on the label but also believes that the actual mpg data should be emphasized. Fuel consumption is an important tool for informing consumers about a vehicle's fuel usage, though it may not be easily understood in the initial years. MPG, on the other hand, remains the best known metric and should be readily available to the consumer. City and highway data should continue to be the main fuel economy information on the label, because consumers are familiar with these metrics. City and highway data also allows consumers to estimate their fuel economy based on their

predominant driving mode, whereas combined MPG is limited to a single value and nondescript driving mode. Combined data should be limited to model-to-model fuel economy comparisons. We are including two suggestions in Figure 3 that emphasize the city and highway MPG data, include the fuel consumption metric, and use the combined MPG value for comparison to other vehicles only. [EPA-HQ-OAR-2009-0865-7139.1, p.4]

### **Massachusetts Institute of Technology**

We also endorse the agencies' proposal to develop more robust web--based tools and encourage the agencies to explore additional avenues for disseminating fuel economy and emissions information online. [EPA-HQ-OAR-2009-0865-5849.1, p.1]

As noted above, it is understandable that a single, nationwide label cannot encompass the full range of operational characteristics, electricity prices, and CO2 emissions that a consumer might experience. With this in mind we endorse the agencies' proposal for a web-based tool to assess CO2 emissions and fuel costs based on individual circumstances. This would preserve the simplicity of the label while making more detailed information available to those who want it. We have previously endorsed the idea of revamping the fueleconomy.gov website in our report, An Action Plan for Cars (MIT, 2009). [EPA-HQ-OAR-2009-0865-5849.1, p.3]

Finally, we would like to draw the agencies' attention to another recommendation in our Action Plan for Cars report: the development of an online analogue to the current labeling program. More than half of consumers currently rely on the Internet, and manufacturer websites in particular, for researching vehicle purchases, yet fuel economy values often remain difficult to find on manufacturer websites and are not displayed in a standardized format. We therefore recommend an online labeling scheme that requires city and highway fuel economy estimates to be displayed in a standardized format on manufacturer websites, along with a link to the fueleconomy.gov website. We believe that this would ensure consumers have access to reliable fuel economy and cost information at a sufficiently early stage in their purchasing processes. We encourage the agencies to evaluate their authority to require such a program, or to develop such a program voluntarily with the automotive manufacturers. [EPA-HQ-OAR-2009-0865-5849.1, p.3]

### **Scarborough, Christina**

And I do think -- I love the idea of having a Web site. A lot of young people are really interested in the Web. I could literally -- I have a smartphone, so I could be standing in front of that car, I could 'google' the Web site, and I could look up information about my local area, and that would be it. I would be done. And I would be fully educated through this process. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 156.]

### **Tesla Motors**

Detailed information, especially information that is highly specific to individual customer use patterns, should not be on the label, but readily accessible in other locations, such as an

interactive website or other available portals; therefore, information such as recharge times for electric vehicles and new metrics like kilowatt per hundred miles (“KWh/100 miles”) should appear on the website versus the labels. [EPA-HQ-OAR-2009-0865-6933.1, p.2]

To the extent that EPA and NHTSA employ new metrics, Tesla would encourage the Agency to place that new information in appropriate context. For example, EPA and NHTSA have noted the flaws with MPG. The Agencies propose that a gallons/100 mile is a more appropriate metric. Similarly, use of a KWh/100 mile metric for electric vehicles (“EVs”) and plug-in hybrid electric vehicles (“PHEVs”) may also provide more accurate information to consumers and allow for comparisons of the efficiency of various advanced technology vehicles (“ATVs”) so equipped. As a result, Tesla agrees that new and more accurate information can be helpful, but as new information without prior precedent for consumers, the Agencies must be careful to ensure that introduction of the information is accompanied by an education campaign as well so that consumers may fully appreciate the messaging from this information. Such education may be best left off the label, at least initially, and, instead, provided in a location where greater explanation and background can be provided, such as a website. As consumers become more familiar with new metrics, these more accurate values may be shifted over to the label in conjunction with familiar metrics such as MPG and MPGe. [EPA-HQ-OAR-2009-0865-6933.1, p.3]

Moreover, research by consumer groups such as Edmunds and the American Automobile Association demonstrates that the vast majority of consumers conduct much of their research on car purchasing decisions before visiting dealerships and stores. As a result, Tesla believes that the use of external locations, such as websites maintained by the Agencies, provides EPA and NHTSA with the greatest opportunity to present more detailed information about specific vehicle models and technologies, as well as educating consumers on new metrics. [EPA-HQ-OAR-2009-0865-6933.1, p.3]

Use of websites can both enhance information on the labels as well as provide information that is not appropriate for labels. For example, with respect to the former issue, EPA and NHTSA have suggested inclusion of maximum range for EVs on the fuel economy label. Inclusion of range on the label is appropriate if based on driving cycles that best exemplify real world driving. Even then, range may vary greatly from driver to driver depending on use and driver preferences. Accordingly, use of an interactive website where drivers can select a variety of inputs such as distance, location (i.e., city vs. highway), and driver preferences (e.g., faster vs. slower acceleration, heating/air conditioning use, etc.) may assist in educating drivers about ranges that can be expected. Tesla also advocates use of a website to further educate consumers about new metrics. As noted above and as outlined in greater detail in the NPRM, use of the metric gallons/100 miles is more accurate than the traditional MPG. Use of the website to further explain this principle, as well as providing a context in which consumers can convert to this new metric is best accomplished through a website versus labeling. [EPA-HQ-OAR-2009-0865-6933.1, pp.3-4]

**Response:**

The agencies have decided not to launch a new website in support of the final rule publication and the roll out of the new labels. The website content on the new label will be highlighted on and integrated within the government's existing comprehensive vehicle web site - fueleconomy.gov. The agencies decided that fueleconomy.gov already had brand equity with the general public and has many of the tools consumers need to make informed vehicle purchases. To coincide with the launch of the new label, fueleconomy.gov will include an enhanced emissions calculator that will allow consumers to determine a vehicle's potential upstream greenhouse gas emissions, based on regional electricity emissions rates for electric vehicles, and the electric operation of PHEVs. This functionality will give consumers more accurate upstream emissions information than is possible on a static, national label. The QR code on the label will allow Smartphone users to upload vehicle specific information from the web site on their handheld devices once the label is implemented in MY 2013.

**Organization:** California Air Resources Board (CARB)

**Comment:****California Air Resources Board (CARB)**

We do not recommend launching a new web site specifically for this new label. As you state in the NPRM, www.fueleconomy.gov received 30 million hits in 2008. This is a significant number of hits showing that a lot of people use this site for fuel economy related information. In addition, we have found from our own research that people trust a dot gov over a dot com for this type of information. We suggest making fueleconomy.gov the one-stop shop for all label related information as well as providing the tools and resources consumers need to find the cleanest, most efficient car to meet their needs. [EPA-HQ-OAR-2009-0865-7527.1, p.4]

We also don't think you should introduce a new Web site. I know that was one of the items. The fueleconomy.gov Web site is very well-known to consumers and is a trusted source of information. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 133.]

**Response:**

The agencies have decided not to launch a new website in support of the final rule publication and the roll out of the new labels. The website content on the new label will be highlighted on and integrated within the government's existing comprehensive vehicle web site - fueleconomy.gov. The agencies decided that fueleconomy.gov already had brand equity with the general public and has many of the tools consumers need to make informed vehicle purchases. To coincide with the launch of the new label, fueleconomy.gov will include an enhanced emissions calculator that will allow consumers to determine a vehicle's potential upstream greenhouse gas emissions, based on regional electricity emissions rates for electric vehicles, and the electric operation of PHEVs. This functionality will give consumers more accurate upstream emissions information than is possible on a static, national label. The QR code

on the label will allow Smartphone users to upload vehicle specific information from the web site on their handheld devices once the label is implemented in MY 2013.

**Organization:** California New Car Dealers Association

**Comment:**

**California New Car Dealers Association**

Our interest, and the importance of our testimony, stems from the fact that dealership sales staff is tasked with explaining vehicle-related features to consumers. Consumers who read governmental disclosure on new vehicles rarely call NHTSA or EPA or CARB with questions, and you can't really expect them to visit agency Web sites for further information, although they may do so. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 62-63.]

**Response:**

The website content on the new label will be highlighted on and integrated within the government's existing comprehensive vehicle web site - fueleconomy.gov. The agencies decided that fueleconomy.gov already had brand equity with the general public and has many of the tools consumers need to make informed vehicle purchases. The agencies also plan to provide outreach information designed specifically for car dealerships, as we realize the important role that dealers play in educating consumers about the new label.



## 5.2. Fuel Economy Guide

**Organization:** California Air Resources Board (CARB)

**Comment:**

**California Air Resources Board (CARB)**

The Fuel Economy Guide is a great resource with a lot of good information, but we agree it may be more useful to also include or have available a checklist that lays out in a simple format what consumers should consider when buying a new car or, as stated in the NPRM, a list of the top ten points on fuel economy or a sort of 'cheat' sheet on the new label with this top ten list. [EPA-HQ-OAR-2009-0865-7527.1, p.4]

With so many people doing research on the internet, a hard copy version of the fuel economy guide seems redundant and a waste of resources. The vehicle information in the guide is much better served as an online tool. We support replacing the guide with something shorter and more interesting that dealers can easily have on site to hand out to consumers as they are looking at cars and asking about the new label. [EPA-HQ-OAR-2009-0865-7527.1, p.4]

**Response:**

EPA agrees that the Fuel Economy Guide is not being utilized as much by consumers now that they have access to the internet. As we roll out the new label, and the accompanying updated features on the fueleconomy.gov web site, we plan to provide both dealerships and their customers with outreach materials better suited to today's culture. We are planning to work with dealership associations and other partner organizations to determine what materials (a checklist? a pocket guide? a brochure?) would be most useful for the general public in addition to the Fuel Economy Guide.

**Organization:** Johnson, Evan W.

**Comment:**

**Johnson, Evan W.**

Regardless of What Sticker Format is Chosen, it should Clearly and Conspicuously Disclose if the Manufacturer Recommends or Requires Premium Gasoline for the Vehicle [EPA-HQ-OAR-2009-0865-7252.1, p.2]

The Fuel Economy Guide has for years clearly and conspicuously designated those vehicles for which the manufacturer recommends or requires the use of premium gasoline, as well it should because this is a key piece of information for consumers in assessing the fuel costs of a vehicle they are considering for purchase. The fuel economy labels for these vehicles make no note of the premium gas, however, other than to presumably use a higher gas price in calculating the annual fuel cost. That is a meaningless disclosure. The label need to clearly identify the

premium gas usage, as the Guide does, because this is an ongoing cost that consumers will take into account long after they have forgotten the estimated annual fuel cost. This is a glaring omission in the labeling program that needs to be corrected now. [EPA-HQ-OAR-2009-0865-7252.1, p.2]

**Response:**

Due to all the information require to appear on the new labels, there was not sufficient room to include other options, such as "premium fuel recommended." Though this information will not appear on new label, we agree that this is valuable information for the consumer to have as they are engaged in vehicle research. This information is currently available on the DOE/EPA joint fueleconomy.gov web site, in support of the new vehicle labels.

**Organization:** National Association of Minority Auto Dealers (NAMAD)

**Comment:**

**National Association of Minority Auto Dealers (NAMAD)**

In this regard, please note that in addition to the fuel economy labels which have existed in one form or another for some years, franchised dealers also make available to prospective purchasers an annual fuel economy guide issued by the Department of Energy, DOE. In fact, we will start making the model year 2011 version of the guide available this week. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 40-41]

**Response:**

EPA appreciates the support the dealerships provide in distributing the Fuel Economy Guide. Now that consumers have access to and do most of the research on the internet, EPA is planning to develop resources that better meet the general public's need for vehicle information. As we roll out the new label, and accompanying updated features on the fueleconomy.gov web site, we plan to provide dealerships and their customers with outreach materials to educate them on these new tools.

**Organization:** National Automobile Dealers Association (NADA)

**Comment:**

**National Automobile Dealers Association (NADA)**

Distribution of the EPA/DOE Fuel Economy Guide [EPA-HQ-OAR-2009-0865-6940.1, p.9]

In its 2006 Fuel Economy Label Rule, EPA formalized the process used by dealers to provide prospective new vehicle purchasers with copies of the Fuel Economy Guide and with information regarding the [www.fueleconomy.gov](http://www.fueleconomy.gov) website. In fact, earlier this month NADA

worked with DOE to provide dealerships with specifics on how to obtain and make available to the public electronic or paper copies of the MY 2011 Fuel Economy Guide. Dealerships typically print copies of the Guide upon demand, downloading them as needed. In addition, dealerships have the option of obtaining hard copies of the Guide, should they choose to do. [EPA-HQ-OAR-2009-0865-6940.1, p.9]

**Response:**

EPA appreciates the support the dealerships provide in distributing the Fuel Economy Guide. Now that consumers have access to and do most of the research on the internet, EPA is planning to develop resources that better meet the general public's need for vehicle information. As we roll out the new label, and accompanying updated features on the fueleconomy.gov web site, we plan to provide dealerships and their customers with outreach materials to educate them on these new tools.

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

The focus on market segments is a well-established concept for vehicle fuel economy. In a recent press release announcing the 2011 Fuel Economy Guide, EPA and the U.S. Department of Energy note, [EPA-HQ-OAR-2009-0865-6850.2, p.9]

Fuel efficient models come in all types, classes, and sizes. The 2011 Fuel Economy Guide can help consumers easily identify the most fuel efficient vehicles that meet their needs. [EPA-HQ-OAR-2009-0865-6850.2, p.9]

The Fuel Economy Guide and the fueleconomy.com website already take a segment-specific approach, which is also consistent with other Federal models for ranking the GHG emissions and energy use of consumer products. For instance, EPA's Energy Guide website compares refrigerators to similar models within a class. [EPA-HQ-OAR-2009-0865-6850.2, p.9]

**Response:**

The agencies are finalizing a label that includes fuel economy relative to other vehicles in the same class. All other rating systems on the label will be given relative to all vehicles in the fleet. Each of the ratings systems on the label will be universal across all new vehicles, rather than broken out by vehicle class. This approach was based on the text of the Energy Independence and Security Act requiring a rating "that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase..." In addition, many commenters supported the proposed approach of having universal rating systems that apply across all vehicle classes. These commenters stated that most people shop in more than one class, and, therefore, a rating system that was solely within class was not particularly useful because it would not allow these consumers to compare the

vehicles in which they had interest. Commenters stated that a within-class approach could be misleading by displaying ratings that appear to be comparable but in fact are not, since ratings based on individual classes are not broadly applicable across all vehicles; they are applicable only within the class on which they are based. As such, a within-class approach could assign a high rating to a vehicle that does relatively well within its class, but which emits at relatively high levels compared to vehicles in other, lower-emitting classes. For example, a large car that is low-emitting relative to other large cars could score a 7, while a midsize car with average emissions for its class would score a 5, even though the midsize is lower-emitting than the large car. With a purely within-class approach, the consumer who is considering both of these vehicles would have no way to know that the midsize car is a better environmental choice.

### 5.3. Smartphone QR Codes

**Organization:** Association of International Automobile Manufacturers (AIAM)  
Environmental Defense Fund (EDF)  
Ford Motor Company (Ford)  
Hyundai Motor Company  
California Air Resources Board (CARB)  
University of Pennsylvania Law School, Environmental Law Project  
Bullis, Kevin  
SapientNitro

#### **Comment:**

#### **Association of International Automobile Manufacturers (AIAM)**

AIAM supports the addition of the Smart Phone interactive codes on the label. Millions of Americans have Smart Phones and more and more consumers are using them every day to link to the Internet. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

#### **Bullis, Kevin**

Smartphone interactive: Great idea. Maybe auto dealers should be required to provide Internet-connected kiosks for people without smartphones. Also, the website could be a chance to compare EV and hybrid carbon emissions taking into account power plant emissions in different regions. [EPA-HQ-OAR-2009-0865-3415, p.1]

#### **California Air Resources Board (CARB)**

We like the smart phone feature that allows consumers to access vehicle information using their smart phones while shopping on dealer's lots. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

#### **Environmental Defense Fund (EDF)**

We also support the Agencies' proposal to use QR codes to assist consumers in obtaining more detailed information right from the car lot using their smart phones. [EPA-HQ-OAR-2009-0865-6927.1, p.9]

#### **Ford Motor Company (Ford)**

Smartphone QR Codes [EPA-HQ-OAR-2009-0865-7141.1, p.10]

Ford supports the idea of smartphone Quick Response codes as a new feature of the fuel economy label, given certain constraints. This is an innovative new way of transferring information to customers quickly and easily while they are still at the dealership. However, at this point, it is unclear exactly what website or information the code would link to. Ford requests that the linked information be standardized by focusing on the vehicle's particular attributes and

not those of others in order to avoid potential competitive issues and unfair advertising. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

In addition to the idea proposed in the NPRM, Ford believes that smartphone QR codes may be useful for conveying additional information to consumers. For example, Ford suggests that a QR code linked to the GREET calculation model could be a potential method of meeting the California environmental performance label requirements to include upstream emissions. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

### **Hyundai Motor Company**

#### Using Smartphone QR Codes' to link to Fuel Economy Information

Hyundai fully supports addition of a Smartphone Code on the fuel economy label. Smartphone technology is becoming commonplace, and having a quick and easy way for consumers to lookup additional information about a vehicle. In the suggested label changes in Figure 3 [See p.5 of this comment summary for Figure 3 entitled, Suggested Changes to Label Options 1 and 2], we modified the location of the Smartphone QR Code to make room for other information, but the new area allows the size to be slightly increased and should still be easily found by the consumer. [EPA-HQ-OAR-2009-0865-7139.1, p.12]

### **SapientNitro**

As a creative director at an interactive advertising agency, I FIRMLY believe that the QR code (the smartphone barcode) on Label Option 2 is BRILLIANT. I think you need to take that smartphone code and incorporate it into Label Option 1. Label Option 1 is gorgeous and simple and pedestrian — easy to understand. The other is too cumbersome. It would be IDEAL if you produced Label Option 1 and enabled viewers to take that label information with them by snapping a photo of the label with their smartphones that would read the QR code and store the specs in your phone. [EPA-HQ-OAR-2009-0865-1407, p.1]

### **University of Pennsylvania Law School, Environmental Law Project**

Finally, we recommend that the smart phone label be moved to the same section as cost savings. Many consumers are likely to have concerns about the usefulness of the cost savings figure since it is based on averages and therefore is not individualized. By placing the smart phone label next to the savings figure, consumers with a capable mobile device who have these concerns may immediately link to the Fuel Economy website for a more personalized and detailed calculation. This cost-savings calculator would allow them to customize an estimate based on personal driving habits as well as local variations in fuel prices and the availability of alternative fueling stations. Personal driving information may include annual or monthly mileage and proportional travel on highway and local roadways. The zip code algorithm would not only account for the variations in fuel cost, but may also account for variations in weather that may affect fuel efficiency. [EPA-HQ-OAR-2009-0865-7171.1, pp.7-8]

**Response:**

Thank you for your support of including a smartphone access code on the new label. In order to address consumers' growing interest in having information accessible via smartphones, EPA is including a QR Code® on the new label. When a smartphone user scans the QR Code® on the label, information on that particular vehicle from fueleconomy.gov web site will be displayed on the handheld device. Though several commenters suggested linking to the auto manufacturers' vehicle-specific web sites from the QR Code®, EPA determined that linking to a government web site was the best way to provide consumers with "just the facts." The content will be similar to what will be available on the label web page on fueleconomy.gov, but geared to a smartphone platform. The user can then take advantage of many of the web site's tools and vehicle comparisons from his/her phone while shopping at a dealership.

**Organization:** JAGTAG, Inc

**Comment:****JAGTAG, Inc**

Introduction: JAGTAG, Inc. appreciates the opportunity to provide written comments to the "Revisions and Additions to Motor Vehicle Fuel Economy Label." JAGTAG has been involved with 2D barcodes since 2007 and has developed a multimedia messaging platform that uses picture messaging to receive and decode 2D barcodes and send back the proper multimedia or text to mobile phones. Unlike most 2D barcode solutions, JAGTAG delivers multimedia, text and URL (Uniform Resource Locator) to both standard phones and smartphones without installing an application. Our comments will address the proposed "symbol (2D barcode) that can be read by a 'Smartphone' for additional consumer information (also known as a QR Code ®)." We are excited by the prospect of utilizing mobile devices to transmit additional information to consumers. We recommend that the Motor Vehicle Fuel Economy Label include a 2D barcode that can be accessed by ALL mobile devices, not just smartphones. [EPA-HQ-OAR-2009-0865-6568.1, p. 1]

Background: The QR Code ® is a 2D barcode with an embedded URL which, when scanned by the proper application, provides a link to that URL. This category of 2D barcodes requires the device to download the scanning application and access the Internet (URL). Only properly equipped smartphones can scan this type of 2D barcode (QR Code®). However, there is a separate category of 2D barcodes that can be accessed by all types of mobile devices including standard phones that do not have mobile Internet plans or scanning applications and smartphones that are Internet enabled. JAGTAG has developed a technology that utilizes a multimedia messaging (MMS) platform to deliver and decode 2D barcodes on standard phones and smartphones that support MMS. In addition, while QR codes ® can only link to one URL, the JAGTAG MMS platform can deliver a variety of information mediums, including multimedia video, audio and pictures; text; and URL options. [EPA-HQ-OAR-2009-0865-6568.1, p. 1]

Furthermore, the technology developed by JAGTAG has the ability to identify the consumer's device and discern its capabilities. This allows the platform to cater a reply message to the user at

the maximum impact for the minimal cost to the user. For example, a standard phone that does not have Internet access can receive text, pictures and/or video, while a smartphone can receive text, pictures, video and a URL. Thus, JAGTAG technology is able to provide a broader range of information (ex: additional consumer information in multiple languages) to a more comprehensive consumer base than the QR Code ®. [EPA-HQ-OAR-2009-0865-6568.1, p. 1]

We recommend that the new Motor Vehicle Fuel Economy Label include a 2D barcode that can be accessed by both smartphones and standard phones through MMS messaging (in place of QR Codes®)to effectively link more consumers to fuel economy information. [EPA-HQ-OAR-2009-0865-6568.1, p. 1]

Initial Observations: Prior to our more specific recommendations, we have three initial observations which we believe, if addressed, would help make the proposed revisions to the fuel economy label more effective: 1. Include a headline informing consumers what the label's barcode symbol is supposed to do, such as "Scan this code to get comparison fuel information." Many consumers will not know what a 2D barcode is and may ignore it without direction. 2. Provide instructions on how to utilize the label's barcode. 3. These initial instructions will add a perceived value to the label by encouraging consumers to utilize the barcode and access more information. [EPA-HQ-OAR-2009-0865-6568.1, pp. 1-2]

Recommendations: As referenced in the Proposed Rule (Section I. A. Summary of and Rationale for Proposed Label Changes), all of the label designs co-proposed by EPA and NHTSA include: A symbol that can be read by a 'Smartphone' for additional consumer information (also known as a QR Code®). The intent is "to use the QR Code to directly link the user's Smartphone to vehicle-specific information while providing additional tools for making vehicle comparisons, learning more about the vehicle etc." (Section VI, 4, D, Using Smartphone QR Codes ® to Link to Fuel Economy Information). [EPA-HQ-OAR-2009-0865-6568.1, p. 2]

The stated intent of the joint proposal is to increase the usefulness of the label in helping consumers choose more efficient and environmentally friendly vehicles/make more informed vehicle purchase decisions. We believe that an important public policy addition to these stated goals is to provide consistent and equitable access to information to all consumers. Including a 2D barcode on the fuel economy label could provide consumers with additional information, but the QR Code as that 2D barcode option DOES NOT effectively provide that information to all consumers, because this information would only be available to at most 20 percent of U.S. mobile phone owners (percentage of U.S. mobile phone owners who own Smartphones). [EPA-HQ-OAR-2009-0865-6568.1, p. 2]

We recommend that the new Motor Vehicle Fuel Economy Label include a 2D barcode that can be accessed by both smartphones and standard phones through MMS messaging (in place of a QR Code ® specified in Section VI, 4, D-Using Smartphone QR Codes ® to Link to Fuel Economy Information) to effectively link more consumers to fuel economy information. Specifically, we strongly recommend that the new Motor Vehicle Fuel Economy Label include a JAGTAG 2D barcode. We recommend that this 2D barcode provide links to additional consumer information in multiple languages to allow access to non-English readers. If EPA/NHTSA does not implement this alternative 2D barcode option, we recommend no barcode



over the inclusion of a QR Code. It is not equitable to provide access to additional information only to a small portion of consumers. All consumers deserve access to this information before making a decision about their purchase. The QR code effectively prohibits over 80 percent of mobile phone owners from accessing content. Alternatively, JAGTAG technology can provide access to 90 percent of mobile phone owners. No other 2D barcode delivers to as many people in the United States. [EPA-HQ-OAR-2009-0865-6568.1, p. 2; see pp. 3-10 for additional detailed information on the limitations of QR Codes ®, the advantages of JAGTAG 2D barcode technology, a free dome of JAGTAG technology, and mock ups of the proposed fuel sticker with the JAGTAG barcode.]

**Response:**

Thank you for providing us information on your multimedia messaging platform. The majority of comments received on providing smartphone capabilities on the label also supported the inclusion of the QR Code®. EPA evaluated other two-dimensional bar codes, including JAGTAG and found that the advantages of the QR Code® significantly outweighed the potential advantages of other options. The QR Code® is free to use, in the public domain, does not require entering into a business relationship with private industry, and perhaps most significantly, is described in an ISO standard which is incorporated by reference in the final regulations. The ISO standard allows the agencies to clearly and completely describe in regulatory language the process for generating a QR Code®, a necessity of the structure of our program.

**Organization:** Alliance of Automobile Manufactures (Alliance)  
Suzuki Motor Corporation  
BMW

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Use of QR Code For Smartphones

The Alliance supports the QR Code for Smartphones as an optional function on the label. Manufacturers who elect to provide a QR code should provide at least the information on the label plus any additional information they elect to include. [EPA-HQ-OAR-2009-0865-6850.2, p.12]

**BMW**

The usage of QR code should be optional. If introduced, the QR code should be standardized using the encoded general URL of the EPA/DOE website (<http://fueleconomy.gov/m/>). The proposed regulation indicated that it is desired to have this QR code be model/vehicle specific with encoding the specific model website for the vehicle. Such an enhancement will require additional lead time because the data needs to be stored (e.g. individual model IDs from the EPA/DOE website), as well as used later on to generate a QR code dynamically. Development of

generating QR code during printing of the label will add at least 3-4 months of lead time. [EPA-HQ-OAR-2009-0865-7142.1, p.3]

### **Suzuki Motor Corporation**

Make the Smartphone code optional on all the labels. Manufacturers may be able to use their current software and printers to print the new labels if the Smartphone code is not mandatory. [EPA-HQ-OAR-2009-0865-6900.1, p.3]

### **Response:**

Thank you for your comment in support of optionally including a quick response (QR) code on the label. In order to address consumers' growing interest in having information accessible via smartphones, EPA is including a QR Code® on the new label. When a smartphone user scans the QR Code® on the label, information on that particular vehicle from the label web page on fueleconomy.gov will be displayed on the handheld device. Though several commenters suggested linking to the auto manufacturers' vehicle-specific web sites from the QR Code®, EPA determined that linking to a government web site was the best way to provide consumers with "just the facts." The smartphone user can take advantage of many of the web site's tools and vehicle comparisons from his/her phone while shopping at a dealership. The agencies decided to make this a mandatory component on the label to ensure consistent access to label information from mobile platforms.

**Organization:** Toyota

### **Comment:**

#### **Toyota**

Other Label Text [EPA-HQ-OAR-2009-0865-6901.1, p.8]

EPA requests comments on the usefulness of the Fuel Economy Guide and whether EPA and DOE should develop a different approach in the future - including the idea of transforming the guide into a consumer friendly checklist guide. Toyota believes that the printed version of the fuel economy guide has outlived its purpose. In keeping with the intent of the new label, Toyota would like to see EPA adopt a green approach to the guide and no longer require printed copies which becomes quickly out of date. As one approach, Toyota views EPA's Smartphone proposal as an effective means for providing consumers with more timely and up to date fuel economy guide information. [EPA-HQ-OAR-2009-0865-6901.1, p.8]

Using Smartphone QR Codes to Link to Fuel Economy Information [EPA-HQ-OAR-2009-0865-6901.1, p.15]

For all the label designs being considered, EPA is proposing that manufacturers place a QR Code on the label that will link the web browser of a properly configured smartphone to the mobile version of the EPA/DOE fuel economy information web site. As an additional means to provide

readily accessible information to consumers, Toyota does not oppose the concepts outlined in the NPRM. [EPA-HQ-OAR-2009-0865-6901.1, p.15]

**Response:**

Thank you for your support of including a quick response (QR) code on the new label. In order to address consumers' growing interest in having information accessible via smartphones, EPA is including a QR Code® on the new label. When a smartphone user scans the QR Code® on the label, information on that particular vehicle from the label web page on fueleconomy.gov will be displayed on the handheld device. Though several commenters suggested linking to the auto manufacturers' vehicle-specific web sites from the QR Code®, EPA determined that linking to a government web site was the best way to provide consumers with "just the facts." The content will be similar to what will be available on the label web pages, but geared to a smartphone platform. The smartphone user can take advantage of many of the web site's tools and vehicle comparisons from his/her phone while shopping at a dealership. We agree that as the internet becomes the primary tool to do vehicle research, the Fuel Economy Guide required to be available at all dealerships is being used less and less. As we develop outreach materials around the new label and web site, we are considering doing a streamlined checklist or pocket card that can be distributed at dealerships, and will be more user friendly than the mandated Fuel Economy Guide.

#### **5.4. Other Consumer Education Tools**

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Environmental Defense Fund (EDF)  
National Automobile Dealers Association (NADA)  
California Air Resources Board (CARB)  
American Council for an Energy-Efficient Economy (ACEEE)  
Institute for Policy Integrity - New York University School of Law  
Catania, Andrew  
California New Car Dealers Association  
National Association of Minority Auto Dealers (NAMAD)

#### **Comment:**

##### **Alliance of Automobile Manufacturers (Alliance)**

Currently, our members provide detailed and comprehensive vehicle information through a full suite of consumer-oriented materials, including interactive Web sites, innovative new media, and traditional materials. We've learned over time that most consumers do Internet research prior to visiting a dealership. In fact, 70 percent of the consumers surveyed by EPA had a specific type of vehicle in mind when they started looking for a new vehicle. And the majority of those, about 81 percent, said they ended up purchasing that type of vehicle.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 14.

##### **American Council for an Energy-Efficient Economy (ACEEE)**

###### Targeting Social Networks

Any marketing and educational effort that is concurrent with the release of the labels should include strategies for targeting entire social networks, especially those of people who may, for the first time, be paying attention to the environmental performance of their vehicles. As the agencies note, because of the marked changes in content and design of new vehicle labels, it is critical to launch a concurrent marketing campaign both online and offline (58138). Research done by ACEEE for the EPA on vehicle labels confirms this. Moreover, it is important to take advantage of the operation of social influence by marketing to entire social networks rather than, or in addition to, individuals. Doing so may address two of the stated goals of the label redesign: understanding how label designs may nudge consumers towards both greater use of the fuel economy labels and towards the purchase of more fuel-efficient vehicles. [EPA-HQ-OAR-2009-0865-7135.1, p. 10]

Recent research suggests that individuals' values related to the environment can develop, and that social networks can influence vehicle purchase decisions amongst those who are 'trying out' environmental values. In the context of the new vehicle label, this influence can take two forms: 1) the diffusion of information about the new label from a trusted source, and 2) a

reconsideration of self-identity related to the energy and environmental considerations of vehicles. [EPA-HQ-OAR-2009-0865-7135.1, pp. 10-11]

Therefore, in addition to disseminating relevant technical information about advanced vehicle technologies such as PHEVs, marketing efforts that target holders of these 'transitional' values may result both in greater acceptance of, and in greater uptake of, vehicles with better environmental performance. [EPA-HQ-OAR-2009-0865-7135.1, p. 11]

### **California Air Resources Board (CARB)**

Finally, as you already know, public education will be a key element to rolling out these new labels. There is a lot of great information on these labels, and consumers need to understand how to use this information as they make their purchase decision. YouTube videos, information in dealerships, updating the fueleconomy.gov web site are all ideas that may help educate and inform consumers so that they use this information in their purchasing decision. [EPA-HQ-OAR-2009-0865-7527.1, p.2]

### **California New Car Dealers Association**

When customers have a question about a vehicle they see at a dealership, they usually ask the salesperson with whom they are working. And a dealership's sales staff therefore becomes the primary source of information concerning not only the vehicle itself, but required governmental disclosures posted on the vehicle. This is not a duty that our members take lightly but, in large part, because the satisfied customer is oftentimes a repeat customer, which we want, and a knowledgeable salesperson can assist customers in making the right decisions to meet their own vehicle personal needs. On the other hand, if sales personnel can't thoroughly explain an issue that the customer may have with the vehicle or a government disclosure, they're much less likely to make the sale, and even less likely to have a satisfied customer. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 63.]

### **Catania, Andrew**

Teisl [Mario Teisl, an economics professor at the University of Maine] compared the new car labels' increasing complexity with the same trend that has progressed with nutrition labels. They started simple, "but then over time, as people became more aware of it, more used to using it, then there were calls for adding more data." Teisl's hypothesis suggests that as the impact of automobile purchases become increasingly understood through added detail in the labels, it may spur positive trends in consumers' purchases of more healthy and environmentally responsible vehicles. [EPA-HQ-OAR-2009-0865-7425, p. 1]

### **Environmental Defense Fund (EDF)**

And finally, we recommend the Agencies follow through with the expert panel's recommendation for an innovative outreach campaign that includes crowdsourcing with social media. We believe this type of outreach will help drive consumers to the website, empowering

consumers to inform their purchasing decisions with readily available information. [EPA-HQ-OAR-2009-0865-6927.1, p.9]

### **Institute for Policy Integrity - New York University School of Law**

The Agencies Should Mount an Educational and Advertising Campaign [EPA-HQ-OAR-2009-0865-7136.1, p.16]

The agencies voice concerns about consumer confusion throughout the proposed rule. For instance, they are concerned that consumers do not understand kilowatt-hours, and will not know what efficiency measured in kilowatt-hours for electric vehicles will mean to them. Much of this confusion may be alleviated through an effective consumer education program. [EPA-HQ-OAR-2009-0865-7136.1, p.16]

In fact, evidence shows that the revised label's effectiveness may be significantly improved if the agencies make an effort to inform consumers of the revisions and educate them about the changes and what the new information means for them. A number of other countries have begun assessing the efficacy of their own labeling programs, and have come to the conclusion that public education programs are essential to increasing the effectiveness of labels. A report by the Environmental Audit Committee of the U.K. House of Commons is emblematic: [EPA-HQ-OAR-2009-0865-7136.1, p.16]

Labels are more likely to influence a purchasing decision if the customer has prior awareness and understanding of the label. Where the Government supports a labeling scheme as part of its sustainable consumption strategy, it must actively promote and explain the label to consumers, using publicity to raise their awareness and understanding of labels before they make decisions on purchases. [EPA-HQ-OAR-2009-0865-7136.1, p.16]

There is a significant body of research indicating that a label's effectiveness is strongly tied to the degree to which consumers are aware of and understand the label. There is also evidence that too small of a marketing campaign can significantly impair a label's effectiveness. Simply put, consumers must "notice, understand and believe the information presented to them" on the label. Thus, not only the existence of a marketing and educational campaign, but also its quality and pervasiveness may have a dramatic effect on the impact of the proposed revision. [EPA-HQ-OAR-2009-0865-7136.1, pp.16-17]

The agencies have already planted the seeds of this campaign with the fuel economy website. The agencies propose that, whatever information is ultimately placed on the final revised label, the fuel economy website should be featured prominently and more detailed, personalized information should be available to consumers on it. They also propose the addition of a tag that Smartphones can read. [EPA-HQ-OAR-2009-0865-7136.1, p.17]

These efforts should, and easily can, be expanded. For example, if a Smartphone tag is placed on the label, an application should also be developed for popular Smartphone models so that consumers can use the website more easily from their phones. This application could be designed at very little extra cost to the agencies. [EPA-HQ-OAR-2009-0865-7136.1, p.17]

The agencies could also consider the possibility of advertising to promote the website and the Smartphone application, in order to increase the likelihood that consumers will use either or both at the beginning of their searches for new vehicles, before they go to dealerships. If the agencies are reluctant or unable to pay for this advertising directly, they could reach out to manufacturers, environmental groups, and consumer groups who might agree to link back to or advertise the fuel economy website on their own websites. Manufacturers might wish to do this because they might benefit as consumers are better able to make informed comparisons between vehicles in the market. Environmental and consumer groups might wish to do this because their missions might include informing consumers as much as possible about the environmental impacts of their vehicles. [EPA-HQ-OAR-2009-0865-7136.1, p.17]

In addition, the inter-agency panel could coordinate on the formulation of an educational campaign for consumers. Given the acknowledged concern throughout the various agencies' rulemakings for the potential for consumer confusion, it may make sense for the agencies to coordinate to improve consumer education about environmental labeling. Potential benefits include saving the cost of mounting multiple campaigns to educate consumers about multiple labeling regimes, as well as preventing the possibility that the agencies could work at cross-purposes in their endeavors to educate the public. [EPA-HQ-OAR-2009-0865-7136.1, p.17]

#### **National Association of Minority Auto Dealers (NAMAD)**

Third, of the subset of prospective purchasers who do in fact focus on fuel economy or emissions performance, most tend to look at comparative information before coming to a dealership. With the advent of the Internet, shoppers increasingly cruise comparative information and make preliminary purchase criteria decisions in the comfort of their home or office, arriving at the dealership armed to the hilt with a plethora of knowledge regarding the vehicles to which they've narrowed their search. This trend also will continue going forward. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 42-43]

Lastly, I urge EPA and NHTSA to work with dealers and their associates on educating the public on the new labels once promulgated. When it rolled out its model year 2008 label, EPA worked hard with dealers and others on outreach, an effort that should be similarly engaged in leading up to the model year 2012. As with prior versions of the label, it also will be important to remind the motoring public both that the fuel economy they can expect to achieve will depend on many factors including driving conditions, speed, terrain, and maintenance. And that we should all continue to take the simple, everyday steps that will maximize in-use fuel economy and emissions performance. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 45-46]

#### **National Automobile Dealers Association (NADA)**

Lastly, the EPA and NHTSA should work with dealers and their associations to educate the public on the new fuel economy labels, when finalized, consistent with the excellent outreach undertaken when the MY2008 labels were rolled out. It is also important to remind the motoring public that the fuel economy that they can expect to achieve will depend on many

factors, including driving conditions, speed, terrain, and maintenance, and there are simple, everyday steps that can be taken to maximum in-use fuel economy and emissions performance.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 40.]

**Response:**

Thank you for your support of a robust education and outreach campaign surrounding the release of the new labels. The agencies concur on the need to support the label roll out with a significant outreach campaign and materials. In addition to enhanced label information that will be added to [fuelconomy.gov](http://fuelconomy.gov), the agencies are also planning to work with many of our partners, including environmental, consumer, and auto interest groups, to educate them so that they can adequately inform consumers on the labels, as they have more direct access to the general public than government agencies. We also plan to use all social media at our disposal, and will encourage our partners to use their social media tools as well to educate the public.



## **6. Agency Research on Fuel Economy Labeling**

**Organization:** Environmental Defense Fund (EDF)

**Comment:**

### **Environmental Defense Fund (EDF)**

We applaud the Agencies for conducting a comprehensive and innovative consumer based research program to inform the development of the proposed new labels. To help inform the creation of the new label, EPA engaged the help of a marketing firm to design and implement information gathering from the public, including: (1) a literature review; (2) focus groups; (3) an expert panel; and (4) online surveys of new and prospective vehicle buyers. This extensive research initiative was designed to forge a broad and deep understanding of a well-designed consumer-friendly label based on unprecedented outreach to consumers and consumer information experts. [EPA-HQ-OAR-2009-0865-6927.1, p.3]

**Response:**

We appreciate the support for our research effort. The final label design is informed by all this research, as well as public comments.

## 6.1. Focus Groups

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

The letter grade option was not presented to any of the focus groups used as the basis of this rulemaking; however, we understand that EPA is conducting a Web-based survey of the proposals, and we assume that that will include the letter grade.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 16. These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 12-13]

**Response:**

The comment is correct. The letter-grade label was an outgrowth of the expert panel. Label option 1 (which features the letter grade) was tested in the web-based survey along with the other two label designs from the proposed rulemaking. As discussed in preamble section I.D, the survey did not uncover any “fatal flaw” with any of the three designs.

All of our market research, as well as public comments, contributed to development of the final label.

**Organization:** National Automobile Dealers Association (NADA)

**Comment:**

**National Automobile Dealers Association (NADA)**

And also for the Alliance, you mentioned that a number of your member companies have done focus groups. We have not received the data from them. And we would very much appreciate any additional data that you have of the American public and provide us information. We would very much appreciate it. MR. DOUGLAS: We'll certainly provide that, and we'll provide detailed and written comments.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 48.]

**Response:**

Our focus group results, as well as the results of other market research we conducted in support of this rulemaking, are in the rule docket and are posted on EPA's website.

**Organization:** American Council for an Energy-Efficient Economy (ACEEE)

**Comment:**

**American Council for an Energy-Efficient Economy (ACEEE)**

Agency Research on Fuel Economy Labeling

Comprehension of slider bars

The agencies should conduct comprehension testing of the slider bars, especially when used with environmental metrics. While Focus Group III did conduct comprehension testing of the presentation of fuel economy on three proposed labels, no such testing was done on the presentation of environmental metrics. In light of the weight that consumers attach to MPG values after 30 years of seeing them on vehicle labels, and in light of the fact that environmental metrics will feature prominently on vehicle labels for the foreseeable future, it is critical that the presentation be both useful and understandable. [EPA-HQ-OAR-2009-0865-7135.1, pp. 9-10]

As noted above, international research on label design as well as comments from focus group participants suggest that comprehension of continuous scales (such as slider bars) may be low compared to categorical scales (such as stars or leaves).<sup>7</sup> Specifically, research on vehicle labels done by ACEEE for EPA found that while consumers perceived the bar-type presentation of environmental metrics as easier to understand than an alternate presentation, this perception was not supported by comprehension tests. [EPA-HQ-OAR-2009-0865-7135.1, p. 10]

Furthermore, participants in Focus Group III expressed both dislike of and confusion about the meaning of environmental metrics presented as slider bars, depending upon the vehicle type. For gasoline and diesel vehicles, focus group participants reported not understanding the slider bar, instead preferring the leaf presentation of Option B (which was found to be most understandable overall). For electric vehicles, the slider bar was either disliked or was reported as providing little information. In contrast, for extended range vehicles, the slider bars used in Option C to express range/charge and vehicle comparison were found to be useful and understandable. [EPA-HQ-OAR-2009-0865-7135.1, p. 10]

These differing responses suggest that: 1) perceived comprehension of slider bars depends on vehicle technology and 2) an alternate representation of environmental metrics may be more comprehensible or more pleasing. [EPA-HQ-OAR-2009-0865-7135.1, p. 10]

Comprehension testing would likely clear up some of these questions, and allow for the design of more effective and comprehensible labels tailored to vehicle type. [EPA-HQ-OAR-2009-0865-7135.1, p. 10]

**Response:**

We agree with the commenter on the importance of presenting fuel economy and environmental metrics such that they are understandable and useful to consumers; this was one of the key motivating factors in redesigning the label.

To help achieve this goal, the agencies conducted an extensive consumer research campaign that included three phases of focus groups. Slider bars were among the methods of presentation for greenhouse gases tested in each phase of focus groups. While some focus group participants found star or leaf ratings more understandable, others favored slider bars. In phase 2—where participants were asked which presentation method they preferred for individual vehicle types (EVs, PHEVs, etc.)—no one presentation method was consistently rated the highest across all technologies. These results helped inform our decision to seek comment on three different rating methods (slider bars, letter grade, and stars) for various metrics in the proposed rulemaking.

We decided upon the final label after considering public comments, the results of our market research (including an internet survey that found no “fatal flaws” with any of the three label designs), and considering and weighing statutory requirements.

## **6.2. Internet Survey**

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

We look forward to reviewing the results of the Web-based survey and encourage EPA to make those available well in advance of the end of the comment period. And we would note that other recent surveys, including those conducted by edmunds.com and Siegel+Gale indicate that a large majority of consumers prefer the more traditional label.

[These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 16.]

**Response:**

EPA posted the results of the web-based survey in the public docket and on the rule website on November 22-23, 2010 (see <http://www.epa.gov/fueleconomy/label/prr-topline-report-11-22-10.pdf> and document EPA-HQ-OAR-2009-0865-6913 at [regulations.gov](http://www.regulations.gov)). The docket remained open for 30 days after this date. No additional comments were received on the report.

The agencies are aware of various surveys, including those by Siegel+Gale, edmunds.com, and other organizations (e.g., [fueleconomy.gov](http://www.fueleconomy.gov), Consumer Reports). Samples, methods, questions asked, and results varied across the polls; as a result, the agencies considered the breadth of polling results, just as it considered the breadth of comments provided. The final label design incorporates input from all these sources.

### 6.3. Additional Research

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Ford Motor Company (Ford)  
Sierra Club  
International Council on Clean Transportation (ICCT)  
Siegel+Gale

#### **Comment:**

#### **Alliance of Automobile Manufacturers (Alliance)**

Several outside organizations have conducted their own surveys, the results of which point to “Label 2” as the preferred approach. On September 28, 2010, Siegel+Gale reported the results of a survey of 456 Americans as follows: [EPA-HQ-OAR-2009-0965-6850.2, p.3]

Overall, 66 percent rejected the version that emphasized a prominent letter grade (the vertical label) and favored the one that focused on miles per gallon (the horizontal Label). While respondents preferred the horizontal label, 38 percent found some aspect of the horizontal label confusing.<sup>5</sup> [EPA-HQ-OAR-2009-0965-6850.2, p.3]

Based on this survey, Siegel+Gale made the following recommendations: [EPA-HQ-OAR-2009-0965-6850.2, p.3]

Moving extraneous data to a website (e.g., gallon gas equivalent per 100 miles, entire range of mpg for all vehicles, greenhouse gases and other air pollutants) [EPA-HQ-OAR-2009-0965-6850.2, p.4]

Removing all non-essential logos and icons to reduce visual clutter [EPA-HQ-OAR-2009-0965-6850.2, p.4]

Using mpg as a primary data point and explain that, for a hybrid electric/gasoline vehicle, the first 50 miles are run by battery [EPA-HQ-OAR-2009-0965-6850.2, p.4]

Emphasizing operating cost rather than savings over time [EPA-HQ-OAR-2009-0965-6850.2, p.4]

Providing a brief explanation of the purpose of the Smartphone bar code. [EPA-HQ-OAR-2009-0965-6850.2, p.4]

Giving more prominence to the benefits (i.e., “ability to calculate estimates personalized for your driving”) of visiting the fueleconomy.gov website at the bottom of the label. [EPA-HQ-OAR-2009-0965-6850.2, p.4]

Shortly after the proposed rule was released, Edmunds.com also conducted a preliminary poll that resulted in similar findings. Edmunds.com reported that 82 percent of

respondents preferred the more traditional label, with only 18 percent supporting letter grades. Edmunds.com is currently conducting a more in-depth survey. [EPA-HQ-OAR-2009-0965-6850.2, p.4]

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5 Siegel+Gale Press Release, “EPA Misses Mark on Fuel Consumption Labels, Sept. 28, 2010, available at: <http://www.siegelgale.com/2010/09/28/epa-misses-the-mark-on-fuel-consumption-labels/>. The full presentation on this survey is available at [http://www.siegelgale.com/pdf/Siegel\\_Gale\\_EPA\\_Labels\\_Evaluation\\_FINAL.pdf](http://www.siegelgale.com/pdf/Siegel_Gale_EPA_Labels_Evaluation_FINAL.pdf).

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 16; These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 12-13]

### **Ford Motor Company (Ford)**

Research on Fuel Economy Labeling [EPA-HQ-OAR-2009-0865-7141.1, p.7]

In addition to reviewing the research conducted by EPA and NHTSA, Ford has conducted its own web-based surveys of non-technical Ford employees across the U.S. to gain information about consumer preferences and understanding of various concepts. Ford's surveys gathered general information about driving habits and the importance of fuel economy labeling, but also probed respondents for more specific feedback on PHEV label content. Details of these survey results were previously provided, under Confidential Business Information, to the EPA. In many areas, the Ford surveys found similar results to the agency focus groups. For example, respondents to the Ford survey indicated that MPGe is the preferred way to quantify electrical usage data, while electrical consumption based on kilowatt hours rated poorly. Additionally, the Ford survey found that 96% of respondents rated battery recharge time a 7 or higher (out of 10) in terms of importance. In addition, 74% of respondents rated the charge depleting range in electric mode as a 7 or higher, indicating that these are two key elements they want to see on the label. The survey also found that most consumers thought separate electric-assist and hybrid mode fuel consumption information should be included for PHEVs. [EPA-HQ-OAR-2009-0865-7141.1, p.7]

Similar to agency findings related to an environmental impact rating, Ford survey respondents indicated relatively low consumer interest in this metric. Over a quarter of respondents indicated they would not pay attention to such a rating. Of the options provided, none received more than 31% of the total response. [EPA-HQ-OAR-2009-0865-7141.1, p.7]

For the research quoted within the NPRM, it is important to note that the EPA & NHTSA focus group participants were not directly asked about the letter grade concept, a key element of one of the label proposals. Since the publication of the NPRM, the agencies have implemented an online survey to gather consumer preference feedback on the two primary label options. Ford awaits the final results of this survey and believes they will be a beneficial source of information. Based on several surveys that have been conducted, including Siegel+Gale,

Edmunds.com and the EPA/NHTSA survey still in progress, there is still a stronger consumer preference for the features of the traditional label over the letter grade approach. In many cases, the traditional label was favored by more than a 2 to 1 ratio. [EPA-HQ-OAR-2009-0865-7141.1, p.7]

### **International Council on Clean Transportation (ICCT)**

There are two recent studies in Europe on consumer label effectiveness that should be considered by the agencies in development of the final rule. One was a June 2010 study for the Low Carbon Fuel Partnership in the UK, “Low CVP Car Buyer Survey: Improved environmental information for consumers”. The second was a 2010 report on behalf of the European Parliament, “Study on consumer information on fuel economy and CO2 emissions of new passenger cars”. While ICCT does not endorse the specific findings and the situation in the U.S. may be different than in Europe, the reports contain useful information. [EPA-HQ-OAR-2009-0865-7118.1, pp.2-3]

### **Siegel+Gale**

A survey released today found both of the new automobile fuel economy labels proposed by the U.S. Environmental Protection Agency (EPA) to be confusing. Overall, 66 percent rejected the version that emphasized a prominent letter grade (the vertical label) and favored the one that focused on miles per gallon (the horizontal label)—see samples at [http://www.siegelgale.com/pdf/Siegel\\_Gale\\_Infographics\\_FINAL.pdf](http://www.siegelgale.com/pdf/Siegel_Gale_Infographics_FINAL.pdf). While respondents preferred the horizontal label, 38 percent found some aspect of the horizontal label confusing. [EPA-HQ-OAR-2009-0865-0824.1, p.1]

The survey—polling a nationally projectable group of 456 Americans over the age of 18 who are looking to buy a car within the next three years—was conducted by Siegel+Gale, a global strategic branding firm and pioneer in bringing clarity to business and government communications. The Siegel+Gale SimplicityLab™ measured the perception and comprehension of two labels illustrating data about a gas/electric hybrid vehicle—one of the many alternative fuel vehicles which the EPA hopes car buyers will consider. The survey explored which of the two proposed labels would be most understandable to the average American and which data were of most interest. [EPA-HQ-OAR-2009-0865-0824.1, p.1]

The vertical label went astray in four areas: [EPA-HQ-OAR-2009-0865-0824.1, p.1]

Emphasizing a letter grade [EPA-HQ-OAR-2009-0865-0824.1, p.1]

De-emphasizing miles per gallon (mpg) [EPA-HQ-OAR-2009-0865-0824.1, p.1]

Presenting data without any brief explanation [EPA-HQ-OAR-2009-0865-0824.1, p.1]

Emphasizing savings over time rather than cost of operation [EPA-HQ-OAR-2009-0865-0824.1, p.1]



Review the full survey results at [http://www.siegelgale.com/pdf/Siegel\\_Gale\\_EPA\\_Labels\\_Evaluation\\_FINAL.pdf](http://www.siegelgale.com/pdf/Siegel_Gale_EPA_Labels_Evaluation_FINAL.pdf). [EPA-HQ-OAR-2009-0865-0824.1, p.2]

## **Sierra Club**

MR. POWELL: And I did have a second question for Mr. Magavern. Just for clarity, I think you had mentioned a couple of times you had given details regarding a survey you conducted. The survey included two versions of the Label 1, and the third -- was it the other proposal, or it was the model year '08, what you see on the dealer lot today? MR. MAGAVERN: The latter, what you see today. MR. POWELL: The latter, okay. And it was about 3,200? MR. MAGAVERN: 3,289 responses. MR. POWELL: And that was targeted to? MR. MAGAVERN: Our members and supporters. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 105-106.]

## **Response:**

The agencies reviewed all comments received on the labels, including the Siegel+Gale and Edmunds polls cited and the Ford research (and other polls; see Response to Comment Section 6.2). These all informed the decisions, but no one comment or poll was considered to be the sole or primary source of guidance on label design. For instance, statutory requirements must be met, even if some comments or polls consider some of the information required by statute “extraneous.”

**Organization:** Ecolane Transport Consultancy and WhatGreenCar.com

## **Comment:**

### **Ecolane Transport Consultancy and WhatGreenCar.com**

The Low Carbon Vehicle Partnership commissioned Ecolane and Sustain to undertake new research to assess the importance of environmental issues at point of purchase, to identify what information relating to the environmental performance of cars is most easily understood by car buyers, and to ascertain consumer preferences for how such information should be presented. [EPA-HQ-OAR-2009-0865-0094.1, p. 7]

Qualitative consumer data was collected through a series of structured discussions with car buyers who had either recently bought a new or nearly-new car (less than 2 years of age), or were planning to make a purchase in the next 12 months. Six focus groups involving 52 participants were hosted in London, Birmingham and Bristol during February and March 2010. In parallel, a quantitative web-based survey of around 1,000 car buyers was conducted over the same period. [EPA-HQ-OAR-2009-0865-0094.1, p. 7]

The headline finding of this report is the high importance that new UK car buyers attribute to fuel economy (in terms of ‘miles-per-gallon’ or ‘mpg’); not only as one of the most important

car purchase factors, but also as a way of conceptualising a car's environmental impact, and as the preferred element of information which appears on the UK Fuel Economy Label. [EPA-HQ-OAR-2009-0865-0094.1, p. 7; see 0094.1 for the full report 'LowCVP Car Buyer Survey: Improved Environmental Information for Consumers' conducted by Ecolane and Sustain on behalf of the Low Carbon Vehicle Partnership, June 2010.]

**Response:**

In the research conducted for this exercise, the agencies similarly found a great deal of consumer interest in and comfort with the mpg metric. As a result, it continues to be a prominent metric on the label.

**Organization:** Auerbach, Jan (Lane)

**Comment:**

**Auerbach, Jan (Lane)**

From 1972 to 1978 I was a staff assistant to Eric Stork, the Director of the Mobile Source Air Pollution program at EPA. In 1974, when the first fuel economy was designed, the label was the responsibility of EPA's policy and planning office. The label they devised was a grid with weight of vehicle on one axis, miles driven per year on the other, and in the grid was the annual cost of gas, given a certain price, for each combination of vehicle weight and miles traveled. When the Mobile Source program inherited the program the following year, Eric asked me to redesign the label. [EPA-HQ-OAR-2009-0865-4916, p. 1]

We decided to award a contract (\$10,000 at that time!) to conduct four focus group sessions: two in Houston where the contractor was located, and two in a north Baltimore suburb. The conclusion coming from these focus groups was that people wanted no more than two numbers, they wanted those numbers to relate to the vehicle they were looking at, and they did not want the government to provide information for other vehicles on that label because the government wouldn't know what other vehicle they might be considering. [EPA-HQ-OAR-2009-0865-4916, p. 1]

As a result of these sessions David Kimball, an engineer in EPA's Ann Arbor lab, and I came up with the city and highway number idea and designed the rest of the label around those two numbers. [EPA-HQ-OAR-2009-0865-4916, p. 1]

**Response:**

We appreciate the work that the commenter put into the past label. As discussed in Preamble Section 1.C., the new label has to meet new statutory requirements involving additional metrics, and it must accommodate new vehicle technologies. The previous label designs are no longer feasible because of these changes. Within these requirements, the agencies have sought to develop a label that will be as useful as possible to new vehicle buyers. To help achieve that

goal, we have conducted an extensive consumer research campaign involving more than 30 focus groups, a consultation with an expert panel, and an internet survey.

## **7. Implementation**

**Organization:** Ford Motor Company (Ford)

**Comment:**

**Ford Motor Company (Ford)**

Electric/PHEV Test Procedures [EPA-HQ-OAR-2009-0865-7141.1, p.8]

Ford understands the complexity associated with these new test procedures and the fact that minor changes may be necessary as manufacturers gain more experience with testing these advanced technology vehicles. We also have significant concerns associated with having to test PHEVs and EVs to separate certification protocols (CARB and EPA) and believe time is needed to try and streamline certification testing to the extent practical. Therefore, Ford recommends the EPA and NHTSA consider including a flexible regulatory mechanism, such as a technical amendment or supplemental final rule to address any procedural changes that maybe needed in the future. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

**Response:**

The agencies understand that some of this is new territory for both auto companies and EPA. As such, EPA is prepared to be as flexible as possible within the context of the regulations, and will issue guidance or new regulations as needed in as timely a manner as possible.

## 7.1. Timing

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Ford Motor Company (Ford)  
Hyundai Motor Company  
Toyota  
National Automobile Dealers Association (NADA)  
Suzuki Motor Corporation  
Nissan  
Honda Motor Company  
BMW  
Mitsubishi  
California New Car Dealers Association

### **Comment:**

#### **Alliance of Automobile Manufactures (Alliance)**

In addition to our comments on the label design and the need for additional lead time, the Alliance has been working with EPA and NHTSA on a wide variety of highly complex and technical issues, each of which is addressed in Attachment B [See p. 17 of this comment summary for Attachment B entitled, Comments on Advanced Technology Vehicle Issues and PHEV/BEV Test Procedures]. Both automakers and the agencies would benefit from additional dialogue on these issues. The Alliance therefore recommends that the Agencies plan a Supplemental Final rule or a Technical Amendment to allow for further dialogue and to develop the best possible practices for testing and calculating the fuel economy of advanced technology vehicles. [EPA-HQ-OAR-2009-0865-6850.1, p.1]

Additional Lead Time Is Needed. The proposed requirement to apply the new labels within 30 days of the final rule is unrealistic. The Agencies have proposed – with equal probability of finalization – three different formats, and it is neither realistic nor a good use of resources for automakers to prepare for all three scenarios. Whichever option the Agencies select, significant additional information will be required. Some automakers will be required to add as many as 19 new data elements for advanced technology vehicles and will need significant time to integrate the hardware and software changes to administer the final rule. The Alliance proposes making the labels effective in Model Year 2013, provided the Agencies meet their planned deadlines for issuing a final rule and do not require that labels be in color or that the orientation be changed from the current 4” x 7” size and horizontal format. [EPA-HQ-OAR-2009-0865-6850.2, p.2]

Additional Lead Time Is Needed. [EPA-HQ-OAR-2009-0865-6850.2, p.8]

The Agencies have proposed – with equal probability of finalization – three different formats, and it is neither realistic nor a good use of resources for automakers to have to prepare for all three scenarios to reduce their own leadtime. [EPA-HQ-OAR-2009-0865-6850.2, p.8]

Whether or not color labels or vertical reconfiguration are required, and whether “Label 1” or “Label 2” or some variation are selected, the changes required will be far more significant than any prior changes to fuel economy labeling. [EPA-HQ-OAR-2009-0865-6850.2, p.8]

The proposed rule would require automakers to collect new and additional information, adapt or replace equipment and reprogram software to administer the final labeling rule. Some Manufacturers will be adding as many as 19 new data elements and will need significant time to integrate the hardware and software changes. Given the complexity of the new label, a requirement to comply with the final rule within 30 days is unrealistic. [EPA-HQ-OAR-2009-0865-6850.2, p.8]

In its prior rulemakings, NHTSA recognized the need for significantly more lead time than is currently proposed. In the current rulemaking, the Agencies are ignoring the recent history of major changes to the Monroney label. NHTSA’s Final Rule for Stars on Cars provided manufacturers with 12 months of lead time before mandatory compliance took effect. Additionally, NHTSA’s December 2008 notice of postponement of the implementation of enhancements to the New Car Assessment Program delayed compliance by one model year from the final rule “to give manufacturers another year to prepare for what are the most significant changes since the program in 1979 and provide consumers an additional year to become familiar with the new rating system.” [EPA-HQ-OAR-2009-0865-6850.2, p.8]

The Alliance proposes making the labels effective in Model Year 2013, provided the Agencies Meet their planned deadlines for issuing a final rule and do not require that labels be in color or the orientation changed from the current 4” x 7” size and horizontal format (in which case additional time would be appropriate). [EPA-HQ-OAR-2009-0865-6850.2, p.8]

EPA and NHTSA Information Technology Capabilities [EPA-HQ-OAR-2009-0865-6850.2, p.12]

Whatever the outcome of this rulemaking EPA and NHTSA will be required to handle and process significantly more information in relation to vehicle labeling. The Agencies should address whether their existing software and hardware are prepared to accept the additional OEM data called for in this rulemaking. These concerns, coupled with the need to make changes in manufactures’ own information technology systems, further support the Alliance request for additional lead time. [EPA-HQ-OAR-2009-0865-6850.2, p.12]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 17-18. These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 13-14]

## **Association of International Automobile Manufacturers (AIAM)**

Manufacturers Need Adequate Lead-Time. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

EPA and NHTSA have proposed to require the new labels in the 2012 model year (MY); however, the 2012 MY begins on January 2, 2011, which is just a few weeks away. Given the significant numbers of changes required for the new labels, it is impossible for manufacturers to collect and assemble the needed information, redesign the labels, procure new labels, and implement the new label requirements in such a short time frame. In addition, depending on the final requirements, extra lead-time may be needed to procure and install new printers in factories and port facilities. While we agree that the label changes should be implemented as soon as practicable, the agencies must provide manufacturers reasonable and adequate lead-time. If the agencies believe that the new requirements must be implemented for a full model year, then the earliest implementation would be the 2013 MY. As an alternative, we believe the new requirements could be implemented sooner by promulgation of an effective date after which any vehicles manufactured would be required to have the new label. However, this effective date should be a minimum of six months after the publication of the final rulemaking in order to provide manufacturers reasonable and adequate lead-time for implementation. Such an approach would allow many 2012 MY vehicles to have the new labels. In any case, the final rule should provide manufacturers the flexibility to use the new label voluntarily prior to the effective date. Such flexibility will allow manufacturers to use the new labels as soon as the new designs and/or equipment are in place and not have to maintain a duplicate system for the old labels. This Flexibility will ease manufacturers' implementation burden. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

3. Implementation Dates Must be Harmonized with the NCAP Changes. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

As a further harmonization step, the new fuel economy and emissions labeling requirements need to be implemented coincidentally with the pending changes for the labeling provisions of the NHTSA New Car Assessment Program in order to avoid manufacturers having to implement two separate sets of changes to the Monroney label. This harmonization will greatly ease manufacturers' implementation burden. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

AIAM believes that the proposed fuel economy and emissions labeling requirement needs to be implemented coincidentally with the pending changes for the labeling provisions of the NHTSA New Car Assessment Program, again, to avoid manufacturers having to implement two separate sets of changes to the Monroney label. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 54.]

Finally, our members have concerns related to lead time and the logistics and practicality of implementing the proposed label requirements. EPA has proposed to require new labels in the model year which begins on January 2nd, just a few weeks away. Given the significant number of changes required for the new labels, it is virtually impossible for manufacturers to collect and assemble this needed information, redesign the labels, procure the new labels, and

implement the new label requirements in such a short time frame. If the color requirements are maintained, additional lead time, as my colleagues mentioned, would be needed to procure and install new printers in factories and port facilities. While we agree that the label changes should be implemented as soon as practical, the agencies may want to require compliance effective on a particular production or delivery date rather than for the full model year. If so, you should provide manufacturers the flexibility to use the new label voluntarily prior to the effective date because that would encourage them to implement it sooner. We recommend that an implementation date of not less than six months after the publication of the final rule may be appropriate. We will include further details on this in our written comments. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 56-58.]

MS. OGE: Now, on the lead time. As the first panel, you mentioned the difficulty with the color that would, you know, kind of delay the implementation of this label. If the agencies decided for 2012 not to require specific color, orange or whatever other colors, how would that facilitate and address the implementation of the labels and the lead-time concerns? [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 74.]

MR. CABANISS: Pardon me, I'm getting over a cold. Again, the lead-time concerns, as I mentioned, primarily with having to do every 2012 model makes it very difficult to do that by -- you know, since some models in 2012 can be introduced early in 2011. But if we have some flexibility on that aspect, for instance, a time frame for, you know, a production day or a distribution delivery date that would give us more flexibility. Of course, the complication presented by the color, aside from some of the things that I mentioned with regard to fading and this and that, today, the way manufacturers deal with color is through preprinted labels. So any color that's in the Monroney label today is in the basic form that's used when they print it out. So basically, they have high-end production, heavy-duty commercial printers where they print the labels that can accommodate the size of the paper and the thickness and so on. If we were using color, that would be the preferred way to do it, you know, as a preprint rather than having variable information in color. That way we could still deal with the same printers and so on that are in the facilities, and that would help with regard to lead time. The problem there, of course, is if you have various colors, regardless of what they are, then that means having to have multiple ones on hand, being sure you don't get things mixed up when they're printed and applied to vehicles, and that sort of thing. So it creates these sequencing problems that I mentioned. But the approximately six month's lead time that I mentioned, you know, aside from the color complications, if we could deal -- we believe we could deal with that, you know, and still have a lot of 2012 models covered, which is certainly our objective as well. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 74-76.]

MS. OGE: So the question -- we would appreciate anything for the record. The question that I pose to your constructive suggestion as to how to deal with lead time, to look at another date which may be six months after production date. I think that's a useful concept for us to evaluate, is if we were to also provide flexibility for the color for the first year, what happens to those six months lead time? So for the record, I would ask you to let us know with



some supplemental information. Also the same question. I don't know if Mr. Douglas is here from the Alliance. There you are, okay. So, Mr. Douglas, also if the Alliance could look at this issue. I think that would be a very important issue. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 76.]

## **BMW**

Based on the information detailed above relative to lead time, an additional 3 months is needed for IT design, development and testing. This will lead to an overall project duration of close to a year after the EPA /NHTSA final rule is established. Because this can only start after the regulations and label designs have been approved by the EPA, a 2013 MY introduction is the earliest feasible option. [EPA-HQ-OAR-2009-0865-7142.1, p.3]

## **California New Car Dealers Association**

One last discussion, which I haven't included in my written testimony, but I was thinking about it on the flight over. I think we do have a concern with lead time. We, as dealers, aren't really familiar with the technical issues involved there. However, we are concerned with, you know, hopefully some effort to create a single uniform label. We have a statute in California that requires certain information to be on the Environmental Performance label. And assuming, but not knowing that CARB is on the same page as we are about trying to get a uniform label, that would require a legislative amendment in California. And generally, those would take effect January 1 of the following year. So with that in mind, you know, for the sake of California dealers and consumers, we would like to push that to a model year 2013. I think that would probably alleviate everybody's concern here. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 71-72.]

## **Ford Motor Company (Ford)**

Lead Time: Ford recommends new label requirements begin no earlier than ten months from the final rule to address the significant additional complexity to our operations. To provide an ease in transition to the consumer, certification process, agencies and industry, the new label requirement should coincide with the beginning of the 2013 model year. [EPA-HQ-OAR-2009-0865-7141.1, p.1]

### Lead Time

Ford opposes the proposed 30 day post-rule publication effective date for implementation, which would provide wholly inadequate lead time for manufacturers. We recommend an implementation date starting with the 2013 MY, assuming the requirements are finalized no later than January 31, 2011. Ford will begin producing 2012 MY vehicle lines early in the 2011 calendar year. Based on the expected publication date of the final rule, there will not be sufficient time to implement changes to accommodate a new label design. [EPA-HQ-OAR-2009-0865-7141.1, p.7]

Our lead time estimates are based on an internal analysis of the IT systems needed to accommodate the new required data elements (we estimate based on the NPRM a minimum of 14 incremental numerical items alone for the most complicated label assumption) and interaction with the label vendor. Our reviews indicate that, from the time the final rule is published, a minimum of ten months will be required to incorporate all of the necessary changes to our IT systems, based on the critical path. It is unrealistic to expect that manufacturers can carry out all of the logistical tests associated with a new label in time for the 2012 model year, which begins less than six weeks from the date of filing these comments. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

In Ford's case, economic conditions have required us to leverage our older IT systems to the maximum while we continue to pay down our debt. As a result, our systems are not in a position today to make immediate changes to our fuel economy label formats. In order to produce labels, data must be transferred via multiple IT systems: from the test site to regulatory databases to vehicle invoicing and finally to the label supplier and assembly plant. Fundamental updates will be needed to most of these systems in order to implement the new labels. In addition, it is also our understanding that IT resources for one of the key systems will already be stressed in 2011 to incorporate updates for other new CAFE and GHG reporting requirements and five cycle fuel economy labeling. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

### **General Motors (GM)**

#### **Lead Time**

The proposed requirement to apply the new labels within 30 days of the final rule is unrealistic. The agencies have proposed -- with equal probability of finalization -- three different formats, and it is neither realistic nor a good use of resources for automakers to prepare for all three scenarios. This rapid implementation is not required by law, which only requires that NHTSA complete the rulemaking within 42 months (49 USC 32908(g)(4)). [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

The NPRM states that the recommended implementation of this change should take effect for the 2012 model year. Based on the early roll out of some 2012 model year vehicles (some as early as the first quarter of 2011) the requirement to implement the new label for 2012 model year will be difficult and very costly. GM recommends that the change be required beginning in the 2013 model year, providing the agencies meet their planned deadlines for issuing a final rule. This 2013 model year recommendation is based on a label design similar to Label #2, using black and white printing and positioning the fuel economy information in the same location and size as it is on today's existing label. [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

Based on the above-recommended criteria, GM estimates that it will require at a minimum, nine months to design, release, test and validate the system to enable full production capability at a cost of more than \$800,000. Again, this is based on black and white printing only. [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

This lead time estimate is based upon the following supporting information: [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

Using a label similar to Label #2 shown in the rulemaking requires significant investment and computer programming in order to print the information to comply with this requirement. [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

Currently, our Common Price Label Module (CPLM) has the ability to print the following fuel economy information on the label: [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

City/highway and combined fuel economy, Annual fuel cost, Slider bar vehicle comparison within class [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

Modifying the GM application to accommodate a label similar to Label #2 will add 7 new data elements for a Gas/Diesel vehicle and up to 19 new data elements for advanced technology vehicles like a gas/electric vehicle. These new data elements need to be incorporated into the CPLM, tested at production line rates and vehicle mix for (17) manufacturing facilities, (7) ports, Troy print center, Mexico, and Powertrain Global Headquarters using more than 50 printers. [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

Based on the detail provided above nine months is the best case scenario for black and white printing; color would extend this timing to 12-15 months. [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

To reiterate a previous point: If the rule is finalized in January of 2011, then GM recommends that it should take effect with the 2013 model year. [EPA-HQ-OAR-2009-0865-6924.1, p. 3]

### **Honda Motor Company**

Lead Time: Honda supports AIAM comments that suitable lead time for implementation should be six to nine months after the final rule is adopted. [EPA-HQ-OAR-2009-0865-6774.1, p.7]

### **Hyundai Motor Company**

#### Timing

Hyundai requests a minimum of 19 weeks lead time to adopt any changes rather than the proposed 30 days. Additional time beyond 19 weeks may be necessary depending on the design and color of the finalized label (see Subsection B below for more detail on implementation issues). A detailed description of the process to implement new labels is included below in Table 2. [See p.8 of this comment summary for Table 2 entitled, Implementation Timing for New Label] The process depicted below includes consideration of overlapping steps in the process for maximum efficiency. As a result of timing issues, depending on the timing of the final rule and the content in the final rule, it may be necessary to reconsider application of the label to model year 2012 vehicles and instead apply the label starting on a specific date. [EPA-HQ-OAR-2009-0865-7139.1, p.7]

It would also be helpful if the NHTSA and EPA could collaborate so that the implementation of the new Fuel Economy Label coincides with implementation of the pending changes for the NHTSA New Car Assessment Program label. Coordinating the implementation timing would have the benefit of avoiding having to implement two separate sets of changes to the Monroney Label. [EPA-HQ-OAR-2009-0865-7139.1, p.7]

Finally, we ask for a minimum of 90 days lead time to adopt any changes rather than the 30 days proposed. Additional time beyond 90 days may be necessary depending on the design and color of the finalized label. Depending on the timing of the final rule, the agencies may also want to reconsider application of the label to model year 2012 vehicles and instead require the label starting on a specific date. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 79-80]

## **Mitsubishi**

1. Additional time is needed to implement these new labels [EPA-HQ-OAR-2009-0865-6934.1, p.1]

Mitsubishi Motors is very concerned about EPA's and NHTSA's proposed timing for the new Fuel Economy and Greenhouse Gas (GHG) Label. As proposed, the rule requires numerous actions and changes within 30 days of finalization, this is virtually impossible -- these new requirements and the format changes are very extensive and require a significant amount of time to develop and implement. [EPA-HQ-OAR-2009-0865-6934.1, p.1]

- One concern is the availability of industrial-grade color printers if color labels are required by regulation, Industrial-grade color printers cannot be purchased at a local electronics store, but are specially manufactured by a limited number of suppliers, To comply with these regulations, most OEMs will simultaneously replace their existing printers creating a temporary shortage, When the supply shortage occurs, suppliers are likely to fulfill the large-volume orders before orders from their smaller customers, e.g., Mitsubishi Motors, Therefore, in order to comply, we will need more time than larger OEMs to implement color labels. [EPA-HQ-OAR-2009-0865-6934.1, p.1]

- Even the most minor changes to our vehicle labeling system require significant software modifications. From our recent experience, the software revisions needed for the 2008MY labeling changes required four months to successfully implement. [EPA-HQ-OAR-2009-0865-6934.1, p.2]

- To gain the maximum benefit from this new label, Mitsubishi Motors will need to educate our dealers and update our websites before the new labels appear on all vehicles. Since customer education is the true intention of this rule, an extensive education campaign needs to be designed and implemented to gain maximum results. We need much more than 30 days for this type of campaign. [EPA-HQ-OAR-2009-0865-6934.1, p.2]

Ideally, we recommend a minimum of one model year lead time (2013MY) before requiring these label changes on all new vehicles. We understand the agencies desire to implement this

regulation during the 2012MY. In this case, we suggest an eight-month delay (September 2011) which should be sufficient to address the timing challenges. This split model-year approach was successful for the 2008MY label change implementation without significant difficulties. [EPA-HQ-OAR-2009-0865-6934.1, p.2]

### **National Automobile Dealers Association (NADA)**

Implementation and Transition [EPA-HQ-OAR-2009-0865-6940.1, p.9]

NHTSA and EPA should attempt to issue a final rule on the revised fuel economy label concurrently with the final rule for the revised “Stars-for-Cars” label, and to coordinate when they take effect. Notwithstanding that fuel economy labeling is mandatory for all covered new vehicles, whereas “Stars-for-Cars” information is required on a rolling basis after selected vehicles are tested, coordinating these two label mandates will assist with their effective implementation. In that regard, NADA looks forward to working with NHTSA and EPA on outreach to dealers and to the motoring public once these labels are finalized. [EPA-HQ-OAR-2009-0865-6940.1, p.9]

### **Nissan**

Implementation Concerns

While Nissan endorses many aspects of the proposal and we see the benefit of providing information to create a better informed consumer, the implementation will be more challenging than the proposal anticipates. As a result, a thirty day effective date does not provide sufficient lead time to implement the new requirements. Changes to the labels similar to either labeling proposal with more robust graphics and a “smart” bar-coding will entail a significant redesign of the Monroney applications which would require coordination with our hardware and software vendors, manufacturing and vehicle shipment companies. The implementation would involve printers in multiple locations (manufacturing facilities, ports, regional and national offices) each requiring software installation, testing and training. Considering these factors, we estimate that it would take a minimum of six months to execute a black and white version of the new label. If the new labeling requirements include color, it would take a minimum of nine months. The execution of a color label requirement would entail the procurement and installation of fifteen new high-speed color printers capable of quickly printing custom labels in a manufacturing environment and fifteen color printers for port facilities, regional and national offices. [EPA-HQ-OAR-2009-0865-6922.1, p.4]

### **Suzuki Motor Corporation**

Implementation Lead-time

If the final rule contains new color requirements, special text, fonts and symbols, Suzuki estimates that it will take approximately six (6) months to implement the new label from the time the final rule is published. This lead-time will be necessary for Suzuki to purchase new software and hardware and implement any process changes that may be required. Therefore,

Suzuki recommends that EPA and NHTSA allow a minimum lead-time of at least 6 months from the time the final rule is published. [EPA-HQ-OAR-2009-0865-6900.1, p.5]

## **Toyota**

### When Would The Proposed Label Changes Take Effect?

The agencies propose that the final label changes will take effect for the model year (MY) 2012 vehicles, in order to be consistent with the recent joint rulemaking by EPA and NHTSA that established harmonized federal GHG emissions and CAFÉ standards for 2012 through 2016. Toyota requests that more lead time be allowed, primarily because 2012MY early model year introductions would be unable to comply with the new label requirements. Once finalized, time must be allowed to incorporate the newly required information and new label format into our system and processes. Additionally, implementation of the proposed label changes will require purchase, installation and prove out of new equipment at our plant and port facilities. Toyota recommends that the correct cut-point would be at the beginning of the model year following the one-year anniversary of the final rule.

When Would The Proposed Label Changes Take Effect? [EPA-HQ-OAR-2009-0865-6901.1, p.4]

The agencies propose that the final label changes will take effect for the model year (MY) 2012 vehicles, in order to be consistent with the recent joint rulemaking by EPA and NHTSA that established harmonized federal GHG emissions and CAFE standards for 2012 through 2016. Toyota requests that more lead time be allowed, primarily because 2012 MY early model year introductions would be unable to comply with the new label requirements. Once finalized, time must be allowed to incorporate the newly required information and new label format into our system and processes. Additionally, implementation of the proposed label changes will require purchase, installation and prove out of new equipment at our plant and port facilities. Toyota recommends that the correct cut-point would be at the beginning of the model year following the one-year anniversary of the final rule. [EPA-HQ-OAR-2009-0865-6901.1, p.4]

## **Response:**

The agencies proposed that the new label take effect for the 2012 model year, in anticipation of advanced technology vehicles entering the market that would require labels which addressed their particular attributes. For those advanced technology vehicles expected to enter the market in model year 2011, EPA indicated that we would work with individual manufacturers to develop interim labels that would meet regulatory requirements and be consistent with the proposal on a case-by-case basis, using our current authority. The proposed timing would also coincide with the recent joint rulemaking by EPA and NHTSA that established harmonized federal GHG emissions and CAFE standards for new cars, sport utility vehicles, minivans, and pickup trucks for model years 2012 through 2016.[\[1\]](#) We also proposed to provide 30 days of lead-time for automobile manufacturers and importers to update the label template and upgrade printing capabilities in order to implement these new requirements in the 2012 model year.

This timing, given rule finalization in December 2010, was projected to capture the majority of the 2012 model year.

Automakers commented that they would need significantly more lead-time to adopt a revised label, explaining that the implementation process was much more complex than buying off-the-shelf colors printers. Specifically, these commenters referenced 1) a detailed process of integrating multiple Information Technology systems in order to properly assign the new label elements to the correct vehicle, 2) redesign of the vehicle Monroney label if the footprint for the fuel economy and environment label changed from that of the current fuel economy label, and 3) the need to print new label stock or acquire and integrate new printers in order to launch a new label. Automakers typically expected that implementing these procedures would take on the order of six to ten months, although comments suggested lead-times from a low end of 19 weeks to a high end of the model year following the one year anniversary of the final rule. Several automotive commenters suggested making the new label requirements effective with the 2013 model year, assuming that that sufficient lead-time was also allotted.

Some commenters supported the proposal to implement the new label at the start of a model year, noting that this would dovetail with the changeover in manufacturing processes. Implementing the label at the beginning of the model year would thus allow for a change in the labeling procedure when the production line was idle, minimizing costs and the chances of mislabeling. Doing so would also minimize public confusion that could arise from two different label designs appearing on two vehicles of the same model and model year. However, not all those who commented on lead-time felt that a change at the start of a model year was important, given their particular manufacturing procedures, and requested the flexibility for voluntarily early adoption, which could prevent having duplicate systems in place.

The detailed description of the required procedural steps persuaded EPA and NHTSA that additional lead-time is necessary for automakers to properly implement the revised label without undue burden and error. NHTSA and EPA also agree that, for many manufacturers, switching at the start of the model year would be the least burdensome and most logical approach. Finally, the rulemaking is being required several months beyond when originally planned, which would capture only a portion of the 2012 model year. An EPA analysis of the timeframe of vehicle certifications over the past several years, using confidential information submitted by automotive manufacturers, revealed that fewer than 20% of the total labels for the model year are typically issued by the end of May, 40% by the end of June, and 60-70% by mid-August. We do not think it would enhance public understanding for a new label to be required on less than half of the vehicle models in that model year.

Thus, the agencies are requiring that the revised label be applied to all model year 2013 and later vehicles. The rule will be effective 30 days after publication, and manufacturers may optionally adopt the label for the remaining portion of the 2012 model year after that date. This approach provides the manufactures with the most flexibility and several extra months of lead-time prior to the start of the model year, while providing consistency across the entire 2013 model year to minimize public confusion. We acknowledge that this lead-time, while significantly longer than that proposed, is less than that requested by certain commenters. However, the final label designs address many of the considerations that manufacturers raised

as necessitating lead-time. Specifically, the minimum footprint of the current fuel economy label has been retained here, thus eliminating the need for redesign of the Monroney label layout. In addition, the labels have been designed to eliminate the need for color printers on the line and, for the most part, to use a single pre-printed card stock, thus removing the lead-time steps that would have been needed to integrate either color printers or multiple card stocks in continuous use. We therefore believe that it will be possible for manufacturers to make the necessary changes in their labeling processes in the lead-time allotted.

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[\[1\]](#) See 75 FR 25324, May 7, 2010.



## **7.2. Labels for MY 2011 Advanced Technology Vehicles**

**Organization:** National Automobile Dealers Association (NADA)

**Comment:**

**National Automobile Dealers Association (NADA)**

When the new label rule takes effect, undoubtedly there will be undelivered vehicles on dealer lots with the old label. Although much of the information on new and old labels will look similar, prospective purchasers may be somewhat puzzled when shopping between virtually identical vehicles of different model years. To help minimize transition issues, NHTSA and EPA should allow manufacturers to use new labels early and to send dealerships compliant replacement labels for older vehicles in inventory. [EPA-HQ-OAR-2009-0865-6940.1, p.9]

**Response:**

While the agencies are requiring the new labels with the 2013 model year, we recognize the issues raised by NADA and have adopted their proposed resolution. The regulations allow the manufacturers to adopt the new label prior to the 2013 model year. In some cases, for example, a manufacturer may be manufacturing vehicles and printing labels for both 2012 and 2013 model years, and to avoid changing back and forth between label designs they may want to simply apply the new label to all vehicles coming off the assembly line.

### **7.3. Other Implementation Issues**

**Organization:** Ford Motor Company (Ford)

**Comment:**

**Ford Motor Company (Ford)**

Related to the analysis of internal system upgrades, Ford is also very interested in finding out details of any changes that will be needed to the EPA VERIFY database in order to understand how Ford's data submission process to the Agency will be affected. If modifications will be needed to accommodate the acceptance of additional data elements, Ford requests feedback on when such updates to VERIFY will take place. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

**Response:**

EPA will work with manufacturers in as timely a manner as possible to identify changes to data elements and the data submission process to support the new label. EPA will continue to keep manufacturers apprised of updates to the VERIFY system.

## 8.1. Test Procedures for EVs/PHEVs

**Organization:** Honda Motor Company

**Comment:**

### **Honda Motor Company**

Calculating MPG during Charge Depleting mode: In our previous comments regarding MPGe, and Consumption we emphasized the following: consumers need “miles per unit-of-energy purchased” and/or consumption (gallons/mile). Whether we emphasize consumption metrics or MPG, a problem occurs when, due to the quirks of testing modes, the gasoline engine turns on for a very brief period towards the end of the testing cycles. These brief events can result in ridiculously large MPG numbers which are not credible. Towards this end, Honda suggests that EPA simply cap MPG at 100 mpg in Charge Depleting mode. This cap is roughly equivalent to the MPGe of vehicles operating exclusively on electricity. And while it may not be doubted that some consumers will maximize their use of the electric component of their PHEV, calculations in excess of 100 mpg will represent only intermittent use of the gasoline engine and only nonsensical numbers will result. [EPA-HQ-OAR-2009-0865-6774.1, p.6]

**Response:**

Charge depleting fuel economy will only be displayed on the label in miles per gallon of gasoline equivalent units. Using mpge units will prevent the high fuel economies from splitting consumption into two or more fuels.

**Organization:** National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)

**Comment:**

### **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

On pg. 58142 a paragraph on CD hot-start testing allowances seems to mistakenly appear in the CS section as well as the CD section. I also do not think it is necessary to provide the allowance for a “CS-switch” to enable hot-start CD testing since in reality it will be impossible for a PHEV to start testing both fully charged and “hot.” [EPA-HQ-OAR-2009-0865-7222, p.4]

Finally, the UF discussion and tables provided on pages 58142-58145 do not seem consistent with the tables in SAE J2841. Assuming the tables get corrected, I agree in principle with using the multi-day individual cycle-specific utility factors for labeling (though using the multi-day individual combined UF would be okay as well, particularly if only combined values are going to be shown on the label). I also agree with using the fleet UF curves (either cycle-specific or combined) for CAFÉ or other fleet level calculations, and as discussed in the high-level

comments I assert that this should also be done for PHEVs meeting the “dual-fuel” vehicle definition. [EPA-HQ-OAR-2009-0865-7222, p.4]

**Response:**

The Utility Factor tables have been updated to match those listed or calculated from SAEJ2841 as revised in September of 2010. For label fuel economy values, multiday individual combined utility factors will be used with 5-cycle corrected charge depleting ranges. EPA agrees with NREL that the use of multi-day individual combined utility factors is appropriate for combined label fuel economy values. For CAFE and other fleet calculations, cycle specific fleet utility factors will be used. For the purposes of plug in hybrid vehicles that meet the definition of a dual fueled vehicle, CAFE is harmonically weighted 50% charge depleting fuel economy and 50% charge sustaining. This CAFE requirement is specified in 49 USC § 32901.

**Organization:** Argonne National Laboratory

**Comment:**

**Argonne National Laboratory**

Technical Comments on Using J1711 Results and Calculations

The NPRM states that J1711 will be used to test the vehicles to provide label data. Argonne staff were key architects of the methods contained in SAE J1711 and J2841. The comments in this section offer specific references in J1711 to test and calculate the data for the label. Adjustment methods were beyond the scope of J1711 and the information in this section offers recommendations for those calculations. [EPA-HQ-OAR-2009-0865-7172.1, p.7]

Using “Alternative Results Calculation” in J1711

Label Proposal 2 defines the depleting operation separately from the sustaining. There is a method in J1711 that finds the lumped results of depleting operation from the Full Charge Test. It is found in Appendix B, “Alternative Results Calculations.” [EPA-HQ-OAR-2009-0865-7172.1, p.7]

Using UF Calculations for “How This Vehicle Compares” Section

The NPRM is not specific on UF calculations. The recommended method for calculating the UF-weighted results is the Fractional Utility Factor Calculation Method explained in Appendix A and used in the calculations in Sections 6.2 and 6.4. [EPA-HQ-OAR-2009-0865-7172.1, p.7]

Applying Adjustments to J1711 Results

SAE J1711 does not provide methods for adjusting fuel and electric energy consumption results. In fact the particular UF weighting methods in J1711 make the adjustments particularly

challenging. Possibilities for adjusting results are shown below. [EPA-HQ-OAR-2009-0865-7172.1, p.7]

The UF weighting method relies upon cycle distance segments to weight each result of the charge depleting test (call the FCT in J1711). One way to use the “Fractional” UF approach with adjustments is to adjust the test cycle distance. This ensures that the charge-depleting range is reduced according to the increased energy consumption rate assumed in the adjustment. [EPA-HQ-OAR-2009-0865-7172.1, pp.7-8]

The recommendation is to first calculate the MPGe in order to find the 2008 MPG-based adjustment factor. Use this adjustment factor for both the fuel (if any) and electrical energy consumption rates. However, also reduce the cycle distances to find the fractional UF for each cycle, as mentioned earlier. ANL does not advocate the calculation of MPGe as a mix of fuel and electricity for any other reason than finding the adjustment factor. The results shall be kept separately. [EPA-HQ-OAR-2009-0865-7172.1, p.8]

This method is only valid under some very specific assumptions. The method assumes that more aggressive driving, cold temperatures, and A/C usage consumes added energy in the same proportional amounts of fuel and electricity as consumed in the UDDS or HWY tests. In the case of the blended PHEV conversions tested at ANL, the difference in the proportional mix for the SC03 and US06 test cycles was different, but perhaps not dramatically different and thus the method could be used for that type of PHEV. However, for PHEVs that only have the capacity to run electric-only in the UDDS or HWY cycle means any added energy must come from fuel (such appears to be the case for the Toyota PHEV Prius prototypes) not from the electricity. The method for adjusting this vehicle must appropriately change the proportion of blended energy to match expectations for real-world driving. [EPA-HQ-OAR-2009-0865-7172.1, p.8]

#### End of Test (EOT) Criterion

To be consistent with California ARB, J1711 was written with the same EOT test criterion as the primary option. However, for PHEVs with large batteries, charge-balance may not be easily achieved. For this reason another option was included in J1711 called the “Alternative EOT Criterion” which ANL recommends if it is found that the 1% of fuel criteria is too restrictive. [EPA-HQ-OAR-2009-0865-7172.1, p.8]

#### Cycle-Specific UF for Label Reporting

The NPRM references SAE J2841 in the context of using Multi-day Cycle Specific Utility Factors, yet these values are not included in the J2841 document. Additionally, if the label does not call out separate City or Highway results, then it may be wise not to use cycle-specific UFs to calculate results only then to combine them back together. Caution is especially advised in the case of Multi-day UFs, which use an alternative data-set to estimate the impact of travel patterns over the course of a year. The Individual Single-day and Fleet UF curves are very similar between the alternative data-set and the NHTS in terms of distances traveled versus UF value, breaking out the “Individual” data set into cycle-specific sets based upon average speeds is not recommended because the mix of average driving speeds do not match the NHTS survey data.

Also, the data-set is not necessarily an equally weighted mix of national driving patterns and speeds. [EPA-HQ-OAR-2009-0865-7172.1, p.8]

**Response:**

The final rule will reference Appendix B or SAEJ1711 for calculating charge depleting results. The final rule also assigns fractional utility factors to each successive cycle. The approach in Appendix A of using a Utility Factor fraction at a given distance “x”, is in effect what the final rule accomplishes, with assigned UFs based on nominal cycle distances.

Some of the label values are adjusted to "real world" or 5-cycle values. For PHEVs and EVs, the derived 5-cycle equations will be used to adjust fuel and energy consumption for label values. The utility factors, range, annual cost, and consumption will all be adjusted via the derived 5-cycle. The equation for the derived 5-cycle approach uses energy consumption in the units of mile per gallon of gasoline equivalent. MPGe is also a statutory requirement of the FE label (49 US Code 32904 (c)). MPGe also used in calculating CAFE values, albeit not adjusted via -cycle.

EPA recognizes that future PHEVs and EVs may not follow the same empirical lab to real world correlation. Manufacturers may use real world adjustments other than the 5-cycle method or 5-cycle cap with prior Administrator approval.

To address the concern that the charge depleting range determination as proposed was not specific enough and could be prone to variation from “false trigger” electrical noise and due to recent testing experience, this rule references sections 6.1.3.1 and 6.1.3.2 if SAEJ1711 for Actual Charge Depleting Range ( $R_{CDA}$ ) calculation.

This rule will not use the cycle specific multi-day individual utility factors due to concerns over the cycle specific MDIUFs not matching the NHTS data. Furthermore, the only place for MDIUFs is in calculating the combined MPGe value. Using cycle specific MDIUFs would add a level of complexity that many are uncomfortable with. Therefore "combined" or non-cycle specific MDIUFs will be used in calculating MPGe.

**Organization:** Mitsubishi

**Comment:**

**Mitsubishi**

Allow OEMs to use the forthcoming SAE J1634 battery electric vehicle (BEV) test procedures for EV certification and compliance testing. [EPA-HQ-OAR-2009-0865-6934.1, p.1]

BEV Test Procedures

Since the late 1960s, Mitsubishi Motors has been a global leader in electric vehicle (EV) technology. Our steady investment in EV technology and battery research led to the global launch of the i-MiEV (Mitsubishi innovative Electric Vehicle) - our award winning battery

electric vehicle. Recently, we announced the U.S. launch of the 'Mitsubishi 'i' powered by MiEV technology.' The Mitsubishi 'i' will be offered for sale beginning in November 2011. [EPA-HQ-OAR-2009-0865-6934.1, p.2]

As a global leader in EV technology, we strongly support EPA's adoption of uniform test procedures based on existing industry standards. We recommend the use of the forthcoming SAE J1634 test procedures to certify our EVs. Using existing test procedures will simplify the process for manufacturers and reduce the time and resources necessary for EV development and certification. [EPA-HQ-OAR-2009-0865-6934.1, p.2]

**Response:**

EPA will review the new SAEJ1634 after it is published. EPA recognizes that the BEV range and consumption test procedures can be lengthy and difficult. To address this, manufacturers may use alternate BEV testing procedures with prior Administrator approval.

**Organization:** Tesla Motors

**Comment:**

**Tesla Motors**

Test Procedures for EV's

Finally, although not directly referenced in the NPRM, Tesla believes that inherent in the consideration of information on the fuel economy label is the determination of the appropriate test procedures to measure EV range and efficiency. The test procedures are very important in appropriate. As EPA itself has recognized, use of the incorrect test procedures can skew actual fuel economy (or fuel economy equivalent) values. Specifically, in the November 2009 direct final rule, EPA recognized the inappropriateness of utilizing the five part test for traditional internal combustion engines as test procedures for ATVs. See 74 Fed. Reg. 61,537 (November 25, 2009). As a result, as part of the fuel economy rulemaking efforts, Tesla encourages EPA and NHTSA to consider development of appropriate test procedures for measuring fuel economy for ATVs. [EPA-HQ-OAR-2009-0865-6933.1, pp.5-6]

EPA and NHTSA need not develop such test procedures in a vacuum. A number of efforts are underway to develop appropriate test criteria for establishing ATV efficiency. For example, the Society of Automotive Engineers ("SAE") has established a working group under SAE J1634 to specifically look at development of appropriate test procedures for EVs. The committee is focused in developing an abbreviated version of the existing two part full discharge tests (i.e., UDDS and HFET). This would significantly cut test time and cost. Moreover, the committee is also considering incorporation of other test cycles (US06, cold UDDS, etc.) into the abbreviated procedure to more accurately represent range and energy consumption for EVs. Tesla Motors is actively engaged in developing these test procedures and providing simulation and test data from their roadster platform. In addition, the California Air Resources Board ("ARB") is also reviewing appropriate test procedures. Both the SAE and California ARB have substantial

knowledge, expertise and experience with reviewing and regulating ATVs. We urge EPA and NHTSA to take into consideration the work of these various organizations and agencies as the federal government moves forward with developing new fuel economy labels, metrics and test procedures. [EPA-HQ-OAR-2009-0865-6933.1, p.6]

**Response:**

EPA realizes that both advanced technology vehicles and the understanding of how said vehicles operate are still developing. EPA will continue to work with ATV stakeholders including SAE, manufacturers, ARB, and NHTSA on developing test methods required to quantify the operation of ATVs. For electric vehicles, EPA will continue to reference SAEJ1634, Electric Vehicle Energy Consumption and Range Test Procedure, as cancelled in October 2002. Manufacturers may use methods other than those specified in SAEJ1634, October 2002 ver., with prior Administrator approval. EPA will review the new SAEJ1634, including the abbreviated test methods, after it is published.

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

In addition to our comments on the label design and the need for additional lead time, the Alliance has been working with EPA and NHTSA on a wide variety of highly complex and technical issues, each of which is addressed in Attachment B [See p. 17 of this comment summary for Attachment B entitled, Comments on Advanced Technology Vehicle Issues and PHEV/BEV Test Procedures]. Both automakers and the agencies would benefit from additional dialogue on these issues. The Alliance therefore recommends that the Agencies plan a Supplemental Final rule or a Technical Amendment to allow for further dialogue and to develop the best possible practices for testing and calculating the fuel economy of advanced technology vehicles. [EPA-HQ-OAR-2009-0865-6850.1, p.1]

BEV and PHEV Labeling Provisions [EPA-HQ-OAR-2009-0865-6850.2, p.12]

Future advanced technology vehicles will include battery electric vehicles (BEVs), PHEVs and Fuel Cell vehicles (FCVs). For FCVs, the Alliance supports having EPA initiate development of label guidance. For PHEV and BEV labels, while the NPRM provided substantial direction, further guidance is required on the test procedures and the appropriate calculation methods. [EPA-HQ-OAR-2009-0865-6850.2, p.12]

EPA, CARB and vehicle manufacturers have been working together through Society of Automotive Engineers (SAE) committees to develop SAE-recommended practices and “J” standards on how to measure energy consumption and range for advanced technology vehicles. The proposed rule adopts some of the appropriate SAE J standards, such as J1711 (Recommended Practice for Measuring the Exhaust Emissions and Fuel Economy of Hybrid-Electric Vehicles) for PHEVs and J1634 (Electric Vehicle Energy Consumption and Range Test



Procedure) for BEVs, and J2841 (Definition of the Utility Factor for Plug-In Hybrid Electric Vehicles Using US DOT National Household Travel Survey Data) for utility factors. However, the SAE J standards were not originally intended to be used directly in regulations. The Alliance has worked with EPA to develop a list of technical issues (see Attachment B) identifying necessary corrections to procedures, references and test conditions. We look forward to continuing to work with EPA to streamline and refine the test procedures and calculation methodologies. [EPA-HQ-OAR-2009-0865-6850.2, pp.12-13]

#### COMMENTS ON ADVANCED TECHNOLOGY VEHICLE ISSUES AND PHEV/BEV TEST PROCEDURES [EPA-HQ-OAR-2009-0865-6850.2, p.17]

The Alliance generally supports using Society of Automotive Engineers (SAE) test procedures (J1711, J1634) developed jointly by industry, the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) as a basis for calculating Federal fuel economy for advanced technology (AT) vehicles. However, both industry and Agency stakeholders recognize time is needed over and above the 60 day comment period to address the highly complex and technical issues discussed below. The Alliance recommends that the Agencies Provide for a Supplemental Final rule or a Technical Amendment to allow for changes and the best possible practices for testing and calculating the fuel economy of AT vehicles in the future. Moreover, with respect to plug-in hybrid electric vehicles (PHEVs) in particular, the test procedures should not be limited to sections 3 and 4 of SAE J1711, as other sections of SAEJ1711 also are applicable. Further work is needed on both SAE J1711 and applicable Federal Regulations to avoid confusion and conflicting requirements. The Alliance recommends that industry and the Agencies use the comment period on the proposed labeling rule to work out these issues. [EPA-HQ-OAR-2009-0865-6850.2, p.18; for additional comments pertaining to Attachment B, see pp.17-26]

#### **Response:**

Due to the developing nature of advanced technology vehicles, the EPA may address procedural flexibilities in the future through guidance, technical amendments, or rulemaking. EPA has continued dialogue with advanced technology stakeholders throughout this rule making process to address emergent technical issues. EPA realizes that some of these issues may not be solved on a rule-making time scale and still be implemented on advanced technology vehicles in a manner timely enough to meet vehicle labeling and certification testing requirements. For this reason, EPA may address said emergent issues when appropriate through guidance, technical amendment, or rulemaking.

**Organization:** Ford Motor Company (Ford)

#### **Comment:**

**Ford Motor Company (Ford)**

Electric/PHEV Test Procedures [EPA-HQ-OAR-2009-0865-7141.1, p.8]

Ford understands the complexity associated with these new test procedures and the fact that minor changes may be necessary as manufacturers gain more experience with testing these advanced technology vehicles. We also have significant concerns associated with having to test PHEVs and EVs to separate certification protocols (CARB and EPA) and believe time is needed to try and streamline certification testing to the extent practical. Therefore, Ford recommends the EPA and NHTSA consider including a flexible regulatory mechanism, such as a technical amendment or supplemental final rule to address any procedural changes that maybe needed in the future. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

In general, Ford is supportive of the electric and PHEV test procedures outlined within the proposed rulemaking and we support the supplemental comments from the Alliance of Automobile Manufacturers on this point. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

Electric/PHEV Label Quantity Calculations [EPA-HQ-OAR-2009-0865-7141.1, p.8]

Ford has reviewed the calculations that are necessary to derive the label quantities from the raw test data specified by SAE J1711. We request that further clarification regarding these specific steps be added to the final rule. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

In particular, for Label 2, it is necessary to calculate both the composite fuel economy, as well as charge depleting and charge sustaining values. The steps necessary are roughly as follows: [EPA-HQ-OAR-2009-0865-7141.1, p.8]

1. The recharge AC Whr must be distributed to each charge depleting cycle, according to J1711 – we request that this step be added to the final rule and reference Eq 38 in section 6.3, on page 53 of SAE J1711 (note that there is an equation numbering error in J1711, and there are two equation 38's – the AC Whr equation is in section 6.3). [EPA-HQ-OAR-2009-0865-7141.1, p.9]

2. For the composite calculation, Ford agrees with detailing the utility factor curve coefficients required for the city and highway composite values, and tables of representative values. Ford also agrees with the J1711 approach of basing the phase or bag utility factors on the nominal cycle distance, not the actual distance. This will reduce variability in the utility factors due to the slight changes in actual distance. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

3. J1711 does not recommend adding the electrical and gasoline consumption into one value, so the final rule should provide the equation (for both city and highway) which combines composite fuel consumption, the Petroleum Equivalence Factor (PEF) and the composite electrical consumption into an overall equivalent, composite fuel consumption ( $FC_{equivComp} = FC_{comp} + ElecComp/PEF$ ). [EPA-HQ-OAR-2009-0865-7141.1, p.9]

4. For clarity, the CO2 composite emissions equation, equation 40 in section 6.4.1.3 of J1711 (note that in J1711, this is shown in error as equation 37) should be referenced. In this case, electrical consumption is not included. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

5. For the charge depleting range calculations, we request that the reference to section 6.1.3 of J1711 be included. Also, it should be noted that the value of 'Z' calculated in that section is restricted to lie between 0 and 1. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

6. For the charge depleting values, the calculations in Appendix B of J1711 should be referenced. J1711 describes how to calculate the charge depleting fuel consumption separately, but the combination of electrical usage and fuel usage should be detailed in the final rule ( $FC_{equivCD} = FC_{cd} + E_{totalAC}/R_{cda}/PEF$ ), for both city and highway. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

7. The label adjustment factor determination should be clarified. Note that there are label adjustment factors for charge depleting equivalent fuel consumption for city and highway, as well as for the composite equivalent fuel consumption for city and highway. The options for calculating these values are the derived 5 cycle equation (in terms of consumption), or a 30% consumption increase, or manufacturer supplied equations/methods. The option of using the full 5 cycle test should be removed until the application of the 5 cycle equations to the sequence of charge depleting test results is more fully defined. Specifically, both the method of determining the individual CD bag results needs more definition, and the 5 cycle equation coefficients should be revisited to ensure they apply to electrical consumption and the new characteristics of plug-in and electric vehicles. Ford also requests that, for clarity, the reference in the NPRM to a 30% fuel economy decrease be removed. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

8. The application of the label adjustment factors determined in the previous step to other label quantities should be detailed – in particular, the charge depleting range should be adjusted using the charge depleting equivalent fuel consumption adjustment factors, and the CO<sub>2</sub> emissions should be adjusted using the composite equivalent fuel consumption adjustment factors. Note that these factors may be the same. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

9. The calculation of the combined quantities appearing on the label should be detailed as the final step. In particular, the label-adjusted city and highway consumption values are combined using 55/45 weighting (CD fuel consumption, CS fuel consumption,  $R_{cda}$ , composite fuel consumption and composite CO<sub>2</sub>). The fuel economy values are the reciprocal of the corresponding fuel consumption. [EPA-HQ-OAR-2009-0865-7141.1, p.9]

10. Annual cost – Label 2 does not require a composite annual fuel cost, however, if this element is added or required on a different format, then further detail is request regarding its calculation. In particular, the electrical consumption and charge depleting fuel consumption must be label adjusted separately, using the label adjustment factors for the charge depleting mode fuel consumption (which is not required elsewhere on the label), and combined using a utility factor based on the label adjusted combined  $R_{cda}$ . [EPA-HQ-OAR-2009-0865-7141.1, pp.9-10]

11. Total vehicle range – the calculation of the total vehicle range which appears on the right side of the 'charge range' bar is not detailed in the NPRM. Ford requests that this calculation be specified, and recommends using an equation similar to :  $TotalVehRange = R_{cda} + (X.X \text{ TankCap} - R_{cda} \text{ FC}_{cd}) \text{ FEcs}$  where  $R_{cda}$  is the combined, label adjusted quantity charge depleting range [EPA-HQ-OAR-2009-0865-7141.1, p.10]

TankCap is the advertised tank capacity, in gallons X.X is a usable tank factor [EPA-HQ-OAR-2009-0865-7141.1, p.10]

FCcd is the combined, label adjusted charge depleting fuel consumption [EPA-HQ-OAR-2009-0865-7141.1, p.10]

FEcs is the combined, label adjusted charge sustaining fuel economy [EPA-HQ-OAR-2009-0865-7141.1, p.10]

The term Rcd<sub>a</sub> FCcd reduces the range based on fuel used during charge depleting mode. It should be required that the quantity (X.X TankCap – Rcd<sub>a</sub> FCcd) be greater than zero. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

In addition, Ford understands that the proposed calculations are only applicable if the tested vehicle has a charge depleting range longer than one cycle. In circumstances where that is not the case, additional amendments or procedural information would be required. Ford would like to meet with EPA in the future to discuss our comments and clarify any concerns the agency may have. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

### **Response:**

For clarity, responses are numbered to match the appropriate comment. It should also be noted that equations for calculating all the required label values are provided in this rule. Several examples are also detailed.

1. The AC Whr will be disturbed by cycle according to equation 38 of 6.4.1.1 of SAEJ1711.
3. This rule gives the equations for and examples of charge depleting fuel economies that include both gasoline electricity.
4. The CO<sub>2</sub> composite emissions specified in equation 40 of 6.4.1.3 in SAEJ1711 does not include upstream electricity emissions. Equation 40 would indeed be the proper reference for the CO<sub>2</sub> composite emissions used to calculate the label greenhouse gas rating since the label upstream CO<sub>2</sub> emissions are not added to the tailpipe GHG rating on the label. In cases where upstream CO<sub>2</sub> or the when the electrical energy is accounted for, equation 40 would not be the proper reference.
5. EPA agrees that the charge depleting range calculation in section 6.1.3 of SAEJ1711 should be included. The provision of Z being of a value greater than zero and less than one is assumed, but will be specifically spelled out. Equations 27 through 30 will be referenced for the calculation of charge deplete range. Alternate methods of calculation could be used with advanced Administrator approval.
6. EPA agrees that appendix B of SAEJ1711 should be referenced for fuel consumption. Due to the PHEV label format and calculations required of said format, a method for calculating charge depleting total fuel consumption is required. This total fuel consumption will be  $FC_{equivCD} =$

$FC_{cd} + E_{totalAC}/R_{cda}/C$ . Where  $FC_{equivCD}$  is first calculated for city and highway and then combined, using miles per gallon equivalent units, harmonically weighted 55 city/ 45 highway.  $FC_{equivCD}$  would also be converted to fuel economy and adjusted via derived 5-cycle, before combining city and highway values together.  $C$  would be the amount of alternative fuel equivalent to a gallon of gasoline. For the purpose of electricity, the conversion factor  $C$  is 33705 Watt hours per gallon of gasoline.

7. EPA recognizes the difficulty in measuring and reporting the 5-cycle data that would be required to perform the 5-cycle calculations for charge depleting operation. The option to perform 5-cycle testing during charge depletion would require prior approval of method from the Administrator.

The 30% maximum derived 5-cycle adjustment will be kept to avoid over correcting fuel consumption. The 30% cap will be a specific option for the sake of clarity. Manufacturers will have the option to demonstrate that their vehicles, during charge depleting operation, will experience less than the 30% correction to fuel economy. This demonstration need not be 5-cycle testing, but the demonstration should address 5-cycle conditions. Using a derived 5-cycle correction maximum other than 30% requires Administrator approval.

8. The derived 5-cycle adjustments are applied to the total fuel economy, both city and highway separately, from the charge depleting mode. To clarify, the 5-cycle adjustments would be applied to the charge depleting total city mpge and the charge depleting total highway mpge. The adjusted fuel economy city mpge and highway mpge would then be combined harmonically as addressed above.

9. Combining city and highway charge depleting fuel economies is the final step in calculating a charge depleting combined fuel economy. Consumption and fuel economy are reciprocal terms.

10. EPA agrees that annual cost must be calculated using label adjusted consumption values. In charge depleting mode, the electricity and fuel consumption will use the same adjustment factors. The derived 5-cycle adjustments are meant to be applied to the total charge depleting city fuel economy and the total highway fuel economy. Applying 5-cycle adjustments to two or more fuels separately could lead to a larger derived 5-cycle adjustment than if a single adjustment was made to the total fuel consumption.

11. EPA agrees that fuel used during the charge depleting range of operation cannot also be used in the charge sustain range to yield a total vehicle range longer than would be experienced if the vehicle were driven starting with a full battery and fuel tank of fuel.

EPA will continue to meet with manufacturers on future concerns on a case by case basis. At this time, procedures for measuring and calculating fuel economies of charge depleting modes that last less than one test cycle are not available.

**Organization:** Toyota

**Comment:**

## Toyota

Electric and Plug-In Hybrid Electric Vehicle Test Procedures. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

Electric Vehicles [EPA-HQ-OAR-2009-0865-6901.1, p.13]

Currently, EPA does not have a federal test procedure for measuring fuel economy for electric vehicles. EPA has periodically performed fuel economy testing for electric vehicles utilizing J1634 Society of Automotive Engineers (SAE) test procedures. Toyota supports EPA's directive that manufacturers may continue to use SAEJ1634 test protocols, with the exception of not using the C coefficient adjustment in paragraph 4.4.2. While test procedure issues can be addressed under J1634, Toyota is concerned that a number of technical issues remain regarding calculations and labeling of EVs. Toyota fully supports the SAE committee efforts and encourages EPA to address these issues through the SAE. [EPA-HQ-OAR-2009-0865-6901.1, p.13]

PHEV Test Procedure and Calculation [EPA-HQ-OAR-2009-0865-6901.1, p.14]

The EPA proposes to incorporate by reference SAEJ1711, in part, for PHEV test procedures. Charge Depleting Operation - FTP or 'City' Test and HFET or 'Highway' Test. Specifically, SAEJ1711 chapters 3 and 4 definitions and test procedures, with some exceptions. [EPA-HQ-OAR-2009-0865-6901.1, p.14]

Charge Depleting Operation: Test cycles will continue until the end of the phase in which charge sustain operation is confirmed. Charge sustain operation would be confirmed when one or more phases or cycles satisfy the Net Energy Change (NEC) requirements as follows: NEC is applied to the rechargeable energy storage system (RESS) - commonly batteries - with a proposed tolerance of 1% of fuel energy NEC state of charge criteria, per SAEJ 1711. Toyota supports EPA's incorporation of SAEJ1711 and appreciates EPA's flexibility in allowing manufacturers to optionally terminate charge depleting testing before charge sustaining operation is confirmed via RESS. Additionally, Toyota appreciates EPA's flexibility in approving alternate NEC tolerances and state of charge correction factors if the 1% proves unworkable. [EPA-HQ-OAR-2009-0865-6901.1, p.14]

Hybrid Charge Sustaining Operation: EPA proposes to adopt the 1% of fuel energy NEC criteria, as expressed in SAEJ1711, and EPA is allowing flexibility to approved alternative NEC tolerances and SOC correction factors if the 1% criteria is not appropriate. In particular, RESS state of charge tolerances beyond the 1% of fuel energy may be approved by the Administrator. Toyota appreciates and supports this flexibility. [EPA-HQ-OAR-2009-0865-6901.1, p.14]

Charge Depleting Range Determination: Actual Charge Depleting Range (RCDA) will be a calculated value that uses the charge sustaining state of charge of the RESS to define the RCDA endpoint. In recognizing the inherent nature of PHEV s, EPA is requiring RCDA to be calculated, instead of simply allowing RCDA to be established when the engine first starts. Toyota supports EPA's incorporation by reference of SAEJ1711 for the calculation of actual charge depleting range. Specifically, calculation of RCDA will require monitoring the RESS

state of charge (SOC) throughout charge depleting testing and the RCDA would be determined from the start of charge depleting (CD) testing until the charge sustaining SOC value is reached. [EPA-HQ-OAR-2009-0865-6901.1, p.14]

Mileage and Service Accumulation EPA is seeking comment on modifying the minimum and maximum allowable test vehicle accumulated mileage for both EVs and PHEVs. EPA believes that due to the nature of PHEV and EV operation, testing may require many more vehicle miles than conventional vehicles because these vehicles do not have engines or may use the engine for only a fraction of the miles driven. Since EVs do not have a gasoline engine, Toyota thinks that there is no rationale basis for considering modification to the test vehicle mileage accumulation beyond what is required currently. [EPA-HQ-OAR-2009-0865-6901.1, p.14]

Test Fuel [EPA-HQ-OAR-2009-0865-6901.1, p.15]

EPA specifies that EVs and PHEVs are to be recharged using the supplied manufacturer methods that would be available to consumers and that this method could include electricity service requirements such as service amperage, voltage, and phase. Toyota supports EPA's position allowing manufacturers to employ the use of voltage regulators in order to reduce test to test variability, subject to Administrator approval. [EPA-HQ-OAR-2009-0865-6901.1, p.15]

**Response:**

EPA will continue to work with stakeholders to address those issues related to the testing of advanced technology vehicles as issues arise.

The intent of the EPA was to seek comment on allowing a lower minimum mileage and a greater maximum mileage for both EVs and PHEVs in regard to fuel economy test vehicles. These allowances would address the increase in miles accumulated while testing advanced technology vehicles compared to conventional vehicles. In the absence of shortened test procedures, EVs and PHEVs could arguably run out of available test mileage. Within the testing mileage requirements, are fuel economy adjustments based on mileage. Both the mileage limits and the fuel economy adjustments were based on a 1981 study using 1977 through 1981 model year vehicles. This study did not include advanced technology vehicles. To remedy the above issues, EPA will implement the following. Manufacturers may use electric vehicles and PHEVs with more than 10000 miles for fuel economy testing with Administrator approval. Additional or other methods of fuel economy and CO<sub>2</sub> or other adjustment based on test vehicle mileage may be approved by the Administrator. EPA will also require PHEVs to accumulate the minimum mileage on test vehicle while operating in charge sustain mode.

**Organization:** General Motors (GM)

**Comment:**

**General Motors (GM)**

GM, as a member of the Alliance of Automobile Manufacturers, also supports the comments submitted by the Alliance. The comments from both GM and the Alliance are directed toward making these regulatory programs more workable and effective in achieving the agencies' overarching public policy goals. Not only are we supporting the overall label design comments we are in support of the test procedures recommended for advanced technology vehicles. [EPA-HQ-OAR-2009-0865-6924.1, p. 2]

#### Test Procedure

GM fully supports the Alliance position on guidelines for advanced technology test procedures.[EPA-HQ-OAR-2009-0865-6924.1, p. 5]

#### **Response:**

EPA acknowledges GM's support of the Alliance comments and has replied to the Alliance comments accordingly.

**Organization:** Hyundai Motor Company

#### **Comment:**

#### **Hyundai Motor Company**

Plug-In Hybrid Electric Vehicle Test Procedures [EPA-HQ-OAR-2009-0865-7139.1, p.10]

Hyundai generally supports EPA's proposal to incorporate by reference 5AE J1711, in part, for plug-in hybrid vehicle (PHEV) test procedures. We do, however, have a few concerns that we believe EPA should address to ensure that the PHEV test procedures are applied consistently for all automobile manufacturers. [EPA-HQ-OAR-2009-0865-7139.1, p.10]

CD-Mode Fuel Economy: [EPA-HQ-OAR-2009-0865-7139.1, p.10]

EPA proposes to incorporate by reference SAE J1711 Chapters 3 and 4 for definitions and test procedures, respectively, with some exceptions. These chapters would apply to the charge depleting (CD) operation of the PHEV over the city and highway test procedures. While these chapters provide a methodology for conducting city and highway CD testing, they do not explicitly provide methods for calculating the CD fuel economy and CO<sub>2</sub> emissions. There is, however, a method to calculate charge sustaining (C5) fuel economy and overall fuel economy on pages 53-54 of SAE J1711. EPA proposes the use of utility factors as 'a method of combining CO<sub>2</sub> emissions, fuel consumption, or other metrics from multiple modes of operation into one value' (75 FR 58142); this method is applied when the CD and C5 mode results are combined into a single value and was intended in SAE J2841 for determining the annual fuel cost for PHEVs. Therefore, there is not a method for combining data for the CD mode only, yet EPA proposes that CD-specific mode should be displayed on the fuel economy label. Even if the same method for application of utility factors for combining CD and CS was applied for calculating only a CD mode value, Hyundai does not believe this method is appropriate, because a utility



factor would not be needed for a CD-only mode calculation. A method to calculate CD-only mode CO, and fuel economy is also necessary for purposes of applying the 5-cycle correction and conversion to a miles-per-gallon equivalent (MPGe) unit for inclusion on the fuel economy label. EPA should provide a clear procedure on how to derive the CD-only mode CO, and fuel economy results, as a standalone value as well as for use on the label and conversion into MPGe or other comparable metrics. [EPA-HQ-OAR-2009-0865-7139.1, pp.10-11]

Battery Range: [EPA-HQ-OAR-2009-0865-7139.1, p.11]

One additional concern with fuel economy tests for PHEVs and EVs is that testing may become burdensome as battery technology and associated range improves, especially given the number of test cycles that will be required. EPA should adopt a short cut method for testing EVs and PHEVs with a range over 100 miles. Hyundai suggests limiting the number of UDDS tests to 15 for such vehicles to minimize test burden but still providing adequate data to give an appropriate and realistic fuel economy estimate. [EPA-HQ-OAR-2009-0865-7139.1, p.11]

Electric and Blended Mode PHEVs: [EPA-HQ-OAR-2009-0865-7139.1, p.11]

EPA proposes in §600.308-12(a)(1) to add range descriptors for electric and blended electric + gas PHEVs based on the following: [EPA-HQ-OAR-2009-0865-7139.1, p.11]

'If the vehicle's engine starts only after the battery is fully discharged, include the following heading statement: 'All Electric (first x miles only)'. If the vehicle uses combined power from the battery and the engine before the battery is fully discharged, include the following heading statement: 'Blended Electric + Gas (first x miles only)' ... ' [75 FR 58189]. [EPA-HQ-OAR-2009-0865-7139.1, p.11].

We are concerned whether consumers will understand the difference between terminology of 'electric' and 'blended'. Hyundai suggests Simplifying the metric and terminology by combining electric and blended electric + gas. While Hyundai's preference is to use a single metric for electric and blended electric + gas information, as noted above, if EPA decides to have descriptors for each, then the text defining 'all electric' and 'blended electric + gas' in §600.308-12(a)(1) should clearly define the test operating mode and the applicable test cycles. Hyundai suggests the following text: [EPA-HQ-OAR-2009-0865-7139.1, p.11]

'If the vehicle's engine does not start during the FTP and HFET while in CD mode (CD mode is defined in SAE J1711), include the following heading statement: 'All Electric (first x miles only)'. If the vehicle uses combined power from the battery and the engine during the FTP and HFET while in CD mode, include the following heading statement: 'Blended Electric + Gas (first x miles only)' ... ' [EPA-HQ-OAR-2009-0865-7139.1, p.11]

This suggested text better defines the differences between 'all electric' and 'blended' mode PHEV operation and is more applicable based on the required fuel economy test cycles. [EPA-HQ-OAR-2009-0865-7139.1, p.11]

**Response:**

In response to calculating charge-depleting values, methods for calculation are in this rule. This has been responded to in response to another comment.

In response to the concern with test burden, manufacturers can use alternative test procedures with prior Administrator approval. EPA will cite SAEJ1711 for plug in hybrid electric vehicle and SAEJ1634, as cancelled October 2002, for electric vehicle testing. Updates to SAEJ1634 and SAEJ1711 may be considered by the EPA as alternative test procedures.

EPA agrees that differentiating between blended mode and all electrical capable PHEVs may be confusing to consumers. Furthermore, depending on driving behavior, an individual could operate a blended mode PHEV as an all electric capable PHEV. Therefore, FE labels for PHEVs will not read “blended mode” or “all electric capable” anywhere on the label. The differences between a blended mode and an all electric capable PHEV label will be seen in the charge depleting window and in the driving range descriptors.

EPA will refrain from classifying PHEVs on the fuel economy label and instead display label values based on test data gathered over the required test cycles. EPA may address unique PHEV operating strategies, how to test, and how to convey FE label information for unique vehicles as they arise.

## 8.2. Utility Factors

**Organization:** Ford Motor Company (Ford)

**Comment:**

**Ford Motor Company (Ford)**

Utility Factors [EPA-HQ-OAR-2009-0865-7141.1, p.10]

However, in order to address the lead time and stability necessary for fuel economy/GHG compliance purposes, we also request that utility factors be explicitly included within the final rule, not referenced in other documents. In addition, several different types of utility factors have been proposed (for example, fleet vs. individual utility factors, and city and highway specific utility factors), and we request that the intended utility factors for city and highway be explicitly indicated in the equations where they are used. In particular, we request clarification of which utility factors should be used for label calculations and compliance calculations. This information is necessary to allow stability for manufacturers to plan future PHEV programs. [EPA-HQ-OAR-2009-0865-7141.1, pp.10-11]

**Response:**

This rule lists the utility factors and where said utility factors are applicable. All label values that use utility factors will use the Multi-Day Individual Utility Factors (MDIUFs). The MDIUFs will not be cycle-specific. Applying cycle specific MDIUFs as described in SAEJ2841, from the National Household Transportation Survey data, would not be compatible with the 55/45 city/highway averaging throughout the label. The MDIUFs are listed in table format in this rule. Since MDIUFs are based on 5-cycle adjusted ranges and 5-cycle adjusted drive cycle distances, the MDIUF tables are based on the derived 5-cycle adjustment cap of 0.7. If a vehicle qualifies for a 5-cycle adjustment other than 0.7, the test cycle distances would be adjusted by the appropriate 5-cycle adjustment.

For compliance to CAFE and GHG standards, Fleet Utility Factors (FUFs), will be used. The FUFs are cycle-specific and based on the 55/45 city/ highway split as expressed in SAEJ2841. These cycle-specific FUFs are listed in this rule. The FUFs are also based on cycle distance instead of actual distance driven. As with MDIUFs, low-powered or speed-limited vehicles that cannot drive the test cycle, will be required to calculate UFs based on travelled vehicle distance instead of cycle distance. The equation for calculating FUFs and MDIUFs for low powered vehicles is also in this rule.

**Organization:** Honda Motor Company

**Comment:**

### **Honda Motor Company**

Use of Utility Factor (UF): Honda supports use of the UF in calculating values that require a single, consolidated number between charge depleting and charge sustaining modes. We have one major concern which has not been addressed in the UF methodologies developed by SAE. Utility Factors correlate with surveyed driving distances. Since the driving distances represent actual driving, the electric driving range should be discounted by the adjustment factor applied to electric vehicles. Undiscounted driving ranges, like undiscounted fuel economy, should be assumed to be inflated when compared to actual conditions. In its recent proposals for PHEV credit values in its Zero Emission Vehicle regulation revisions, the California Air Resources Board recognizes this issue and is requiring adjustments accordingly. Additionally, it should be noted that Utility Factor (UF) is misnamed: “Social Utility Factor” is a more apt name. Social Utility Factor represents averages of a large number of individuals and policy makers use this information to either set credit levels (in the case of the California Air Resources Board), or convey other broad policy information. And while the Social Utility Factor is broadly helpful in the absence of actual data on vehicle usage, it may not be useful as an indicator of utility for any one individual, nor represent the true utility of any technology set or vehicle. [EPA-HQ-OAR-2009-0865-6774.1, p.7]

**Response:**

EPA agrees that if utility factors are being used to represent actual driving, the utility factors should be determined using “real world” adjusted driving ranges and not raw lab values. For this reason, label values will use 5-cycle adjusted ranges and 5-cycle adjusted drive cycle distances in determining utility factors. For utility factors used to calculate compliance based on raw lab values, such as greenhouse gas or CAFE, the unadjusted driving ranges and cycle distances will be used to calculate the appropriate utility factors.

**Organization:** National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)

**Comment:**

### **National Renewable Energy Laboratory (NREL), Center for Transportation Technologies & Systems (CTTS)**

My final major point of emphasis, as also mentioned in the detailed comments below, is that the proposal to use a 50/50 fuel and electricity harmonic average for CAFÉ calculations (rather than UF weighting) will provide a loophole for low-range PHEVs (that can complete a single UDSD and HFET all-electrically) to gain more credit than they likely deserve. For instance, the best estimate of the charge-depleting (CD) operating fraction for a PHEV with a 10-mile depleting range (using the fleet utility factor or UF curve from SAE J2841) is 0.2, but the

proposal would weight CD operation by a factor of 0.5 for the CAFÉ calculation. Similarly, this CAFÉ proposal actually provides a disincentive to produce PHEVs with very long depleting ranges. For instance, consider that the fleet UF for a 40-mile PHEV is about 0.6, but the proposal would only give weighting credit to the PHEV's CD operation by a factor of 0.5. While the 50/50 weighting makes some sense for a flex fuel vehicle when no information exists on the vehicle's likely use of the alternative fuel, in the case of a PHEV there is a very strong correlation between the measured CD range and the relative petroleum fuel displacement benefit. The CAFÉ benefit calculations would better correspond to actual vehicle fuel consumption if they use a UF curve to combine measured CD and charge-sustaining (CS) vehicle fuel use. As currently proposed, the regulation encourages a particular PHEV configuration based on the step-change benefit for 7.5 mi/10 mi UDDS/HFET range and no further benefit for PHEV designs that would actually drive farther on electricity. [EPA-HQ-OAR-2009-0865-7222, p.2]

**Response:**

EPA does not have authority to change U.S. statutes. The CAFE accounting for dual fueled vehicles is contained in Title 49 of the US Code chapter 329. In this chapter, the 50/50 weighting (Section 32905) of the fuel economy from both modes of operation is explicitly prescribed. Also in section 32901 are the dual fuel vehicle minimum driving range requirements, the definition of a dual fueled vehicle, and the minimum drive range exclusion for electric vehicles (under dual fuels). As stated in 32901, the alternate drive range for electric vehicles may be prescribed by the Secretary. In Title 49 of the Code of Federal Regulations, part 538.8 (b), the minimum driving range for dual fuel passenger cars using electricity, while operating solely on electricity, is 7.5 miles on the EPA urban test cycle and 10.2 miles on the EPA highway test cycle.

New regulation could be written to change the minimum required driving range while on electricity, but this would not change the underlying issue of how to average the FE from the two modes of operation.

**Organization:** Toyota

**Comment:**

**Toyota**

Utility Factors [EPA-HQ-OAR-2009-0865-6901.1, p.15]

For the purposes of PHEVs, UF development makes several assumptions would include: the first mode of operation is always electric assist or all electric drive, vehicles will be charged once per day, and that future PHEV drivers will follow drive patterns exhibited by the drivers in the surveys used in SAEJ2841. EPA acknowledges that these assumptions and that the data upon which utility factors were developed may change. Toyota supports EPA's endorsement of SAEJ2841 regarding UF development and encourages EPA to adopt by reference, the finalized SAE standard. In the event that EPA may change the calculation of future utility factors in light

of new data in a future rulemaking, Toyota encourages EPA to continue the protocol established under SAEJ2841 in populating the database and refining the UF development process. [EPA-HQ-OAR-2009-0865-6901.1, p.15]

Calculating combined values using Cycle Specific Utility Factors EPA commented that utility factors could be cycle specific not only due to different battery ranges on different test cycles but also due to the fact that 'highway' type driving may imply longer trips than urban driving. As a result, EPA thinks that different utility factors are necessary for city and highway driving. If separate utility factors regarding city and highway are to be used, Toyota requests that the proposed utility factors be validated by using in-use data in order to ensure representativeness and accuracy. [EPA-HQ-OAR-2009-0865-6901.1, p.15]

**Response:**

EPA intends to re-evaluate any new release of SAEJ2841. References to SAEJ2841, in this rule, were specific to the September 2010 revision.

EPA may change UF application if the listed above assumptions change. The 55/45 City/ Highway Fleet Utility Factors will be used for GHG compliance and some CAFE calculations. EPA will not use cycle specific or city/highway specific utility factors for label values. EPA does not, at this time, intend to verify individual in-use vehicle driver behavior in terms of the city/ highway driving behavior particular to PHEVs. Such behavior may be variable due to: technology penetration and early adopters, age of vehicle, geographic location, relative fuel pricing, penetration of enabling technologies like charging stations, and other items that are beyond the control of an individual manufacturer and likely to not remain constant over the life of a given single vehicle. Therefore, EPA will continue to view driving behavior in aggregate, until more data is available.

**Organization:** Laclede Gas Company

**Comment:**

**Laclede Gas Company**

Laclede believes our recommendations would better provide the agencies to fulfill the Congressional intent contained within EPCA section 32904(c) Calculation of average fuel economy. Our recommendations would also help the agencies achieve the mandates withing the previously cited Obama Administration's memorandum to "guarantee scientific integrity" in federal policy making. The agencies should also be guided by the National Academies of Science report whose findings include that electric vehicles (EV's) and grid-dependent "plug-in" hybrid vehicles (PHEV's) showed higher environmental damages than many other technologies because of dependence on fossil fuels (primarily coal) for today's power generation. This study, titled Hidden costs of Energy: Unpriced Consequences of Energy Production and Use. It is especially relevant because it was prepared at the request of the U.S. Congress for the purpose of evaluating the externalities associated with energy production and use in the U.S. For transportation, the results are presented in terms of the cost per vehicle mile

traveled. Supporting data is presented in terms of grams of pollution per mile largely using the Argonne Laboratories GREET model. These findings are summarized by the following excerpted tables: [EPA-HQ-OAR-2009-0865-7138.1, p.7].

The report calculates that the energy use and pollution associated with the production of batteries and electric motors; which is 20 percent greater than that for conventionally fueled vehicles. Mainly, however, these vehicles show poorly because they rely on stationary source power for their electricity, and much of the nation's electric power is produced from coal. Coal's dominance is likely to continue for many years and the transition to a grid dominated by "clean energy" is likely to take many decades at best. [EPA-HQ-OAR-2009-0865-7138.1, p.8]

The agencies should fully document how it arrived at the value of 33.7 kWh/gal and how it will be used. This includes disclosure of every variable that goes into this value and the statistical sensitivity of such variables as they relate to national averages. [EPA-HQ-OAR-2009-0865-7138.1, p.10]

**Response:**

The fuel economy label traditionally did not address "upstream" vehicle and fuel environmental effects. Calculating the exact environmental impact of producing each specific vehicle and type of fuel is subjective and highly variable. Rather, the FE label reports scientifically measured and repeatable test results representative of a particular vehicle corresponding to said label. For "conventional" fuels like gasoline and diesel, exhaust emissions are measured and the resulting fuel economy is basically a mass balance equation. Obtaining fuel consumption for electric vehicles and plug-in-hybrids currently requires driving the vehicles over repeat test cycles until the battery or other rechargeable device has been depleted and then recharging the vehicle. This recharge energy is measured and it includes the charger losses and any battery or vehicle conditioning losses experienced while recharging. The recorded recharge energy is divided by the distance travelled to calculate a energy consumption metric. The electrical energy is converted to a miles per gallon equivalent unit using the energy in a gallon of gasoline as expressed by the Department of Energy (see 65 FR 36990, June 12, 2000).

**Organization:** Securing America's Future Energy (SAFE)

**Comment:**

**Securing America's Future Energy (SAFE)**

Another critical issue in this regard is the calculation of utility factors that support calculations that appear on PHEV labels. A utility factor is a ratio or percentage that indicate show much energy used by a PHEV comes from the grid and how much comes from onboard fuel. It is used to calculate a PHEV's fuel consumption, emissions profile, and operating cost. Because the operating cost for PHEVs are typically lower than liquid fueled vehicles and their emissions profile is typically better, utility factors that are too low will result in an overstatement of both emissions and operating costs. [EPA-HQ-OAR-2009-0865-7522.1, p.20]

The utility factors that the agencies used in the proposal are based on a standard developed by the Society of Automobile Engineers, SAE-J2841. The standard is based on data about daily vehicle miles traveled for about 32,000 days of vehicle travel. In short, to calculate a utility factor, the standard divides the sum of the number of miles each vehicle in the dataset traveled that would have been charge-depleting miles by the total vehicle miles traveled for a particular sized battery. [EPA-HQ-OAR-2009-0865-7522.1, p.20]

This approach makes sense on its face. Yet, SAE likely under estimated the utility factor because it assumed that people who drive PHEVs will have similar driving patterns as those who drive traditional vehicles. SAE acknowledged the issue, even noting in an update of the standard that its initial calculation was “highly weighted towards [vehicles making] long distance trips.” The SAE standard also assumed that consumers will charge their PHEVs only once a day. [EPA-HQ-OAR-2009-0865-7522.1, p.20]

PHEVs carry a premium purchase price in exchange for lower operating costs. Customers who are willing to pay the premium for the vehicle, a substantial one at first, and one that they can only hope to recover by driving “electric miles” will have a strong incentive to drive “electric miles,” either by using the vehicles for commutes that are largely within their “electric range” or by midday charging, usually at work. SAE’s approach fails to recognize this high likelihood of this usage pattern, and to the extent that EPA’s calculation of utility factors relies on SAE’s methodology, EPA’s use of utility factors is flawed. [EPA-HQ-OAR-2009-0865-7522.1, p.20]

SAFE believes that it is reasonable to truncate the data set and eliminate from it trips that exceed either an absolute distance or a distance that is some function of the charge depleting range of the battery. Doing so would more accurately portray how the PHEVs are likely to actually be used by the people who purchase them. If the agencies choose not to do that, however, SAFE believes that the agencies should commit to collecting new data regarding the usage patterns of PHEVs so that in the future they may update the calculation of utility factors to reflect the manner in which the actual vehicles are really being used. The agencies also should commit to examining how often PHEV owners charge their vehicles to determine if the assumption that they will only charge once a day is appropriate or needs updating. [EPA-HQ-OAR-2009-0865-7522.1, p.20]

[These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 29-30]

**Response:**

EPA agrees that the basic driving pattern of PHEV drivers may indeed be different than the driving patterns of drivers of more conventional vehicles. The large font fuel economies on the label will be for the charge-depleting and charge-sustaining fuel economy, separately, and therefore will not be affected by utility factor. The utilized fuel economy will only be used on the FE comparison bar. To address variable drive patterns, enough data is on the fuel economy label to allow an individual to calculate their own expected fuel economy based on their personal drive pattern. Fuel economy label elements that would allow one to calculate one’s expected FE are charge-sustaining FE, charge-depleting FE, and charge-depleting range.



At the time of this rule, few PHEVs were available for sale or lease. These few vehicles represent a tiny fraction of the total fleet vehicle miles traveled due to their small number and recent entry into the market. This fraction of the VMT would lead to a highly variable drive pattern study of PHEV only drivers. To limit the effects of possible PHEV specific utility factors on fuel economy labels, all the basic information is on the label to allow vehicle purchasers the ability to calculate their own fuel cost and consumption based on their personal drive pattern. In terms of compliance to GHG and CAFE standards, UFs are effective in that they describe both how a vehicle may be driven and also the VMT that a PHEV may offset from a conventional vehicle. It would be inappropriate to credit a PHEV with charge-depleting FE and GHG emissions for distances longer than charge-depleting range or to assume the entire charge-depleting range is maximized. Furthermore, if one argues that PHEVs are only driven short distances, then PHEVs only offset short trips and would not offset all the VMT from a typical conventional vehicle. In summary, utility factors may not be perfect but they represent an analytical approach to estimating average consumer and fleet fuel consumption. This approach will be evaluated as the PHEV fleet develops.

### **8.3. Comparable Class Categories**

**Organization:** Alliance of Automobile Manufacturers (Alliance)

Ford Motor Company (Ford)

Toyota

Union of Concerned Scientists

National Automobile Dealers Association (NADA)

Center for Biological Diversity (Center)

Honda Motor Company

Illinois Student Environmental Coalition

#### **Comment:**

#### **Alliance of Automobile Manufacturers (Alliance)**

Vehicle Fuel Economy Information Should Be Keyed To Market Segments. Consumers do not shop for just any vehicle; they look for vehicles within specific vehicle segments, like mid-size sedans or minivans. To make the labels most useful and easy to understand, fuel economy ratings should be shown within vehicle segments. [EPA-HQ-OAR-2009-0865-6850.2, p.2]

Vehicle Fuel Economy Information Should Be Keyed To Market Segments. [EPA-HQ-OAR-2009-0865-6850.2, p.8]

Consumers do not shop for just any vehicle; they look for vehicles within specific vehicle segments, like mid-size sedans or minivans, to meet the needs of their families and businesses. To make the labels most useful, fuel economy ratings should be shown within vehicle segments. For GHG emissions and smog-forming pollutants, the label comparison should also be done on a per segment basis. [EPA-HQ-OAR-2009-0865-6850.2, p.8]

On a related note, the Alliance agrees that the SUV class should be divided into small (GVW below 6000 pounds) and standard (6000-10,000) vehicles. [EPA-HQ-OAR-2009-0865-6850.2, p.10]

#### **Center for Biological Diversity (Center)**

The Agencies Should Not Create Additional, Separate Ratings for Passenger Cars and Light Duty Trucks, Nor Should New SUV Subcategories be Created. [EPA-HQ-OAR-2009-0865-7122.1, p.7]

There is no need for the separate ratings to be adopted for passenger cars or light trucks. Historically, the CAFE structure has set varying fuel economy targets for different vehicles, depending on their class and the manufacturer's fleet vehicle composition. However, the purpose of the new labeling scheme is quite different: it serves, in part, to explain the environmental impacts of a particular vehicle. The main metric used in the Proposed Revisions to accomplish this goal is CO<sub>2</sub> tailpipe emissions as measured in grams per mile, which should not be weighted differently based on the type of vehicle. If a vehicle emits 700 grams of CO<sub>2</sub> per mile, its

environmental impacts are the same whether it is a Chevrolet Silverado or a Ferrari Scaglietti. The Agencies should therefore refrain from creating additional vehicle designations that allow for new ways to disguise a vehicle's true environmental impact. This includes refraining from creating new SUV categories based on either weight or "luxury" designations. [EPA-HQ-OAR-2009-0865-7122.1, p.7]

### **Ford Motor Company (Ford)**

Comparable Class Categories [EPA-HQ-OAR-2009-0865-7141.1, p.10]

Ford supports EPA's proposal to modify the sport utility vehicle (SUV) class category to distinguish between small SUVs (GVWR less than 6,000 pounds) and standard SUVs (GVWR between 6,000 and 10,000 pounds) as a basis for comparing vehicle fuel economy. We believe this will allow for better segmentation and easier comparison for consumers. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

### **Honda Motor Company**

Additional Vehicle Categories: The agencies suggest splitting the SUV category into two, large and small, with the break at 6,000lbs GVWR. Honda agrees with this proposal. [EPA-HQ-OAR-2009-0865-6774.1, p.5]

### **Illinois Student Environmental Coalition**

In addition, we urge you to include the large SUVs that had previously been exempt from this rule. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 89]

### **National Automobile Dealers Association (NADA)**

Comparable Vehicle Class Categories [EPA-HQ-OAR-2009-0865-6940.1, p.4]

It is with respect to Label 2's comparative information that NADA has the most to suggest. First, NHTSA/EPA should revisit the class categories used to show a vehicle's relative performance. Specifically, the "in-class" positioning of a vehicle's combined mpg, along with its GHG and other emissions performance, should involve the narrowest class category that can reasonably be defined. EPA currently breaks its vehicle classifications into two principal classes, passenger vehicles (2-seater, mini-compact, compact sedan, medium sedan, large sedan, station wagon) and non-passenger vehicles (small pickup, standard pickup, van, minivans, and sport utilities (SUVs)). In this regard, NADA concurs with the proposal's suggestion that the existing "SUV class" (created in 2006 for application in MY 2008) is too broad for prospective purchasers shopping for SUVs or crossover utility vehicles (CUVs). [EPA-HQ-OAR-2009-0865-6940.1, p.4]

In its comments on the 2006 rule, NADA stressed that narrower comparable class categories will serve to enhance the ability of the motoring public to use fuel economy as a factor in their new

vehicle purchase decisions and to help with the marketing of fuel economy. NADA pointed to the definitions used by Ward's Communications when publishing light-vehicle U.S. market data by vehicle classification, which specifically define Small Cross/Utility Vehicles, Middle Cross/Utility Vehicles, and Luxury Cross/Utility Vehicles. NADA also noted that numerous CUV definitions generally suggest that while they have many of the features, capabilities, and capacities of traditional SUVs, they are built on passenger vehicle-derived vs. truck-derived platforms that typically integrate body and frame into a single, unibody structure offering passenger car-like performance features, including higher fuel economy, on average. [EPA-HQ-OAR-2009-0865-6940.1, p.4]

Thus, while supportive of the proposed division of the existing SUV category into a small SUV and standard SUV category. NADA urges that consideration be given to the addition of a middle SUV category and/or a separate CUV category. Consideration also should be given to additional vehicle class category segmentations (e.g., family sedan, upscale sedan, luxury sedan), but not without the issuance of a supplemental notice of rulemaking designed to evaluate the degree to which further segmentation will prove beneficial to prospective purchasers. [EPA-HQ-OAR-2009-0865-6940.1, p.4]

Comparisons Across All Makes and Models [EPA-HQ-OAR-2009-0865-6940.1, p.5]

As noted above, NHTSA and EPA should avoid comparisons across all the makes and models subject to labeling, including those in proposed Label 2 for GHG and other emissions performance. Comparison of a vehicle's fuel economy or emissions performance to the entire light-duty fleet is so inappropriate as to be virtually useless given that it fails to hold constant vehicle attributes such as seating, hauling capacity, or footprint. [EPA-HQ-OAR-2009-0865-6940.1, p.5]

Certainly, prospective purchasers regularly compare new vehicles between class categories. For example, a family of six might shop between mini-vans, large SUVs, or even station wagons. To the extent fuel economy and/or emissions performance is important to that family, they likely will focus on the better performing vehicles within each category being considered. While normally such comparison shopping is done prior to visiting dealerships, appropriate inter-category comparisons can certainly be made using well-designed labels. [EPA-HQ-OAR-2009-0865-6940.1, p.5]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 36-39.]

## **Toyota**

In addition, Toyota supports the proposed segmentation (shown for SUV) in Label Option 2, 'How This Vehicle Compares,' which can provide consumers with useful delineation about where the particular vehicle class falls within the overall fleet. [EPA-HQ-OAR-2009-0865-6901.1, p.6; see p.6 of this comment summary for figures entitled, Label Option 1 and Label Option 2]

Comparable Class Categories [EPA-HQ-OAR-2009-0865-6901.1, p.15]

EPCA requires that the label include the range of fuel economy of comparable vehicles of all manufacturers. EPA's class structure provides a basis for comparing a vehicle's fuel economy to that of other vehicles in its class and is proposing a modification to the SUV class category, consistent with the distinction between small and large pickup trucks. Toyota supports EPA's proposal to divide the SUV class into small (<6000) and large (6000-10,000) SUVs. [EPA-HQ-OAR-2009-0865-6901.1, p.15]

### **Union of Concerned Scientists**

**FLEET-WIDE SCALE:** First and foremost, UCS strongly supports the decision to use a single fleet-wide scale as an accurate reflection of the relative efficiency and environmental performance of each vehicle model. We do not support any class-based system as the primary metric for measuring or comparing vehicles. The market is continually shifting and some new vehicle models might easily fit into more than one so-called class. If, for example, you are in the market for a wagon, your shopping list for consideration is likely to include crossovers and smaller SUVs. Moreover, some vehicles, with or without slight modifications, could easily fit into more than one class. This could open up the door to gaming, which should be avoided at all costs. [EPA-HQ-OAR-2009-0865-7132.1, p.2]

### **Response:**

The agencies are finalizing labels that allow consumers to compare the MPG of the labeled vehicle both to other comparable vehicles (within class) and across all vehicles subject to labeling. The agencies believe that EPCA and EISA require that these comparisons be on the label. Additionally, EPA is finalizing its proposal to divide the SUV class into two segments, "small" and "standard," based on gross vehicle weight.

A given consumer may or may not shop within certain categories or classes, and the categories defined by EPA may or may not always be consistent with how a given consumer may choose to define vehicles. However, providing a comparison on the label to other vehicles in the same category has been used on the label for many years to meet the requirement stated in EPCA, and EPA is continuing this approach into the future. Commenters that dislike the within-class comparison on the label have to simply acknowledge the statutory requirement that the label contain "the range of fuel economy of comparable automobiles of all manufacturers" and that EPA has a long history of defining vehicle categories to determine which vehicles may be comparable.

EPA agrees with the majority of commenters who support dividing the SUV category into two SUV categories based on gross vehicle weight. As stated in the preamble, this is simply an attempt to keep the category definitions current and to divide vehicles into reasonable groups that are likely to be compared. For example, it is probably unrealistic to think that most people considering a Honda CRV, for example, will also be considering a Ford Expedition.

NADA points out an issue regarding crossover vehicles that EPA has been contemplating since these vehicles arrived on the market, and more specifically, in the label rulemaking finalized in 2006. While we continue to evaluate ways to keep the category definitions current in a changing

vehicle market, we are not prepared at this time to offer regulatory definitions for crossover vehicles.

EPA disagrees that vehicle categories (specifically, the addition of two new ones) or the format of the final labels will allow manufacturers to "disguise a vehicle's true environmental impact," as alleged by the Center for Biological Diversity. The new label makes it very clear where a vehicle stands in terms of its environmental impact relative to all vehicles, and there is no "weighting" based on the type of vehicle.

Commenters such as UCS that believe there can be "gaming" by using the vehicle categories miss the point that the fuel economy label requirements are distinct from emission standards requirements. Gaming, if it occurs within the labeling program, is potentially beneficial to consumers in that manufacturers may compete to achieve a "best in class" rating. Yes, it is possible that a manufacturer could choose to add weight to a small SUV to move it into the best in class position in the standard SUV category, but whatever manufacturers do to manipulate labels and classes may or may not have any real fuel economy impacts, and certainly does not change a manufacturer's obligation to meet greenhouse gas and fuel economy standards.

With respect to the comment from the Illinois Student Environmental Coalition, the largest SUVs are subject to fuel economy labeling requirements starting with the 2011 model year. This requirement was put in place in the 2006 fuel economy labeling rule.

## 8.4. Monroney Label

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Natural Resources Defense Council (NRDC)  
National Automobile Dealers Association (NADA)  
Volvo  
Yarrow, Jon  
National Association of Minority Auto Dealers (NAMAD)

### **Comment:**

#### **Alliance of Automobile Manufacturers (Alliance)**

For automotive manufacturers, the letter grade would send a mixed message that the Federal government's fuel economy and GHG program – which is intended to be both technology-neutral and “relatively neutral with respect to vehicle size and consumer choice” – actually seeks to select winners and losers. For example, EPA acknowledges that clean diesels would be penalized by the grading system. Additionally, the proposed rule reserves the “A” and “A+” categories a very narrow range of technologies – primarily battery electric vehicles and plug-in hybrids. This mixed message would likely carry over to consumers, where the narrowness of the top grade category could reduce consumer interest in dozens of other fuel saving technologies identified in the 2010 National Academies of Sciences report, including clean diesels; dual-clutch transmissions; variable valve timing; cylinder deactivation; turbo-charging and downsizing. [EPA-HQ-OAR-2009-0865-6850.2, p.5]

Location of Fuel Economy Label Information On Monroney Labels [EPA-HQ-OAR-2009-0865-6850.2, p.13]

The Agencies suggest that manufacturers who opt to use the Monroney label for fuel economy information be required to place this information in a specific location. The Alliance recommends that this not be standardized, since flexibility is needed to make the Monroney label as readable and appealing as possible. Also, the locations suggested by the proposed rule are not ideal, since the right columns of Monroney labels are needed for bottom-line pricing information and the upper right provides important information on the base price of the vehicle. [EPA-HQ-OAR-2009-0865-6850.2, p.13]

If the Agencies were to require a format that breaks up the upper right to lower left reading pattern, this would make the label less readable and appealing. Such a requirement could also conflict with safety label formatting requirements and with the very purpose of the Monroney label – to take the mystery out of new car pricing. [EPA-HQ-OAR-2009-0865-6850.2, p.13]

#### **Association of International Automobile Manufacturers (AIAM)**

Regarding the request for comments on the location of the label on the Monroney label, AIAM supports manufacturers maintaining the flexibility to locate the label as they choose.

Regarding the request for comments on the location of the label on the Monroney label, AIAM supports manufacturers maintaining the flexibility to locate the label as they choose. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

### **National Association of Minority Auto Dealers (NAMAD)**

With respect to the label format, the simpler and more clear-cut, the better. In addition to fuel economy information, the Monroney label must contain vehicle description, vehicle pricing, and vehicle safety information, so simplicity will serve shoppers well. Also, simplicity will allow dealership salespeople to respond accurately to questions raised by prospective purchasers regarding a vehicle's specific fuel economy or emissions performance. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 44]

### **National Automobile Dealers Association (NADA)**

Importantly, while Monroney labels may not be removed prior to delivery, vehicles are often operated before then for test drives and other purposes. Every effort must be made to ensure that no overall increase in the size of Monroney labels occurs to help avoid an increase in the field-of-vision concerns these labels long have presented. See, Attachment A, DOJ letter dated June 18, 1986 and list of state laws. [EPA-HQ-OAR-2009-0865-6940.1, p.8; see p.11 of this comment summary for Attachment A]

Combined vs. Separate Labels [EPA-HQ-OAR-2009-0865-6940.1, p.8]

The proposal continues to allow vehicle manufacturers the option of posting the required fuel economy/emissions information on vehicle pricing (Monroney) labels. Most, if not all, manufacturers currently take advantage of this option. Of course, the fuel economy label mandate applies to a broader universe of light-duty vehicles (most vehicles under 10,000 lbs. GVWR) than does the Monroney label which applies only to passenger cars and station wagons. 15 U.S.C. §1231-33. On the other hand, manufacturers typically incorporate fuel economy labels into the voluntary pricing labels they often post on non-passenger vehicles. [EPA-HQ-OAR-2009-0865-6940.1, pp.8-9]

The proposed regulatory text and proposed label alternatives appear to assume that most, if not all, mandatory fuel economy information will be combined with Monroney or non mandatory pricing labels. As with the current label, neither Label 2 nor the other proposed labels contain vehicle-specific information, presumably because EPA assumes it will be set out elsewhere on a combined label. [EPA-HQ-OAR-2009-0865-6940.1, p.9]

### **Natural Resources Defense Council (NRDC)**

MR. TONACHEL: I'll ask one other question. The picture that showed a lot of labels on the vehicle, I wonder if you could just comment on whether or not that's an actual vehicle. All those labels were on one actual vehicle. It looks like this picture in particular was added to the



overall picture. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 38]

MR. GIEDRIUS: This is an actual photo of an actual car on an actual dealer lot. And these are all the Monroney labels and this is the Stars on Cars label (indicating). This is the FTC/FFE label (indicating). And then this is the California environmental performance label (indicating). [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 38]

MR. TONACHEL: Just a closer look at this seems to show that this was somehow added to the label. Added to the front window. But anyway, I guess the other point would be that the environmental performance label that California requires, there's also a capability that that could be incorporated into that Monroney label that's authorized within the state of California. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 38-39]

## **Volvo**

### Monroney and Vehicle Labeling

Monroney labels are required to present vehicle content and MSRP as car leaves Volvo Port of entry. Fines for failure to comply may range from \$100,000-\$200,000 per instance. EPA, CARB, NHTSA, FTC increasingly use vehicle labels as mechanisms to provide information and ratings to influence consumer choice. Mandated content areas are expected to be expanded on vehicle labels. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

### Volvo Process

Monroney printing is the final step in port processing prior to vehicle wholesale invoicing. Like many other carmakers, Volvo uses a single label to fulfill several regulatory demands, and regulatory demands are expanding. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

## **Yarrow, Jon**

Size and shape to be close to the current FE label - this would avoid the need to re-design our Monroney. [EPA-HQ-OAR-2009-0865-4246, p. 1]

## **Response:**

The label design finalized by the agencies is the same dimension as the previous fuel economy label. Most (if not all) manufacturers currently take advantage of the option to put the fuel economy label on the Monroney Label. The agencies recognize that changing the shape of the fuel economy label would require redesigning the basic Monroney label for most manufacturers. Given the amount of information available on the Monroney label, there is limited room to provide additional space for the fuel economy label.

Prior to this rulemaking, automakers selling cars in California were required to provide a California specific environmental label, and alternative fueled vehicles were required to have an additional label required by the Federal Trade Commission. EPA hopes that California and the FTC determine that the final design of the new fuel economy label meets both California and FTC requirements such that separate California and FTC labels are not required. The result of this rulemaking is that manufacturers may be able to provide all fuel economy information within the existing Monroney label structure without any additional labels. This was a major request from all of the automakers. The agencies felt that accommodating this request would be beneficial to the manufacturers and would increase the prominence of the fuel economy label since the information previously scattered in up to three labels is now featured in one place on the Monroney label.

## 9. Costs Associated with this Rule

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Ford Motor Company (Ford)  
Hyundai Motor Company  
Toyota  
Consumer Federation of America (CFA)  
National Automobile Dealers Association (NADA)  
California Air Resources Board (CARB)  
Securing America's Future Energy (SAFE)  
Automotive Global Accounts  
Volvo  
Suzuki Motor Corporation  
Nissan  
Honda Motor Company  
University of Pennsylvania Law School, Environmental Law Project  
BMW  
Merritt, Kevin  
Occidental College

### **Comment:**

#### **Alliance of Automobile Manufactures (Alliance)**

The Agencies Should Not Require Color Labels. The Alliance opposes the requirement to produce color labels, either as colored ink printing or pre-printed color card stock, because requiring color would add significantly to both labeling costs and compliance complexity without benefiting the customer. Most printers currently used at auto assembly plants and points of entry are black and white. The addition of color not only increases the OEMs' costs, but may increase compliance jeopardy significantly because color will fade in sunlight. A requirement for color labeling would mean replacing most of these large industrial printers and would increase the labor costs associated with maintaining printing machines – a waste of money and resources for the luxury of a more eye-catching label. [EPA-HQ-OAR-2009-0865-6850.2, p.2]

Color labels would add to the cost of printing and the complexity – and associated compliance jeopardy – of accurately producing and applying the labels. Printing color in a high-speed industrial environment would be significantly different from today's black and white process. The likely result would be that the printing and application of a correct color label would become a bottleneck in the overall assembly process. [EPA-HQ-OAR-2009-0865-6850.2, p.7]

With regard to manufacturer cost, it should be noted that the Agencies' cost calculations are based on a 2006 analysis by the California Air Resources Board (CARB) in which it was assumed that vehicle labels would be printed on an HP Color Laser jet 4700n printer, a machine that retails for less than \$2000. The printers used at automobile assembly plants and ports of

entry are designed for much more demanding usage, and can cost up to \$50,000. [EPA-HQ-OAR-2009-0865-6850.2, p.7]

Most of the industrial printers currently used to print vehicle labels at auto assembly plants and ports of entry are black and white. A requirement for color labeling would mean replacing these printers with at least two industrial printers at each assembly plant and at least two units per company at each port of entry. Color printing would also increase the labor costs associated with maintaining printing machines. Additionally, given the number of assembly plants and port of entry, the ability to obtain enough industrial color printers – particularly within the short leadtime suggested by the proposed rule – is also questionable. This waste of money and resources for the luxury of a more eye-catching label would come at a time when automobile manufacturers are still struggling to recover from a dramatic drop in vehicle sales. [EPA-HQ-OAR-2009-0865-6850.2, p.7]

Even the use of preprinted color labels would add unnecessary complexity and cost. Manufacturers currently use pre-printed color label stocks for some purposes (e.g., Monroney Label borders, California Environmental Performance Label). However, these vehicle labels are printed on demand on the assembly floor or at the port, with no model-to-model variation in the color stocks that are used. Under the proposed rule, however, different vehicle models and/or different variations of the same model would require different color stocks. Even with the use of preprinted labels, assembly plant and port personnel would be required to switch from one feed stock to another to match the corresponding label with the specific vehicle that is being assembled or delivered.[EPA-HQ-OAR-2009-0865-6850.2, pp.7-8]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 17-18. These comments were also submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 14]

MR. MEDFORD: You mentioned a time issue and you mentioned a couple things. One is sort of the print capability and the other is the color capability. Is there some additional information that maybe you can provide in writing, and I'm glad for your comments that you submitted. But can you elaborate any more on how much time in the nature of the work that has to be done to support getting ready with the label on there and how much of an issue is the color and how much is it for just establishing a new label format and printing it? [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 37]

MR. AMBROZAITIS: Yes, we will submit that in our 24 written comments. The main issue is that the requirements will only be finalized in January 2011 which will leave very little time for hybrids to get ready for model year 2012. The issue with color is the printing of color right at the spawn of production, and we will address all these issues in our comments. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 37-38]

## **Association of International Automobile Manufacturers (AIAM)**

Color Labels are Problematic. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

AIAM has several concerns with the proposed color labels. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

Current printers used by auto manufacturers do not accommodate the printing of information in color. Currently, any colored portions of labels must be pre-printed. Several of our members have consulted suppliers and found that there are no heavy-duty, high volume, commercial printers available for color printing. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

Changing to laser printers to accommodate color printing is not recommended due to problems with fading, toner handling, expense, maintenance, slow performance, and lack of quality control for large batch printing. [EPA-HQ-OAR-2009-0865-7134.1, p.3]

If pre-printed color labels and multiple colors of labels are required for different technologies, then the different colored labels would have to be sequenced at the production or port facility. Such sequencing is logistically very difficult to accomplish and would result in a much higher likelihood of mis-labeling of vehicles. Manufacturers would be required to expend higher levels of oversight to prevent this from occurring. [EPA-HQ-OAR-2009-0865-7134.1, pp.3-4]

Color labels are difficult to see and read with tinted windows. For these reasons, if color is required, then we recommend a single color which can be preprinted on the label stock. [EPA-HQ-OAR-2009-0865-7134.1, p.4]

We have several concerns with the proposed color label requirement. First, current printers do not accommodate the printing of variable information in color; instead, color portions of labels must be preprinted. Second, changes to laser printers to accommodate color printing is not recommended due to problems with fading, toner handling, expense, maintenance, slow performance, and lack of quality control for large batch printing. Third, if preprinted color is used in the background of labels, multiple labels would be required for various vehicle technologies, which would have to be sequenced. Sequencing on the assembly line or in port facilities is logistically very difficult. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 55-56.]

## **Automotive Global Accounts**

The proposed changes for the Monroney label option 1 and label option 2 with regards to color are not possible using today's printer technologies. Currently we have two technologies that drive color printing which are toner based printer inks and Ink jet color inks. These technologies today DO NOT support fade resistant inking technology (Ultra Light fast Inks). Both ink technologies can fade within days of printing. A significant color variance within the color graphs on Option 1 and 2 will be seen. The large colored circle and solid bar on Option 1 will also have a significant fading issue. [EPA-HQ-OAR-2009-0865-6285. p. 1]

Due to the technology issues with variable color printing. OEM's will have to preprint all colored labels and manage multiple variations of the colored labels. Monroney labels are printed as an 11 X 17 format. The label size limits the label feeding capabilities through all printers. The printer tray limitation will cause additional issues with the number of printers each OEM will have to deploy. [EPA-HQ-OAR-2009-0865-6285, p. 1]

In closing using color in option 1 and 2 is not possible. [EPA-HQ-OAR-2009-0865-6285, p. 1]

## **BMW**

If these relatively light colors are introduced, current preprinted background images will not be feasible. They have to be redesigned or abandoned. A paper stock change like this is also never an exact science. Therefore, there will be excess stock left in the process. This resulted in high scrapping costs in the past. Again, there will be a need for ample lead time for purchasing, the design agencies, and the paper manufacturer to react. The BMW Group will need at least a 3-4 months lead time for this process. [EPA-HQ-OAR-2009-0865-7142.1, pp.2-3]

The BMW Group will submit preliminary cost projections with confidentiality. The projections are based on a two case scenario without knowing the final label design and time for implementation. [EPA-HQ-OAR-2009-0865-7142.1, p.3]

## **California Air Resources Board (CARB)**

MS. CHILADAKIS: It has to include, for our requirements, one color, so yours would satisfy that if you involved more colors, but it has to have one. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 146.]

MR. MEDFORD: You heard the companies talk today about having a color in a fixed position so it's all stock paper. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 146.]

MS. CHILADAKIS: Yes, that's how they've worked it out. We have a green border, but they use paper with that template. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 146.]

MR. MEDFORD: Do you have a view about the way we proposed our color scheme in that label in the proposal. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 146.]

MS. CHILADAKIS: I think it's great that you're going to include a lot of different colors. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 146.]

## **Consumer Federation of America (CFA)**

MR. GILLIS: Let me make two comments in response to this. First of all, these two gentlemen represent one of the most sophisticated, complex industries that has produced vehicles that are absolutely amazing in terms of their technology, in terms of their performance, in terms of their style and their look. And we're hearing that they cannot figure out how to print a color label. I can print color labels in my own house. I realize my color printer won't work in your factory, but, gosh, I can push a button on an OnStar, and have all kinds of technology and radios that are phenomenal, and all kinds of technologies in these vehicles. So I think we need to put that in perspective. [These comments were submitted as testimony at the LA Hearing EPA-HQ-OAR-2009-0865-7551, PP.50]

## **Ford Motor Company (Ford)**

### Color

Ford understands EPA's and NHTSA's reasons for proposing the inclusion of color on labels, however we have assessed the option with our finance and marketing teams and have determined a transition to color labels would add cost and complexity to our label printing process, yet add little to no benefit. One significant issue is that the window labels must be removed when a customer takes delivery and are therefore of relatively short-term value. Our focus group information as well as EPA's indicates consumers will do most of their research for vehicle purchase prior to seeing the vehicle on a dealer lot. For the most part, the labels simply confirm the information that consumers have already gathered. [EPA-HQ-OAR-2009-0865-7141.1, p.4]

In Ford's case, economic conditions have required us to leverage our older IT systems to the maximum while we continue to pay down our debt. As a result, our systems are not in a position today to make immediate changes to our fuel economy label formats. In order to produce labels, data must be transferred via multiple IT systems: from the test site to regulatory databases to vehicle invoicing and finally to the label supplier and assembly plant. Fundamental updates will be needed to most of these systems in order to implement the new labels. In addition, it is also our understanding that IT resources for one of the key systems will already be stressed in 2011 to incorporate updates for other new CAFE and GHG reporting requirements and five cycle fuel economy labeling. [EPA-HQ-OAR-2009-0865-7141.1, p.8]

## **General Motors (GM)**

### Color

GM opposes the addition of color. Color can be pleasing for some but when comparing facts and figures, a black and white format levels the playing field. Adding color to the fuel economy label has drawbacks on several levels. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

A move to color ink would make all current printers obsolete, requiring replacement of all printers at our U.S., Canadian, and Mexican assembly centers, along with our ports and main print center – 51 in total. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

Assembly centers are focused on throughput and efficiencies. Printing in color is slower than black and white. Based on our initial estimates color printing will be at least 20% slower than black and white printing, thus potentially impacting our assembly run rates. Full testing will be required to determine the impact to the assembly centers. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

The addition of color can be very expensive for no real consumer benefit. Initial cost estimates for color printing, setup, development and validation testing exceed \$1.5 million and do not include the lost value of the printers currently in use. [EPA-HQ-OAR-2009-0865-6924.1, p. 4]

## Cost

The costs to implement a label change like the ones proposed in this rule are significant. Several items will drive cost including management time to implement the new process, engineering time for programming and development to show the new data elements required on the label, as well as testing and validation of the final product and finally procurement, shipping and installation of any new required hardware. [EPA-HQ-OAR-2009-0865-6924.1, p. 5]

The initial estimate to modify the existing systems (no color) - \$800,000 [EPA-HQ-OAR-2009-0865-6924.1, p. 5]

The initial estimate to modify the existing systems (with color) - \$1,500,000 [EPA-HQ-OAR-2009-0865-6924.1, p. 5]

## **Honda Motor Company**

**Color Printing:** Honda's suppliers indicate that color printer inks (other than black) are not sufficiently fade resistant to be outdoors, in the sun for extended periods as some vehicles will be. Honda recommends that single color designs be considered. [EPA-HQ-OAR-2009-0865-6774.1, p.7]

**Pre-Printed Labels:** Honda supports a single, pre-printed label stock for all fuel economy labels. OEMs with advanced manufacturing will be in the fortunate situation of producing multiple power-train technologies on the same production lines (e.g. Honda currently produces CNG and gasoline vehicles on the same line). Flexible manufacturing means that frequent label stock change-outs create numerous opportunities for error. [EPA-HQ-OAR-2009-0865-6774.1, p.7]

Now to more prosaic and practical considerations. Critical to your final rule must be the practicality of implementing these labels. Our suppliers tell us that there are no available commercial color printers that can stand the non-stop operation required at our production lines. As it is, we have backup printers and switch between them regularly in order to cool them down and prevent jamming. In some cases we're physically limited by space and resources to provide additional printers in the areas. The simplicity of a single paper stock will reduce complexity, likelihood of error, and cost. The industry needs six month's lead time to program, test, install new equipment, if necessary, order new paper stock, deplete existing inventories and launch the



new labels. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 94.]

## **Hyundai Motor Company**

Implementation of label Content [EPA-HQ-OAR-2009-0865-7139.1, p.8]

Hyundai appreciates the aesthetics and layout of Label 1, and again, the creative thinking this label demonstrates. Unfortunately, there are several potential drawbacks with the implementation of this label, most of which relate to the use of color on the label. The agencies are proposing the addition of color to the labels for static and variable data. As we will explain in the following, use of color for static data will be challenging and cannot be imprinted with variable data of any color. The use of color for variable data is not feasible. [EPA-HQ-OAR-2009-0865-7139.1, p.8]

As EPA and NHTSA are aware, manufacturers recently implemented color on California's new Environmental Performance Label. We were able to meet California's requirements because they required only one pre-printed color in the borders only and provided approximately six months of lead time to implement the new label. [EPA-HQ-OAR-2009-0865-7139.1, p.8]

Color Printing: [EPA-HQ-OAR-2009-0865-7139.1, p.8]

First, for static color like background aspects of the proposed labels, pre-printed color stock could be used, but this solution is challenging. Laser printers were never designed to imprint variable data on label stock that has been pre-printed with static color (borders, boxes, etc.) on the removable liner side (for adhesive application to the 'inside' of the vehicle window). Thus, overlaying variable data in black ink could not be done on the color portions of the label. [EPA-HQ-OAR-2009-0865-7139.1, pp.8-9]

Second, for variable color data like the proposed operating cost shown in Figure 5 [See p.10 of this comment summary for Figure 5 entitled, Label Implementation Concerns] ('spend \$9,100'), introduction of variable color imprinting is not possible with current printer hardware. Use of laser printers is not recommended because of drawbacks such as fading within one to two weeks of printing and problems with toner handling, maintenance, slow performance, and lack of quality control for large batch printing. To date, we are not aware of any laser color printer hardware solutions that can provide fade resistant output of color for variable data. [EPA-HQ-OAR-2009-0865-7139.1, p.9]

Additionally, current labels are printed in large batches, but to accommodate the proposed addition of four label grade colors, pre-printed labels would have to be sequenced for each vehicle to ensure the correct label stock was being used. Sequencing on the assembly line or in port facilities is logistically very difficult. [EPA-HQ-OAR-2009-0865-7139.1, p.9]

Printer Tolerances: The space provided for the variable text in the lower portion of Label 1, including fuel consumption, MPG city and highway, CO, g/mi and annual fuel cost for gasoline vehicles, is too small to accommodate printing variations. Currently, labels can shift inside printers by up to 1/8 of an inch, and with each data set so close to each other as proposed in

Label 1, there is a high possibility for the printer to overlap data. The proposed design changes to Label 1, in Figure 3, streamline this data box and would help prevent concerns about printing overlap. [EPA-HQ-OAR-2009-0865-7139.1, p.9]

The implementation concerns for color printing and printer tolerances are depicted in Figure 5. [EPA-HQ-OAR-2009-0865-7139.1, p.9]

[These comments were also submitted by as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 78-79]

### **Merritt, Kevin**

Can you confirm if the color on the label will be a requirement? This will have significant implications to the manufacturers if color is a requirement. Either they will have to move to color printers (generally slower, more expensive, less reliable, struggle more with this media, more expensive supplies) or change to pre-printed color media. Some have avoided this in the past by separating the CA smog sticker. [EPA-HQ-OAR-2009-0865-3549, p. 1]

The current sliding scales have an opaque numbers in them. Those numbers overlap color on the scale. If the sliders were moved up, then the color on these labels could be pre-printed. The current design would require just in time (color laser printers) to replace current mono printers. This could have significant costs implications for hardware and programming. [EPA-HQ-OAR-2009-0865-4723, p.1]

The sliding scale used has white letters. Because it overlaps the colored 'slider bar', this would require that the label be printed using a color printer. Preprinted color media would otherwise show through the lower half of text of the arrow slider. If the arrows were simply placed above the slider, then pre-printed stock could be used. Also is there a specification for the color used? (There are many shaded of yellow... or could other colors be used... or could grey be used, allowing existing printers to be used?) [EPA-HQ-OAR-2009-0865-3705, p.1]

### **National Automobile Dealers Association (NADA)**

MR. MEDFORD: I just have a couple. First, for the Alliance. And this is in regards to your testimony about the time, and specifically, what you had to say about color. You gave some facts about why you thought the need for additional lead time for the other components. What is it about, and you didn't say how much more lead time you need for color, but can you give us some factual information about that. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 41.]

MR. DOUGLAS: Do you mean about color in general? [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 41.]

MR. MEDFORD: Color. And you said you could do it in 11 months if you didn't do color, but you would need more time if you did. Can you explain how much more time and why in more

detail. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 41.]

MR. DOUGLAS: I can't really get into the 'how much more time.' I think it depends on -- but this is not -- you know, these are manufacturing facilities, assembly plants, distribution points, ports of entry. And it's not like Honda can go down to OfficeMax and buy up a bunch of HP color printers. These are industrial printers. They're an industrial facility. They have to develop the software for them. That adds complexity. The color printer is much slower than that of a black-and-white printer. And, quite honestly, I don't think there is a color printer used by a single manufacturer, at this point, for labels. And it's not just, you know, 20-pound paper that they print on. I mean, their own labels, they're irregular-sized, it's thicker, it's different. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 41-42.]

## **Nissan**

### **Black & White vs. Color Labels**

Nissan recognizes that a color label improves the appearance and information recognition. However, these advantages should be properly weighed against the notable expense of securing and operating color printers. In addition, procuring color printers will necessitate additional lead time. [EPA-HQ-OAR-2009-0865-6922.1, p.4]

## **Occidental College**

MR. MEDFORD: I just have one question. It's about color. We didn't hear anything about color from you. Do you have a view about color? [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 125.]

MS. ASHENMILLER: I guess I have the view of, if the technology is not available at this moment to print color, then we should give some time. But I don't personally think that that should be a criteria in terms -- whether or not color is important should be decided on whether or not color is important, not whether or not people say they can do that. I think that there are clear incentives. It's very hard to know what people can and cannot do until you actually present them with regulation that enforces that. So I think color should be -- if you think it's important, you should do it. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 125.]

MR. ECKERLE: I agree. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 125.]

## **Securing America's Future Energy (SAFE)**

SAFE also understood the concerns raised by the auto manufacturers about the use of color. We do not need to be expert printers to appreciate that printing in color costs more and is more complex than printing in black and white. We also understand that there may be issues with

respect to color consistency between printers, factories, and auto manufacturers, in addition to concerns about the effects of ultraviolet exposure, which could fade labels when left in the sunlight for a period of weeks or months, undermining the value of the color. Because the color in the proposed labels added little value to the labels and we were able to design black and white labels that could clearly convey all of the information to consumers that we think needs to be conveyed, we do not think it is worth the effort and expense of adding color to the labels. [EPA-HQ-OAR-2009-0865-7522.1, pp.12-13]

## **Suzuki Motor Corporation**

### Fuel Economy Label Design

Suzuki supports the more traditional Label 2 design with some minor modifications to reduce the implementation costs for manufacturers. Based on Suzuki's estimated cost analysis, all of the current labels proposed will have a significant cost burden that may not have been anticipated by EPA and NHTSA due to the fact that new software and hardware will be required to print the new labels. In order to simplify the label design and facilitate an easy transition without high implementation costs, Suzuki recommends the following design changes be made to Label 2. [EPA-HQ-OAR-2009-0865-6900.1, p.2]

Delete the color requirements for all vehicle categories so that manufacturers can use their current black-white printers to print black text only on the labels. If the final label requires color, choose only one color such as green for hybrid or electric vehicles which can be pre-printed on paper stock. Pre-printing the color on the labels will significantly reduce cost by eliminating the need to purchase new color printers. [EPA-HQ-OAR-2009-0865-6900.1, p.3]

### Cost Burden to Adopt New Label Requirements

Suzuki has conducted an estimated cost analysis based on the current label proposal and we believe that our cost to adopt either of the proposed labels which would contain variable colors, special fonts/graphics and a Smartphone code will cost Suzuki over \$200,000. Below is a summary of Suzuki's estimated cost to adopt the labels as proposed. [EPA-HQ-OAR-2009-0865-6900.1, p.4]

The largest expense in adopting the new label will be in purchasing new color laser printers because Suzuki currently uses black-white ink jet printers to print black text and several symbols (stars, pointers, blocks) on the fuel economy label, NCAP label and the CEPL label, which are all part of the Monroney Label. [EPA-HQ-OAR-2009-0865-6900.1, p.4]

## **Toyota**

To help consumers identify the grade of a vehicle on dealer sales lots, EPA is proposing that different colors be used to differentiate between grade families. For example, the circle which surrounds the letter grade would be a different color, green for A grades, yellow for B grades, orange for C grades, and dark orange for D grades. Toyota does not agree that applying color to the labels would be an effective measure to consumers. Experience with current label printing,

which incorporates a black printer on color cardstock suggests that use of color is compromised because the label is viewed through a tinted window. Incorporating the color schemes being proposed by EPA would not stand out through the window tint, would be subject to fading and thus, its usefulness would be lost. Furthermore, the color changes being proposed by EPA will require color printing capability at all Toyota locations. Expediting color printing capability in the timeframe needed to meet the new label requirements represents a significant capital investment and changes to existing processes and cannot be realistically achieved by 2012 MY. Estimates for changes to the 150 different label printers to accommodate the different formats as well as color are in the range of \$3 million dollars and a year plus of lead-time, as well as ongoing increases in operating costs. [EPA-HQ-OAR-2009-0865-6901.1, p.12]

### **University of Pennsylvania Law School, Environmental Law Project**

However, we acknowledge that there are significant potential difficulties with using color on the final label. Manufacturers will be responsible for printing their own labels to affix to vehicles as they are made, and the agencies have mandated appropriate colors for manufacturers to use, so there will have to be some oversight to ensure that colors are uniform across manufacturers. The potential for color variations between manufacturers and decreased intensity of color due to sun exposure or due to low ink levels could result in violations of the Rule. For these reasons, we propose that EPA and NHTSA also consider using colored paper stock instead of colored ink, which would be easier to enforce and oversee. [EPA-HQ-OAR-2009-0865-7171.1, pp.3-4]

### **Volvo**

#### Challenges

This new regulation would require spot printing of color fill, as well as color text. Volvo currently prints in black and white. This is true, as well, for all carmakers with whom we have spoken. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### Cost Basis

Five geographically dispersed Ports of Entry. Fixed costs are influenced by the geography of the market more so than by the size of the automaker. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### Start-up Cost Comparison

On a per-vehicle cost basis, Volvo start-up costs are an estimated eighty times those of a large volume manufacturer. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### Cost Estimates

On a per-vehicle cost basis, Volvo and other smaller importers, and their customers, are affected disproportionately by the proposed regulation. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### Requirement for Multiple Labels

If Volvo would need to consider multiple labels to replace a single Monroney, each new label would increase process time to account for additional printing time and follow-up assembly controls to ensure proper application of multiple labels. Paper costs would also increase in multiples. Hardware requirements would expand. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### Color Cost Comparison

The difference in cost between one-off color page printing and high-volume offset printing are enormous. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### Recommendations

Volvo recommends avoiding color that must be individually applied at the port of entry or at the end of a factory line. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

Volvo recommends that color requirements be limited to those that can be accomplished in a high-volume printing process, such as background colors / color bars / color gradients applied generically during offset printing. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

Volvo recommends that current just-in-time black and white printing processes be preserved, and that black shapes or lines be used to delineate ranges on color backgrounds. [EPA-HQ-OAR-2009-0865-7123.1, p.2]

#### **Response:**

These comments address cost and lead-time concerns associated with the proposed labels, that used multiple colors and were expected to be finalized for Model Year (MY) 2012.

The label that the agencies are finalizing uses only one color (blue) in addition to black and white, and has designed the label so that the blue can be pre-printed on feedstock. Some auto makers already pre-print color on their current Monroney labels. The decision to use only one additional color, in a way that allows it to be pre-printed, is expected to address most of the concerns raised in these comments. The affected companies will be able to use black-and-white printers. The feedstock will not change for different vehicles.

Hyundai raises concerns that pre-printing is “challenging. Laser printers were never designed to imprint variable data on label stock that has been pre-printed with static color (borders, boxes, etc.) on the removable liner side (for adhesive application to the 'inside' of the vehicle window). Thus, overlaying variable data in black ink could not be done on the color portions of the label.” However, comments from others suggest that this approach will not materially affect their costs: e.g., “Honda supports a single, pre-printed label stock for all fuel economy labels.” Suzuki comments, “If the final label requires color, choose only one color such as green for hybrid or electric vehicles which can be pre-printed on paper stock. Pre-printing the color on the labels will significantly reduce cost by eliminating the need to purchase new color printers.” “Volvo recommends that color requirements be limited to those that can be accomplished in a high-volume printing process, such as background colors / color bars / color gradients applied

generically during offset printing.” The Alliance of Automobile Manufacturers and the Association of International Automobile Manufacturers express concerns about sequencing if multiple pre-printed labels are necessary for different kinds of vehicles but do not raise concerns about single-color pre-printed labels. While the agencies acknowledge Hyundai’s concerns, the acceptance of this approach from other auto manufacturers suggests that the addition of color in a manner that allows it to be pre-printed on feedstock does not have a material effect on costs.

The lead time for the label is also extended, with it becoming effective for MY 2013 (optional for the remainder of MY 2012). This extension will assist with concerns over the time needed to revise IT systems and to use up existing label stock.

The cost estimates for the rule (see Preamble Section VI) have been revised to reflect the estimates provided in comments to the agencies. GM’s estimate of \$800,000 for black-and-white printing is used as an upper bound, and Suzuki’s estimate (with the cost of the printer omitted) of \$90,250 is used as a lower bound. That range of costs is then applied to the estimated universe of 35 firms.

**Organization:** Institute for Policy Integrity - New York University School of Law

**Comment:**

**Institute for Policy Integrity - New York University School of Law**

As the agencies point out, conducting a cost-benefit analysis of the label designs can be especially challenging. Unlike more traditional regulatory approaches, the impact of the labeling program depends on how consumers in the new car market will respond to the information the labels present. It is difficult to predict with precision if and how behavior may change. [EPA-HQ-OAR-2009-0865-7136.1, p.2]

First, the agencies should use their cost-benefit analysis to cabin the uncertain elements of the label designs. The agencies should estimate the effect of an incremental change in consumer behavior on achieving the labeling program’s goals. These estimates can provide a rough idea of the possible impact of the label design, and will help the agencies choose which label design to adopt. Because the label is a low-cost, low-burden regulation, the agencies do not need to conduct an extremely detailed cost-benefit analysis before issuing their final rulemaking. Rather, they should borrow heavily from past rulemakings—especially the 2010 CAFE standards rulemaking—to estimate the impact of a change in consumer behavior, supplementing that past research with the agencies’ own reasoned judgment and whatever lessons can be gleaned from a review of the relevant literature. [EPA-HQ-OAR-2009-0865-7136.1, p.2]

Third, the agencies should include in their final rulemaking a plan to test the default choice by conducting field experiments and market research of all of the label designs. It may be feasible to conduct some of these field tests after the agencies issue their final rulemaking but before they implement the rule; otherwise, the agencies can conduct these experiments after implementing the rule and apply any necessary revisions to labels for later model years. These tests should be

part of a robust research program designed to advance the state of label-related research. [EPA-HQ-OAR-2009-0865-7136.1, p.3]

EPA and NHTSA Should Conduct an Appropriate Cost-Benefit Analysis [EPA-HQ-OAR-2009-0865-7136.1, p.3]

The agencies should expand and improve their calculation of the costs and benefits of the labeling program by defining the goals of the program; quantifying, whenever possible, those goals in monetary terms; and then comparing the relative costs and benefits of each label design to achieving those goals. Because the program's impact is inherently difficult to predict with precision, the agencies should use their cost-benefit analysis "to clarify the contours of [their] uncertainty . . . thereby improving [their] ability to make smart choices in the face of the unknown." [EPA-HQ-OAR-2009-0865-7136.1, p.3]

Although administrative law and regulatory best practices require that the agencies conduct a cost-benefit analysis, that analysis does not need to be unduly comprehensive or detailed. The agencies' analysis should be proportional to their best estimate of the magnitude of the fuel economy label program's impact. [EPA-HQ-OAR-2009-0865-7136.1, p.3]

Executive Order 12,866 Requires Cost-Benefit Analysis of Major Rules [EPA-HQ-OAR-2009-0865-7136.1, p.3]

Executive Order 12,866 requires agencies to conduct cost-benefit analysis for significant regulatory actions. A regulatory action is "significant" if it is likely to have an annual effect on the economy of \$100 million or more, is seriously inconsistent with or interferes with another agency's regulatory action, or raises novel legal or policy issues. [EPA-HQ-OAR-2009-0865-7136.1, p.3]

Thus the agencies' analysis should endeavor to take into account all major costs and benefits—direct and indirect, quantifiable and qualitative. However, as discussed below, the agencies' analysis should be roughly proportional to the rule's impact; the agencies should not feel compelled to delay promulgating their final rulemaking in favor of a more detailed cost-benefit analysis. At its base, cost-benefit analysis is about making good decisions, not delaying thoughtfully crafted regulations.[EPA-HQ-OAR-2009-0865-7136.1, p.5; for additional comments pertaining to Executive Order 12,866 Requires Cost-Benefit Analysis of Major Rules, see pp.3-5 of this comment summary]

Best Practices Require Quantification of Benefits Where Possible [EPA-HQ-OAR-2009-0865-7136.1, p.5]

Cost-benefit analysis of major rules is more than a bureaucratic requirement under the Executive Order; it is also a good idea. Cost-benefit analysis helps agencies transparently choose the best regulatory regime in terms of rationality, efficiency, and clarity. For a proposal like the fuel economy label, where regulators must make choices in the face of uncertainty, cost-benefit analysis can help cabin that uncertainty and guide the agencies towards the most reasonable choices. [EPA-HQ-OAR-2009-0865-7136.1, p.5]



The agencies have invested time and resources in a reasonable, thorough label design process. They should also invest time and resources in calculating the costs and benefits in order to better understand how to maximize net benefits. The following section provides guidance on how to conduct the cost-benefit analysis. [EPA-HQ-OAR-2009-0865-7136.1, p.6; for additional comments pertaining to Best Practices Require Quantification of Benefits Where Possible, see pp.5-6 of this comment summary]

The Agencies Should Define and Quantify the Goals of the Labeling Program [EPA-HQ-OAR-2009-0865-7136.1, p.6]

In order to conduct a cost-benefit analysis of the proposed label designs, the agencies must first define the goals of the labeling program. According to the agencies, the labeling program exists to “help consumers select more energy efficient and environmentally friendly vehicles that meet their needs.” However, the agencies should be more specific; they should clarify what they hope to achieve with the revised label. [EPA-HQ-OAR-2009-0865-7136.1, p.6; for additional comments pertaining to The Agencies Should Define and Quantify the Goals of the Labeling Program, see pp.6-7 of this comment summary]

Identifying, Quantifying, and Valuing Costs and Benefits [EPA-HQ-OAR-2009-0865-7136.1, p.7]

Once the labeling program’s goals have been identified and monetized, the agencies can evaluate the relative costs and benefits of each label design. As the agencies note, the real challenge lies in predicting the impact of the revised labels on consumer and producer behaviors, which are difficult to estimate. This does not, however, present an insurmountable obstacle. The agencies can use cost-benefit analysis to identify and cabin the uncertain impact of the label designs, and this can inform the decision of which design to adopt. [EPA-HQ-OAR-2009-0865-7136.1, pp.7-8; for additional comments pertaining to Identifying, Quantifying, and Valuing Costs and Benefits, see pp.7-9 of this comment summary]

**Response:**

The agencies have continued to use a qualitative approach to benefits estimation. Estimating the benefits of the rule would require estimating how consumers might change their vehicle purchasing behavior in response to the change in the label only. In practice, consumers receive information on vehicles from a variety of sources, often well before they might see the label. As a result, identifying the effects of the label itself is difficult at best. And to what are the effects of the label to be compared – the effects of the old label? The effects of no label? These labels are being implemented as vehicles are changing in response to new fuel economy/greenhouse gas regulations, which leads to difficulties in identifying the effects of the labels compared to effects of other changes. Another factor is that the labels are being revised to take into account many alternative technologies not addressed in the previous label design, many of which were not available in the mass market. For these latter technologies, there is not even a theoretical basis for comparing the effect of the label with the effect of a previous label, because neither the technologies nor the labels were readily available.

In their market research, the agencies sought to understand the effects both of individual label elements and of general label design on consumer decisions. That research suggests consumer interest in the new metrics included on the label design, and consumer use of metrics in making choices about vehicles, but a lack of clarity on the effects of different label designs on actual purchase decisions – especially because many consumers do research on vehicles before seeing the labels. Thus, isolating the effects of a change in label design is extremely difficult in practice. Additionally, even if it were possible to measure the effect of the label itself separate from other information sources, identifying the benefits associated with that effect is not a simple exercise. Especially for new technologies (such as the plug-in hybrid electric vehicle), the efficiency of a new technology, and thus its impacts, depend on how the buyer uses the vehicle. Thus, the effects of a change in the label design on purchase behavior is likely to be very difficult to isolate, and even more difficult to measure in terms of its effects on fuel use and environmental quality. The agencies continue to believe that quantifying these effects would be highly speculative and thus more detrimental to the rulemaking than supportive. Rather than “cabining” the uncertainties involved in the rulemaking, a quantitative benefits calculation is more likely to stimulate protest over unfounded estimates and therefore detract from the decision-making process.

The agencies do not believe that previous rulemakings can provide useful information on consumer response to the new labels. CAFE requirements will affect consumer decisions through their effects on vehicle price and fuel economy; this rule has no direct effect on either of those factors. As discussed in the Market Research section of the preamble (I.D.), the agencies have conducted a great deal of research to help them design a label that will meet the goals identified for it.

Conducting research on label design as the label is rolled out would be a highly complex undertaking. What is the control, and what is the treatment? At the same time that the new labels will become effective, new vehicles themselves are changing, and purchase decisions are affected by changes in the state of the economy, fuel prices, and other factors; comparing sales from one year to another would not be good study design, because of the difficulty in controlling relevant factors. We are finalizing only one label design, which rules out a comparison of two labels in the same time frame (unless some manufacturers voluntarily use the new label before it is required). We welcome any research that independent parties might seek to conduct on the new label design, and encourage them to inform us of their results.

The agencies conduct benefit-cost analysis for “significant” rules. We do not consider this rule to be “significant” under E.O. 12866. First, neither its annual benefits nor its annual costs are expected to exceed \$100 million. The costs, as described in Preamble Section VI, are expected to be well below this threshold. The benefits, as discussed here, cannot be quantified with any degree of certainty; attempting to quantify them might be more misleading than providing the qualitative discussion in the preamble. Second, the rule is not seriously inconsistent with nor does it interfere with another agency’s regulatory action. The agencies have consulted with each other, the Federal Trade Commission, the Department of Energy, and other agencies to minimize any conflicts and achieve as many synergies as possible with other label-related requirements. Finally, the rule does not raise novel legal or policy issues. This rule represents a modification to an existing label.

The goals of the label are set forth in EPCRA and in EISA and are discussed in the preamble, Section I.C. That section explains the statutory requirements, why the agencies have coordinated their requirements in one label, the usefulness of revising the label to account for increasingly diverse vehicle technologies, and the aim of improving consumer access to information on the fuel economy and environmental impacts of their vehicle purchase decisions. In designing the labels, the agencies have used these goals as guiding principles. Consumers nevertheless are free to use the information provided as they see fit.

The agencies considered the costs of requiring multiple colors on labels compared to the costs of designing a label where pre-printed feedstock can be used with black-and-white printers. In addition, the agencies considered the costs associated with lead time in deciding when to make the rule effective. Qualitative consideration of benefits were considered sufficient for these decisions.

## 10.1. Need to Consolidate Labels

**Organization:** Alliance of Automobile Manufacturers (Alliance)  
Association of International Automobile Manufacturers (AIAM)  
Ford Motor Company (Ford)  
Hyundai Motor Company  
National Automobile Dealers Association (NADA)  
California Air Resources Board (CARB)  
Sierra Club  
Tesla Motors  
Suzuki Motor Corporation  
Mitsubishi  
California New Car Dealers Association

### Comment:

#### Alliance of Automobile Manufacturers (Alliance)

A Single National Label Is Needed. Over the past few years, automakers have worked closely with the Administration and the California Air Resources Board to bring about a single national program for fuel economy and greenhouse gases (GHGs). However, automakers are still required to apply a separate Federal Trade Commission (FTC) label for alternative fuel vehicles and yet another label, with emissions information, for California vehicles. The single national program for vehicle fuel economy and GHG emissions should carry through to the labeling requirements as well. [EPA-HQ-OAR-2009-0865-6850.2, p. 2]

A Single National Label Is Needed. [EPA-HQ-OAR-2009-0865-6850.2, p.10]

Over the past few years, automakers have worked closely with the Administration and the California Air Resources Board to bring about a single national program for fuel economy and greenhouse gases (GHGs). The Alliance appreciates the work that EPA and NHTSA have done to develop a joint labeling rule. However, automakers are still required to apply a separate FTC label for alternative fuel vehicles and yet another label for California vehicles, as well as other required labels. As Figure 1 [See p. 10 of this comment summary for Figure 1 entitled, Example of Current New Vehicle Labeling With Fuel Economy Incorporated Into the Monroney Label] below illustrates, this multiplicity of labels creates a clutter of competing materials that may overwhelm consumers and interfere with the ability to test drive vehicles. Ironically, this is even more pronounced for alternative fuel vehicles because of the required additional FTC label. The single national program for vehicle fuel economy and GHG emissions should carry through to the Federal and California labeling requirements as well. [EPA-HQ-OAR-2009-0865-6850.2, p.10]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 19. These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 14-15]

## **Association of International Automobile Manufacturers (AIAM)**

A Single Nationwide Label is Needed.

One of the most serious issues for AIAM members is that EPA, NHTSA, other federal agencies, California, and other states need to harmonize their respective requirements to allow one nationwide label for fuel economy and emissions for new motor vehicles. All of the federal and state labeling requirements share a common goal – to provide consumers with the best available information to inform new vehicle purchase decisions. This goal is not achieved with competing and conflicting labels. To inform consumers without confusing and frustrating them, it is essential to have one nationwide new vehicle label. AIAM appreciates the efforts of EPA and NHTSA to harmonize their respective label requirements for emissions and fuel economy, respectively. In addition, we appreciate the efforts made by the agencies to work with the Federal Trade Commission to develop a single label which will meet the FTC requirements as well as those of EPA and NHTSA. We also appreciate the California Air Resources Board's (CARB) stated willingness to work with the agencies to develop a harmonized single nationwide label. We urge EPA and NHTSA to work with other federal agencies and CARB to complete this critical harmonization step. [EPA-HQ-OAR-2009-0865-7134.1, p.2]

One of the most serious issues for AIAM members is that the agencies harmonize their respective requirements and work with states that have similar labeling requirements to have one nationwide label for new motor vehicles. AIAM believes it is essential to have one nationwide new vehicle label to meet all federal and state labeling requirements in order to avoid customer confusion and frustration. AIAM appreciates the efforts that EPA and NHTSA have made to harmonize their respective label requirements for emissions and fuel economy, respectively. In addition, you have done well in working with the Federal Trade Commission, as well, on their requirements. In particular, though, the State of California, as well as several other states that have adopted California's emissions standards, currently have vehicle requirements for what they call 'environmental performance labels,' that are different from the proposed federal labels. Again, we appreciate EPA's and NHTSA's efforts to develop new federal labels that include the labeling requirements of these states and your efforts to allow compliance with the federal requirements to also constitute compliance with the state requirements. It is important to note that if California decides some time later that they can accept the new EPA label as a substitute for their environmental performance label, OEMs will need to redesign the label yet again to eliminate the duplicative CARB label. And this kind of inefficiency should be avoided by the federal agencies in working now collaboratively with CARB to agree on one national label. As noted above, such harmonization is essential to assist consumer understanding and reduce unnecessary administrative costs for dealers and auto manufacturers; therefore, we believe it's in the public interest for all federal and state agencies involved to agree on one national label before the final rule is issued. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 52-53.]

MR. CABANISS: I have one additional thought about lead time. And I'm not quite sure, you know, given that Jonathan mentioned, I think, the statute in California -- about their label. And I'm not sure exactly the legal requirements and how that, you know, may work out. But one of

the biggest factors that our members have concerns -- and I emphasized it in our statement and we'll elaborate on it in our written comments as well -- is the idea of having one national label. You know, I know we can't predict when the legislature might take an action in California or any other state or even Congress, obviously, but to the extent that we can find a way through this issue to have one label, you know, and the sooner the better, of course, so that we don't have to go through -- the manufacturers' having to go through and redesign labels. That's why I emphasized, you know, with the new requirements for NCAP and these new requirements, and also the sort of conflicting state requirements because they use different metrics and so on. To the extent we can get all of that worked out at one time, and I know it's tough, but that would be the best solution, is to try to figure out a way to do that once so we don't have to redo labels and redo labels and redo labels. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 81-82.]

MS. OGE: CARB is testifying today, and clearly, there are different regulatory requirements. You know, there is state legislation we have, but clearly we're committed to working with CARB, and we'll see what they can do. We appreciate your comments. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 82.]

### **California Air Resources Board (CARB)**

As mentioned in the cover letter, the Air Resources Board would like to move to one environmental label for consumers to consider when purchasing a new car. AB 1229 requires that upstream emissions are included in the greenhouse gas information provided on the label. Having this information reflected on the label is necessary in order for us to adopt the national label in California. One suggested solution, should EPA and NHTSA decide not to include upstream emissions on the label nationally, would be to set aside a blank space for automakers to include upstream emissions for California. This may be a workable compromise that would allow us to adopt the National Label. [EPA-HQ-OAR-2009-0865-7527.1, p.1]

We really do want to move to one national label but also have to keep in mind our statutory requirements. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 133.]

### **California New Car Dealers Association**

And as for the joint regulatory proposal, I would like to offer the following comments. Now, in general, we think that the label should be simple but respectful of the buyer's intelligence. NHTSA and EPA must consider the fact that the environmental and fuel economy performance of a vehicle is one of many factors that consumers take into account when making a purchase decision. Other important factors include safety, price, performance, quality, utility, and passenger and storage capacity. Those are all very important for consumers. The purpose of the label should be to provide pertinent and easy-to-understand information about fuel economy and emissions. Our primary concern with the proposal, even greater than the content or the format of the proposed label themselves, is the fact that the proposal specifically provides that the new label will be required in addition to, and not in lieu of, CARB's own

Environmental Performance Label. On behalf of our members and their customers, we strongly urge EPA and NHTSA to work with CARB to develop a single, uniform federal label that will supplant the CARB label. As currently drafted, a consumer examining a vehicle's Monroney label may see the CARB Environmental Performance label and the Federal Fuel Economy and Environmental Comparison label. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 64-65.]

### **Ford Motor Company (Ford)**

One National Fuel Economy and GHG Label: Ford strongly supports efforts to align California, the Federal Trade Commission (FTC), EPA and NHTSA to use a single label, which would satisfy overlapping environmental, greenhouse gas and fuel economy regulatory requirements. We believe this rulemaking provides a rare opportunity for the key stakeholders to consolidate and reduce one aspect of today's regulatory complexity for consumers, dealerships, and manufacturers. [EPA-HQ-OAR-2009-0865-7141.1, p.2]

One National Label [EPA-HQ-OAR-2009-0865-7141.1, p.10]

Ford strongly supports efforts to agree on one national fuel economy and GHG label that will meet the requirements of EPA, NHTSA, CARB and FTC. Multiple labels are currently being used to meet the requirements. We believe one label could be developed to convey the information that is listed on the FTC and California Environmental Performance Label, as well as the new information that will be required by the fuel economy labeling rule. Usage of one label would benefit the consumer, manufacturers and dealers by reducing complexity and redundancy of information. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

To incorporate information required on the FTC label for alternative fuel vehicles into one national label, Ford supports the usage of comparative range data and believes that inclusion of fuel economy results for the alternate fuel should continue to be voluntary. [EPA-HQ-OAR-2009-0865-7141.1, p.11]

### **Hyundai Motor Company**

Finally, Hyundai understands that environmental information related to GHG and emissions is now mandated. However, we are concerned that this information will be duplicative of the information that California and other states require on their Environmental Performance label or that the information may not match resulting in consumer confusion. We believe harmonizing the information on these two labels is necessary and that duplication should be avoided. A full discussion of harmonization concerns can be found in Section VI. [EPA-HQ-OAR-2009-0865-7139.1, pp.5-6]

Relationship of EPA's Proposed Requirements with Other Statutes and Regulations; Harmonization [EPA-HQ-OAR-2009-0865-7139.1, p.12]

Hyundai believes that it important for the agencies - EPA, NHTSA, Federal Trade Commission (FTC), and the California Air Resources Board, as well as applicable Section 177 States' agencies - to harmonize their respective labeling requirements. A single, national label will be the most effective way to provide relevant and comprehensive information to the consumer, and eliminate any potential confusion due to multiple labels. Hyundai appreciates that EPA and NHTSA are collaborating to harmonize their respective label requirements for emissions and fuel economy, as well as taking separate efforts to work with the FTC to develop a single label which will also meet the FTC requirements. These are important steps to ensuring a national, harmonized label. [EPA-HQ-OAR-2009-0865-7139.1, p.12]

As such, it is also necessary for the agencies to collaborate with the State of California and Section 177 States, who have adopted California's emissions standards, to harmonize California's environmental performance labels so that it is not different from the proposed federal labels and/or duplicative without any additional benefit. Since space continues to be a concern for the Monroney Label, where the Fuel Economy Label and California's Environmental Performance Label reside, a single, harmonized label would also have the added benefit of freeing up space. Most importantly, as already noted, harmonization is essential to ensuring consumer understanding and avoiding conflicting and/or duplicative information on multiple labels. [EPA-HQ-OAR-2009-0865-7139.1, p.12]

### **Mitsubishi**

A single national label is needed, (Alliance, AIAM) [EPA-HQ-OAR-2009-0865-6934.1, p.1]

### **National Automobile Dealers Association (NADA)**

Harmonization [EPA-HQ-OAR-2009-0865-6940.1, p.8]

NHTSA, EPA and the California Resources Board (CARB) must work together to ensure that, once the revised federal label is issued, no continuing justification will exist for a separate California emissions or environmental performance label. The ORG and Other Emissions metrics in the federal label effectively duplicate the Global Warming and Smog metrics on the CARB label. Thus, NHTSA, EPA, and CARB should ascertain what procedural steps are necessary to eliminate the CARB label once the federal label is issued. California consumers and dealers do not need two labels with disparate formats presenting largely the same information. As discussed above, NHTSA and EPA should work with the FTC to eliminate the separate FTC label for alternative fueled vehicles. [EPA-HQ-OAR-2009-0865-6940.1, p.8]

### **Sierra Club**

Finally, California, as has been mentioned, has an Environmental Performance label that provides some of the information EPA and NHTSA are considering for the national label. So we urge that the federal agencies consider the information provided on California's label and the scales provided. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 102.]



## **Suzuki Motor Corporation**

### Harmonizing Emission Label Requirements

Suzuki believes it is essential that the emission label requirement meet all federal and state labeling requirements in order to avoid possible consumer confusion with the mandatory California Environmental Performance Label (CEPL) which the State of California and several other states that have adopted based on California's emission standards. Suzuki sees no benefit in having two different emission labels that could contain significantly different rating systems which will only add to consumer confusion and unnecessary administrative burden for dealers and auto manufacturers. Suzuki strongly recommends that EPA, NHTSA and CARB work together to develop one national emission label that would meet all federal and state requirements in an effort to eliminate the California Environmental Performance Label. [EPA-HQ-OAR-2009-0865-6900.1, p.4]

## **Tesla Motors**

When considering label improvements overall, Tesla would urge EPA and NHTSA to look to existing labeling requirements under other regulatory regimes and utilize those measures to which consumers have become familiar. For example, the state of California and at least fifteen other states have adopted Environmental Performance ("EP") labeling, which rates vehicles based on traditional pollutants as well as greenhouse gases. Because of the widespread application of those labels, consumers in a significant portion of the country have become familiar with the metrics in these labels. Rather than having duplicative labels, EPA and NHTSA may wish to consider incorporating the measures of the EP labeling program on a national level. In the NPRM, the Agencies already have recognized that the proposed revision would not interfere with the EP labeling program. Tesla would endorse that EPA and NHTSA consider incorporating the EP labeling program so as to avoid duplicative requirements. [EPA-HQ-OAR-2009-0865-6933.1, p.4]

Finally, with respect to label amendments, Tesla would urge the Agencies to strive to harmonize labeling requirements across the federal regulatory landscape as well states. Specifically, the requirements at 16 C.F.R. Part 309 as administered by the Federal Trade Commission ("FTC") require that ATVs provide certain information on separate labels. For EVs, the requirements include a label that publishes the maximum range based on the Urban Dynamometer Driving Schedule and the Highway Fuel Economy Test procedures. As EPA and NHTSA consider the values to place on the fuel economy label, the Agencies should include involving the FTC so as to avoid confusing and conflicting labels administered by three different agencies of the same federal government. [EPA-HQ-OAR-2009-0865-6933.1, pp.4-5]

### **Response:**

#### **1. Federal Trade Commission**

The Federal Trade Commission (FTC) currently requires that alternative fuel vehicles display a label that reports the driving range of the vehicle. [\[1\]](#) The dedicated alternative fuel vehicle

label displays the estimated city and highway driving ranges on the alternative fuel, and the label for dual fuel vehicles (e.g., flexible fuel vehicles, or FFVs) displays the estimated city and highway driving ranges on both fuels.<sup>[2]</sup> Alternative fuels (especially non-petroleum alternative fuels) may have lower energy densities, thus resulting in potentially reduced driving ranges relative to conventional fuels, and it is important for consumers to be able to understand this when considering the purchase of an alternative fuel vehicle. Among the vehicles currently labeled by EPA, the FTC label applies to vehicles that operate on electricity, ethanol, compressed natural gas, hydrogen, or on combinations of these fuels and conventional gasoline or diesel fuel (e.g., FFVs and PHEVs).

EPA did not specifically propose to harmonize with the FTC regulations such that a single label would satisfy the multiple and sometimes overlapping EPA, DOT, and FTC requirements. However, EPA did recognize in the proposal that there could be an opportunity for such harmonization that would depend on whether or not the FTC ultimately could conclude that the EPA/DOT label could satisfy their statutory requirements.<sup>[3]</sup> The relevant FTC statute specifically allows for the information to appear on labels placed on vehicles as the result of other federal requirements.<sup>[4]</sup> Labels that were proposed to include range information and that are required including this information (e.g., EVs, PHEVs, hydrogen FCV, and CNG-fueled vehicles) may in fact meet the FTC's statutory requirements, although the FTC will ultimately need to make a formal decision as to whether vehicles with these labels meet the FTC label requirements.

The agencies are requiring a label for ethanol flexible fuel vehicles that is consistent with the principles of the current policy: all label metrics are based on gasoline operation, a statement is provided so that the consumer knows that the values are based on gasoline operation,<sup>[5]</sup> and manufacturers may voluntarily include fuel economy estimates on E85 (which would be based on miles per gallon of E85, given that E85 is a liquid fuel). In addition, manufacturers may optionally include the driving range on gasoline and on E85. As with the required range information on non-petroleum and advanced technology vehicles, the FTC will need to make a formal decision as to whether vehicles with these labels meet the FTC label requirements.

The FTC has indicated that they will evaluate the labels in this final rule and ultimately make a determination as to whether or not the labels for alternative fuel vehicles that include range information are sufficient to meet the FTC statutory requirements.

## **2. California Air Resources Board**

To provide vehicle emissions information to consumers, the California Air Resources Board (ARB) has required new vehicles to have a Smog Index label since the 1998 model year, and an Environmental Performance Label (EPL), with both the Smog Index and a Global Warming Index, for all vehicles produced since Jan 1, 2009.<sup>[6]</sup> These labels, which must be displayed in all new vehicles sold and registered in the state of California,<sup>[7]</sup> depict relative emissions of smog-forming pollutants and, separately gases that contribute to global warming. In the proposal, the agencies acknowledged that the EPL required similar information to the proposed labels, but did not suggest harmonizing with the EPL.

Nevertheless, many auto manufacturers and their associations commented about the desirability of a single, unified national label. These comments stated that it would be a cost-saving measure, increase clear space on the window, and reduce the potential for consumer confusion that could occur with two different labels presenting vehicle emissions information. Notably, the California Air Resources Board (ARB) commented that it believed that two labels with environmental information would be confusing and that its goal is to accept a national fuel economy and environment label that would meet its statutory obligations under the California Assembly Bill 1229 of 2005.<sup>[8]</sup>

In discussing the possibility of harmonization, the California Air Resources Board commented specifically that it is obligated to address upstream emissions of greenhouse gases, stating that, “One suggested solution, should EPA and NHTSA decide not to include upstream emissions on the label nationally, would be to set aside a blank space for automakers to include upstream emissions for California. This may be a workable compromise that would allow us to adopt the National Label.”<sup>[9]</sup> ARB also commented that its statute requires that the label include a statement that motor vehicles are a primary contributor to global warming and smog, either in conjunction with any upstream language or in the border of the label, and that ARB adopt either an “index that provides quantitative information in a continuous, easy-to read scale”<sup>[10]</sup> or an alternative graphical representation if input from a public workshop indicates that it will be a more effective way to convey the information. ARB also stated that its label must also represent emissions relative to all new vehicles, and explained that after a public workshop, ARB had adopted a one-to-ten scale for both the smog and global warming indexes. Finally, according to their comments, under ARB’s controlling statute, <sup>[11]</sup> the label must include at least one ink color other than black.

In order to try to facilitate label harmonization to reduce OEM costs associated with labeling and potential consumer confusion at the possibility of two environment-related labels on new vehicles, NHTSA and EPA are adopting label provisions that may address California’s requirements. Specifically, the label includes both “smog” (“other emissions,” as discussed above) and greenhouse gas ratings relative to all new vehicles, using a one-to-ten format that is consistent with ARB’s historical approach. In response to ARB’s request to address upstream emissions, the label will include language pointing the public to a web site that will provide upstream emissions values, including regional-specific values for electricity generation. This statement, “Producing and distributing fuel also creates emissions; learn more at fueleconomy.gov,” will be placed near the environmental information on the label. The label will also attempt to address California’s requirement for additional consumer language by including this statement, “Vehicle emissions are a significant cause of climate change and smog.”

The agencies have worked closely with ARB in developing a label that may meet their needs. We believe that the ARB will evaluate the labels in this final rule with the intention of making a determination of whether the labels can serve to meet their statutory requirements as an alternative to the California Environmental Performance Label.

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[1] 16 CFR Part 309.

[2] Note that while EPA does not currently require any comparative fuel information on FFV labels, EPA regulations have allowed manufacturers to optionally include the ethanol MPG and annual cost values since 2007. See 40 CFR 600.307-08.

[3] 75 FR 58112 (Sept. 23, 2010).

[4] 42 U.S.C. 13232(a) states that the FTC labels “shall be simple and, where appropriate, consolidated with other labels providing information to the consumer.”

[5] The slightly revised statement is “Values are based on gasoline and do not reflect performance and ratings based on E85.”

[6] State of California Air Resources Board, “California Environmental Performance Label Specifications for 2009 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.” Adopted May 2, 2008.

[7] And those Clean Air Act Section 177 states that have chosen to adopt the California Environmental Performance Label.

[8] California Air Pollution Control Laws, Health and Safety Code, Division 26 Air Resources, Part 5 Vehicular Air Pollution Control, Chapter 2 New Motor Vehicles, Sections 43200 and 43200.1.

[9] Docket number EPA-HQ-OAR-2009-0865-7527.1.

[10] Id.

[11] California Air Pollution Control Laws, Health and Safety Code, Division 26, Part 5, Chapter 2, Section 43200.1 (b)(2)(D).

## **10.2. Legal Authority under Statutory Provisions EPCA and EISA**

**Organization:** California New Car Dealers Association

**Comment:**

### **California New Car Dealers Association**

Now, the federal label contains a zero to 850 range, 'Greenhouse Gas' scale and a 1 to 10 'Other Air Pollutants' scale, while the CARB label is going to have 1 a 10 to 'Global Warming Score' and a 1 to 10 'Smog Score.' Since the scales and scoring formulas differ, scores may vary widely. It will be extremely difficult to explain to a environmentally-conscious consumer why the CARB label rates a vehicle of 382 grams/C/mile as a 5 out of a 10, while the federal label rates a vehicle as a B. This is going to cause confusion for the customers and will make it very difficult for our member's sales staff to explain the disparity while maintaining the crucial credibility to be able to make the sale. [These comments were submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 65-66.]

**Response:**

The agencies received comments from dealers, automakers, and the state of California about harmonizing the fuel economy and environment labels, especially in the state of California. During the design process, the agencies worked with both the California Air Resources Board and the Federal Trade Commission to ensure that the final label design would meet the requirements of both CARB and the FTC and allow for the harmonization of labels. For more detail, see the preamble section III.L.

### **10.2.1. EPA's Authority under EPCA and EISA**

**Organization:** Institute for Policy Integrity - New York University School of Law  
University of Pennsylvania Law School, Environmental Law Project

#### **Comment:**

#### **Institute for Policy Integrity - New York University School of Law**

The fuel economy label, however, can do more than simply correct a problem of imperfect information about energy efficiency in the new car market. In order to evaluate which label design to adopt, the agencies need to define the purpose of the labeling program with more specificity and clarify what they hope to achieve with the revised label. The program's two enabling statutes, the Energy Policy Conservation Act and the Energy Independence and Security Act, offer guidance, as do the agencies' related rulemakings. Beyond providing consumers with more information, the labeling program's goals include increasing energy independence, promoting alternative fuels, reducing greenhouse gas and other emissions, maximizing consumer welfare, and increasing the net benefit of the agencies' CAFE standards program. [EPA-HQ-OAR-2009-0865-7136.1, p.2]

Once the agencies have identified—and where possible quantified—the goals of the labeling program, they can assess the relative merits of the proposed designs in meeting those goals. Efficiently achieving the program's goals may require the agencies to make tradeoffs between specific objectives; for example it may be that focusing on emissions reductions will not lead to improvements in consumer welfare, and the agencies may need to decide which is the more important goal. These tradeoffs will be reflected in the agencies' design decisions, and those decisions affect the net social impact of the labeling program. Evaluating the relative merits of the label designs requires cost-benefit analysis. [EPA-HQ-OAR-2009-0865-7136.1, p.2]

#### **University of Pennsylvania Law School, Environmental Law Project**

##### **A. Standard of Review**

First, citizens have the right to challenge any final agency action under the APA. Additionally, the Energy Policy and Conservation Act (EPCA) provides a right for parties to challenge regulations promulgated under EPCA. The main challenges to the proposed labels will likely fall under the APA, which requires agency actions to be set aside if they are “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” This phrase has been interpreted as a requirement of reasoned decision making that is based on the information before the agency at the time of the decision – in other words, the agency must “examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” [EPA-HQ-OAR-2009-0865-7171.1, p.8]

Courts are likely to find an agency rule arbitrary and capricious if the agency relied on factors Congress did not intend it to consider, did not consider an important aspect of the issue, offered

an explanation that conflicts with the evidence before the agency, or offered an explanation that is wholly implausible. If the statute at issue is clear, courts will follow clear congressional intent. If the statute is ambiguous or silent on the issue, however, courts will defer to agency interpretation as long as it is “based on a permissible construction of the statute.” The overall picture, then, is one of deferential review, where an agency’s action can withstand judicial review absent an impermissible, implausible, or irrational interpretation of the underlying statute or a similarly unreasonable action on the merits given the evidence, including public comments, before the agency. [EPA-HQ-OAR-2009-0865-7171.1, pp.8-9]

## **B. Statutory Authority**

The current rulemaking derives authority from two statutes. ECPA requires NHTSA and EPA to develop labels for new vehicles displaying information relative to their environmental performance, fuel economy, and emissions. EPCA was modified by the 2007 passage of the Energy Independence and Security Act (EISA), which added new requirements for vehicle labels, including a mandate to establish “a rating system that would make it easy for consumers to compare” fuel economy and other elements of their prospective automobile purchases. [EPA-HQ-OAR-2009-0865-7171.1, p.9]

Under EPCA, an automobile label must include: (a) the automobile’s fuel economy, (b) its estimated annual fuel cost, (c) the range of fuel economy of comparable automobiles of all manufacturers, (d) a statement that a booklet is available from the dealer to assist in fuel economy comparison, (e) the amount of the automobile fuel efficiency tax imposed on the sale under IRS Code, and (f) any other information required or authorized by the EPA Administrator that is related to (a)-(d).<sup>36</sup> This last requirement of “other information” grants the Administrator discretion to include various disclaimer statements, similar to those seen on the current label. “Dual fuel” automobiles, which are capable of operating on an alternative fuel that provide equal or superior energy efficiency than when operating on gasoline or diesel fuel, are required to have labels that: (a) indicate the fuel economy when operated on gasoline or diesel, (b) clearly identify the automobile as capable of dual fuel operation, (c) clearly identify the fuels on which the automobile can operate, and (d) contain a statement informing the consumer that additional information is published by the Secretary of Energy. No specific label requirements are mentioned for “dedicated automobiles,” which operate only on alternative fuel. EPCA includes natural gas and electricity as “alternative fuels.” [EPA-HQ-OAR-2009-0865-7171.1, p.9]

Within EPCA, “fuel economy” is defined as the “average number of miles traveled by an automobile for each gallon of gasoline (or equivalent amount of other fuel) used, as determined by the Administrator.” The Administrator “shall decide on the quantity of other fuel that is equivalent to one gallon of gasoline,” which for electric vehicles equals 33.7 kilowatt-hours per gallon of gasoline. For dedicated and dual fuel automobiles, the labels list the automobile’s fuel “gallons per 100 miles” on the labels, measured in either MPG for operation on gasoline or diesel and MPGe for operation on an alternative fuel, relies on the Administrator’s discretionary authority to include “other information” related to the label requirements. [EPA-HQ-OAR-2009-0865-7171.1, pp.9-10]

The statute also requires developing a rule requiring manufacturers to label new cars with information reflecting performance on fuel economy and greenhouse gas and “other emissions,” as well as “a rating system that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase.” This language may be interpreted to facilitate comparisons between automobiles in the same class. However, as argued previously, the agency’s objective to provide consumers with a true incentive to purchase the most environmentally-friendly automobile is best served by utilizing a uniform rating system for all automobile classes. As such, this system is also required to designate cars with the lowest greenhouse gas emissions and those with the highest fuel economy. [EPA-HQ-OAR-2009-0865-7171.1, p.10]

### **C. Merits of Challenges**

First, challengers could question the agencies’ failure to include information that is required under the statute, or challenge the manner in which such mandatory information is displayed or calculated. The mandatory information, as noted above, is: fuel economy; annual fuel cost; range of fuel economy of “comparable automobiles of all manufacturers;” booklet availability and tax information; and discretionary “other information” authorized by the Administrator. Further, the statute mandates creation of a rating system designed for simple consumer consumption, as well as an indication of which vehicles are the best performers in terms of emissions and fuel economy. [EPA-HQ-OAR-2009-0865-7171.1, p.10]

All of the proposed label options, including our proposed amended label, include the mandatory categories of information. The discretionary grant to include “other information” can be reasonably interpreted as allowing inclusion of other relevant information, so a challenge arguing that included information goes beyond the mandatory requirements will likely fail. [EPA-HQ-OAR-2009-0865-7171.1, p.10]

Second, challengers could contend that the rating system the agencies developed is arbitrary and capricious because it does not make it “easy” enough for consumers to compare the required information. The mandated rating system must include a designation of automobiles with the lowest greenhouse gas emissions over the useful life of the vehicle and the highest fuel economy. No requirement is given that the rating system must discriminate between automobiles that operate only on gasoline or diesel fuels and dedicated or dual fuel automobiles that can operate on alternative fuels. [EPA-HQ-OAR-2009-0865-7171.1, p.10]

The broad mandate to “make it easy” for consumers to compare information, coupled with the lack of required discrimination among gasoline, dedicated alternative, and dual fuel automobiles, gives broad discretion to NHTSA and EPA to propose the letter grade rating system to compare automobiles across fuel classes. Moreover, the “make it easy” requirement likely also supports the particular color scheme that our amended label and Label 1 use, as the agencies could cogently argue that colors, letter grades, and other innovations on the new labels support consumer comprehension, which seems to be a clear goal of the statutes. This conclusion could be bolstered during the rulemaking process in the agencies’ statement of basis and purpose by explicitly linking the decision to incorporate visual manifestations of the rating



system (colors and grades) to the statutory directive to “make it easy” for consumers to digest information. [EPA-HQ-OAR-2009-0865-7171.1, pp.10-11]

**Response:**

The agencies appreciate the comments from New York University and University of Pennsylvania law schools. The preamble to this rule explains in detail the purpose and objectives of the labeling rule. Additionally, the preamble discusses the statutory and legal authority as interpreted by the agencies:

**A. Energy Policy and Conservation Act (EPCA)**

Under EPCA, EPA is responsible for developing the fuel economy labels that are posted on all new automobiles. Medium-duty passenger vehicles are a subset of vehicles between 8,500 and 10,000 pounds gross vehicle weight that includes large sport utility vehicles and vans, but not pickup trucks.<sup>[1]</sup> EPCA requires the manufacturers of automobiles to attach the fuel economy label in a prominent place on each automobile manufactured in a model year and also requires auto dealerships to maintain the label on the automobile.<sup>[2]</sup>

EPCA specifies the information that is minimally required on every fuel economy label.<sup>[3]</sup> As stated above, labels must include:

- The fuel economy of the automobile,
- The estimated annual fuel cost of operating the automobile.
- The range of fuel economy of comparable automobiles of all manufacturers,
- A statement that a booklet is available from the dealer to assist in making a comparison of fuel economy of other automobiles manufactured by all manufacturers in that model year,
- The amount of the automobile fuel efficiency tax imposed on the sale of the automobile under section 4064 of the Internal Revenue Code of 1986;<sup>[4]</sup> and
- Other information required or authorized by the Administrator that is related to the information required [within the first four items].

Under the provision for “other information” EPA has previously required the statements “your actual mileage will vary depending on how you drive and maintain your vehicle,” and cost estimates “based on 15,000 miles at \$2.80 per gallon” be placed on vehicle labels. EPA is adopting all of the labeling requirements discussed below and specified in EPA’s regulations, based on its authority under section 32908(b). In addition, the regulations adopted by EPA satisfy the requirement to develop criteria for purposes of section 32908(g).

There are additional labeling requirements found in EPCA for “dedicated” automobiles and “dual fueled” automobiles. A dedicated automobile is an automobile that operates only on an alternative fuel.<sup>[5]</sup> Dedicated automobile labels must also display the information noted above.

A dual fueled vehicle is a vehicle which is “capable of operating on alternative fuel or a mixture of biodiesel and diesel fuel . . . , and on gasoline or diesel fuel” for the minimum driving range (defined by the DOT).[6] Dual fueled vehicle labels must:

- Indicate the fuel economy of the automobile when operated on gasoline or diesel fuel.
- Clearly identify the automobile as a dual fueled automobile.
- Clearly identify the fuels on which the automobile may be operated; and
- Contain a statement informing the consumer that the additional information required by subsection (c)(2) [the information booklet] is published and distributed by the Secretary of Energy.[7]

EPCA defines “fuel economy” for purposes of these vehicles as “the average number of miles traveled by an automobile for each gallon of gasoline (or equivalent amount of other fuel) used, as determined by the Administrator [of the EPA] under section 32904(c) [of this title].”[8]

Additionally, EPA is required under EPCA to prepare a fuel economy booklet containing information that is “simple and readily understandable.”[9] The booklet is commonly known as the annual “Fuel Economy Guide.” EPCA further instructs DOE to publish and distribute the booklet. EPA is required to “prescribe regulations requiring dealers to make the booklet available to prospective buyers.”[10] While the booklet continues to be available in paper form, in 2006, EPA finalized regulations allowing manufacturers and dealers to make the Fuel Economy Guide available electronically to customers as an option.[11]

In this rule where we refer to EPA’s statutory authority under EPCA, we are referring to these provisions.

## **B. Energy Independence and Security Act (EISA)**

The 2007 passage of the Energy Independence and Security Act (EISA) amended EPCA by introducing additional new vehicle labeling requirements, to be implemented by the National Highway Traffic Safety Administration (NHTSA). [12] While EPA retained responsibility for establishing test methods and calculation procedures for determining the fuel economy estimates of automobiles for the purpose of posting fuel economy information on labels and in an annual Fuel Economy Guide, NHTSA gained responsibility for requiring automobiles to be labeled with additional performance metrics and rating systems to help consumers compare vehicles to one another more easily at the point of purchase.

Specifically, and for purposes of this rulemaking, subsection “(g) Consumer Information” was added to 49 U.S.C. 32908. Subsection (g), in relevant part, directed the Secretary of Transportation (by delegation, the NHTSA Administrator) to “develop and implement by rule a program to require manufacturers –

(A) to label new automobiles sold in the United States with –

(i) information reflecting an automobile’s performance on the basis of criteria that the [EPA] Administrator shall develop, not later than 18 months after the date of the of the Ten-in-Ten

Fuel Economy Act, to reflect fuel economy and greenhouse gas and other emissions over the useful life of the automobile:

(ii) a rating system that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase, including a designation of automobiles—

(I) with the lowest greenhouse gas emissions over the useful life of the vehicles; and

(II) the highest fuel economy...”

In this rule where we refer to NHTSA’s statutory authority under EISA, we are referring to these provisions.

Thus, both EPA and NHTSA have authority over labeling requirements related to fuel economy and environmental information under EPCA and EISA, respectively. In order to implement that authority in the most coordinated and efficient way, the agencies are issuing this joint final rule.

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[1] EPA’s 2006 labeling rule applied to passenger cars, light-trucks, and medium-duty passenger vehicles. Under section 32908(b), a manufacturer is to label each “automobile,” and EPA interpreted that provision as requiring labeling for vehicles that meet the definition of “automobile” under section 32901(a)(3), as well as vehicles under 8,500 pounds gross vehicle weight, whether or not they meet the definition of automobile, pursuant to section 32908(a)(1). See 71 FR 77872, 77876-87, 77915 (December 27, 2006). Since the 2006 rule, EISA revised the definition of automobile in section 32901(a)(3). As with the interpretation discussed in the 2006 rule, the requirements of section 32908(b) continue to apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles.

[2] 49 U.S.C. 32908(b)(1).

[3] 49 U.S.C. 32908(b)(2)(A) through (F).

[4] 26 U.S.C. 4064.

[5] 49 U.S.C. 32901(a)(1) defines “alternative fuel” as including —(A) methanol; (B) denatured ethanol; (C) other alcohols; (D) except as provided in subsection(b) of this section, a mixture containing at least 85 percent of methanol, denatured ethanol, and other alcohols by volume with gasoline or other fuels; (E) natural gas; (F) liquefied petroleum gas; (G) hydrogen; (H) coal derived liquid fuels; (I) fuels (except alcohol) derived from biological materials; (J) electricity (including electricity from solar energy); and (K) any other fuel the Secretary of Transportation prescribes by regulation that is not substantially petroleum and that would yield substantial energy security and environmental benefits.”

[6] 49 U.S.C. 32901(a)(9), (c).

[7] 49 U.S.C. 32908(b)(3).

[8] 49 U.S.C. 32901(a)(11).

[9] 49 U.S.C. 32908(c).

[10] Id.

[11] 71 FR 77915, Dec. 27, 2006.

[12] P.L. 110-140.

### **10.2.2. NHTSA's Authority under EISA**

**Organization:** Environmental Defense Fund (EDF)

**Comment:**

#### **Environmental Defense Fund (EDF)**

THE LABEL MUST BE CONSISTENT WITH THE TEXT AND PURPOSE OF THE STATUTORY REQUIREMENTS [EPA-HQ-OAR-2009-0865-6927.1, p.7]

The label must be consistent with the text and purpose of the statutory requirements. The Energy Policy and Conservation Act, as amended by the Energy Independence and Security Act, directs NHTSA, based on EPA criteria, to develop “a rating system that would make it easy for consumers to compare the fuel economy and greenhouse gas and other emissions of automobiles at the point of purchase, including a designation of automobiles— with the lowest greenhouse gas emissions over the useful life of the vehicles; and the highest fuel economy.” 49 U.S.C. § 32908(g). The Agencies are also required by statute to include information about the cost to consumers related to these environmental factors. Some have problematically recommended that the labels contain a variety of other factors and considerations unrelated to fuel economy and emissions. While there is ample room for additional considerations to be addressed in a variety of other forms and formats separate from the fuel economy label, the labeling protections under EPCA and EISA are expressly designed to empower consumer with clear, accessible information on emissions and fuel economy.[EPA-HQ-OAR-2009-0865-6927.1, pp.7-8]

**Response:**

The final labels put forward by the agencies are fully consistent with the text and purpose of the statutory requirements under EPCA and EISA. For a discussion of both agencies statutory provisions and legal authority, please see the preamble section II.

### 10.3. Comments on Regulatory Text

**Organization:** General Motors (GM)  
Alliance of Automobile Manufactures (Alliance)  
Ford Motor Company (Ford)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

Definition of 'Emission-Related Defect' [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

This NPRM includes a proposed change to the definition of an emission-related defect in 40 C.F.R. Section 85.1902(b)(2). The proposed change added the words 'greenhouse gas,' so that it now reads '...which must function properly to ensure continued compliance with greenhouse gas emission requirements, including compliance with CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and carbon-related exhaust emission standards.' [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

We assume that the words 'greenhouse gas' were added to clarify that the applicability of 40 C.F.R. Section 85.1902(b)(2) would be limited to emission-related defects pertaining to greenhouse gases. The Alliance supports this addition and appreciates the clarity that these added words bring. However, one further modification is necessary: the elimination of the term 'carbon-related exhaust emission' (also known as 'CREE') from the standards listed in the concluding phrase in (b)(2). [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

We are not aware of any stand-alone CREE standards in the greenhouse gas rule. Instead, overall greenhouse gas standards use CREE data for the detailed carbon balance calculations. The CREE standards, such as CO<sub>2</sub> and hydrocarbon exhaust emission standards, are air quality-related standards that pre-existed the onset of GHG regulations. The CREE constituents have never been considered 'greenhouse gases' and were not reclassified as such with the passage of the GHG regulations. [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

Defect reporting for non-greenhouse gas criteria pollutants (e.g. HC, CO, and NO<sub>x</sub>) is addressed in 40 C.F.R. Section 85.1902(b)(1). To the best of our knowledge, this would encompass all CREE pollutants. It is not necessary or desirable to have two different defect reporting schemes applicable to the same pollutants. We are concerned that referring to CREE in 40 C.F.R. Section 85.1902(b)(2) will create either an unnecessary duplication of effort, or confusion regarding which criteria should be used to determine defects that affect non-GHG carbon-containing emissions. [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

Defect reporting for CREE is adequately addressed in 40 C.F.R. Section 85.1902(b)(1). References to other individual greenhouse gas constituents in (b)(2) are also unnecessary, since the proposed definition refers to greenhouse gas standards in general. Therefore, we request that EPA amend 40 C.F.R. Section 85.1902(b)(2) as follows: [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

(2) A defect in the design, materials, or workmanship in one or more emissions control or emission-related parts, components, systems, software or elements of design which must function properly to ensure continued compliance with vehicle greenhouse gas emission standards. [EPA-HQ-OAR-2009-0865-6850.2, pp.14]

### **Ford Motor Company (Ford)**

Miscellaneous Amendments and Corrections [EPA-HQ-OAR-2009-0865-7141.1, p.10]

Definition of 'Emission-Related Defect' [EPA-HQ-OAR-2009-0865-7141.1, p.10]

Ford supports the feedback contained in the Alliance of Automobile Manufacturers written comments related to the proposed change to the definition of an emission-related defect in 40CFR 85.1902(b)(2). In particular, it is important that the reference to carbon-related exhaust emission ('CREE') standards be removed from that definition. Defect reporting pertinent to CREE is already well-established in CFR 85.1902(b)(1). The inclusion of CREE in (b)(2) would only serve to create confusion. [EPA-HQ-OAR-2009-0865-7141.1, p.10]

### **General Motors (GM)**

Definition Changes

The proposed amendment to the definition of an emissions-related defect in 40 CFR 85.1902(b)(2) is appropriate to the extent that it clarifies that the definition applies to 'vehicle greenhouse gas emission requirements.' However, by retaining the words 'and carbon-related exhaust emissions standards' the agency defeats the purpose of the amendment. The amended definition may be interpreted to apply to carbon-related exhaust emissions such as hydrocarbons and carbon monoxide, which are not greenhouse gases. The agency should remove those words from the definition. We also suggest that EPA to remove reference to CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O as they are encompassed by the term "greenhouse gas." [EPA-HQ-OAR-2009-0865-6924.1, p. 5]

Certification Details (Comments/Corrections)

600.210-12(a), GM would like to point out that the following statement from 600.210-08(a) was omitted: [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

“All 2011 and later model year medium-duty passenger vehicles, dedicated alternative-fueled vehicles, and dual fuel vehicles when operating on alternative fuel must be labeled for fuel economy, using the derived 5-cycle method or, at the manufacturer's option, the vehicle-specific 5-cycle method. Fuel economy label values for dual fuel vehicles operating on alcohol-based or natural gas fuel are calculated separately.” [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

GM does not believe that EPA intended to exclude this statement from the new regulation. This statement needs to be in place so manufacturers will continue to be allowed to label MDPVs and alternative fueled vehicles using the derived 5-cycle method rather than using the

vehicle-specific 5-cycle method. This is necessary because these vehicles are not required to meet SFTP standards and therefore do not normally perform US06 and SC03 tests. [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

40 CFR 600.002

GM recommends the following correction - the definition of diesel equivalent gallon from “one gallon of gasoline” to “one gallon of diesel fuel.” [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

600.114-12

GM recommends a change to the following introductory paragraph: [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

“Paragraphs (d) through (f) of this section are used to calculate 5-cycle CO<sub>2</sub> and carbon-related exhaust emission values for the purpose of determining optional credits for CO<sub>2</sub>-reducing technologies under § 86.1866 of this chapter.” [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

Paragraphs (d) and (f) are also being used to calculate the CO<sub>2</sub> value for the label so the above paragraph needs to be modified to indicate such. [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

600.114-12(f)(1)(i) City CO<sub>2</sub> emissions and carbon-related exhaust emissions [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

GM would like to note the following definitions do not apply to the given equations and need to be updated to represent city values. [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

“Where:

US06 Highway CREE = carbon-related exhaust emissions in grams per mile over the city portion of the US06 test. [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

US06 Highway CREE = carbon-related exhaust emissions in grams per miles per gallon over the Highway portion of the US06 test. [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

HFET CREE = carbon-related exhaust emissions in grams per mile over the HFET test.” [EPA-HQ-OAR-2009-0865-6924.1, p. 6]

**Response:**

We agree with the comments referring to the definition of an emissions related defect in 40 CFR 85.1902(b)(2) and have revised the regulation accordingly. In addition, we have changed the reference to “vehicle standards” to more generally refer to “standards”, since the definition applies for all motor vehicles and motor vehicle engines, including highway motorcycles and heavy-duty highway engines.



We agree with GM about the omission of the language about the 5 cycle method in 600.210-08(a) and have revised the regulation accordingly. We have also corrected the definition of diesel equivalent gallon for "one gallon of gasoline" to "one gallon of diesel fuel," and revised the regulation to include an introductory paragraph to indicate the intent of paragraphs (d) through (f) of 600.114-12.

#### **10.4. Related to the Proposed Rule**

**Organization:** Alliance of Automobile Manufactures (Alliance)

**Comment:**

**Alliance of Automobile Manufactures (Alliance)**

One way to improve fuel economy and reduce GHG emissions from both the existing fleet and future new car fleets is to address driving behavior. While this issue is too complex to capture in a label, the Alliance encourages the Agencies to feature “Eco-Driving” information prominently in their websites. [EPA-HQ-OAR-2009-0865-6850.2, p.6]

**Response:**

We appreciate this input and will include that in our ongoing consideration of our communication on our websites and in other materials.

**Organization:** Consumer Federation of America (CFA)

**Comment:**

**Consumer Federation of America (CFA)**

The Power of Regulation by Information [EPA-HQ-OAR-2009-0865-7173.1, p.2]

That is the power of regulation by information. While car makers were adamantly opposed to giving consumer easily understandable and comparable information on crash tests, doing so forced them to dramatically improve their vehicles’ overall performance. In fact, in 1990, less than half of the tested vehicles had 4 or 5 star driver ratings. Overtime, thanks to consumer information in the market, that percentage increased to 98% with the 2010 vehicles. The following table shows how the percent of vehicles getting 4-5 stars increased from 1990 to 2010. [EPA-HQ-OAR-2009-0865-7173.1, p.2; see p.3 of this comment summary for a figure entitled, NCAP Crash Test Improvements 1990-2010]

Now it’s time to learn a lesson from this powerful change-maker and use the free market to dramatically improve vehicle fuel efficiency. [EPA-HQ-OAR-2009-0865-7173.1, p.2]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 21-23.]

**Response:**

We appreciate this input and believe we are moving strongly in the direction of providing useful and effective information to help consumers make better-informed decisions about their vehicle purchases.

**Organization:** DieselGreen Fuels

**Comment:**

**DieselGreen Fuels**

Regarding diesel vehicles - vehicles made in 2012 need to show their compatibility with current common biodiesel blends - ULSD (B0), B5, and B20. If information overload is a concern, cut out B5 and only show B20, if that vehicle is supported by the OEM with B20. This is critical information since the customer's fuel choice will profoundly affect the emissions output, and consequently, the overall score. Please explain the EPA's plans to create a sticker that would show the score with and without the use of biodiesel blends. [EPA-HQ-OAR-2009-0865-1376, p.1]

**Response:**

As with flexible fuel vehicles operating on gasoline and ethanol, we believe it is not appropriate to require additional information related to the alternative fuel. This is especially the case with diesel vehicles because the maximum biodiesel portion is expected to be 20 percent. While this information would be useful to some drivers for their refueling decisions, we believe it is less pertinent for the decision related to buying a vehicle.

**Organization:** Hyundai Motor Company

**Comment:**

**Hyundai Motor Company**

Korean Fuel Economy Labels [EPA-HQ-OAR-2009-0865-7139.1, p.6]

Since Hyundai references our experience with the Korean government's labeling system, we would like to provide a brief overview of the program, which EPA may find helpful in making final decisions regarding the U.S.-based fuel economy label. In 1992, the Korean government implemented an Energy Efficiency Labeling program, which uses a scoring system of one to five to help consumers identify vehicles with high fuel efficiency.' For vehicles, the label and scoring method is applicable to conventional vehicles. Vehicles with small engines (below 1000cc) and hybrid electric vehicles are exempted from the score but are required to have a different, separate label affixed to the vehicles. Advanced technologies like plug-in hybrids, electric vehicles and fuel cell vehicles were not included in the labeling regulation. Examples of the labels are in Figure 4. [EPA-HQ-OAR-2009-0865-7139.1, p.6; see p.7 for Figure 4 entitled, Examples of Korea's Vehicle Energy Efficiency Labels]

It is important to note that when Korea originally implemented the labeling program, it was applied based on vehicle segment. The government found that a segmented approach resulted in customer confusion because certain larger, less efficient vehicles received higher ratings than smaller, more fuel efficient vehicles. The government revised the program, so that it is applied to

a single fleet, to allow all applicable models to be compared to each other. As previously stated, Hyundai supports an absolute approach. [EPA-HQ-OAR-2009-0865-7139.1, p.7]

**Response:**

We appreciate this input and believe that our final labeling requirements generally align with these suggested principles.

**Organization:** Institute for Policy Integrity - New York University School of Law

**Comment:**

**Institute for Policy Integrity - New York University School of Law**

EPA and NHTSA Should Work with Other Agencies to Create Uniform Policy on Labeling [EPA-HQ-OAR-2009-0865-7136.1, p.17]

There are many similarities between the agencies' proposed vehicle fuel economy labels, the NHTSA tire fuel efficiency labels, and the DOE/FTC appliance labeling programs. These labels all seek to provide information on environmental impacts in a manner most likely to affect consumer purchasing and use decisions. Given their common goals, the agencies should consider forming an inter-agency working group dedicated to determining best labeling practices in this area. OIRA, with its oversight authority, is in an ideal position to coordinate the creation of such a group. The potential benefits of coordination include: saving the cost of performing repetitive research; facilitating the sharing of data among agencies; increasing consumer understanding through harmonization of labeling programs; and decreasing the cost of compliance for regulated entities. [EPA-HQ-OAR-2009-0865-7136.1, p.17]

**Response:**

The suggested approach is consistent with the process used in this rulemaking to reach an agreement on a label that reflects the combined input (and statutory parameters) from EPA, NHTSA, DOE, and the Federal Trade Commission.

**Organization:** National Automobile Dealers Association (NADA)

**Comment:**

**National Automobile Dealers Association (NADA)**

The existing label rule allows manufacturers the option to include fuel economy estimates and estimated annual fuel costs for the alternative fuels potentially used by dual- or flex-fueled vehicles (in addition to those assuming their use of gasoline or diesel). Unless the incorporation of the FTC label information requires otherwise, this should remain a manufacturer option. [EPA-HQ-OAR-2009-0865-6940.1, p.8]

[These comments were also submitted as testimony at the Los Angeles hearing. See Docket Number EPA-HQ-OAR-2009-0865-7551 PP 30.]

**Response:**

We agree that it would not be appropriate to require additional information related to the alternative fuels in the case of flexible fuel vehicles.

**Organization:** Nelson, Steve

**Comment:**

**Nelson, Steve**

I am 3M Traffic Safety Systems' business development manager for digital validation products. I am wondering whether there is an interest in making the new sticker tamper-evident and/or easier to remove by the consumer, post-purchase. We have a tamper-evident sticker product that features a stretch-release adhesive that prevents unauthorized transfer of stickers between vehicles and enables clean removal without the use of tools or solvents. Would be happy to discuss in more detail if there is interest. [EPA-HQ-OAR-2009-0865-4069, p. 1]

**Response:**

We are not aware the there is a need for tamper-proof labels to avoid abuse by consumers. We encourage 3M to interact directly with vehicle manufacturers regarding this issue.

**Organization:** Nissan

**Comment:**

**Nissan**

Financial support for technology development and commercialization is just one aspect of what is necessary to make revolutionary reductions in tailpipe greenhouse gas emissions. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 98]

No matter how much we invest in the technology, American consumers must endorse the benefit of electric power trains and must themselves be willing to embrace a new form of transportation. Government sponsored information is critical to influencing public perception. American consumers rely on the government to provide them with information that is accurate and is responsive to their concerns. When it comes to vehicles, those concerns fall into a few clearly defined areas. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 98]

Vehicles must be reliable and safe, they must be fuel efficient to keep operating costs down, and increasingly they must be environmentally friendly. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 98-99]

**Response:**

We appreciate this input but believe it is outside the scope of the current rule.

**Organization:** Operation Free

**Comment:**

**Operation Free**

I guess one of the points is, too, is to reiterate, is our dependence on oil is really a threat to our national security. That's one of the reasons why I'm extremely involved in this. And this is a way for the American people to actually, you know, put some effort in. A lot of times people when we've -- I've gone places and educated people on clean energy and climate change and how it affects our national security. You know, the fact that we're completely vulnerable here in the United States because we're dependent our own source of energy, we're funding both sides of the war. Climate changes will be causing conflict in the future. All that kind of stuff. I don't want to have to go through that whole scphiel if I don't have to. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 54]

I guess on the home front, unfortunately, you know, just a few years ago and stuff when we had the oil -- you know, gas prices hike up really high. I think it's really hard for families to budget. I know a lot of my friends, you know, started riding their bikes more often because they just couldn't afford to be continuing, you know, to drive when the prices are so high. Well, you know, families need to really try to budget for those kind of fluxes. And if they're getting a more full efficient car and they know they are, you know, it's just going to be easier for them in the long run. [These comments were submitted as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 55]

**Response:**

We appreciate this input and believe we are moving strongly in the direction of providing useful and effective information to help consumers make better-informed decisions about their vehicle purchases.

**Organization:** Securing America's Future Energy (SAFE)

**Comment:**

**Securing America's Future Energy (SAFE)**

As a starting point, the agencies must include on the new fuel economy labels those items required by statute. Irrespective of the statutory requirements, SAFE believes that it also is important to give consumers the information that is most useful in helping them make a well-informed decision based on meaningful data with respect to their choice of new vehicles. SAFE recognizes, however, that there is a balance between providing information that will help a consumer make an informed decision and information that will not. [EPA-HQ-OAR-2009-0865-7522.1, p.4]

**Response:**

We appreciate this input and believe we are moving strongly in the direction of providing useful and effective information to help consumers make better-informed decisions about their vehicle purchases. We believe the new label meets all applicable statutory requirements.

**Organization:** Siegel+Gale

**Comment:**

**Siegel+Gale**

Twenty-five percent of Democrats think the environment is a major factor in purchasing a vehicle versus 12 percent of Republicans and 17 percent of independents. [EPA-HQ-OAR-2009-0865-0824.1, p.2]

**Response:**

Thank you for providing this information.

**Organization:** University of Pennsylvania Law School, Environmental Law Project

**Comment:**

**University of Pennsylvania Law School, Environmental Law Project**

V. Judicial Review

Like many major rulemakings, whatever label design NHTSA and EPA requires in its final rule may be challenged in court. If our proposed label design, or any version of Label 1 is accepted by EPA and NHTSA, the agency will still likely have to confront arguments that the rating system is arbitrary and capricious and out of line with the agencies' underlying statutory

authority. Although the grading, color-coding, and other features of the labels are designed to make it easy for consumers to compare the environmental impact of automobiles, they may also make it harder for automakers to market cars with poor fuel efficiency. This tension will likely lead to challenges under the Administrative Procedure Act (APA) as “arbitrary and capricious” or “in excess of statutory jurisdiction, authority, or limitations, or short of a statutory right.” However, it is likely the proposed labels will survive judicial review, since the grant of statutory authority is broad, and both agencies have a specific charge to make the information “easy for consumers to compare.” Thus, as long as EPA and NHTSA include all of the mandatory information on the label, it is unlikely challenges under the APA will succeed. [EPA-HQ-OAR-2009-0865-7171.1, p.8]

**Response:**

The agencies appreciate the comment from University of Pennsylvania Law School, however at this time we are not finalizing a label with the letter grade or color coding.



## **10.5. Not Related to the Proposed Rule**

**Organization:** Sierra Club

**Comment:**

**Sierra Club**

Illinois has been seriously looking at clean car standards for several years. I chaired Illinois's Clean Car and Energy Efficiency Working Group in 2007, and at that time we found that implementing the LEVII/Pavley standards in Illinois would result in 1 billion gallons of gasoline not bought at the pump annually in Illinois drivers by 2020 and 2 billion gallons per year fewer per year by 2030. [These comments were submitted by Jack Darin as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 69-70]

Subsequently, after that, the Illinois General Assembly seriously debated adopting those standards here in Illinois and again was in the midst of actively considering that at the time that President Obama announced new vehicle standards governing model years 2012 through 2016 to effectively do that for the entire country. We were using numbers at that time at \$3 a gallon of gas that Illinois drivers will save, thanks to that action. About \$3 billion a year by 2020 and \$6 billion a year for 2030, thanks to that action. And we found tremendous secondary economic benefits by Illinois drivers having those dollars to spend or save in their communities as opposed to spending it at the gas stations. [These comments were submitted by Jack Darin as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 70]

So this first big step towards breaking our dependence on oil and reducing U.S. global warming pollution from our cars and trucks is a tremendous first step forward. And, as you know, the Sierra Club is engaged in the administration's process to begin work on the next round of standards governing years 2017 through 2025. Similarly, we look forward to the first ever fuel efficiency rules for delivery trucks and tractor trailers. [These comments were submitted by Jack Darin as testimony at the Chicago hearing. See Docket Number EPA-HQ-OAR-2009-0865-7548 PP 70-71]

**Response:**

The agencies appreciate the input. We believe this rulemaking is important for communicating vehicle fuel economy to consumers, however fuel economy standards are outside of the scope of this process. Fuel economy and greenhouse gas standards for 2017-2025 are being evaluated independent of this rulemaking.