



# Institute for Policy Integrity

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*new york university school of law*

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VIA ELECTRONIC SUBMISSION

Attn: Lucie Audette, Office of Transportation and Air Quality, Environmental Protection Agency  
cc: Gregory Powell, National Highway Traffic Safety Administration  
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Subject: Comments on Proposed Rule on Revisions and Additions to Motor Vehicle Fuel Economy Label, 75 Fed. Reg. 58,078, (Sept. 23, 2010), Docket No. EPA-HQ-OAR-2009-0865

The Institute for Policy Integrity submits the following comments on the Environmental Protection Agency ("EPA") and the National Highway Traffic and Safety Administration's ("NHTSA") joint proposed Revisions and Additions to the Motor Vehicle Fuel Economy Label.

The Institute for Policy Integrity at New York University School of Law is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.

EPA and NHTSA have proposed updating the motor vehicle fuel economy label for two reasons. First, the Energy Independence and Security Act of 2007<sup>1</sup> amended the Energy Policy and Conservation Act's<sup>2</sup> labeling requirements; greenhouse gas and other emissions information are now required, in addition to fuel efficiency and other vehicle attributes that have always been on the labels. Second, EPA and NHTSA are aware that new technologies, including electric and plug-in hybrid electric vehicles, will soon enter the market, and the agencies seek to anticipate those changes by updating the label requirements now. To accomplish these goals, the agencies propose two quite different label designs, as well as a third alternative. The agencies seek comment on which label will best serve consumers by providing them with the required information without producing undue confusion.

The new labels are designed to inform customers about the environmental impact of the new automobiles they are considering purchasing. The basic rationale for the rulemaking is sound: the revised label will allow consumers to consider in their purchasing decisions qualities that might otherwise be impossible to ascertain accurately (environmental impact) or could only be discovered after buying and using a car (fuel efficiency). Without some kind of information disclosure program—like a label—it is likely that the new car market will fail to reflect the value to consumers of these hidden qualities. In economic terms, fuel efficiency is an "experience attribute" (related to the use of the automobile) and environmental impact is a "credence attribute" (related

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<sup>1</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1506 (2007).

<sup>2</sup> Energy Policy and Conservation Act, 49 U.S.C.S. § 32908 (2006).

to the effect of energy consumption on the environment). The agencies' proposed fuel economy label remedies the information asymmetries that these qualities present by transforming them into "search attributes"—information that a consumer can easily discover and accurately assess before purchasing an automobile.<sup>3</sup>

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.

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.

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.

The uncertainty surrounding the rulemaking should neither preclude the agencies from evaluating the program's likely impact nor prevent the agencies from issuing a final rule in time for the 2012 model year. There are four steps the agencies should take to achieve the most accurate analysis possible without affecting their ability to promulgate the final rule in a timely fashion.

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.

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<sup>3</sup> Agencies often use labeling to remedy information asymmetries in this way. *See, e.g.*, Nutrition Labeling of Single-Ingredient Products and Ground or Chopped Meat and Poultry Products, 74 Fed. Reg. 67,736, 67,756, 67,760 (Dec. 18, 2009) (to be codified at 9 C.F.R. pts 371 & 381) (justifying a labeling rule in part because nutrition information is a credence attribute); Current Good Manufacturing Practice in Manufacturing, Packaging, Labeling, or Holding Operations for Dietary Supplements, 72 Fed. Reg. 34,752, 34,918 (June 25, 2007) (codified at 21 CFR pt. 111) (justifying the rule in part because "[d]ietary supplements have characteristics of both experience goods and credence goods").

Second, the agencies should adopt the letter grade design, currently their preferred option, as the default choice. They can comfortably base this decision on the weight of current behavioral theory, past label-related rulemakings, and the agencies' own research and expert judgment.

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.

Fourth, the agencies should adopt some important improvements to the label proposals, regardless of which label design they ultimately choose. The agencies should include upstream emissions for all vehicles of all fuel types, rather than only tailpipe emissions. Supplemental information on carbon dioxide emissions should be presented using a metric most familiar to consumers—tons per year rather than grams per mile. Greenhouse gas emissions should include all greenhouse gas emissions, rather than only carbon dioxide emissions, and should account for air-conditioning credits earned by manufactures. Finally, the agencies should coordinate an advertising and educational campaign to teach consumers about the new label.

## **I. EPA and NHTSA Should Conduct an Appropriate Cost-Benefit Analysis**

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."<sup>4</sup>

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.<sup>5</sup>

### **Executive Order 12,866 Requires Cost-Benefit Analysis of Major Rules**

Executive Order 12,866 requires agencies to conduct cost-benefit analysis for significant regulatory actions.<sup>6</sup> 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.<sup>7</sup>

This proposed rulemaking is significant under the Executive Order because its annual effect on the economy will likely exceed \$100 million.<sup>8</sup> Given the size of the markets involved, this proposed

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<sup>4</sup> RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH 14 (2008).

<sup>5</sup> CASS R. SUNSTEIN, THE COST-BENEFIT STATE: THE FUTURE OF REGULATORY PROTECTION 20 (2002) ("[T]he extent of the requisite analysis should depend on the magnitude of the regulation").

<sup>6</sup> Exec. Order No. 12,866 § 6(a)(3), 58 Fed. Reg. 51,735 (Sept. 30, 1993) (requiring analysis unless precluded by statute).

<sup>7</sup> *Id.* at § 3(f).

<sup>8</sup> Executive Order 12,866 classifies major rules as those that have "an annual effect on the economy" of \$100 million or more. Plainly this includes benefits as well as costs. *Id.*

rulemaking will meet the \$100 million mark even if it has only a marginal effect on consumer and producer behavior. In 2008 (the most recent year for which numbers are available), U.S. consumers spent more than \$342 billion on motor vehicles and parts, and more than \$386 billion on gasoline and oil.<sup>9</sup> If labels that include more comprehensive information about fuel economy and environmental effects impact these markets by even one tenth of one percent—and there is good reason to believe that they will<sup>10</sup> —the \$100 million mark is easily reached.

The proposed rulemaking is also a major rule because it presents a number of novel policy questions. The automobile fuel economy label is just one part of a concerted federal program to increase fuel economy and reduce greenhouse gas emissions; the label's effects on other parts of that program, for instance the new Corporate Average Fuel Economy ("CAFE") standards and NHTSA's new tire-labeling program, have not yet been evaluated. The degree of public interest in the new labels<sup>11</sup> also indicates that the proposed label revisions present novel policy issues, and that the rule should be designated a major rule.<sup>12</sup>

Further, the proposed label revisions are a major rule under the Executive Order because they present the potential for "serious inconsistency" across agencies.<sup>13</sup> EISA mandates new or revised labels for a wide variety of products, with responsibility for implementing these mandates shared between four agencies. Many of the energy efficiency and environmental labels currently in use look markedly different from each other. A wide array of label designs, each of which displays the same or similar information in a different way, ostensibly in order to accomplish the same broad goals of reducing energy consumption and greenhouse gas emissions, could increase consumer confusion and make each label less effective. Additionally, agencies may use different methods to calculate what could appear, to a consumer, to be similar information. For example, the Department of Energy's recently proposed revisions to its policy for full-fuel cycle analysis,<sup>14</sup> which

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<sup>9</sup> Bureau of Transportation Statistics, *National Transportation Statistics Table 3-2a: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand*, [http://www.bts.gov/publications/national\\_transportation\\_statistics/html/table\\_03\\_02a.html](http://www.bts.gov/publications/national_transportation_statistics/html/table_03_02a.html) (last visited Nov. 11, 2010).

<sup>10</sup> As the FDA has noted, "economic theory now treats information on the characteristics of a good along with information on the price of the product as major determinants of consumer choice." Nutrition Labeling of Single-Ingredient Products and Ground or Chopped Meat and Poultry Products, 74 Fed. Reg. 67736, 67,759 (Dec. 18, 2009) (to be codified at 9 C.F.R. pts. 317 & 381). Labeling adds to consumer information on the characteristics of goods, and under this theory will affect decision-making. See Hunt Allcott, *Beliefs and Consumer Choice* (MIT Working Paper, Nov. 2010), available at <http://web.mit.edu/allcott/www/papers.html> (using a carefully-designed nationally-representative survey of vehicle owners results show that beliefs are both highly noisy, consistent with both imperfect information and bounded computational capacity, and systematically biased in a manner symptomatic of "MPG Illusion"; in a counterfactual world with perfect information and unbounded computational capacity, consumers would demand fewer vehicles at the extremes of the fuel economy distribution, the allocation of high (low) fuel economy vehicles to consumers with high (low) demand for vehicle-miles traveled would be significantly improved, carbon emissions from light-duty vehicles would drop by 0.3 percent, and welfare would increase by about \$1 billion per year).

<sup>11</sup> Numerous news sources have discussed the label revisions. See, e.g., Norman Mayersohn, *Sorting Myth From Fact as Volt Makes Its Debut*, N.Y. TIMES, Oct. 15, 2010, available at <https://www.nytimes.com/2010/10/17/automobiles/17VOLT.html?scp=2&sq=fuel%20economy%20label&st=cse>; Jim Motavalli, *Auto Dealers Doth Protest Too Much Over Proposed Fuel Economy Letter Grades*, CBS News BNet, Oct. 25, 2010, available at <http://www.bnet.com/blog/electric-cars/auto-dealers-doth-protest-too-much-over-proposed-fuel-economy-letter-grades/2529>. Additionally, a search on regulations.gov on November 21, 2010 indicates that 6,515 public comments have been submitted so far. <http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OAR-2009-0865>.

<sup>12</sup> NHTSA recently designated its proposed tire-labeling rule significant "due to public interest in the issues." Tire Fuel Efficiency Consumer Information Program, 75 Fed. Reg. 15,894, 15,940 (Mar. 30, 2010) (to be codified at 49 C.F.R. pt. 575).

<sup>13</sup> Exec. Order No. 12,866 § 3(f)(2).

<sup>14</sup> Notice of Proposed Policy for Full-Fuel Cycle Analysis, 75 Fed. Reg. 51,423 (Aug. 20, 2010) (to be codified at 10 C.F.R. pt. 431).

it uses to calculate energy efficiency information for its Energy Guide labels, may conflict with EPA and NHTSA's tailpipe-only approach to calculating vehicle emissions.

Designating this rule "significant" would also be consistent with past agency practice; other recent labeling programs have been considered major rules by their respective agencies. EPA's 2006 revision to this very label, which was far less comprehensive than the current proposed rule, was a significant regulatory action,<sup>15</sup> as was NHTSA's 2010 tire labeling program,<sup>16</sup> which also rates products by fuel economy and greenhouse gas emissions. The FDA considered both of its recent label-related rulemakings—revising the nutrition label to display trans-fat<sup>17</sup> and placing the nutrition label on single-ingredient products<sup>18</sup>—significant.

The Executive Order instructs agencies on the proper methodology for conducting cost-benefit analyses for major rules. Costs and benefits "include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider."<sup>19</sup> The Order emphasizes that agencies must quantify costs and benefits "to the extent feasible."<sup>20</sup> At the early stages, however, insufficient data may make it infeasible for agencies to fully quantify costs or benefits, and some benefits may not be precisely quantifiable even after considerable data collection and study.

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.<sup>21</sup>

### **Best Practices Require Quantification of Benefits Where Possible**

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.<sup>22</sup> 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.

Cost-benefit analysis requires the agencies "to first monetize the costs and benefits of a regulation, balance the results, and then choose the regulation with the greatest net benefits."<sup>23</sup> These costs and benefits include not only purely financial economic effects, but also the full range of effects the

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<sup>15</sup> Fuel Economy Labeling of Motor Vehicles: Revisions to Improve Calculation of Fuel Economy Estimates, 71 Fed. Reg. 77,872, 77,917 (Dec. 27, 2006) (to be codified at 40 C.F.R. pts. 86 & 200).

<sup>16</sup> Tire Fuel Efficiency Consumer Information Program, 75 Fed. Reg. at 15,940.

<sup>17</sup> Food Labeling: Trans-Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims, 68 Fed. Reg. 41,434, 41,466 (July 11, 2003) (to be codified at 21 C.F.R. pt. 101).

<sup>18</sup> Nutrition Labeling of Single-Ingredient Products and Ground or Chopped Meat and Poultry Products, 74 Fed. Reg. 67,736, 67,759 (Dec. 18, 2009) (to be codified at 9 C.F.R. pts. 371 & 381).

<sup>19</sup> Exec. Order No. 12,866 § 1(a).

<sup>20</sup> *Id.* at § 6(a)(3)(C).

<sup>21</sup> See REVESZ & LIVERMORE, *supra* note 4, at 1-19.

<sup>22</sup> See Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 J. LEGAL STUD. 1059, 1069-70 (2000) ("A virtue of cost-benefit analysis is that it tends to overcome people's tendency to focus on parts of problems, by requiring them to look globally at the consequences of apparently isolated actions.").

<sup>23</sup> *Entergy Corp. v. Riverkeeper, Inc.*, 129 S. Ct. 1498, 1516 (2009).

rule will have, including those on health, safety, the environment, and general welfare, as well as any other possible effects.<sup>24</sup>

Precise quantification and monetization may be difficult for some types of costs and benefits. However, even where this is the case, the agencies should make some attempt to estimate, or if that is not possible, use qualitative measures. “The agency’s job is to exercise its expertise to make tough choices about which of the competing estimates is most plausible, and to hazard a guess as to which is correct. . . . Regulators by nature work under conditions of serious uncertainty, and regulation would be at an end if uncertainty alone were an excuse to ignore a congressional command.”<sup>25</sup>

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.

### **The Agencies Should Define and Quantify the Goals of the Labeling Program**

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.”<sup>26</sup> However, the agencies should be more specific; they should clarify what they hope to achieve with the revised label.

The program’s two enabling statutes, the Energy Policy Conservation Act of 1975 and the Energy Independence and Security Act of 2007, elucidate the goals of the fuel economy label. Broadly, the labeling program aims to increase energy independence and fuel efficiency, reduce greenhouse gas and other emissions, promote the use of alternative fuels, support (or at least not conflict with) related programs, and maximize consumer welfare.<sup>27</sup>

These goals have already been quantified. The agencies should draw from their cost-benefit analysis in their joint rulemaking revising CAFE standards, published earlier this year.<sup>28</sup> The agencies’ April 2010 Regulatory Impact Assessment for the revised CAFE standards provides a good

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<sup>24</sup> Benefits of regulatory action include “the enhancement of health and safety, the protection of the natural environment, and the elimination or reduction of discrimination or bias.” Exec. Order No. 12,866 § 6(3)(C)(i).

<sup>25</sup> Pub. Citizen v. Fed. Motor Carrier Safety Admin., 374 F.3d 1209, 1221 (2004); *see also* Chamber of Commerce of U.S. v. Sec. & Exch. Comm’n, 412 F.3d 133, 144 (D.C. Cir. 2005) (“Uncertainty may limit what an agency can do, but it does not excuse an agency from its statutory obligation to do what it can to apprise itself—and hence the public and the Congress—of the economic consequences of a proposed regulation before it decides whether to adopt the measure.”).

<sup>26</sup> Revisions and Additions to Motor Vehicle Fuel Economy Label, 75 Fed. Reg. 58,078, 58,082 (Sept. 23, 2010) (to be codified at 40 C.F.R. pts. 85, 86 & 600).

<sup>27</sup> The preamble of EISA describes the purposes of the Act: “To move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the Federal Government, and for other purposes.” 110 P.L. 140, 121 Stat. 1492.

<sup>28</sup> ENVIRONMENTAL PROTECTION AGENCY, FINAL RULEMAKING TO ESTABLISH LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS: REGULATORY IMPACT ANALYSIS, EPA-420-R-10-006 (Apr. 2010), *available at* <http://www.epa.gov/otaq/climate/regulations/420r10009.pdf>.

list of the benefits associated with an increase in average fuel economy.<sup>29</sup> The cost-benefit analysis for the fuel economy labeling program should consider the same factors.<sup>30</sup>

Because many of the types of benefits associated with the fuel economy label revisions are identical to those associated with a change in CAFE standards, the agencies should consider basing the cost-benefit analysis of the label designs on their potential impact on the CAFE standards program. CAFE standards mandate the composition of the new car market, reducing the number of less efficient vehicles and forcing consumers and producers to adjust accordingly.

The CAFE standards and the fuel economy label will interact in a number of complex ways. For instance, the CAFE standards only mandate an average fuel efficiency for newly manufactured vehicles and do not directly limit the total number of miles traveled or amount of fuel consumed; the fuel economy label could make up for this deficiency by encouraging those who drive the most to purchase the most fuel-efficient, environmentally friendly cars. This also facilitates sorting, by helping those who have the most to gain from an increase in fuel efficiency to make the best consumption decisions for themselves. Thus the CAFE standards and the fuel-economy labels synergize with and produce benefits for each other.

The revised label may cause more consumers to buy automobiles that are more fuel efficient, increasing the actual average fuel economy of the national fleet. The agencies have already studied the major costs and benefits of an increase in corporate average fuel economy; they should calculate the incremental or marginal values of those costs and benefits in terms of a unit or percentage increase in average fuel economy. The agencies would then be able to estimate the net benefits of a range of possible outcomes—e.g., if the revised label results in an X increase in average fuel economy, the rule will have Y dollars of net benefits.

In terms of evaluating the program's effect on consumer welfare, the agencies should consider the short-term confusion costs incurred by revising the label to display unfamiliar information, and weigh those costs against the enduring benefits of increasing market efficiency and reducing the "cost of ignorance" (i.e., the effect of not providing information to consumers, or of providing information that fails to educate effectively).<sup>31</sup>

Finally, the agencies should measure the net benefits of each proposed label design against a baseline scenario that is "the best assessment of the way the world would look absent the proposed action."<sup>32</sup> The 2010 Revised CAFE Standards Regulatory Impact Analysis should provide a solid foundation for the baseline against which the proposed labels will be measured.

### **Identifying, Quantifying, and Valuing Costs and Benefits**

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

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<sup>29</sup> The Assessment discusses technology impacts, greenhouse gas emissions, criteria and toxic pollutants, vehicle program costs, fuel consumption, vehicle sales, energy security, effect on refueling time, value of additional driving, noise, congestion, and accidents. *Id.*

<sup>30</sup> In addition to the factors covered in the April 2010 Regulatory Impact Assessment, the agencies should measure the label's impact on "catalyzing private-sector innovation by allowing firms to credibly convey the financial value of energy efficiency to consumers." Hunt Allcott & Sendhil Mullainathan, *Behavioral Science and Energy Policy*, 327 SCIENCE 1204, 1205 (2010).

<sup>31</sup> See William Foster and Richard E. Just, *Measuring Welfare Effects of Product Contamination With Consumer Uncertainty*, 17 J. ENVTL. ECON. & MGMT. 266, 272-81 (1989) (describing how the "cost of ignorance" should be taken into account in willingness-to-pay calculations).

<sup>32</sup> OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, CIRCULAR NO. A-4, (Sept. 17, 2003).

to estimate.<sup>33</sup> 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.

First, the agencies should estimate the effect of an incremental or marginal change in consumer behavior on achieving the labeling program's goals. For example, the agencies could estimate that an X percent increase in purchases of lower-emissions vehicles translates into Y dollars worth of emissions reductions, based on their earlier calculations of the social cost of carbon. Given the agencies' research on the effects of CAFE standards, it may also be sensible for the agencies to model the effect of incremental changes in consumer behavior in terms of changes in fleet-wide fuel economy, and then translate that change in terms of the program's specific goals.

Once the impact of a marginal change in consumer behavior has been determined, the agencies can compare the relative merits of the label designs. Given the degree of uncertainty, the agencies may not be able to arrive at precise calculations of each design's efficacy. But this lack of precision should not affect the decision to conduct a useful cost-benefit analysis; the agencies need evidence on which to base their decision as to which design is relatively *more* effective, even if they cannot pin down just how much more effective that design may be.

In determining which design is best, the agencies should review behavioral science literature, their own market research, other agencies' label-related rulemakings, and other countries' analyses of their various fuel economy label programs.<sup>34</sup> There are analytical tools available for modeling the uncertain impact of the proposed label revisions, monetizing the effect of that uncertainty, and providing estimates of the expected value of the net benefits of each proposed label. The agencies should account for that uncertainty when choosing which design to adopt.<sup>35</sup>

The agencies should use sensitivity analysis to determine whether the uncertainty about the magnitude of a label design's particular benefit or cost would affect its relative merit. The White House's Office of Management and Budget recommends sensitivity analysis as a best practice when determining the consequences of a regulatory action in conditions of uncertainty,<sup>36</sup> and agencies

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<sup>33</sup> "The benefits of this rule would come from improved provision of information to vehicle buyers, and more informed. These benefits are difficult to estimate. Doing so would require predictions of changes in consumer behavior as a result of the label modifications." Revisions and Additions to Motor Vehicle Fuel Economy Label, 75 Fed. Reg. at 58,151.

<sup>34</sup> A number of countries have published regulatory impact assessments for similar vehicle labeling programs, including cost-benefit analyses. See, e.g., Government of Ireland, Environment (Miscellaneous Provisions) Bill 2008: Screening Regulatory Impact Analysis available at <http://www.environ.ie/en/Legislation/Environment/Atmosphere/FileDownload,17582,en.doc>; Cabinet Paper: Implementation of a Mandatory Vehicle Fuel Economy Labelling Scheme, EDC (07) 83 (Oct. 14, 2008) (N.Z.) available at <http://www.mfe.govt.nz/issues/energy/edc-07-83.html>; Australian Greenhouse Office, Regulation Impact Assessment: Proposed Changes to ADR81/00, Fuel Consumption Labelling for Light Vehicles (May 29, 2002); Department for Transport, Regulatory Impact Assessment: The Passenger Car (Fuel Consumption and CO2 Emissions Information) Regulations 2001 (U.K.) available at <http://web.archive.org/web/20021022181226/www.roads.dft.gov.uk/vehicle/environment/consumer/index.htm>. Australia also recently produced a discussion paper discussing updates to its labeling program for electric vehicles. See Department of Infrastructure, Transport, Regional Development and Local Government, Discussion Paper: Treatment of Electric Vehicles under ADR 81/02 and the Green Vehicle Guide (Jul. 6, 2009) (Austl.).

<sup>35</sup> See Robert S. Pindyck, *Uncertainty in Environmental Economics*, 1 REV. ENVTL. ECON. & POL'Y 45, 53 (2007) (discussing the implications of uncertainty in policy decisions).

<sup>36</sup> "Sensitivity analysis is especially valuable when the information is lacking to carry out a formal probabilistic simulation. Sensitivity analysis can be used to find 'switch points'— critical parameter values at which estimated net benefits change sign or the low cost alternative switches. Sensitivity analysis usually proceeds by changing one variable or assumption at a time, but it can also be done by varying a combination of variables simultaneously to learn more about the robustness of [an agency's] results to widespread changes." OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, CIRCULAR NO. A-4 (Sept. 17, 2003).



frequently use this type of analysis when they are unable to quantify or monetize costs and benefits with precision.

## **II. The Agencies Should Adopt the Letter Grade Option as the Default Design**

Cost-benefit analysis will help the agencies make a reasoned choice regarding the best label design, but it will not make that choice for them. The agencies will need to rely on their own expert judgment, conscious of the uncertainties involved and aware that new data may later require them to reevaluate their decision. The available literature,<sup>37</sup> prevailing legal economic theory,<sup>38</sup> and the agencies' own research all indicate that the letter grade will be more effective than the alternative designs. The agencies' preferred option, the letter grade, should in fact be the default choice.

The choice of label design and the presentation of information will determine the label's effect on consumer behavior. Theoretical<sup>39</sup> and empirical<sup>40</sup> research supports this, as do the expert opinions of policymakers in countries that use similar labels.<sup>41</sup> It is clear that "[i]t is not enough simply to 'provide information.'"<sup>42</sup> "As choices become more numerous, good choice architecture will provide structure, and structure will affect outcomes."<sup>43</sup> The agencies' proposed label revisions are excellent examples of choice architecture at work; they provide "an improvement in the process of feedback to consumers through better information and disclosure."<sup>44</sup> This kind of feedback has already yielded results in other areas, including EPA's Green Lights and Energy Star Office Products programs.<sup>45</sup>

The letter grade design has the most inherent advantages of the three designs. Although the choice architecture for the revised labels is complex and must be based on a variety of heuristics and modes of systematic thinking,<sup>46</sup> it is reasonable to assume, given the evidence, that the letter grade

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<sup>37</sup> See ENVIRONMENTAL PROTECTION AGENCY, FUEL ECONOMY LABEL: EXPERT PANEL REPORT, EPA-420-R-10-908 (Aug. 2010) (finding that a letter grade presents the required information in the most easily accessible way). See also Mercedes Bleda & Marco Valente, *Graded Eco-Labels: A Demand-Oriented Approach to Reduce Pollution*, 76 TECH. FORECASTING & SOC. CHANGE 512 (2009) (discussing the advantages of letter grades in labeling regimes aimed at mitigating the environmental impact of polluting productions).

<sup>38</sup> See, e.g., Chris Guthrie, *Law, Information, and Choice: Capitalizing on Heuristic Habits of Thought*, in HEURISTICS AND THE LAW 425, 433 (G. Gigerenzer & C. Engel eds., 2006) ("[L]awmakers should identify the specific pieces of information to be disclosed; require that this information be presented in a manner designed to attract attention and inform understanding; and impose limits on the total amount of information provided.").

<sup>39</sup> See, e.g., Phillip Nelson, *Information and Consumer Behavior*, 78 J. POL. ECON. 311 (1970); Lisette Ibanez & Gilles Grolleau, *Can Ecolabeling Schemes Preserve the Environment?*, 40 ENVTL. & RESOURCE ECON. 233 (2007).

<sup>40</sup> "[T]here is already research that indicates that labeling can make significant changes in both consumer behavior ... and producer behavior." Mario F. Teisl & Brian Roe, *The Economics of Labeling: An Overview of Issues for Health and Environmental Disclosure*, 27 AGRIC. & RESOURCE ECON. REV. 140, 143 (1998) (internal citations omitted). See also, Stephan Fickl & Wilfried Raimund, *Energieverwertungsagentur (Austrian Energy Agency), Energy Efficiency of Passenger Cars: Labelling and its Impacts on Fuel Efficiency and CO<sub>2</sub>-Reduction* (1999) (Austria).

<sup>41</sup> See, e.g., Senior Energy Officials Group, *New Zealand Energy Efficiency and Conservation Strategy: Annual Report 16* (2009) (N.Z.); Brenda Boardman et al., *Choosing Cleaner Care: The Role of Labels and Guides* (2002) (prepared for the U.K. Department for Transport); Fickl & Raimund, *supra* note 40.

<sup>42</sup> Christine Jolls, Cass R. Sunstein & Richard H. Thaler, *A Behavioral Approach to Law and Economics*, in BEHAVIORAL LAW AND ECONOMICS 13, 42 (Cass R. Sunstein ed., 2000).

<sup>43</sup> RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 95 (2008).

<sup>44</sup> *Id.* at 189.

<sup>45</sup> *Id.* at 195-96.

<sup>46</sup> See Adam Zukerman & Shelly Chaiken, *A Heuristic-Systematic Processing Analysis of the Effectiveness of Product Warning Labels*, 15 PSYCHOLOGY & MARKETING 621 (1998).

will turn out to be the most effective design. The letter grade will attract attention, present a summary rating, and should avoid overloading consumers with information.<sup>47</sup>

The letter grade has the advantage of simplicity; it conveys multiple pieces of required information through a single, readily comprehensible, metric.<sup>48</sup> As the agencies note, simply displaying each piece of information required under EISA and EPCA on its own comparative scale may significantly reduce the label's effectiveness.<sup>49</sup> Indeed, "[e]vidence shows that people can process and use only a limited number of variables": too much information is not actually informative.<sup>50</sup> The letter grade will make it easy for consumers to process the information on the label.

However, a label that appears to be *too* simple will likely be less effective because consumers tend to consider simple labels less credible than more complex ones.<sup>51</sup> The letter grade design is probably sufficiently complex to signal credibility, since it still contains a great deal of attribute-level performance information, like miles per gallon, carbon emissions, and other emissions. Thus, the letter grade design likely provides the best balance of simplicity and complexity.

Additionally, "one potential measure of the effectiveness of an information policy is if consumers can adequately rank competing products by key attributes when faced with incomplete or imperfect information."<sup>52</sup> Much of the information on the fuel economy label will be imperfect with respect to the individual, because it contains assumptions about how much the individual will drive. A letter grade helps with this difficulty because it naturally compares vehicles to each other on a curved scale.

Ideally, the agencies should incorporate "other emissions" into the calculation of the letter grade. This will make the letter grade even more informative, and will convey even better information to consumers more simply, allowing consumers to purchase vehicles that better meet their preferences.

### **III. EPA and NHTSA Should Field Test Label Designs and Monitor Ongoing Effectiveness**

The agencies should include a program for initial field testing in their final rulemaking. The agencies' label proposals are quite different, and it will not be possible to determine which label will be most effective and most readily understood by consumers without some field testing.

This does not, however, mean that the agencies must conduct large-scale, nationwide tests before any decision can be made. Testing can be regional and small scale—for example it could be conducted at select new car dealerships in a handful of cities. Additionally, this testing need not

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<sup>47</sup> See Interview with Brian Roe, McCormick Professor of Economics, Ohio State University, Nov. 18, 2010 (see Appendix) (explaining that the letter grade design allows for fine gradations with little loss of consumer comprehension, though the grading system could lose some of its robust clarity over time as overall market traits change).

<sup>48</sup> See Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN L. REV 1,471, 1,537 (1998) ("Effective prescriptive strategies need to take account of the fact that vivid and personal information will often be more effective than statistical evidence. This sort of information has a high degree of salience, and, as a result of the availability heuristic, people will tend to respond to it by attaching a higher probability to the event in question.").

<sup>49</sup> Revisions and Additions to Motor Vehicle Fuel Economy Label, 75 Fed. Reg. 58,078, 58,104, 58,137 (Sept. 23, 2010) (to be codified at 40 C.F.R. pts. 85, 86 & 600).

<sup>50</sup> Judith H. Hibbard et al, *Informing Consumer Decisions in Health Care: Implications from Decision-Making Research*, 75 MILBANK Q. 395, 397 (1997). Hibbard also notes that "the approach of giving consumers the maximum amount of information is not the most effective path to informed consumer choice." *Id.* at 398.

<sup>51</sup> Mario F. Teisl, *Design of an Eco-Marketing and Labeling Program for Vehicles in Maine*, in NEW FRONTIERS IN ENVIRONMENTAL AND SOCIAL LABELING 12, 15 (Ulrike Grote et al. eds., 2007).

<sup>52</sup> *Id.* at 26.

happen immediately. The agencies do have a practical deadline for the final rule given that the label must be updated before new technologies enter the market in 2012, so field testing need not be completed before an initial label decision is made. There is good reason to believe that the letter grade will be the most effective design, so it should be the default option while testing is conducted on other options and aspects of the label.

Field testing should ideally be the beginning of a larger program to monitor the effectiveness of the labels going forward. Given that the agencies will periodically have to update the labels, it makes sense to put into place at the outset an architecture for research and development, as this will reduce the costs of redesign in the future, as well as make future redesigns more effective than they would be without this long-term research program.

### **EPA and NHTSA Should Conduct Field Testing To Determine Which Design is Most Effective**

It is likely that some elements or combinations of elements in the label design will be more effective than others,<sup>53</sup> and some elements may even be ineffective or counter-productive.<sup>54</sup> Thus, the agencies should test each label design in market conditions. The agencies have convened an expert panel and focus groups, and conducted a literature review and an online survey. These efforts provide good information to start with, but they are not effective substitutes for field testing: “To be effective, disclosure requirements should be tested in advance, preferably through quasi-experimental studies, and not merely through focus group testing, which can be unreliable as a guide to actual behavior.”<sup>55</sup> Field testing the label designs will allow the agencies to “ascertain which structures of information work and which do not.”<sup>56</sup>

In the absence of good models or abundant data, pre-implementation testing is the gold standard for evaluating a label’s efficacy and choosing between alternative designs.<sup>57</sup> Pre-implementation field testing will also significantly improve the accuracy of the agencies’ cost-benefit analysis because the results would reduce uncertainty. Field testing is also consistent with past agency practice: EPA has used field experiments to guide label design,<sup>58</sup> as have other agencies.<sup>59</sup>

As noted above, given their relatively short timeline, the agencies may find it necessary to conduct this testing on a relatively small scale—for instance testing could be conducted at select dealerships in a handful of cities. After the final rule is in place, the agencies should continue to field test alternative label designs.

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<sup>53</sup> See DEPARTMENT FOR TRANSPORT, COMPARATIVE COLOUR-CODED LABELS FOR PASSENGER CARS, 2003 (U.K.).

<sup>54</sup> See, e.g., Richard R. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1, 110-11. (1995).

<sup>55</sup> OFFICE OF INFO. & REGULATORY AFFAIRS, OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, 2010 REPORT TO CONGRESS ON THE BENEFITS AND COSTS OF FEDERAL REGULATIONS AND UNFUNDED MANDATES ON STATE, LOCAL, AND TRIBAL ENTITIES (2010) [hereinafter 2010 OIRA Report to Congress].

<sup>56</sup> *Id.*

<sup>57</sup> See, e.g., W. Kip Viscusi, *Constructive Cigarette Regulation*, 47 DUKE L.J. 1095, 1127 (1998) (“Ideally it would be helpful to undertake field experiments to determine how the provision of different kinds of information affects consumer risk beliefs and choices.”) (“Before embarking on a new risk rating policy for cigarettes, it would be valuable to undertake such experimental studies so that we could design the safety rating system to optimize its efficacy.”).

<sup>58</sup> See, e.g., WELSEY A. MAGAT & W. KIP VISCUSI, INFORMATIONAL APPROACHES TO REGULATION (1992) (discussing EPA-funded field experiments regarding warning labels).

<sup>59</sup> See, e.g., OSHA Hazard Communication, 29 C.F.R. § 1910.1200 (2009).

## The Agencies Should Continually Collect Data on Consumer Behavior and Label Effectiveness

One of the inherent difficulties of agency decisionmaking is that “most regulations are subject to a cost-benefit analysis only in advance of their implementation.”<sup>60</sup> Recognizing this problem, the agencies should conduct research on the final label’s efficacy even after the rulemaking is issued. They should regularly evaluate the label’s effectiveness, field test alternative designs, implement revisions as necessary, and update the cost-benefit analysis accordingly.

This is consistent with the agencies’ statutory obligations under the EISA, which requires them to:

- (1) reevaluate the fuel economy labeling procedures described in the final rule published in the Federal Register on December 27, 2006, to determine whether changes in the factors used to establish the labeling procedures warrant a revision of that process; and
- (2) submit a report to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Energy and Commerce of the House of Representatives that describes the results of the reevaluation process.<sup>61</sup>

In any case, the agencies are required to reevaluate the revised label’s efficacy “at least” every five years.<sup>62</sup> It makes sense to include a plan for reevaluation, experimentation, and revision in the initial rule.

Implementing a post-promulgation research program is also consistent with OIRA policy: “to the extent feasible, agencies should test, in advance, the likely effects of summary disclosure, should also monitor the effects of such disclosure over time.”<sup>63</sup> OIRA recommends that agencies conduct “research to determine whether the [rule’s] desired effect is actually being achieved,” and that “[a]gencies should be open to fresh evidence and consider new approaches . . . as the evidence warrants.”<sup>64</sup>

In this case, the agencies have already conducted some field testing, as well as a literature review and convened an expert panel on label design. These efforts need to be expanded. First, as discussed above, the agencies should consider the costs and benefits of the different label proposals, which will necessitate some further field testing, particularly considering that the impact of the letter grade approach has not yet been tested. Second, these efforts should be expanded to include post-implementation field testing in order to continuously monitor effectiveness.

A sound evaluation and experimentation plan will make the labels more effective. There is a marked trend towards greater use of labels, environmental or otherwise, on durable consumer goods.<sup>65</sup> Although such policies rest on sound theoretical foundations, there is a dearth of both good empirical research and models of consumer behavior in response to more effective labeling. The agencies are in an excellent—and, domestically, at least, unique—position to improve the

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<sup>60</sup> Michael Greenstone, *Toward a Culture of Persistent Regulatory Experimentation and Evaluation*, in NEW PERSPECTIVES ON REGULATION 111, 113 (David Moss & John Cisternino eds., 2009). See also John D. Graham et al., *Managing the Regulatory State: The Experience of the Bush Administration*, 33 FORDHAM URB. L.J. 953, 973-74 (2006) (“The vast majority of these rules have never been re-examined to determine whether they achieved their intended purpose, or what their actual costs and benefits were.”).

<sup>61</sup> Energy Independence and Security Act, Pub. L. No. 110-140, 121 Stat. 1506, § 110 (2007).

<sup>62</sup> *Id.*

<sup>63</sup> 2010 OIRA Report to Congress, *supra* note 55, at 101.

<sup>64</sup> *Id.*

<sup>65</sup> See 2010 OIRA Report to Congress, *supra* note 55, at 41-44; see also European Commission, *Designing Policy to Influence Consumers* (2009).

efficacy of the revised label, introduce an important new best practice to agency rulemaking, and lay the foundation for better regulations in other contexts.

In particular, the agencies should include the following steps in their ex-post research agenda:<sup>66</sup>

- Continue to field test different label designs on a small scale in different regions of the country in order to monitor continuing effectiveness;
- Consider the effect of the revised label vis-à-vis automobiles as a bandwagon good—i.e., whether more fuel efficient cars may come to be seen as bandwagon goods;<sup>67</sup>
- Consider the effect of the label on vehicle traits, including fuel efficiency;
- Develop tools to measure the label's impact in terms of experienced utility;<sup>68</sup> and
- Vary the consumer educational campaign by region and demographic in order to determine which techniques are most effective.

The agencies should disclose any data sets created through this research program.<sup>69</sup> This is not only consistent with OIRA policy; it will also help other agencies to design better labels in the future.

#### **IV. Other Recommendations**

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.

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 and NHTSA Should Use Well-to-Wheel Analysis to Calculate Emissions for All Vehicles**

The agencies currently propose measuring vehicle emissions from the tailpipe only. This will be misleading; in particular, it may give consumers the impression that electric vehicles produce no emissions at all. The agencies have clearly worked hard to design the revised label to overcome the “MPG illusion”; they should not replace it with a “zero emissions illusion.” Thus, the revised label should instead measure all emissions associated with each vehicle. This approach, often called “lifecycle” or “well-to-wheel” analysis, provides consumers with the most complete and accurate information about the environmental impact of each vehicle—no matter what type of fuel powers it.

The agencies’ market research indicates that some consumers have strong preferences regarding emissions.<sup>70</sup> The agencies’ research also shows that consumers are most worried about toxic

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<sup>66</sup> The costs of implementing an ex-post research agenda will be outweighed by a broad range of benefits, particularly reducing the uncertainty about the effects of fuel economy labels and so improving the quality of labels going forward.

<sup>67</sup> See Robert H. Frank & Cass R. Sunstein, *Cost-Benefit Analysis and Relative Position*, 68 U. CHI. L. REV. 323 (2001).

<sup>68</sup> See John Bronsteen et. al, *Welfare as Happiness*, 98 GEO. L. J. 1,583, 1,596-1,602 (2010).

<sup>69</sup> See 2010 OIRA Report to Congress, *supra* note 55, at 41 (“Posting such data sets can promote regulatory goals, and often at low cost, by virtue of the power of publicity.”).

emissions, smog, and greenhouse gases, all of which are affected by both tailpipe and upstream emissions.<sup>71</sup> Given the extent of consumer concern about emissions, the fact that it is difficult to find information about emissions without a labeling program, and the likelihood that knowing that information will affect consumer purchasing decisions, it makes sense to adopt a well-to-wheel approach.

Well-to-wheel analysis more accurately measures the total direct and indirect impact of a given vehicle than tailpipe-only measurements. This can help consumers compare electric vehicles of different classes and as well as vehicles that run on other fuels.

As the agencies note, most consumers consider at least two or three different classes of vehicle before making a purchase.<sup>72</sup> Under a tailpipe-only analysis, a plug-in electric SUV, Sedan, and sub-compact would all have the same emissions: zero. In fact, larger electric cars generate more emissions because they require more electricity, the production of which creates more emissions. To be sure, if the label includes information about how many kilowatt-hours of electricity the vehicle uses per mile, the consumer has some basis to compare different electric vehicles. But without the additional information about emissions, consumers will not know what the environmental impact of the difference in kilowatt-hours is.

Additionally, as more alternative fuel vehicles enter the market, consumers may wish to compare cars across fuel types. Well-to-wheel analysis provides more complete information and makes it easier to compare impact across technologies. Measuring well-to-wheel emissions would improve the label by making it more useful for consumers who are choosing between vehicles that use different types of fuel.

EISA envisions more fully informed consumers. Using tailpipe emissions does not help achieve this goal because it does not inform customers about the environmental impact of an entire class of vehicles (electric vehicles) and misleads them as to the impact of a second class of vehicles (plug-in hybrid electric vehicles).

Performing well-to-wheel analysis should not present a major difficulty for the agencies or add significantly to the cost of the label, because there is already a large body of research on this type of analysis and the necessary analytical tools already exist.<sup>73</sup> The agencies should be able to use the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model (“GREET”), developed by the Argonne National Laboratory, which is already in use at the Department of Energy.<sup>74</sup> The GREET model calculates lifecycle emissions and energy use. It is frequently updated and widely used.<sup>75</sup>

Of course, because GREET bases its calculations on national averages, the well-to-wheel emissions values will not be completely accurate for every individual consumer. But, as the agencies point out, more accurate, regional information about a vehicle’s fuel source can be made available on the

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<sup>70</sup> ENVIRONMENTAL PROTECTION AGENCY, FUEL ECONOMY LABEL: PRE-FOCUS GROUPS ONLINE SURVEY REPORT, EPA-420-R-10-907 7 (2010).

<sup>71</sup> *Id.* at 33.

<sup>72</sup> *Id.* at 18.

<sup>73</sup> See NATIONAL ACADEMY OF SCIENCES, REVIEW OF SITE (POINT-OF-USE) AND FULL-FUEL-CYCLE MEASUREMENT APPROACHES TO DOE/EERE BUILDING APPLIANCE ENERGY-EFFICIENCY STANDARDS 7 (2009).

<sup>74</sup> *Greet Model: The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model*, Argonne Nat’l Lab., <http://greet.es.anl.gov/> (last visited Nov. 18, 2010).

<sup>75</sup> According to the GREET website the last update as of this writing was August 26, 2010. The previous update was July 30, 2010. *Id.*

fuel economy website. Further, almost all of the information on the fuel economy label is some kind of average that will not be completely accurate for the individual consumer—fuel economy varies depending on a number of factors, including vehicle load and driving habits; operation costs vary based on individual driving patterns and fuel costs in the area. The small inaccuracy to the individual resulting from using national averages in GREET calculations will thus not lead to undue consumer confusion.

Finally, using well-to-wheel analysis is consistent with the purpose of EISA, which requires that the labels make it “easy for consumers to compare . . . greenhouse gas . . . emissions.”<sup>76</sup> Declining to include upstream emissions information leaves consumers potentially unaware of the true environmental impact of their vehicles.

### **The Agencies Should Include Information on All Greenhouse Gases**

The agencies propose limiting greenhouse gas information on the labels to carbon dioxide emissions only, rather than including other greenhouse gas emissions. This is because the agencies believe that including other greenhouse gases “may not be beneficial to public understanding of the relative differences in greenhouse gas emissions between vehicles because the levels of other carbon-related emissions are low relative to carbon dioxide emissions.”<sup>77</sup>

The agencies should consider including other greenhouse gases in the “greenhouse gases” graphic present on both major label designs. This information is useful for more than just comparison to other vehicles. A more complete performance score may help give consumers a sense of their total contribution to global warming, and may cause them to alter not only their purchasing decisions, but also their driving behavior.

The EPA has already developed a method for calculating greenhouse gases for individual vehicles, described in detail on its website.<sup>78</sup> It can therefore include this information at no or very little cost, and should do so.

### **The Agencies Should Take into Account Air-Conditioning Credits Earned by Manufacturers**

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.<sup>79</sup>

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.

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.

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<sup>76</sup> 49 U.S.C.S. 32908(g)(1)(A)(ii) (2010).

<sup>77</sup> Revisions and Additions to Motor Vehicle Fuel Economy Label, 75 Fed. Reg. 58,078, 58,091 (Sept. 23, 2010) (to be codified at 40 C.F.R. pts. 85, 86 & 600).

<sup>78</sup> ENVIRONMENTAL PROTECTION AGENCY, EMISSION FACTS: GREENHOUSE GAS EMISSIONS FROM A TYPICAL PASSENGER VEHICLE, EPA420-F-05-004 (Feb. 2005), available at <http://www.epa.gov/OMS/climate/420f05004.htm> [hereinafter Emission Facts].

<sup>79</sup> 40 C.F.R. § 86.1866-12(b) (2010).

## Carbon Dioxide Information Should be Presented in Tons Per Year

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,<sup>80</sup> and the principal sponsor of the program's reauthorizing legislation mentioned emissions per year rather than per mile.<sup>81</sup> Additionally, tons per year is the metric EPA already uses in its recommendations for how to calculate green house gas emissions for passenger vehicles.<sup>82</sup> 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.

## The Agencies Should Mount an Educational and Advertising Campaign

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.

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.<sup>83</sup> A report by the Environmental Audit Committee of the U.K. House of Commons is emblematic:

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.<sup>84</sup>

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.<sup>85</sup> There is also evidence that too small of a marketing campaign can significantly impair a label's effectiveness.<sup>86</sup> Simply put,

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<sup>80</sup> A November 2010 LEXISNEXIS search of U.S. news sources turned up only 22 hits in the last three months of instances where "grams" appeared in same sentence as "carbon dioxide," "CO<sub>2</sub>," "greenhouse gases" or "GHG." In contrast, a search for the word "tons" turned up 694 hits. For example, see Louise Loftus, *Clock Ticking Down on U.S. Ethanol Subsidies*, N.Y. TIMES, Oct. 11, 2010, available at [https://www.nytimes.com/2010/10/12/business/energy-environment/12iht-renbrazil.html?\\_r=1&scp=2&sq=co2%20tons%20per%20year&st=cse](https://www.nytimes.com/2010/10/12/business/energy-environment/12iht-renbrazil.html?_r=1&scp=2&sq=co2%20tons%20per%20year&st=cse) (discussing carbon emissions in tons).

<sup>81</sup> 152 Cong. Rec. S6157 (daily ed. June 20, 2006) (statement of Sen. Feinstein).

<sup>82</sup> Emission Facts, *supra* note 78.

<sup>83</sup> See, e.g., European Commission, Directorate-General for Environment, Study on the Effectiveness of Directive 1999/94/EC (Mar. 2005) available at [ec.europa.eu/clima/policies/vehicules/docs/final\\_report.pdf](http://ec.europa.eu/clima/policies/vehicules/docs/final_report.pdf) ("Thus it is absolutely necessary to considerably raise the awareness of all stakeholders. Consumers as well as the whole automobile sector must be aware of the aim of the Directive and its provisions, the negative impacts of fuel consumption and CO<sub>2</sub> emissions, and the direct relationship between fuel consumption and CO<sub>2</sub> emissions.").

<sup>84</sup> Environmental Audit Committee, Environmental Labelling, 2008-9, H.C. 243, at 13 (U.K.).

<sup>85</sup> See John Thøgersen, *Psychological Determinants of Paying Attention to Eco-Labels in Purchase Decisions: Model Development and Multinational Validation*, 23 J. CONSUMER POL'Y 285 (2000) (describing, *inter alia*, state of the research).

<sup>86</sup> Mario F. Teisl et al., *Can Environmental Promotion Backfire? Evidence from the Vehicle Market*, Soc. MKTG. Q., Fall 2009, at 2, 29 (citing Thøgersen, *supra* note 85).



consumers must “notice, understand and believe the information presented to them” on the label.<sup>87</sup> 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.

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.

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.

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.<sup>88</sup> 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 and NHTSA Should Work with Other Agencies to Create Uniform Policy on Labeling**

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.<sup>89</sup> 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.

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.

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<sup>87</sup> Teisl, *supra* note 51, at 11.

<sup>88</sup> These link-backs are especially important Search Engine Optimization techniques. More generally, the agencies should take full advantage of such techniques in the design of the fuel economy website itself.

<sup>89</sup> In addition to these examples, there may be other labeling schemes implemented by government agencies that would benefit from coordination, such as FTC’s recently proposed revisions to its “Green Guides” for voluntary product labeling. See Federal Trade Commission, Proposed Revisions to the Green Guides (Oct. 6, 2010), <http://www.ftc.gov/os/fedreg/2010/october/101006greenguidesfrn.pdf> (last visited Oct. 12, 2010).

## **Conclusion**

With certain improvements to the quality and comprehensibility of the information provided (for example, the inclusion of upstream emissions), the letter grade design should be the agencies' default choice for the new fuel economy label. However, the agencies should also embark on a robust program of field testing, economic research, ongoing reevaluation, and consumer education, to ensure that both the current label design and future revisions maximize net benefits. Part of this effort will require the agencies to more clearly define and prioritize the goals of the label: increasing energy independence and fuel efficiency, reducing greenhouse gas and other emissions, promoting the use of alternative fuels, supporting related systems like the CAFE standards, and maximizing consumer welfare. With clearer goals and more precise data, the agencies will be better equipped in the future to fine-tune the label design. In the meantime, the best available evidence and economic theories suggest that the letter grade should be the preferred option.

Respectfully Submitted,

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## Appendix: Comments from Other Expert Economists

Professor Hunt Allcott (Assistant Professor of Economics, NYU; Energy and Society Fellow, MIT Economics Department & MIT Energy Initiative) recommends the agencies review his latest working paper on *Beliefs and Consumer Choice* (November 2010), available at <http://web.mit.edu/allcott/www/papers.html>. The following is an abstract of the working paper: “Consumers’ choices depend on preferences over outcomes or product characteristics and beliefs about how their choices map into these outcomes. While economic models typically assume “perfect beliefs” and model that differences in choices are driven by differences in preferences, in reality consumers are often extremely ill-informed. In this paper, I elicit beliefs over the financial benefits and costs of higher or lower fuel economy using a carefully-designed nationally-representative survey of vehicle owners. Results show that beliefs are both highly noisy, consistent with both imperfect information and bounded computational capacity, and systematically biased in a manner symptomatic of “MPG Illusion” (Larrick and Soll 2008). Conditional on these beliefs, I then estimate a discrete choice demand model with random coefficients. In a counterfactual world with perfect information and unbounded computational capacity, consumers would demand fewer vehicles at the extremes of the fuel economy distribution, the allocation of high (low) fuel economy vehicles to consumers with high (low) demand for vehicle-miles traveled would be significantly improved, carbon emissions from light-duty vehicles would drop by 0.3 percent, and welfare would increase by about \$1 billion per year.”

Professor Brian Roe (McCormick Professor, AED Economics, Ohio State University) generally prefers the letter grade design, because it “allow[s] finer gradation (with little loss of consumer comprehension) than say, a simple binary good/bad label.” Professor Roe does note that, over time, the letter grade may not sufficiently induce improvements, if the bar for an “A” does not appropriately change and eventually all vehicles easily meet the mark; on the other hand, if the bar for an “A” does change on a rolling curve over time, “this may not clearly signal to consumers the progress being made by the sector as a whole.” Professor Roe hypothesizes that a single, absolute numeric scale could correct for these problems, but concedes it may be difficult to develop the appropriate metric and educate consumers about using that metric. (Interview, Nov. 18, 2010).