

# Environmental Protection Agency Fuel Economy Label

## Phase 1 Focus Groups

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

and

National Highway Traffic Safety Administration  
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# Introduction

## Background

In 2006, EPA updated how the city and highway fuel economy values are calculated to better reflect typical real-world driving patterns and provide more realistic fuel economy estimates. In addition, EPA redesigned the fuel economy label to make it more informative for consumers. The redesigned label more prominently featured annual fuel cost information, provided contemporary and easy-to-use graphics for comparing the fuel economy of different vehicles, used clearer text, and included a Web site reference to [www.fueleconomy.gov](http://www.fueleconomy.gov) which provided additional information.

EPA is now initiating a new rulemaking to ensure that American consumers continue to have the most accurate, meaningful and useful information, as well as an understanding of how the labeled vehicle impacts the environment. In 2006 EPA did not include a consumption-based metric in the new label design, however EPA did recognize at that time that a distance-based metric such as MPG can be misleading and that a fuel consumption metric might be more meaningful to consumers. In this rulemaking, EPA wants to explore 'gallons per 100 miles' as a potential fuel consumption metric on the label. Additionally, EPA must provide metrics that are relevant and useful for advanced technology vehicles, such as Electric Vehicles and Plug-in Hybrid Electric Vehicles (EVs and PHEVs).

To help inform the creation of the new label, EPA engaged PRR Inc. to work with them in the design and implementation of several information gathering protocols including:

- Literature review
- Focus groups (in 3 phases, including pre-group online surveys)
- Online survey of new vehicle buyers
- Expert panel

It was decided to use a three-phase approach for the focus groups in order to accommodate the sheer amount of information required to be covered in the focus groups, as well as to use each phase to inform the next phase on overall label design in regard to both content and look. The three phases were designed to address the following issues:

- Phase I – Use of the current label and design of the label for internal combustion engine vehicles
- Phase II – Understandability of metrics for advanced technology vehicle labels
- Phase III – Assessment of full label designs and messaging testing for educational/marketing campaign

This document provides a preliminary overview of the Phase I focus groups and is designed specifically to inform the next phases of focus groups. It is not intended as a comprehensive report of results from the Phase I focus groups; that will come at the end of all three phases of focus groups in the form of a full, comprehensive report. It should be noted that all results reported here refer to the focus group discussions, except when specifically identified as results from the pre-group online survey.

## Methodology

Focus groups are the optimum approach to use when the task calls for qualitative, in-depth understanding of consumer's understanding of fuel economy labels. Focus groups allow for probing around such issues as why some label designs are more understandable, how such label designs would be used in the vehicle purchase process, and which label metrics are most important to consumers. The focus group discussion can also provide insights about how a label design may nudge consumers toward greater use of the fuel economy label, as well as nudging them toward the purchase of more fuel-efficient vehicles.

Eight focus groups were convened between February 25<sup>th</sup> and March 9<sup>th</sup>, 2010 in the cities of Seattle, Chicago, Houston and Charlotte. In each city, two groups (one male, one female) were conducted in English and each lasted for two hours. A moderator guide was used to structure the focus group discussions (see Appendix A).

Participants were recruited from within panels developed and maintained by the focus group facility used in each city. Twelve persons were recruited for each group, with the assumption that eight to ten would show. Each of the groups consisted of eight participants (with the exception of one group that had 6 participants). In order to screen out 'professional focus group participants,' only those who had not participated in a focus group in the last six months were included. In addition, participants were screened for having purchased a new vehicle (not a used or pre-owned vehicle; not a motorcycle; not a 'Cash for Clunkers' purchase) in the last 12 months and being the sole or primary decision maker with regard to this new vehicle purchased to ensure that the groups included only those who had been intimately involved in the new vehicle purchase process. Having internet access was also a requirement so that they could complete the pre-group online survey. To ensure a good cross-section of participants each focus group included a mix of participants based on the following variables: type of new vehicle, price range of new vehicle, distance they typically travelled daily in this new vehicle, if they had seriously considered an advanced technology vehicle before purchasing their vehicle, and a variety of demographic variables (see Appendix B for participant profiles).

The participants were also asked to complete an online survey before they took part in the focus group discussions. The purpose of the online survey was to obtain more information about their vehicle purchase process, the role of fuel economy in their purchase decision, and how they used the current fuel economy label; three important issues for which there was insufficient time in the focus groups to discuss in great depth. The pre-group online survey did not present new label designs (these were covered exclusively in the focus groups). It should be noted that the pre-group online surveys are not meant to be representative of new vehicle buyers in general (since focus group participants are in many ways unique), but rather to provide additional information about these specific participants. The online survey was approximately 12 to 15 minutes in length and was completed by all of the 114 recruited participants. Only those who had completed the online survey were accepted into the focus groups.

# Vehicle Choice Process and Current Label Use

## Factors influencing vehicle choice

Participants across all the groups were asked about the top two things that influenced their vehicle choice, whether they had considered the impact of driving the type of vehicle they had purchased on the environment, whether they had a specific vehicle in mind when they started shopping for a vehicle, if so, whether it was the vehicle they ended up purchasing, and what “class of vehicle” they purchased. Further, they were asked what they thought of when they heard “class of vehicle” and whether there was a better term to express that concept.

### Top two factors in vehicle choice

From the participants’ point of view, most across all the groups thought the term ‘vehicle class’ was a good term to use to describe the group of vehicles in which they were interested, although they used this term interchangeably with ‘vehicle type.’ How participants grouped vehicles by type or class varied. Although they generally described it in relatively broad terms such as SUVs, minivans, sport cars, trucks, economy cars, and midsize cars, some participants suggested other classifications such as luxury vehicles or hybrids. Based on participant responses on how to group vehicles by class or type, it was clear that they did not necessarily match the typical EPA vehicle classes. When asked if there was a better term for “class of vehicle”, a few participants said that the terms “vehicle type” or “type of vehicle” could be used to replace it.

*“There was a time when compact car meant something, but now there’s sub-compact, mid-sized compact; everyone has different categories for the same thing. You’re really talking about a small, mid-sized or luxury car.” –Seattle Male*

*“Fifty years ago I think vehicle class meant something, now, I think it’s a marketing tool.”  
–Seattle Male*

*“Class could go in many directions, is it more of luxury or utilitarian vehicle?”  
–Seattle Female*

*“[In terms of vehicle class] I was thinking coupe, sedan, truck, hybrid, etc.”  
–Seattle Female*

Participants explained that their vehicle choice was primarily governed by their individual needs and priorities and that they had a general vehicle type in mind before they started searching. They searched for information that was pertinent to that vehicle type, and used the information to narrow down their choices to a vehicle that they subsequently purchased. Further, the online survey revealed that about 70% had a specific type of vehicle in mind when they started looking for a new vehicle and the majority of those (81%) said they ended up purchasing that vehicle type. Yet, when asked on the online survey what vehicles they seriously considered before making their final purchase decisions, most participants selected vehicles that crossed traditional EPA vehicle classes. For example, participants that considered purchasing a minivan were also likely to consider an SUV.

According to the online survey, after vehicle type, the next most important factor that influenced their vehicle choice was vehicle price. Seventy-seven percent of the participants across all groups indicated that price/affordability was one of the top five factors that influenced their vehicle choice. The other key factors that influenced participants' vehicle choice included gas mileage/fuel economy (60%), safety (52%), reliability (48%), size (46%), interior and exterior appearance (43%), comfort (41%), brand name (38%) and performance (31%). Only 9% of the participants considered low emissions as key factor when they were making a vehicle purchase decision.

*"I had requirements about type/make." –Seattle Male*

*"We looked for a certain safety rating within a certain budget... safety was really big for us we had a nasty accident in our family a few years ago"  
–Seattle Female*

*"I went into it thinking price and reliability, but then reliability went out the window, I went for price and style." –Houston Male*

These findings were further validated and explained in the focus group discussions. Across all the cities, most participants said that once shopping within their chosen vehicles, vehicle price was the next factor considered when making a vehicle-purchase decision. Once they found that the vehicle was affordable, they then considered other factors such as fuel economy, safety, reliability, size, appearance, etc. Some of the factors that were not included in the online survey, but came up in discussions in some of the groups, included past experience with the brand, brand loyalty, service and resale value of the vehicle.

In about half of the focus groups, participants were asked if the vehicle they selected met their two highest needs, whether they would still buy it if it was in their opinion an ugly vehicle. Without exception, participants said they would not.

### *b. The part played by fuel economy*

When it came to fuel economy, most (64% in the online survey rated it 8 or higher on a 10 point scale) thought it was an important consideration when choosing a new vehicle and two-thirds (67% in the online survey) reported that they had searched for fuel economy information before buying their most recent new vehicle. Their top sources of fuel economy information (in the order as mentioned most frequently in the online survey) included manufacturers' Web sites (67%), Consumer Reports (58%), fuel economy label on vehicles (58%), consulted others with similar vehicles (32%), Edmunds.com (30%), auto magazines (30%), and auto dealers (25%). With few exceptions focus group participants indicated that the environmental impact of the vehicle did not affect the type of vehicle they purchased. Even those who indicated they had considered a hybrid vehicle discounted it for other factors such as vehicle price and fuel economy when purchasing their new vehicle.

No major differences were found in the priority of factors that influenced people's vehicle choice based on city or gender.

*Based on the above findings, it may be said that people start with specific vehicles and/or vehicle types in mind and search for information relevant to those particular vehicles or types. They then start narrowing their choices with vehicle price being the next most important factor in influencing one's vehicle choice regardless of one's gender or geographic location. While fuel economy also figures high on the consideration list, other factors such as safety, size, brand loyalty, past experience with the brand, etc. also have a strong influence on the purchase decision. At this time, environmental impact does not impact one's vehicle preference considerably. Based on the online survey and focus group results, it is also clear that participant's definitions of vehicle type and/or vehicle class vary based on personal perceptions and do not match EPA's typical vehicle type classifications.*

## Current fuel economy label use

Participants across all the groups were asked if they had used the fuel economy label (see Appendix C) when deciding on their new vehicle purchase and whether they had noticed and/or used the average annual fuel cost information on the label when they purchased their most recent vehicle.

*“I used the label more to confirm, I already had an idea when shopping for cars.”*

–Charlotte Female

*“I knew that my prior car had also been a Toyota and I had gotten very good gas mileage, so when it came time to get a new car, I really didn’t look too closely. I don’t recall what the numbers were but they were in line with what I was accustomed to.”*

–Houston Female

*“If you’re comfortable with the car, you don’t have to pay attention to those kinds of specifics, especially since I owned a Honda Accord previously.”* –Charlotte Male

*“The economy is important. If you looked at this two years ago, it would be a lot more accurate. But a year ago, gas was closer to \$4. I thought this on the lot, at \$2.80- a gallon, the information wasn’t accurate.”* –Seattle Female

While the online survey found that the vast majority (91%) reported using the fuel economy label when deciding on their new vehicle, the focus group discussions revealed that some of these participants had only briefly glanced at the label and did not really use it when deciding on their new vehicle purchase. Most of the participants explained that they mainly used the label to get city and highway gas mileage estimates and used the information to compare different vehicles within the same vehicle type.

While some used the ‘comparison to other vehicles in class’ slider bar information to subsequently make a purchase decision, most did not.

Online survey respondents considered the average annual fuel cost information on the label to be less important information as compared to the fuel economy information contained on the label. Sixty-five percent rated ‘estimated annual fuel cost’ as one of the top four pieces of information on the label compared to the fuel economy information where 83% voted ‘city mpg’ as one of the top four pieces of information and 80% voted ‘highway mpg’ as one of the top four pieces of information.

The focus group discussions helped to explain this finding further. According to most participants across all groups, the average annual fuel cost estimate was not a useful piece of information. They critiqued it for being an inaccurate measure of the actual fuel cost of the vehicle because it did not take into consideration the fluctuating price of gas. In addition, others mentioned that it did not reflect their typical annual mileage or their typical city vs. highway driving ratios. On the other hand, most thought that the fuel economy information on the label (i.e., city/highway MPGs) provided them with useful information for the accurate estimate of fuel cost, which they could use to make a purchase decision based on their driving style – whether they do more city versus highway driving.

Of the few who used the average annual fuel cost information on the label when they purchased their most recent vehicle, they explained that they used this metric to compare different vehicles, because the estimate was helpful in figuring how a vehicle fared compared to other vehicles at a particular gas price. Some also said that the use of a dollar amount to express fuel cost made it easy for them to equate it with dollar savings without doing any math.

No major city or gender differences were found with regard to people's use of the fuel economy label or the average annual fuel cost information on the label when they were deciding on their new vehicle.

*Based on the above findings, it may be said that participants currently use the fuel economy label to compare different vehicles within the vehicle type category and are more interested in information on city and highway gas mileage estimates as compared to fuel cost estimates.*

*"I used fuel economy as a criterion, but it wasn't a decision factor. I used the blended, combined fuel economy, since that's the majority of the driving I do...it was the most realistic number in our opinion." –Seattle Male*

*"I used the city mileage; I was calculating how it would work for me." –Chicago Male*



# Fuel Consumption Metric

## Perceptions about fuel consumption

Participants across all groups were asked what they thought of when thinking about “fuel consumption.” Based on focus group discussions, it was found that when participants heard the terms “fuel consumption” the following came to mind (in the order as mentioned most frequently across all the focus groups):

- Gas mileage of the vehicle (“miles per gallon;” “how far can one go on a full tank”)
- Fuel cost (“cost of fuel per gallon;” “how much it would cost to fill up a tank of gas”)
- Frequency of filling gas (“how often they had to fill the tank”)

A few participants also said that they thought about gasoline grades (“what type of gas does one fill – regular, mid grade, premium grade”; “the fuel that one put into the vehicle”).

When asked what MPG meant to them the vast majority of participants across all the groups used the term ‘MPG’ to describe fuel efficiency. All the participants were clear about what MPG meant (“how many miles one can drive on a gallon of gas”) and thought that the city and highway MPG information on the label was very useful. When asked why the MPG information was useful to them, they explained these estimates helped them to compare vehicles during the vehicle purchasing process, and that it was easy to apply these to their personal driving styles - whether they were going to do more city versus highway driving, how far they drove to work, etc.

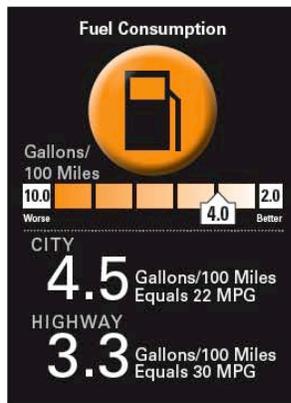
No major gender or city differences were found with regard to what participants thought of when thinking about fuel consumption, what MPG meant to them and whether they found the city and highway MPG information useful or not.



Option 1A



Option 1B



Option 1C

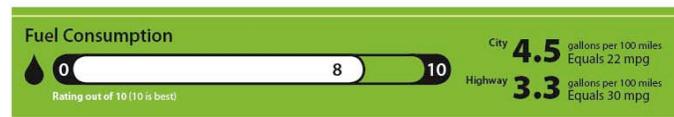
Based on the above findings, it may be said that most often participants think in terms of distance covered per gallon and ‘miles per gallon’ estimates when they think about fuel consumption. People also find the city and highway MPG information on the label to be useful in comparing vehicles during the vehicle purchase process.

## Fuel consumption rating understanding

This part of the discussion involved presenting the participants with four fuel consumption design options and asking them to rate which options they found to be most understandable and least understandable, as well as which they thought had the most and least potential to influence their consideration of a more fuel efficient vehicle.<sup>1</sup> (See the fuel consumption design options to the left and below.)<sup>2</sup>

Subsequently, the participants’ ratings were tallied and a discussion followed regarding the reasons behind their ratings. (See Appendix D for participant tally scores for each group.)

The table below reflects the participants’ ratings (across all the groups) for the most understandable and least understandable design options. In order to test if participants actually understood the fuel consumption metrics they were probed on city vs. highway gals/100 miles and on how this vehicle compares to others based on the comparison information on the label designs. Routinely, participants displayed understanding of this fuel consumption information based on these tests.



Option 1D

- 1 Although participants were asked about both the ‘understandability of ’ and the ‘influence on purchasing a fuel efficient vehicle’ of each design option, it was found that after discussing ‘understandability’ not much was gained from the discussion of how design options might influence their purchase of a fuel efficient vehicle. Consequently, we focus our reporting on the understandability of the design options.
- 2 It should be noted that the light gray stars on the Option 1 designs did not show up when copies were made for each participant, although they did show on the large size of the design shown on boards in each group. Consequently, participants could readily see how many stars a vehicle was rated, but not necessarily that it was out of a scale of 5 stars.

All groups combined		Option 1A	Option 1B	Option 1C	Option 1D
	Most understandable	36	10	10	6
	Least understandable	3	17	25	17
	Overall *	33	-7	-15	-11

\*Overall = Number of times rated 'most understandable' minus Number of times rated 'least understandable'

Based on the table above, it can be inferred that Option 1A was perceived as the most understandable design option as compared to the other designs. Interestingly, with the exception of female participants in Seattle, Option 1A received the highest number of votes across all groups. The reasons mentioned for why participants preferred Option 1A include: it was simple, straightforward and to-the-point; the star ratings used in Option 1A was a familiar system that was clear, concise, readily understandable and catches people's attention; the black and white format used in the design was easy to read; and the image of the gas pump was helpful in associating the design with fuel economy. The few participants who disliked Option 1A said that the star ratings did not give them information regarding the 'best' and 'worst' vehicles in regard to fuel consumption (as in Option 1C) and therefore was not as informative.

Those participants who thought Option 1B was the most understandable design said that it was eye-catching and clearly conveyed the rating of the vehicle. On the contrary, female participants in Houston and Charlotte voted Option 1B as the least understandable design more often than participants in the other groups. The reasons why participants disliked Option 1B included: it was confusing and looked too busy and distracting; the '8' was too big and the rest of the information was too small which made it difficult to follow; and the graphics and the use of red were unappealing. Some also mentioned that because 1B was more elaborate than the basic black and white design of option 1A, that they disliked it because it was perceived as being too 'sales' oriented.

The few participants who thought Option 1D was the most understandable said that it looked clean and they could easily understand the information presented in this option. Participants in Charlotte, female participants in Seattle and male participants

*"The rating with the stars is something we can understand better because we're used to seeing it in other ratings."  
-Charlotte Female*

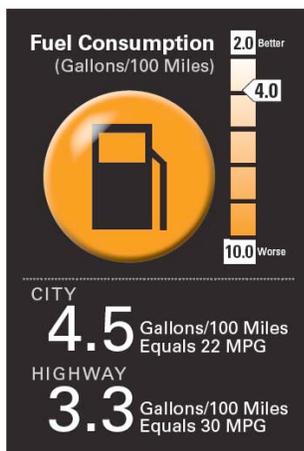
*"There was no confusion. Even if one doesn't understand the numbers, they can relate to the star rating."  
-Chicago Male*

*"The eight, if you just look at it quickly, you wouldn't know what it was."  
-Houston Female*

*"To me, in 1B, the graphics overwhelm, it's too colorful, the font is too small."  
-Houston Male*

in Chicago voted Option 1D as the least understandable design more often than participants in other groups. The reasons why participants disliked Option 1D included: it was confusing, difficult to follow and understand, seemed to include “too many numbers”; and the design format was unappealing and did not appear to be representing fuel consumption at first glance.

Option 1C was perceived as the least understandable design. Participants in Chicago, male participants in Houston and Seattle voted Option 1C as the least understandable design more often than participants in other groups. The reasons why participants disliked Option 1C included: the ‘gallons per 100 miles’ as the metric for fuel consumption was difficult to grasp (especially when presented in the slider scale format unique to this design), the slider scale was confusing and hard to understand with ‘10’ representing ‘worst’ and 2 representing ‘best’ (although this was somewhat more understandable when the slider was presented in a vertical orientation); the black and orange color format was “too colorful” and appeared like a warning sign. Those participants who liked Option 1C and chose it as their most understandable design explained that they preferred the sliding scale over the star rating (in Option 1A) because it provided them a frame of reference regarding the best and worst vehicles on the market. A few also said that they liked the background used in Option 1C and thought it was catchy.



Option 1C – vertical

- 3 It should be noted that as we moved from city to city conducting the focus groups we tried to improve how we presented and illustrated the ‘mpg illusion’ information. By the time we concluded the focus groups in Seattle the approach used seemed to work fairly well, but still required a lot of explanation by the moderator.

*Based on the above findings, it can be said that Option 1A was perceived as the most understandable fuel consumption design and Option 1C was perceived as the least understandable design. In essence, participants preferred a design that they thought was informative and presented information in a simple and familiar format.*

## Understanding the MPG Illusion

Participants were reminded of the example of the ‘MPG Illusion’ from the pre-group online survey. The moderator then used several approaches<sup>3</sup> to explain the MPG Illusion and probed on the participants’ understanding of why ‘gallons per 100 miles’ was a superior metric of fuel consumption compared to MPG. Further, they were asked if gallons per 100 miles (instead of MPG) would get them to switch to a different class of vehicle and whether they preferred gallons per 100 miles or MPG.

Regardless of how it was explained, most participants initially had difficulty understanding the MPG Illusion and why ‘gallons per 100 miles’ may be a superior measure of fuel consumption. However, even those who eventually did understand still preferred MPG. According to them, they were used to thinking in terms of MPG and were therefore more comfortable using it.

Subsequently, only a few said ‘yes’ when asked if gallons per 100 miles (instead of MPG) would get them to switch to a different type of vehicle. Those who said ‘no’ explained that their vehicle choice was greatly governed by the type vehicle they were looking to purchase and most vehicles in that grouping gave similar mileage.

No major city or gender differences were found with regard to participants’ preference for using MPG over gallons per 100 miles in spite of understanding the MPG Illusion.

*Based on the above findings, it may be said that understanding the MPG illusion is extremely difficult to achieve and does not necessarily lead people to switch to a different type of vehicle nor does it make them prefer gallons per 100 miles over MPG. In essence, people prefer familiarity over facts.*

## Use of fuel consumption metric in vehicle choice

Participants across all the groups were asked whether (and why/why not) they would use the information on fuel consumption (presented in terms of ‘gallons per 100 miles) on the label in their vehicle purchase decision.

While some participants said that they would use the fuel consumption information on the label to learn about the vehicle’s city and highway gas consumption and use these estimates to compare different vehicles in order to make a purchase decision, there were others who did not show much enthusiasm about using this information on the label.

*"I already know this information before I go to the dealer."*

*–Seattle Female*

*"I was actively looking for a fuel efficient vehicle, so it would sway me, but if you're looking for a sports car or truck, it's almost something you don't want to see." – Charlotte Male*

Of those who said that they were less likely to use the fuel consumption information on the label, some said that fuel consumption was not really important to them because they drove infrequently and/or drove short distances. Others said that they were more likely to research about the fuel consumption of vehicles on the Internet before they visited the dealers' showroom and looked at actual fuel economy labels.

No major city or gender differences were found with regard to participants' likelihood to use the information on fuel consumption on the label in their vehicle purchase decision.

*In conclusion, it may be said that people vary with regard to their likelihood to use the fuel consumption information on the label in making purchase decisions.*

# Fuel Cost Metric

## Most useful framing of fuel cost

Participants were told that the current label showed fuel cost in terms of annual costs and asked if there were other ways to express fuel cost that they thought would be more useful to them. When asked in this open-ended fashion, participants across all groups said they thought about ‘how much it cost to fill up the vehicle’s tank.’ In addition, some participants said they thought about cost over time (“how much is it going to cost daily/each week/each month”) and cost over distance travelled (“cost per mile”; “cost per 100 miles”; “cost per every 5000 miles”).

However, after being shown the following options on the rating sheet it was found that close to one-third (30%) preferred *annual* costs. Over one-fourth (26%) said that they preferred a *monthly* estimate for fuel cost. Fifteen percent reported that they preferred *cost per 100 miles* and another 13% said that they liked *weekly* and *per mile* (each). Only 4% said that they liked a *5-year* fuel cost estimate. However, across all the groups, there was skepticism around the fuel cost metric. Many participants said the fuel cost estimate was an inaccurate measure of the actual fuel cost of the vehicle because it did not take into consideration the fluctuating price of gas.

While those who preferred annual cost said that they were used to looking at cost from a yearly perspective, those who preferred monthly costs said that it was in line with their other monthly household payments (such as monthly rent payment) and helped them in planning their monthly budgets. According to participants who preferred ‘per mile’ and ‘per 100 miles,’ these estimates gave them cost information in terms of the distance travelled which in turn was easy to understand and did not require them to perform mathematical conversions to calculate fuel costs, as did the cost metrics based on time (per month, per year, etc.). Those who

*“Cost is irrelevant, because of the way gas prices are. Cost per tank helps me figure out my budget, because I fill up every two weeks.” – Charlotte Female*

*“Monthly works, because that’s how I think of rent.” – Chicago Male*



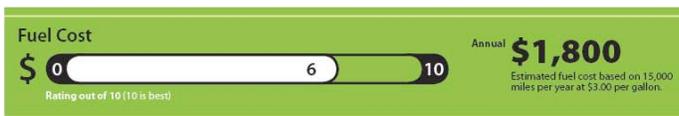
Option 3A



Option 3B



Option 3C



Option 3D

preferred cost per 100 miles also added that the metric was in line with ‘gallons per 100 miles’ and helped in attaining uniformity across the fuel consumption and fuel cost metrics.

No major gender or city differences were found with regard to participants’ preference for the unit of analysis for expressing the cost-metric.

*In summary, it may be said that although participants tend to think of fuel costs in terms of ‘cost to fill my tank,’ they recognize that this is not a good comparison metric when shopping for a new vehicle since tank sizes vary by vehicle. For comparison purposes, participants preferred annual and monthly estimates of fuel cost over other cost metrics because they were used to looking at cost from these perspectives. However, there is general skepticism about the fuel cost metric and few considered it to be an accurate measure.*

## Fuel cost rating understanding

This part of the discussion involved presenting the participants with four fuel cost design options and asking them to rate which options they found to be most understandable and least understandable. (See the fuel cost design options to the left). Subsequently, the participants’ ratings were tallied and a discussion followed regarding the reasons behind their ratings. (See Appendix E for participant tally scores per group). In order to test if participants actually understood the fuel cost metrics, they were probed on the cost per year and on how this vehicle compares to others based on the comparison information on the label designs. Routinely, participants displayed understanding of this fuel cost information based on these tests.

On tallying, the participants’ ratings (across all the groups) reflected the following as most understandable and least understandable:

All groups combined		Option 3A	Option 3B	Option 3C	Option 3D
	Most understandable	34	9	17	2
	Least understandable	1	17	20	23
	Overall *	33	-8	-3	-21

\*Overall = Number of times rated 'most understandable' minus Number of times rated 'least understandable'

Based on the table above, it can be inferred that Option 3A (star system) was perceived as the most understandable design option as compared to the other designs. Interestingly, with the exception of participants in Seattle and male participants in Charlotte, Option 3A received the highest number of votes across all the other groups. The reasons why participants across all the groups thought Option 3A was the most understandable included: it was simple, straightforward and to-the-point; the star ratings used in Option 3A was a familiar system that was clear, concise, readily understandable, and caught people's attention; and the black and white format was easy to read. The one participant who disliked Option 3A said that the star ratings did not give them information on the range of best and worst vehicles in regard to fuel costs (as in Option 3C).

Those participants who thought Option 3C was the most understandable design explained that they liked the sliding scale used in this option (it provided them a frame of reference in regard to the 'worst' and 'best' vehicles for fuel cost). They also thought it was concise, clear, informative and easy to understand. In addition, some said that they liked the "\$" sign, graphics and color format used in Option 3C and thought it caught their attention. On the contrary, participants in Chicago and female participants in Charlotte voted Option 3C as the least understandable design more often than participants in the other groups. The reasons why participants disliked Option 3C included: it was complicated relative to the simpler star design, distracting and was difficult to grasp at a glance; the sliding scale was confusing and hard to understand with '\$4,500' representing 'worst' and '\$500' representing 'best'; and the graphics and the color format were "too dark," cluttered and "too busy". Several participants suggested reversing the sliding scale so that 'worst' was on the right and 'best' on the left' to make it less confusing.

*"3A is black and white, clear. I get nervous when there's a lot of information." –Chicago Male*

*"3A is standard, easy. Nothing difficult to understand." –Chicago Female*

*"3C is the best indication of how much it will cost me. Could see it right away what the worst was." –Seattle Male*

*"3C is not reader friendly – there's too much stuff. The scale, the lower number on right was strange." –Charlotte Female*

*"I hate the graph [3C], how it goes backwards, with the largest number on the left. The graph should be reversed." –Houston Male*

*“3B gave the range. I knew what the \$1800 meant.” – Seattle Male*

*“It took me some time to figure it out [3B]. If I have to take the time, I won’t figure it out.” – Houston Female*

*“3D is overly simplistic, empty.” – Seattle Male*

*“The weird sliding scale is not attractive and hard to decipher [3D]. People want to read it quickly and this takes too much time and effort to figure it out.” – Houston Female*

The few participants who thought Option 3B was the most understandable said that it was concise, straightforward and easy to understand. They also said that they liked the graphics (the “dollar bills” background) used in this option and thought it was attention-grabbing. As for those who thought Option 3B was least understandable, male participants in Charlotte and Houston voted Option 3B as the least understandable design more often than participants in other groups. Their reasons included: it was vague, confusing, “too busy”, difficult to follow and understand; and the design format was “too colorful,” cluttered, unappealing and did not appear to be representing fuel cost at first glance.

Option 3D emerged to be the least understandable design. Participants in Seattle, male participants in Charlotte and Chicago, and female participants in Houston voted Option 3D as the least understandable design more often than participants in other groups. The reasons why participants disliked Option 3D included: the scale was confusing and hard to understand (the ‘\$’ sign in front of the scale made it seem like the scale was measuring dollar amount); the font was too small, the format was “too simple”, and had lots of empty space and was unappealing.

Based on the above findings, it can be said that Option 3A was perceived to be the most understandable fuel cost design and Option 3D was perceived as the least understandable design. However, there was some support for the sliding scale from the 3C design and several participants suggested including it on the 3A design in some way. The most understandable design was simple, straight forward, concise, and clearly pertained to cost. The least understandable were designs people found to be confusing, distracting, and complicated. In essence, participants preferred a design that they thought was informative and that presented the information in a simple and familiar format.

## Use of fuel cost metric in vehicle purchase

Participants across all the groups were asked whether (and why/why not) they would use the information on fuel cost in their vehicle purchase decision if it were available on the label.

Many participants across all groups said that they would use the fuel cost information on the label to learn about the vehicle's fuel efficiency in terms of dollars and use these numbers to compare different vehicles in order to make a purchase decision.

However, there were others who did not show much enthusiasm for using this information on the label. Of these, some said that they considered the fuel cost estimate to be an inaccurate measure (because it did not take into consideration the fluctuating cost of gas) and hence were skeptical of using it. Others said that they were more likely to research fuel cost estimates of vehicles on the Internet before they visited the dealers' showroom and looked at the actual fuel economy labels.

No major city or gender differences were found with regard to participants' likelihood to use the information on fuel cost on the label in their vehicle purchase decision.

*In summary, it may be said that some people are likely to use the fuel cost information on the label in comparing vehicles during the vehicle purchase process. However, in general, the fuel cost information was suspect because of fluctuating fuel prices.*

*"I would use the label to verify what I looked at online."  
– Seattle Male*

*"The label by itself won't influence me, but it is one piece of information."  
–Chicago Male*

*"This type of information at the dealer does me no good; I go online to do the comparison. So the pretty picture means nothing to me." – Seattle Male*



# Environment Metric

## Environment rating understanding

Participants were asked if the environmental impact of a vehicle in any way impacted their purchasing decision. Some participants indicated it did, with a sub-section of these indicating they had considered hybrid vehicles for this reason. Even for those who indicated concern for the environment, it seemed that economic considerations were more important than concerns about environmental impact. However, the vast majority of participants did not use environmental impact as a part of their purchasing decision.

Participants were then presented with four environment metric design options and asked to rate which options they found to be most understandable and least understandable. (See the environment metric design options on the next page). Subsequently, the participants' ratings were tallied and a discussion followed regarding the reasons behind their ratings. (See Appendix F for participant tally scores per group). In order to test if participants actually understood the environmental metrics they were probed on how many grams of CO<sub>2</sub> and on how this vehicle compares to others based on the comparison information on the label designs. Routinely, participants displayed understanding of how this vehicle compared to others, but did not understand what grams of CO<sub>2</sub> referred to.

*"For me it goes hand in hand with fuel economy, if it saves fuel costs, it's probably better for the environment." –Seattle Male*

*"I own a hybrid. Even though the Prius cost a little more, it came down to the numbers, how much I would save. The environmental aspect was as bonus."  
–Charlotte Male*

*"If cost was same, if the car was affordable, I would consider the one that had less impact."  
– Charlotte Male*

*"I care about the environment, but when it comes to money, I have to put my pocket book first. The environment isn't going to pay my bills." – Charlotte Female*

On tallying, the participants’ ratings (across all the groups) reflected the following, as most understandable and least understandable:

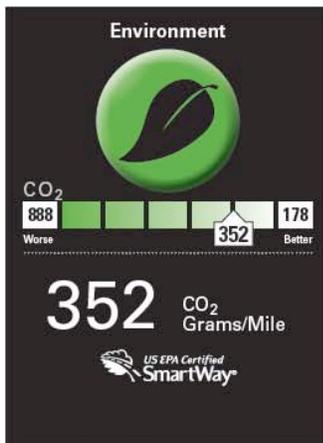
All groups combined		Option 4A	Option 4B	Option 4C	Option 4D
	Most understandable	24	12	22	4
	Least understandable	3	10	16	31
	Overall *	21	2	6	-27

\*Overall = Number of times rated ‘most understandable’ minus Number of times rated ‘least understandable’

As reflected in the table above, it can be inferred that Option 4A (star system) was perceived to be the most understandable design option, closely followed by Option 4C. Interestingly, with the exception of participants in Seattle, female participants in Chicago and male participants in Charlotte, Option 4A received the highest number of votes across the other four groups. The reasons why participants across all the groups liked Option 4A included: it was simple, concise and easy to read; and the star ratings used in Option 4A was a familiar system that was clear, straightforward, readily understandable, and caught people’s attention. The few participants who disliked Option 4A said that the star ratings did not give them the range of CO<sub>2</sub> information (as in Option 4C) and was not informative enough. Suggestions for improving 4A included using green as the star color.



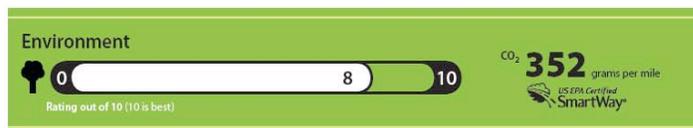
Option 4B



Option 4C



Option 4A



Option 4D

Overall Option 4C was tallied as the second most understandable, with male participants in Charlotte, and female participants in Seattle voted Option 4C as the most understandable design more often than participants in other groups. The reasons why participants liked Option 4C included: it was clear, to-the-point, readily understandable and attractive; the sliding scale was easy to read and provided the reader a frame of reference in addition to range of CO<sub>2</sub> information for an environment metric; the green and black color format with the picture of a leaf was appealing and was symbolic of the environment. On the contrary, participants in Chicago and male participants in Houston voted Option 4C as the least understandable design more often than participants in other groups. The reasons why participants disliked Option 4C included: it was complicated and difficult to grasp at a glance; the sliding scale was confusing and hard to understand with ‘888’ representing ‘worst’ and ‘178’ representing ‘best’ since higher is usually associated with better; the concept of CO<sub>2</sub> grams was in and of itself difficult to understand; and the graphics and the color format were “too dark” (some suggested it reminded them of smog), cluttered and unappealing. Suggestions for improving 4C included using a different background color and not using black as the leaf color. Some participants suggested that including a rating on the label (such as the star rating in 4A or the number rating in 4B) would be helpful since the concept of CO<sub>2</sub> grams was not well understood.

As for those who thought Option 4B was most understandable, male participants in Seattle and female participants in Chicago voted it as the most understandable design more often than participants in other groups. The reasons why participants liked Option 4B included: it was clear and easy to read; the rating “8” was attention grabbing and easily understood; and the green color format was symbolic of the environment. On the contrary, the participants who disliked Option 4B said that it was vague, confusing, “too busy”, and difficult to follow and understand. They also found the design format to be unappealing.

Option 4D emerged to be the least understandable design as compared to the other designs. Participants in Seattle and Charlotte, and female participants in Houston voted Option 4D as the least understandable design more often than other groups. The reasons why participants disliked Option 4D included: it was confusing, not reader-friendly and “poorly-laid out”; the scale was hard to understand; and the format was “too plain” and unappealing.

*“[4A] I wasn’t sure about the information it’s measuring, but the stars make sense.”*

*–Seattle Male*

*“[4C] I don’t understand the numbers. Its unfamiliar to me, so to have a graph of it doesn’t make sense.” –Chicago Male*

*“[4B] This is a new kind of thing people are measuring. I don’t really know what it is, so the 8 is helpful.” – Seattle Female*

*“4B puts the emphasis on the wrong thing. The 352 is the important number.”*

*– Charlotte Female*

*“I don’t know what these numbers mean. There needs to be something to indicate what is good or bad, such as ‘most efficient or least efficient,’ ‘most polluting or least polluting. Use the ends of the scale to explain it.” – Charlotte Female*

## Use of terms ‘environment’ and CO<sub>2</sub>

Participants across all the groups were asked what the term environment meant to them, whether there was a better word to use, if the label needed to include information on pollutants other than CO<sub>2</sub> and whether they would use that information in making their vehicle choice.

Many participants across all the groups said that they thought about air quality, air pollution and global warming when they thought of the word ‘environment’ relative to vehicle emissions. A few participants also said that they thought about carbon footprint. The majority of participants said that the word ‘environment’ on the label worked for them. When asked to identify other terms, suggestions included: ‘emissions’, ‘eco-friendly’, ‘environmental rating’, ‘green’, and ‘air quality’. A few suggested ‘clean air’, ‘energy-efficient’, ‘green footprint’ and ‘longevity’. However, none of these suggestions were considered by participants to be better than ‘environment’.

*“CO2 is the one you hear most about, I wouldn’t add anything else.” – Charlotte Female*

*“CO2 is the basic one, no others needed.” – Chicago Female*

*“Would need to know more what it’s about – it’s meaningful if you know that only a few vehicles get the ranking.” – Seattle Female*

*“If I knew what the threshold was for the SmartWay certification it would mean something more to me.” – Houston Female*

Most participants across all groups indicated that they did not understand CO<sub>2</sub> and having other pollutants listed would not have greater influence on their purchasing decision. They also indicated that they did not need to know the ‘science’ behind environmental ratings – “just give us a rating.” In addition, some participants expressed that they trusted the EPA to make sure that vehicles met environmental requirements.

Participants were also asked if they knew what the ‘SmartWay’ logo stood for and whether it would influence their buying decision. None of the participants recognized the logo. When asked what they thought it meant, some participants made the assumption that ‘SmartWay’ was an EPA certification and was similar to ‘EnergyStar.’ They further expressed that it probably represented an EPA certified environmentally friendly car. Some participants indicated the logo had the potential of drawing credibility toward a vehicle. Interestingly, none of the participants indicated that they would be less likely to choose a vehicle if the logo was not on the label. They stated that they attached more importance to other factors such as vehicle class, price, fuel economy, etc. and could discount the “environmental impact” factor relative to these other factors. Importantly, several participants suggested that the absence

of the 'SmartWay' logo on a vehicle would have little impact until consumers became aware of its meaning and actively looked for the logo. Some even suggested a statement on the fuel economy label designating a vehicle as 'not SmartWay certified' so that its designation was clear.

No major city or gender differences were found with regard to what participants thought of when thinking about environment, whether the label needed to include information on pollutants other than CO<sub>2</sub>, and what they thought about the 'SmartWay' logo.

*Based on the above findings, it can be said that Option 4A was the most understandable environment rating design. However, 4C might easily become more preferred with the suggested modifications. Option 4D emerged as the least understandable design. Participants preferred a design that was informative and presented information in a simple and familiar format. Further, participants stated that the use of the term 'environment' and reporting just the CO<sub>2</sub> count on the label worked for them as they wanted the label to be easy to read and understand. As participants struggle with understanding the meaning of CO<sub>2</sub>, they stated that having additional information on other pollutants included on the label would not influence their vehicle purchasing decision. Finally, participants felt an overall environmental impact designation was of most value and liked the idea of the 'SmartWay' logo, but suggested that significant public education will be needed to inform the public of its meaning.*

## Use of environmental impact in vehicle choice

Participants across all the groups were asked whether (and why/why not) they would use the environment information on the label in their vehicle purchase decision. They were also asked if they would go to a website (if so directed on the label) and use this information in their vehicle choice if it was not on the label.

While some participants said that they would use environmental impact information on the label to compare different vehicles, the majority of individuals did not show much enthusiasm about using this information on the label. According to the latter, environmental impact of driving a vehicle was not really important to them because

*"How much the number means depends on how much you care about the environment."  
– Seattle Male*

*“It would all depend on price and style. It’s part of the bigger package you consider when you’re shopping.” – Seattle Female*

*“It’s a nice to have, not a need to have.” – Chicago Male*

*“It wouldn’t sway me, if I wanted that car, it wouldn’t change my mind.” – Chicago Female*

they gave more precedence to other factors such as vehicle class, cost, fuel economy, appearance, brand loyalty, etc. Consequently, participants across all groups indicated they were not likely to visit a website for environmental information. In fact, when asked if they could only have two of the three discussed metrics on the label, the vast majority of participants chose fuel consumption and fuel cost over environmental impact.

No major city or gender differences were found with regard to participants’ likelihood to use the environmental impact information on the label in their vehicle purchase decision, and whether they would go to a website for this information if it was not on the label.

*In summary, it may be said that most people said they will not be very likely to use the environmental impact information on the label, although they were open to the presence of such information on the label, and indicated they would not visit a website for this information in making their vehicle purchase decisions.*

# Overall Findings

## Gender and Location Affects

Based on the results of these Phase 1 focus groups, no systematic gender or city location differences were found. Those reported here appear to be random, but will be further tracked and reviewed as Phases 2 and 3 of the focus groups are completed.

## Vehicle Choice Process and Current Label Use

People actively begin the vehicle purchasing process with specific vehicles and/or vehicle types in mind that fit their individual need and preferences. They then search for relevant information to help narrow their vehicle choices. Participants stated that the next important factor they considered when determining which vehicle they ultimately purchased was vehicle price followed by fuel economy regardless of one's gender or geographic location. . Based on the online survey and focus group results, it is also clear that participant's used the terms vehicle type and vehicle class interchangeably and defined vehicle type and/or vehicle class based on personal perceptions. Participant's vehicle type classifications were typically broad and did not coincide with EPA's typical vehicle type classifications.

When participants used the fuel economy label to compare different vehicles they primarily relied on city and highway gas mileage estimates. While fuel economy figured high on the consideration list, there were other factors such as safety, reliability, size, comfort, performance, brand name, brand loyalty, past experience with the brand, etc. that also influenced vehicle purchase decisions. Environmental impact did not seem to significantly impact vehicle choice.

## Fuel Consumption Metric

Most often participants thought in terms of distance covered per gallon and ‘miles per gallon’ estimates when they thought about fuel consumption. They also recognized that this reliance is in-part due to this being the only metric they have ever used.

Option 1A (star system) was perceived as the most understandable design for communicating fuel consumption, with Option 1C being the least understandable. Participants preferred the Option 1A design because it was informative and presented information in a simple and familiar format. Part of the reason they found Option 1C least understandable was because of the difficulty of understanding ‘gallons per 100 miles’ as a measure of fuel consumption especially when presented in the slider scale design of Option 1C. However, when shown the 1C slider scale in a vertical orientation (with best at the top and worst at the bottom; see Appendix K) understandability increased. Nonetheless, even those who understood the MPG Illusion preferred ‘MPG’ over ‘gallons per 100 miles’ in large part because it was so familiar to them. However, most participants were open to including ‘gallons per 100 miles’ as long as the font to display it and MPG were of the same size (as opposed to having MPG in small font and in parentheses underneath the ‘gallons per 100 miles’ metric).

## Fuel Cost Metric

Participants preferred annual and monthly estimates of fuel cost over other “time” cost metrics because they were used to looking at cost from these perspectives. However, there is general skepticism around the fuel cost metric due to the fluctuating cost of gasoline.

Option 3A (star system) was perceived as the most understandable fuel cost design and Option 3D was the least understandable design. In essence, participants preferred a design that they thought was informative and that presented the information in a simple and familiar format. It should be noted that compared to the fuel consumption design option that showed a scale with best and worst fuel consumption based on ‘gallons per 100 miles’, there was more support for Option 3C (scale showing best and worst fuel cost vehicles) because participants had an easier time understanding ‘dollars’ compared to ‘gallons per 100 miles.’

## Environment Metric

Option 4A (star system) emerged as the most understandable environment metric design and Option 4D was the least understandable design. Again, participants preferred a design that they thought was informative and that presented the information in a simple and familiar format. Option 4C was a very close second choice. Adopting the suggestions provided by participants for improving 4C might make this a preferred choice. However, many participants were less interested in a scale (such as in Option 4C) that showed the best and worst vehicles in regard to CO<sub>2</sub> emissions. This was, in part, because grams of CO<sub>2</sub> has little meaning to them and because environmental impact is of much less importance in their vehicle choice process (compared to fuel consumption and fuel cost).

Although participants did not know what ‘SmartWay’ was, they eventually figured out as the discussion progressed, that inclusion of the ‘SmartWay’ logo was an important EPA certification to designate environmentally friendly vehicles, but significant public education will be needed to inform the public of its meaning.

## Overall Label Design

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. When asked to determine which of the three metrics (fuel consumption, fuel cost, environmental impact) they would include on a label if they could only have two of them, participants across all groups chose fuel consumption and fuel cost. With regard to the use of graphics and color, many participants said that the black and white format (in design Option A) was appealing for the fuel consumption and cost part of the label. According to them, such a format made the information appear “clean” and “informative,” and did not make it look like someone was trying to “sell” them something. Several mentioned that it was also similar in look to the current label. Across all the groups, participants liked the gas

pump icon, the “\$” sign, and the green leaf and said that they could easily associate each of these with fuel consumption, fuel cost, and environmental impact respectively. However, across the groups there was also a minority who thought that the star system did not give them enough information and recommended including the scale from the C design options (showing best and worst vehicles in regard to fuel consumption and cost, and possibly environmental impact).

While some participants said that the statement about the availability of the Fuel Economy Guide was useful, many others did not show much enthusiasm toward it. The latter said that they would do their research about the vehicles before they visit the dealer’s showroom and having this information on the label would not affect their decision.

The issue of comparison to ‘all vehicles’ and/or comparison ‘within class’ was discussed in all groups. It should be noted that participants used the terms ‘vehicle class’ and ‘vehicle type’ interchangeably and how they grouped vehicles by type or class varied and did not necessarily match the typical EPA vehicle classes. Nonetheless, when shown the label design options, most assumed that the comparison metrics referred to ‘within class’ (when in fact they referred to ‘all vehicles’). With the exception of female participants in Chicago and male participants in Houston, participants in the all groups preferred seeing both ‘within class’ and ‘all vehicles’ information for fuel consumption and fuel cost on the label. They explained that including both sets of information for fuel consumption and cost gave them more and better information to make vehicle comparisons. The remaining participants said that they preferred only ‘within class’ information for fuel consumption and fuel cost metrics on the label. According to these participants, the standard of comparison was fair when comparison was done within class (“comparing within class means comparing apples to apples”). However, this comparison is complicated by participant’s varied definitions of what constitutes a ‘vehicle type’ or ‘vehicle class’ and that those definitions are not consistent with EPA vehicle type classifications. When probed whether they would feel guilty if the vehicle they recently purchased had ratings that showed that it rated better ‘within class,’ but worse when compared to ‘all vehicles,’ almost all disagreed. Participants explained that vehicle type played a crucial role in their vehicle choice process and vehicles within a particular type had similar range estimates for fuel consumption and fuel cost.

## Recommendations regarding metrics and label design

The following recommendations are based on the overall results of the Phase 1 focus groups and reflect findings regarding metric and label design understanding, preferences, as well as metric and design options to which participants are open.

- Give prominence to fuel consumption, followed by fuel cost and environment metric.
- Retain the black and white format for the fuel consumption and fuel cost metric, and use the color green in communicating the environment part of the label.
- For the fuel consumption part of the label:
  - Use MPG estimates as the primary metric for fuel consumption. If there is a desire to introduce ‘gallons per 100 miles’ estimates, do so in a way that positions it as additional information and use the same font size for presenting the MPG and gallons per 100 miles information.
  - Utilize external marketing and education activities to help consumers understand the value and benefit of using gallons per 100 miles.
  - Provide both city and highway gas mileage estimates.
  - Provide both “within class” and “all vehicles” comparison scales for fuel consumption.
  - Include star ratings (and possibly a sliding scale as well) for easy comparison:
    - To show accurate star rating, use partial coloring of stars.
    - Make the sliding scale into a vertical scale with the worst at the bottom and best at top.
    - Use better descriptors (such as “best fuel consumption”, “worst fuel consumption”) to explain the tail ends of the scale.

- Mention EPA as the source for the fuel consumption ratings.
- For the fuel cost part of the label:
  - Use bigger and bolder font compare to that used on some of the labels to describe annual fuel cost.
  - Provide both “within class” and “all vehicles” comparison scales for fuel consumption.
  - Include star ratings (and possibly a sliding scale as well) for easy comparison:
    - To show accurate star rating, use partial coloring of stars.
    - Make the sliding scale into a vertical scale with the worst at the bottom of the scale and best at the top
    - Use better descriptors (such as “most cost efficient”, “least cost efficient”) to explain the tail ends of the scale.
  - Mention EPA as the source for the fuel cost ratings.
- For the environment part of the label:
  - Use green for this part of the label and change the color of the stars to green.
  - Include star ratings (and possibly a sliding scale as well) for easy comparison:
    - To show accurate star rating, use partial coloring of stars.
    - Make the sliding scale into a vertical scale with the worst at the bottom of the scale and best at the top.
    - Use better descriptors (such as “most polluting”, “least polluting”) to explain the tail ends of the scale.
  - Mention EPA as the source for the environment ratings.
  - Include the SmartWay logo for those vehicles that are certified.
  - Conduct an education/marketing campaign to increase awareness and value in the SmartWay logo.

# Appendices

## Appendix A: Moderator Guide

### Introduction (8 minutes)

- Moderator introduces herself/himself.
- [Explain:] A focus group is a group discussion where we can learn more in-depth about peoples' ideas and opinions (compared to telephone or written surveys).
- My job is to facilitate the discussion and make sure that everyone has an opportunity to speak **and to make sure that no one dominates the conversation.**
- Mention observers in separate room.
- Housekeeping – Toilets and refreshments.
- Mention ground rules:
  - There is no right or wrong answer; we're interested in your honest and candid opinions and ideas.
  - Our discussion is totally confidential. We will not use your name or contact information in any report.
  - Our discussion today is being recorded. These recordings allow us to write a more complete report, and to make sure we accurately reflect your opinions. However, please only speak one at a time, so that the recorder can pick up all your comments.
  - It is important to tell YOUR thoughts, not what you think others will think, or what you think others want to hear.
  - Please turn off cell phones
  - Your stipend will be provided as you leave.
  - Relax and enjoy

Thank you all for participating in the survey we sent to you in advance. Today we will continue the discussion talking about new car purchases. Any questions before we begin?

- Let's start off by getting to know a little more about each other. I'd like us to go around the room with each person answering the following questions:
  - Your first name
  - When did you buy your last new vehicle?
  - What type of vehicle did you buy recently (make and model)?
  - Did you consider buying a hybrid, or clean diesel, or some other alternative fuel vehicle?

### Current Label Use (8 minutes)

1. What were the top two things that influenced your vehicle choice?
2. Did you have a specific vehicle in mind when you started shopping for a vehicle? Is that the vehicle you ended up purchasing? Why or why not?
3. In what 'class' of vehicles is the vehicle you ended up purchasing? What do we mean by 'class of vehicle'? Is there a better term to use to get at this issue? What better terms?
4. Did you use the fuel economy label when deciding on your new vehicle purchase? Why or why not? How did you use it? Then show participants a large size example of the current label (as well as 8 x11 copy for each participant) and ask what information on the label most influenced their purchasing decision. Probe *briefly* on why.

### Fuel Consumption Metric (37 minutes)

SHOW THEM THE CURRENT LABEL AND SHOW THEM THAT IT HAS COMPONENTS FOR MPG, FUEL COSTS, ETC. THEN EXPLAIN THAT WE ARE GOING TO LOOK AT FUEL CONSUMPTION FOR A NEW LABEL SEPARATELY, BUT THAT IT WILL EVENTUALLY BE PART OF A TOTAL LABEL.

5. When you think of fuel consumption, how do you think about it? (Listen for mpg, miles per tank full, gallons to go a particular distance, how often they have to fill the tank.)
6. The current label includes mpg for both city and highway. What does mpg mean to you? Is this useful information? Why or why not?

7. (Hand out the fuel consumption metric work sheets and the individual copies of the designs. Show them the 4 options on large boards.)
  - a. Would any of the four options make you more likely to purchase a fuel efficient vehicle? (Have them indicate which one on their rating sheet. Do NOT discuss yet.)  
LISTEN FOR CONCERNS ABOUT MPG BEING DE-EMPHASIZED. ASSURE THEM THAT IT IS HERE TO STAY AND THAT THE LABEL COULD SHOW MPG AND GAL/100 MI IN THE SAME SIZE FONT (SHOW LABEL EXAMPLE OF THIS.)
  - b. Then instruct them to “indicate on your worksheet which option is most understandable and which is least understandable. For each choice write brief bullet points explaining why.”
  - c. Moderator then tallies rankings and opens up to discussion regarding reasons behind their choices. (Probe on which of the 4 options explains fuel consumption most effectively? Test correct interpretation of metrics by asking what the metrics mean, if they are ‘easy to understand’. Test to include probing on: city vs. highway gals/100 miles, how does this vehicle compare to others?)
  - d. Then tally from 7a above and ask which of the 4 options, if any, would make you more likely to purchase a fuel efficient vehicle. (Probe on why)
8. If the label had a sentence that said:
  - In the city, this vehicle would use approximately 4.5 gallons of gasoline to travel 100 miles.
  - On the highway, this vehicle would use approximately 3.3 gallons of gasoline to travel 100 miles.Would that be more helpful or less helpful compared to the metric that appears on the label? Why?
9. Can you suggest other ways to express this information visually?
10. If this information was available on the label, would you use it in your decision about which vehicle to purchase? Why or why not? If so, at what point?

11. All of the options we've shown you include a comparison to all other vehicles. Does having this assist you in choosing the most fuel efficient new vehicle? Why or why not? Is it useful to also have such a fuel consumption comparison in regard to vehicles in your class? Why or why not? Is it too much information?
12. Remind them of the example of the "mpg illusion" from the pre-group survey.
  - a. Show them the front of the handout that includes annual gallons used and annual cost. Ask them what do they see that is different than the current label?
  - b. Then have them look at the top two examples on the back of the form and ask them to indicate what is different between the two. (Probe on how 5 mpg translates into fewer gallons and lower costs.)
  - c. Then have them look at the bottom two examples on the back of the form and ask them to indicate what is different between the two (Probe on how 5 mpg translates into fewer gallons and lower costs.)
  - d. Ask them to then compare the difference between the top two labels and bottom two labels. What is the lesson learned? (Probe on fact that although both indicate a 5 mpg increase, that 5 mpg increase has different gallons and cost implications depending on whether vehicle is a gas guzzler or not.)
  - e. Ask them if gals/100 mi (instead of mpg) would get them to switch to a different class of vehicle. Why or why not? (Probe on whether the gallons used and cost is important to them. Why or why not?)

Ask: If you had the choice of 'gallons per hundred miles' or mpg, which would you use? Why?

13. Range of comparable vehicles. (Show 4 examples of the same design – one with 'within class' and one 'within class' and 'for all vehicles'. 2 will emphasize 'gallons per 100 miles' and the other 2 will emphasize 'mpg'.) Hand out the 4 comparable designs sheet. Tell them that some vehicles will compare well to other vehicles in their class and to all vehicles. But other vehicles may compare well within class, but not well when compared to all vehicles.
  - Which of the 4 labels would be most useful to them? Why?
  - Discuss where the same vehicle falls on scale in regard to 'gallons per 100 miles' vs. 'mpg'.
  - If the vehicle you recently purchased had ratings that

showed it was better 'within class' compared to 'all vehicles' how would you feel about your choice? Use choice 5B1 as an example. (Probe on whether they feel guilty or not.)

14. Then probe on comparison bars in regard to: (IF THIS COMES UP EARLIER THEN DISCUSS EARLIER.)
  - How do we best visually tell a story when in some cases a big number is good and in other cases a big number is bad? (Show them the example where the **lower** fuel consumption number is better and where the **higher** mpg is better.)

Ask client if they have any questions at this time.

### Fuel Cost Metric (25 minutes)

SHOW THEM THE CURRENT LABEL AND SHOW THEM THAT IT HAS COMPONENTS FOR MPG, FUEL COSTS, ETC. THEN EXPLAIN THAT WE ARE NOW GOING TO LOOK AT FUEL COST FOR A NEW LABEL SEPARATELY, BUT THAT IT WILL EVENTUALLY BE PART OF A TOTAL LABEL.

15. Did you notice the average annual fuel cost information on the current label when you purchased your most recent vehicle? (Show current label.) How do you think about this fuel cost information on the current label? Did you use this information in making your decision? Why or why not?

We would now like to explore talking about cost. The cost per year depends greatly on variables such as fuel price, driving patterns and mix of city and highway driving. For the label, we rely on basic assumptions such as a person drives 15,000 miles a year and gas costs \$3.00 a gallon.

16. The current label shows *annual* costs. Are there other ways to express cost that would be more useful (salient) to you? (Write their suggestions on flip chart and probe on the why behind their suggestions. If they don't mention monthly, 5-year, weekly, cost per 100 miles, cost per mile, add these to the list and get their reactions to these.) Show them actual numbers (on a handout sheet) for each of the following metrics and ask which of these is most useful to them.
  - Annual
  - Monthly
  - 5-year
  - Weekly
  - Cost per mile (BE SURE TO PROBE ON .12 OR 12 CENTS)
  - Cost per 100 miles

Then show board with the combinations and ask what combination of these, if any, would be the most powerful? Why?

17. (Hand out the fuel cost metric work sheet and the individual copies of the designs. Show them the 4 options on large boards.)
  - a. Would any of the four options make you more likely to purchase a vehicle with lower fuel costs? (Have them indicate which one on their rating sheet. Do NOT discuss yet.)
  - b. Then instruct them to “indicate on your worksheet which option is most understandable and which is least understandable. For each choice write brief bullet points explaining why.”
  - c. Moderator then tallies rankings and opens up to discussion regarding reasons behind their choices. (Probe on which of the 4 options explains fuel costs most effectively? Test correct interpretation of metrics by asking what the metrics mean, if they are ‘easy to understand’. Test to include probing on: cost per year, how does this vehicle compare to others?)
  - d. Then tally from 17a above and ask which of the 4 options, if any, would make you more likely to purchase a vehicle with lower fuel costs. (Probe on why)
18. Can you suggest other ways to express this information visually?
19. If this information was available on the label, would you use it in your decision about which vehicle to purchase? Why or why not? If so, at what point?
20. All of the options we’ve shown you include a comparison to all other vehicles. Does having this assist you in choosing which vehicle to purchase? Why or why not? Is it useful to **also** have such a fuel cost comparison in regard to **vehicles in your class**? Why or why not? Is it too much information?

Ask client if they have any questions at this time.

### Environmental Metric (20 minutes)

SHOW THEM THE CURRENT LABEL AND SHOW THEM THAT IT HAS COMPONENTS FOR MPG, FUEL COSTS, ETC. THEN EXPLAIN THAT WE ARE NOW GOING TO LOOK AT ENVIRONMENTAL IMPACTS FOR A NEW LABEL SEPARATELY, BUT THAT IT MAY EVENTUALLY BE PART OF A TOTAL LABEL.

21. Does the impact of driving on the environment affect the type of vehicle you purchase? Why or why not?
22. (Hand out the environmental metric work sheet and the individual copies of the designs. Show them the 4 options on large boards)
  - a. Would any of the four options make you more likely to purchase a more environmentally friendly vehicle? (Have them indicate which one on their rating sheet. Do NOT discuss yet.)
  - b. Then instruct them to “indicate on your worksheet which option is most understandable and which is least understandable. For each choice write brief bullet points explaining why.”
  - c. Moderator then tallies rankings and opens up to discussion regarding reasons behind their choices. (Probe on which of the 4 options explains environmental impact most effectively? Test correct interpretation of metrics by asking what the metrics mean, if they are ‘easy to understand’. Test to include probing on: how many grams per mile, how does this vehicle compare to others?)
  - d. Then tally from 22a above and ask which of the 4 options, if any, would make you more likely to purchase a more environmentally friendly vehicle. (Probe on why)
23. Can you suggest other ways to express this information visually?
24. If this information was available on the label, would you use it in your decision about which vehicle to purchase? Why or why not? If so, at what point?
25. If it wasn’t on the label, but you were directed to a web site for it, would you go to the website and use this information? Why or why not?
26. All of the options we showed you used the term “Environment”. What does that mean to you? Do you think there is a better word to use? (Moderator to write suggestions on flip chart. Then open up to discussion regarding reasons behind their suggestions.)
27. All of the options also report on CO<sub>2</sub>, but not on other pollutants. Does the label need to include information on these other pollutants? Would you use that information in making your vehicle choice? Why or why not?
28. Moderator to point to the ‘SmartWay’ logo and ask them ‘what is this?’ (Probe on what they think it means.) Ask- ‘if it was not on the label would that make you less likely to choose that vehicle.’ Why or why not? (Note to moderator: SmartWay label refers to more than CO<sub>2</sub>.)

### Range Metric (10 minutes IF TIME PERMITS)

29. What do we mean by a vehicles range? When you think about your vehicle, do you think about its range?
30. Show them the 1 option on large board. Then ask if range affects their purchase decision. What if one vehicle had a range of 600 miles and another had a range of 300 miles, would that affect your choice of vehicle? Why or why not?
31. Can you suggest other ways to express this information visually?
32. If it wasn't on the label, but you were directed to a web site for it, would you go to the website and use this information? Why or why not?

### Overall Label Design Issues (15 minutes)

33. How should we present the information we just discussed on a full label? Should some information be emphasized over other information? Moderator to use consumption, cost, and environment design choices most favored by the group to lead this discussion. Probe on:
  - relative importance of each metric
  - prominence
  - placement of information
  - use of graphical elements
  - use of color
  - importance of including the statement about the availability of the Fuel Economy Guide (show from current label).
34. If you could only have TWO items on the label what would they be? Why? (Probe on how those would influence their choice of the most fuel efficient vehicle.)
35. We have discussed a number of elements that could be on the label. Are there any other elements that we have not discussed that would influence you to buy a fuel efficient vehicle?

36. Other than the label, are there other methods that would be useful in providing the information we have been discussing? For example (show label code), if a code such as this were on every label and you could scan it with your phone camera and it could tell you about this vehicle, or you could scan multiple vehicle and compare them, would that be useful? Any others ideas that would be useful to assist you in choosing the most fuel efficient vehicle?
37. For those of you who chose a vehicle with a partner, how did that process work? (Probe on who was involved in the decision making process, what input did each person have, who made the final choice, etc.)

### Wrap-Up (5 minutes)

- Summarize findings from focus group and ask for confirmation of summarized findings.
- Is there information that we have not discussed today that would influence you to choose a fuel efficient vehicle?
- Anything else you would like our clients to know about you thoughts about fuel economy labels?

Ask client if they have any last questions.

## Appendix B: Participant Profiles

### CHARLOTTE MALE Group

	Q9. What type of vehicle did you purchase?	Q10. How is this vehicle powered?	Q11. What is the distance in miles of your typical daily travel in this vehicle?	Q12. Price range of new vehicle	Q13. Age	Q14. Education	Q15. Ethnicity
1	Passenger car	Gasoline powered	40+	\$20-\$30k	35-49	Some college or college graduate	White
2	Passenger car	Gasoline powered	30-39	\$30-\$40k	20-34	Some high school or high school graduate or GED	White
3	Passenger car	Hybrid	50	\$20-\$30k	35-49	Some college or college graduate	White
4	Station wagon/ minivan	Gasoline powered	40+	\$20-\$30k	35-49	Some college or college graduate	White
5	Pickup truck	Gasoline powered	40+	\$20-\$30k	50-64	Some college or college graduate	White
6	Passenger car	Gasoline powered	20-29	\$30-\$40k	35-49	Graduate degree	White
7	Passenger car	Hybrid	25	\$20-\$30k	50-64	Graduate degree	White
8	Passenger car	Gasoline powered	15	\$20-\$30k	35-49	Some college or college graduate	White

## CHARLOTTE FEMALE Group

	Q9. What type of vehicle did you purchase?	Q10. How is this vehicle powered?	Q11. What is the distance in miles of your typical daily travel in this vehicle?	Q12. Price range of new vehicle	Q13. Age	Q14. Education	Q15. Ethnicity
1	SUV	Gasoline powered	40+	\$20-\$30k	20-34	Some college or college graduate	White
2	Mini Van	Gasoline powered	Less than 10	\$30-\$40k	35-49	Some college or college graduate	White
3	Passenger car	Gasoline powered	Less than 10	\$15-\$20k	20-34	Some college or college graduate	White
4	Passenger car	Hybrid	45	\$20-\$30k	20-34	Some college or college graduate	White
5	Passenger car	Gasoline powered	40+	\$20-30k	65+	Some college or college graduate	White
6	Passenger car	Gasoline powered	40+	\$20-\$30k	35-49	Graduate degree	White
7	Passenger car	Hybrid	20-29	\$20-\$30k	50-64	Some college or college graduate	African American
8	Passenger car	Gasoline powered	20-29	\$15-\$20k	35-49	Some college or college graduate	African American

## HOUSTON FEMALE Group

	Q9. What type of vehicle did you purchase?	Q10. How is this vehicle powered?	Q11. What is the distance in miles of your typical daily travel in this vehicle?	Q12. Price range of new vehicle	Q13. Age	Q14. Education	Q15. Ethnicity
1	SUV	Gasoline	27	\$20-30k	35-49	Some College or College Graduate	Hispanic
2	Truck	Gasoline	50	\$40-50k	35-49	Some College or College Graduate	African American
3	Passenger Car	Diesel	80	\$20-30k	35-49	Some College or College Graduate	White
4	Passenger Car	Gasoline	20	\$20-30k	50-64	Some College or College Graduate	Asian
5	Passenger Car	Gasoline	30+	\$20-30k	20-34	Graduate Degree	White
6	Passenger Car	Gasoline	50	\$15-20k	50-64	Some College or College Graduate	Asian
7	Passenger Car	Gasoline	50	\$30-40k	50-64	Graduate Degree	White
8	SUV	Gasoline	60	\$20-30k	35-43	Some College or College Graduate	Asian

## HOUSTON MALE Group

	Q9. What type of vehicle did you purchase?	Q10. How is this vehicle powered?	Q11. What is the distance in miles of your typical daily travel in this vehicle?	Q12. Price range of new vehicle	Q13. Age	Q14. Education	Q15. Ethnicity
1	Passenger Car	Gasoline	30-39	\$15-20k	35-49	Graduate degree	White
2	Passenger Car	Gasoline	40+	\$23k	20-34	Some college or college graduate	African American
3	Passenger Car	Gasoline	20-29	\$20k	20-34	Some college or college graduate	White
4	Passenger Car	Gasoline	40+	\$32k	35-49	Some college or college graduate	White
5	Passenger Car	Gasoline	40+	\$30-40k	35-49	Some college or college graduate	White
6	Passenger Car	Gasoline	40+	\$20-30k	35-49	Some college or college graduate	White
7	Passenger Car	Gasoline	40+	\$11k after trade-in	50-64	Graduate degree	White
8	Passenger Car:	Gasoline	20-29	\$20-30k	35-49	Some high school or high school graduate or GED	Asian

## CHICAGO MALE Group

	Q9. What type of vehicle did you purchase?	Q10. How is this vehicle powered?	Q11. What is the distance in miles of your typical daily travel in this vehicle?	Q12. Price range of new vehicle	Q13. Age	Q14. Education	Q15. Ethnicity
1	Passenger car	Gasoline powered	10-19 miles	\$20,000 to \$30,000	35-49	Graduate degree	African American
2	Minivan	Gasoline powered	Less than 10 miles	\$30,000 to \$40,000	50-64	Some college or college graduate	White
3	Passenger car	Hybrid vehicle	20-29 miles	\$15,000 to \$20,000	20-34	Graduate degree	White
4	Passenger car	Hybrid vehicle	40 or more miles	\$20,000 to \$30,000	60-64	Graduate degree	White
5	Passenger car	Hybrid vehicle	30-39 miles	\$30,000 to \$40,000	20-34	Some college or college graduate	Asian
6	SUV	Gasoline powered	40 or more miles	\$30,000 to \$40,000	20-34	Graduate degree	White
7	Passenger car	Gasoline powered	10-19 miles	\$30,000 to \$40,000	50-64	Some college or college graduate	White
8	SUV	Gasoline powered	20-29 miles	\$20,000 to \$30,000	35-49	Graduate degree	Hispanic

## CHICAGO FEMALE Group

	Q9. What type of vehicle did you purchase?	Q10. How is this vehicle powered?	Q11. What is the distance in miles of your typical daily travel in this vehicle?	Q12. Price range of new vehicle	Q13. Age	Q14. Education	Q15. Ethnicity
1	Passenger car	Hybrid	40 or more miles	\$20,000 - \$30,000	20-34	Graduate degree	White
2	SUV	Gasoline powered	40 or more miles	\$50,000 or more	50-64	Graduate degree	White
3	Passenger car	Gasoline powered	40 or more miles	\$40,000 - \$50,000	35-49	Graduate degree	White
4	SUV	Gasoline powered	20-29 miles	\$50,000 or more	35-49	Some college or college graduate	White
5	SUV	Gasoline powered	40 or more miles	\$40,000 - \$50,000	20-34	Graduate degree	White
6	Passenger car	Gasoline powered	10-19 miles	Less than \$15,00	35-49	Some college or college graduate	White
7	SUV	Gasoline powered	30-39 miles	\$15,000 - \$20,000	20-34	Graduate degree	White
8	Passenger car	Hybrid	40 or more miles	\$20,000 - \$30,000	20-34	Graduate degree	White

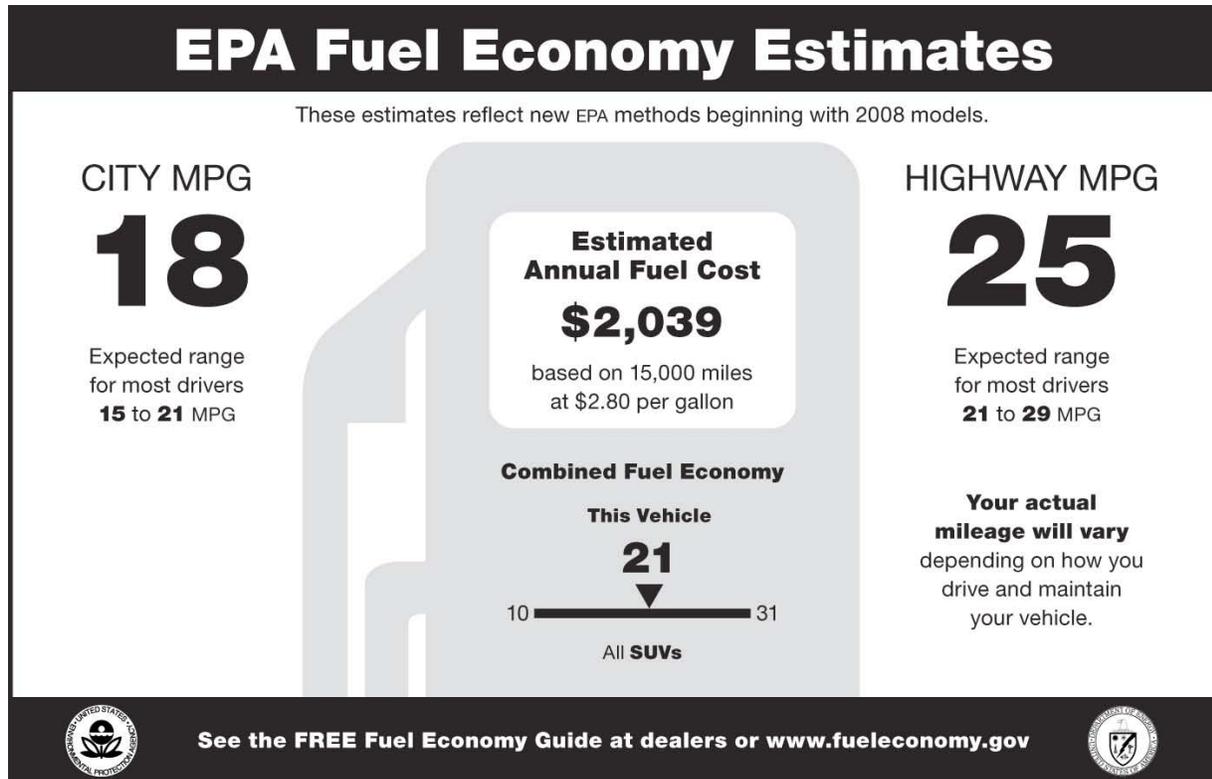
## SEATTLE MALE Group

	Q9. Type of vehicle purchased	Q10. How is this vehicle powered?	Q11. Distance in miles of typical daily travel in the vehicle	Q12. Price range of new vehicle	Q13. Age range	Q14. Education	Q15. Ethnicity
1	Station Wagon or Minivan	Gasoline Powered Vehicle	Less than 10 miles	\$20,000-30,000	50-64	Graduate Degree	White
2	Pickup Truck	Gasoline powered vehicle	Less than 10 miles	\$15,000-20,000	20-34	Graduate Degree	White
3	SUV	Gasoline Powered Vehicle	10-19 miles	\$40,000-\$50,000	50-64	Some College or College Graduate	White
4	Passenger car	Gasoline Powered Vehicle	10-19 miles	\$15,000-\$20,000	20-34	Some College or College Graduate	White
5	SUV	Gasoline Powered Vehicle	10-19 miles	\$30,000-\$40,000	35-49	Some College or College Graduate	White
6	Passenger car	Gasoline Powered Vehicle	19-Oct	less than 15,000	35-49	Some College or College Graduate	Hispanic
7	Pickup Truck	Gasoline Powered Vehicle	10-19 miles	\$30,000-\$40,000	50-64	Graduate Degree	White
8	SUV	Gasoline Powered Vehicle	10-19 miles	\$20,000-\$30,000	50-64	Some College or College Graduate	White

## SEATTLE FEMALE Group

	Q9. Type of vehicle purchased	Q10. How is this vehicle powered?	Q11. Distance in miles of typical daily travel in the vehicle	Q12. Price range of new vehicle	Q13. Age range	Q14. Education	Q15. Ethnicity
1	Passenger Car	Gasoline powered vehicle	Less than 10 miles	\$15,000-20,000	35-49	Some College or College Graduate	White
2	SUV	Gasoline powered vehicle	20-29 miles	\$30,000-40,000	35-49	Some College or College Graduate	White
3	Passenger Car	Gasoline powered vehicle	10-19 miles	\$20,000-30,000	35-49	Graduate Degree	White
4	Passenger Car	Gasoline powered vehicle	20-29 miles	\$20,000-\$30,000	65+	Some College or College Graduate	Asian
5	Passenger Car	Hybrid Vehicle	10-19 miles	\$20,000-\$30,000	35-49	Graduate Degree	Mixed Race
6	Passenger Car	Gasoline powered vehicle	40+ miles	\$30,000-40,000	50-64	Some College or College Graduate	Asian

## Appendix C: Current Fuel Economy Label



## Appendix D: Fuel Consumption Tally Sheet

(1: Most understandable; X: Least understandable; C: Most Compelling;

Overall = Number of times rated 'most understandable' – Number of times rated 'least understandable')

		Option 1A	Option 1B	Option 1C	Option 1D
Charlotte Male Group: 02/25/2010					
	Participant 1	1			X
	Participant 2	1			X
	Participant 3	1			X
	Participant 4	1		X	
	Participant 5		X	1	
	Participant 6		1		X
	Participant 7			X	1
	Participant 8	1	X		
Total	Most understandable	5	1	1	1
	Least understandable		2	2	4
	Overall	5	-1	0	-3
Charlotte Female Group: 02/25/2010					
	Participant 1	1			X
	Participant 2		X	1	
	Participant 3		1	X	
	Participant 4		X	1	
	Participant 5	1			X
	Participant 6			X	1
	Participant 7	1			X
	Participant 8	1	X		
Total	Most understandable	4	1	2	1
	Least understandable		3	2	3
	Overall	4	-2	-1	-2

		Option 1A	Option 1B	Option 1C	Option 1D
Houston Female Group: 03/03/2010					
	Participant 1		X	1,C	
	Participant 2		1,C		X
	Participant 3	1,C	X		
	Participant 4	1,C	X		
	Participant 5	1,C	X		
	Participant 6	1		C	X
	Participant 7	X		1	
	Participant 8	1		C	X
Total	Most understandable	5	1	2	
	Least understandable	1	4		3
	Overall	4	-3	2	-3
Houston Male Group: 03/03/2010					
	Participant 1	1,C		X	
	Participant 2	X		1,C	
	Participant 3	C	X		1
	Participant 4	1		X	C
	Participant 5	1,C		X	
	Participant 6	1,C		X	
	Participant 7	1,C	X		
	Participant 8	1,C		X	
Total	Most understandable	6		1	1
	Least understandable	1	2	5	
	Overall	5	-2	-4	1
Seattle Female Group: 03/09/2010					
	Participant 1			1,C	X
	Participant 2		1,C		X
	Participant 3		X	1	
	Participant 4	1			X
	Participant 5	1,C	X		
	Participant 6		1,C	X	
Total	Most understandable	2	2	2	
	Least understandable		2	1	3
	Overall	2	0	1	-3

		Option 1A	Option 1B	Option 1C	Option 1D
Seattle Male Group: 03/08/2010					
	Participant 1	1,C		X	
	Participant 2	1,C	X		
	Participant 3	1		X	C
	Participant 4	X	1		C
	Participant 5		1	C	X
	Participant 6		X	1,C	
	Participant 7	1,C		X	
	Participant 8		1,C	X	
Total	Most understandable	4	3	1	
	Least understandable	1	2	4	1
	Overall	3	1	-3	-1
Chicago Female Group: 03/04/2010					
	Participant 1	1, C		X	
	Participant 2	1	X	C	
	Participant 3	1	C	X	
	Participant 4	1	C	X	
	Participant 5	1	C	X	
	Participant 6		1,C	X	
	Participant 7			X	1,C
	Participant 8	1,C		X	
Total	Most understandable	6	1		1
	Least understandable		1	7	
	Overall	6	0	-7	1

		Option 1A	Option 1B	Option 1C	Option 1D
Chicago Male Group: 03/04/2010					
	Participant 1	1		X,C	
	Participant 2	1,C		X	
	Participant 3		1,C	X	
	Participant 4		X		1,C
	Participant 5			1	X,C
	Participant 6			X	1,C
	Participant 7	1,C			X
	Participant 8	1,C			X
Total	Most understandable	4	1	1	2
	Least understandable		1	4	3
	Overall	4	0	-3	-1
<b>COMBINED TALLY FOR ALL GROUPS</b>					
Total	Most understandable	36	10	10	6
	Least understandable	3	17	25	17
	Overall	33	-7	-15	-11

## Appendix E: Fuel Cost Tally

(1: Most understandable; X: Least understandable; C: Most Compelling;

Overall = Number of times rated 'most understandable' – Number of times rated 'least understandable')

		Option 3A	Option 3B	Option 3C	Option 3D
Charlotte Male Group: 02/25/2010					
	Participant 1	1			X
	Participant 2	1	X		
	Participant 3		X	1	
	Participant 4		1	X	
	Participant 5	1		X	
	Participant 6			1	X
	Participant 7			1	X
	Participant 8		X	1	
Total	Most understandable	3	1	4	
	Least understandable		3	2	3
	Overall	3	-2	2	-3
Charlotte Female Group: 02/25/2010					
	Participant 1		X	1	
	Participant 2	1		X	
	Participant 3	1		X	
	Participant 4	1			X
	Participant 5	1		X	
	Participant 6	1		X	
	Participant 7			1	X
	Participant 8	1		X	
Total	Most understandable	6		2	
	Least understandable		1	5	2
	Overall	6	-1	-3	-2

Houston Female Group: 03/03/2010					
	Participant 1	1		C	X
	Participant 2	1	X	C	
	Participant 3	1,C	X		
	Participant 4	1		C	X
	Participant 5	1,C	X		
	Participant 6	1,C			X
	Participant 7	1,C		X	
	Participant 8	1,C			X
Total	Most understandable	8			
	Least understandable		3	1	4
	Overall	8	-3	-1	-4
Houston Male Group: 03/03/2010					
	Participant 1		X	1,C	
	Participant 2	1,C		X	
	Participant 3	1,C	X		
	Participant 4	1		X	C
	Participant 5	1,C	X		
	Participant 6		X	1,C	
	Participant 7	1,C			
	Participant 8	1,C	X		
Total	Most understandable	6		2	
	Least understandable		5	2	
	Overall	6	-5	0	
Seattle Female Group: 03/09/2010					
	Participant 1			1,C	X
	Participant 2		1,C	X	
	Participant 3			1,C	X
	Participant 4	X		1,C	
	Participant 5	1	X	C	
	Participant 6			1,C	X
Total	Most understandable	1	1	4	
	Least understandable	1	1	1	3
	Overall	0	0	3	-3

Seattle Male Group: 03/08/20104					
	Participant 1	1,C			X
	Participant 2		1,C	X	
	Participant 3			1,C	X
	Participant 4		1,C		X
	Participant 5		1,C		X
	Participant 6		1,C		X
	Participant 7			1,C	X
	Participant 8	1,C			X
Total	Most understandable	2	4	2	
	Least understandable			1	7
	Overall	2	4	1	-7
Chicago Female Group: 03/04/2010					
	Participant 1			X	1,C
	Participant 2		1,C	X	
	Participant 3	1,C	X		
	Participant 4	C		X	1
	Participant 5		1,C	X	
	Participant 6			1,C	X
	Participant 7	1,C		X	
	Participant 8	1,C	X		
Total	Most understandable	3	2	1	2
	Least understandable		2	5	1
	Overall	3	0	-4	1

Chicago Male Group: 03/04/2010					
	Participant 1	1,C		X	
	Participant 2	1		C	X
	Participant 3			1,C	X
	Participant 4		X	1,C	
	Participant 5		1,C	X	
	Participant 6	1,C		X	
	Participant 7	1,C	X		
	Participant 8	1,C			X
Total	Most understandable	5	1	2	
	Least understandable		2	3	3
	Overall	5	-1	-1	-3
COMBINED TALLY FOR ALL GROUPS					
Total	Most understandable	34	9	17	2
	Least understandable	1	17	20	23
	Overall	33	-8	-3	-21

## Appendix F: Environment Metric Tally

(1: Most understandable; X: Least understandable; C: Most Compelling;

Overall = Number of times rated 'most understandable' – Number of times rated 'least understandable')

		Option 4A	Option 4B	Option 4C	Option 4D
Charlotte Male Group: 02/25/2010					
	Participant 1	X		1	
	Participant 2	1	X		
	Participant 3		1		X
	Participant 4			1	X
	Participant 5			1	X
	Participant 6			1	X
	Participant 7			1	X
	Participant 8				1
Total	Most understandable	1	1	5	1
	Least understandable	1	1		5
	Overall	0	0	5	-4
Charlotte Female Group: 02/25/2010					
	Participant 1	1			X
	Participant 2	1			X
	Participant 3	1			X
	Participant 4		X	1	
	Participant 5		X	1	
	Participant 6	1			X
	Participant 7	1	X		
	Participant 8			1	X
Total	Most understandable	5		3	
	Least understandable		3		5
	Overall	5	-3	3	-5

Houston Female Group: 03/03/2010					
	Participant 1		C	1	X
	Participant 2	1		C	X
	Participant 3	1,C			X
	Participant 4	1,C			X
	Participant 5	1,C			X
	Participant 6			1,C	X
	Participant 7		1,C		X
	Participant 8			1,C	X
Total	Most understandable	4	1	3	
	Least understandable				8
	Overall	4	1	3	-8
Houston Male Group: 03/03/2010					
	Participant 1	1,C	X		
	Participant 2	1,C		X	
	Participant 3	1,C		X	
	Participant 4			X	1,C
	Participant 5	1	X		C
	Participant 6		X	1,C	
	Participant 7	1,C			
	Participant 8	1,C		X	
Total	Most understandable	6		1	1
	Least understandable		3	4	
	Overall	6	-3	-3	1
Seattle Female Group: 03/09/2010					
	Participant 1	1		C	X
	Participant 2		C	1	X
	Participant 3			1,C	X
	Participant 4		1,C		X
	Participant 5			1,C	X
	Participant 6	X	C	1	
Total	Most understandable	1	1	4	
	Least understandable	1			5
	Overall	0	1	4	-5

Seattle Male Group: 03/08/2010					
	Participant 1	1,C		X	
	Participant 2	X	1,C		
	Participant 3		1,C		X
	Participant 4			1,C	X
	Participant 5		1,C		X
	Participant 6			1	X
	Participant 7		1,C		X
	Participant 8		1,C		X
Total	Most understandable	1	5	2	
	Least understandable	1		1	6
	Overall	0	5	1	-6
Chicago Female Group: 03/04/2010					
	Participant 1			X	1,C
	Participant 2		1,C	X	
	Participant 3	1,C	X		
	Participant 4		1,C	X	
	Participant 5		X	1	C
	Participant 6			X	1,C
	Participant 7	1,C		X	
	Participant 8		1,C	X	
Total	Most understandable	2	3	1	2
	Least understandable		2	6	
	Overall	2	1	-5	2

Chicago Male Group: 03/04/2010					
	Participant 1	1,C		X	
	Participant 2	1,C		X	
	Participant 3	1,C		X	
	Participant 4			1,C	X
	Participant 5			1,C	X
	Participant 6		1,C	X	
	Participant 7	C	X	1	
	Participant 8	1,C		X	
Total	Most understandable	4	1	3	
	Least understandable		1	5	2
	Overall	4	0	-2	-2
COMBINED TALLY FOR ALL GROUPS					
Total	Most understandable	24	12	22	4
	Least understandable	3	10	16	31
	Overall	21	2	6	-27