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NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
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OFFICE OF
AIR AND RADIATION

December 22, 2011

CD-11-17 (LDV/LDT/ICI/LIMO)

SUBJECT: Fuel Economy Label Information for 2013 Model Year

Dear Manufacturer:

Enclosed with this letter is information designed to guide you in your 2013 model year fuel economy labeling program. Note that we are changing how labeling guidance is provided. Historically we have provided fuel price and related information in the summer and the fuel economy ranges of the vehicle classes in the fall. The content of the new 2013 label, however, makes it more important that – to the extent practicable – all vehicles of a given model year be presented to consumers with values determined using the same set of assumptions. To facilitate this, we will be publishing fuel economy labeling guidance on a new schedule, in a single guidance that contains all of the manufacturer's information needs for labeling. Thus, in the fourth quarter of each calendar year we will be issuing guidance that covers labeling for the model year that starts at the beginning of the next calendar year. For example, this guidance will apply to the 2013 model year, which can begin on January 2, 2012. Because this is the first year we are doing this, we will be evaluating the timing necessary to capture the entirety of the upcoming model year, and we welcome any input from manufacturers regarding such timing.

Enclosure 1, "Fuel Economy Supplementary Information for the 2013 Model Year," contains information necessary to print fuel economy labels, including information about 2013 fuel costs, fuel economy ranges, etc. If your labels are currently approved and printed, you may continue using the 2012 label information provided in CISC-11-11 (August 8, 2011) and CISC-11-14 (September 26, 2011) on an interim basis until January 8, 2012. You are free to update your currently approved labels sooner if you prefer. All 2013 model year labels approved after issuance of this letter should use the information specified in this guidance letter.

Enclosure 2, "Determining Fuel Economy and Greenhouse Gas Ratings for the 2013 Model Year," details the calculations used to determine the fuel economy and greenhouse gas ratings to be used for all 2013 model year vehicles.

If you have any questions about these instructions, please contact your certification team representative.

Sincerely,

A handwritten signature in black ink, appearing to read "Byron J. Bunker". The signature is fluid and cursive, with a long horizontal stroke at the end.

Byron J. Bunker, Acting Director
Compliance Division
Office of Transportation and Air Quality

Enclosures

cc: Dennis Smith, DOE

ENCLOSURE 1
Fuel Economy Supplementary Information
for the 2013 Model Year

1. Annual Fuel Cost Estimates

Annual fuel cost estimates used on fuel economy labels (window stickers of new vehicles) are based on the following fuel cost estimates:

Regular Unleaded Gasoline	\$3.55	per gallon
Mid-Grade Unleaded Gasoline	\$3.65	per gallon
Premium Unleaded Gasoline	\$3.80	per gallon
Diesel Fuel	\$3.80	per gallon
E85	\$3.10	per gallon
LPG	\$TBD*	per gallon
CNG	\$2.00	per gallon equivalent
Electricity	\$0.12	per kilowatt-hour
Hydrogen	\$TBD*	per kg

*Please contact your EPA representative for LPG and Hydrogen costs.

The annual fuel cost estimates should be calculated based on 15,000 annual vehicle miles, the above listed fuel cost and the adjusted combined MPG (0.55/0.45 harmonic weighting of the adjusted city and highway MPG, then rounded to the nearest whole MPG). Note that the annual fuel cost is now required to be rounded to the nearest \$50. The generally accepted method for achieving this is to divide the unrounded annual fuel cost by \$50, round the result to the nearest \$1 (using ASTM rounding), and then multiply by \$50. Using this method, an unrounded value that ends in exactly 25 will be rounded down, and an unrounded value that ends in exactly 75 will be rounded up (e.g., \$1225 rounds to \$1200 and \$1275 rounds to \$1300).

2. Fuel Economy Ranges to be placed on FE Labels

As you know, beginning with 2008 model year vehicles, fuel economy labels must contain the range of the highest and lowest combined MPG values of vehicles within each vehicle class, commonly called the “fuel economy range” for a comparable class of vehicles. Pursuant to 40 CFR 600.314-08(d), EPA provided the 2012 combined MPG ranges for comparable classes of vehicles via EPA guidance letter CISC-11-14 (September 26, 2011). That guidance letter also provided 2013 values due to the need to provide separate ranges for small and standard sport utility vehicles starting in 2013.

New values are provided in this guidance letter. These ranges shall be applied to all vehicles manufactured more than 15 days after the ranges are available (ref. 40 CFR 600.301). These ranges should be used throughout the 2013 model year.

Any 2013 model year vehicles introduced into commerce on or before the date the new ranges are available (plus 15 days) may use the 2012/2013 ranges provided via guidance letter CISC-11-14, but manufacturers should use the new ranges in this letter no later than 15 days after the date of this letter.

If, in the course of the model year, manufacturers add a model which exceeds the ranges provided in the EPA guidance letter, manufacturers should update the ranges for that model appropriately, increasing or decreasing the range as needed. Because these ranges are based on 2012 models, EPA may provide updated ranges during the 2013 model year.

Car Line Class for 2013 Vehicles	Estimated Fuel Economy Range (MPG)* Combined (55% city/45% highway)
TWO SEATERS	10 – 37
MINICOMPACT CARS	13 – 37
SUBCOMPACT CARS	14 – 112
COMPACT CARS	14 – 60
MIDSIZE CARS	13 – 99
LARGE CARS	12 – 28
SMALL STATION WAGONS	14 – 34
MIDSIZE STATION WAGONS	18 – 42
LARGE STATION WAGONS	NA
SMALL PICKUP TRUCKS	16 – 22
STANDARD PICKUP TRUCKS	13 – 21
VANS	11 – 17
SPECIAL PURPOSE VEHICLES	13 – 62
MINIVANS	19 – 24
SMALL SPORT UTILITY VEHICLES (SUVS)	16 – 32
STANDARD SPORT UTILITY VEHICLES (SUVS)	12 – 28

* Note that ranges do not include the MPG values of FFVs while operating on E85.

3. Fuel Economy and Greenhouse Gas Ratings

The new label requires a “slider bar” that displays MPG and greenhouse gas (GHG) ratings. The ratings for the 2013 model year were determined according to the methodology described in the regulations, and should apply to all 2013 model year vehicles, even those labeled after EPA issues new ratings for the 2014 model year. In other words, all 2013 models will be rated using the same system, presented in this guidance, to ensure comparability across all 2013 models.

All vehicles require an MPG rating determined from the table below. The regulations require that gasoline vehicles display a single rating, based on the rounded combined MPG, as determined for model year 2013 vehicles in the table below. Conventional gasoline vehicles will not require a separate GHG rating. The MPG value to be used to determine a rating for plug-in hybrid electric vehicles is a combined city/highway “utilitized” MPG value (i.e., a weighted combination of the charge-depleting MPGe and the charge-sustaining MPG).

MY2013 Rating Scale for Fuel Economy

Fuel Economy Rating	Combined City/Highway Fuel Economy (MPG)
10	≥40
9	34-39
8	29-33
7	26-28
6	23-25
5	20-22
4	17-19
3	15-16
2	13-14
1	≤12

Under the new regulations, manufacturers must calculate a combined city/highway CO₂ value, both for display on the label (for all vehicles) and to calculate a GHG rating (for vehicles that operate on fuels other than gasoline). Note that the combined city/highway CO₂ is determined just like the comparable MPG value, i.e., it is a sales-weighted model type value determined from sub-configuration test results, not a mathematical conversion of the MPG value. It is determined in the same way the MPG value is, using the derived 5-cycle, modified 5-cycle, or full 5-cycle methodology. The CO₂ value to be used to determine a rating for plug-in hybrid electric vehicles is a combined city/highway “utilitized” gram per mile value (i.e., a weighted combination of the charge-depleting CO₂ emissions and the charge-sustaining CO₂ emissions).

Vehicles that operate on fuels other than gasoline (including plug-in hybrid vehicles) must determine a GHG rating from the following table. If the numerical GHG rating determined from this table is identical to the numerical fuel economy rating, then the label should display only one “pointer” above the slider bar. If the GHG rating differs from the fuel economy rating (as will be the case, for example, for some diesel and CNG vehicles) then the label should display two pointers on the slider. The pointer above the slider bar should represent the fuel economy rating, and the pointer below the slider bar should represent the GHG rating.

MY2013 Rating Scale for Greenhouse Gases

Greenhouse Gas Rating	Combined City/Highway CO ₂ g/mile
10	0 - 222
9	223 - 261
8	262 - 306
7	307 - 342
6	343 - 386
5	387 - 444
4	445 - 523
3	524 - 592
2	593 - 684
1	685+

These ratings were determined according to the methodology described in the regulations and in the preamble to the final rule. We describe the specific methodology again in Enclosure 2 for clarity.

3. Average New Vehicle Fuel Economy and Cost Values

The new label requires a comparison of estimated five-year fuel costs for the labeled vehicle to the estimated five-year fuel costs for the average new vehicle. In addition, the fuel economy and five-year estimated fuel cost of the average vehicle are reported in the fine print of the label. Per the regulations the five-year fuel cost for the average new vehicle is based on regular unleaded gasoline cost and 15,000 miles per year, rounded to the nearest \$50. Thus, for the 2013 model year, based on the 2013 regular unleaded gasoline price projection in this memorandum, the statement in the label footer should read as follows:

“The average new vehicle gets 23 MPG and costs \$11,600 to fuel over 5 years.”

4. Smog Rating

The new label requires a “slider bar” that displays a 1 to 10 smog rating. The smog rating system is defined in 600.311-12(g), but for convenience it is reproduced in the table below. Smog ratings for a model type should be assigned based on the federal emission standards to which the test group was certified. If a test group is certified only to California standards, then the smog score should be assigned based on the California emission standards to which the test group is certified. For example, if a test group is certified to EPA Bin 5 and to California ULEV II standards (a relatively common occurrence), then all vehicles in that test group would receive a smog rating of 5, including the vehicles delivered for sale to California and other states that have adopted the California emission standards. Some models that are otherwise identical for CO₂ and fuel economy¹ may be available in two different test groups: a California test group and a federal test group, each of which is certified to different emission standards. Again, the smog score is based on the test group, thus in this case the California test group would receive a different score than the federal test group.

MY2013 Smog Rating Scale

Rating	U.S. EPA Tier 2 Emission Standard	California Air Resources Board LEV II Emission Standard
1	—	ULEV & LEV II large trucks
2	Bin 8	SULEV II large trucks
3	Bin 7	—
4	Bin 6	LEV II, option 1
5	Bin 5	LEV II
6	Bin 4	ULEV II
7	Bin 3	—
8	Bin 2	SULEV II
9	—	PZEV
10	Bin 1	ZEV

5. Quick Response (QR) Code

Please note that successful implementation of the QR Code requires more frequent updating of the online database at www.fueleconomy.gov. Given this, it is unlikely that data entered by manufacturers will be subject to the degree of quality checking by EPA that manufacturers may have become accustomed to. It is imperative that manufacturers adopt a greater responsibility in ensuring the accuracy and completeness of their data when they enter it.

Paragraph 600.302-12(b)(6) requires that the label contain a QR Code. A QR Code is a two-dimensional bar code that contains text – in this case a website URL. The regulations note that EPA will specify the URL that should be encoded in the QR Code.

In consultation with DOE, we have identified a methodology for determining the URL for a given model type. Using this methodology, every model type will have a unique URL assigned

¹ Note that, except as outlined in Section 4 of EPA guidance letter CISC-10-14, federal and California vehicles are required to be included in the same basic engine (and the same model type index as entered in EPA’s Verify data base); ref. EPA Advisory Circular 83A, section IV. A. 1. (page 3).

to it, allowing mobile devices to access the data for that specific model type. The URL should have the following form:

<http://fuelconomy.gov/qr?id=YYYYMMMXXX>

Where:

YYYY = the four digit model year of the model type (e.g., 2013);

MMM = the three character manufacturer code as entered in EPA's Verify database, in all capitals (e.g., FMX); and

XXX = the model type index as entered in EPA's Verify database, where all values are represented by 3 digits using preceding zeros as necessary (e.g., 123, 073, 004).

6. Label Text Regarding the Best Overall Vehicle

The new label requires two statements regarding the best overall vehicle – one regarding MPG and another, in a different location on the label, regarding CO₂ grams/mile performance. Similar to how we treat the fuel economy ranges of comparable vehicles, we typically ask the manufacturer to refer to the guidance from the prior model year until updated guidance is published. For 2013 model year vehicles the following statements should appear in the designated places on the label:

“The best vehicle rates 112 MPGe.”

“The best emits 0 grams per mile (tailpipe only).”

ENCLOSURE 2
Determining Fuel Economy and Greenhouse Gas Ratings
for the 2013 Model Year

Model type data from the 2012 model year (i.e., the Fuel Economy Guide data) as available at the end of November 2011 was used to determine the ratings for the 2013 model year as follows:

Step 1: Determine the midpoint of the rating scale

The regulations specify that the midpoint of the rating scale (the point between the ratings of 5 and 6) is defined as “the fuel consumption corresponding to the projected achieved Corporate Average Fuel Economy level for the applicable model year.” The projected CAFE values are converted to equivalent label values following the methodology described in a Memorandum to the Docket, which yielded the following values for the 2012 through 2016 model years.²

Label Breakpoint Values Model Years 2012-2016	
2012	22
2013	23
2014	23
2015	24
2016	25

Although EPA does not see a reason at this point to modify these values, the regulations allow the use of updated projections as may be appropriate (and as will be required for 2017 and later model years).

Thus, for the 2013 model year, the midpoint of the rating scale is the fuel consumption corresponding to 23 MPG, or 0.04348 gallons/mile. Additionally, 23 MPG serves as the value representing the average vehicle for the 2013 model year for the purpose of calculating the 5-year fuel cost of the average vehicle.

Step 2: Determine the value defining a score of 10

Using the 2012 model type data, we determined the mean fuel consumption value (0.04951 gal/mi) and the standard deviation of the data (0.01235 gal/mi). The regulations specify that the mean minus two standard deviations establishes the fuel consumption value defining a rating of 10. Thus, the minimum MPG (rounded to the nearest whole mile per gallon) to receive a rating of 10 is:

$$MPG_{10} = \frac{1}{0.04951 - (2 \times 0.01235)} = 40 \text{ MPG}$$

Therefore, rounded combined MPG values greater than or equal to 40 receive a rating of 10.

² French, R. Memorandum to Docket No. EPA-HQ-OAR-2009-0865, "Adjusting Combined City/Highway CAFE Fleet Values to Determine Equivalent 5-Cycle Label Values." May 18, 2011.

Step 3: Determine the value defining a score of 1

As in Step 2, we determined the mean fuel consumption value (0.04951 gal/mi) and the standard deviation of the data (0.01235 gal/mi). The regulations specify that the mean plus two standard deviations establishes the fuel consumption value defining a rating of 1. To be consistent with how we established the rating of 10 (where a score of 10 is $\text{MPG} \geq 40$), this equation actually determines the minimum fuel consumption value to receive a rating of 2, where values less than this get a rating of 1. Thus, the minimum MPG (rounded to the nearest whole mile per gallon) to receive a rating of 2 is:

$$\text{MPG}_1 = \frac{1}{0.04951 + (2 \times 0.01235)} = 13 \text{ MPG}$$

Therefore, rounded combined MPG values less than 13 receive a rating of 1.

Step 4: Establish the ratings from 6 to 9

Using the midpoint of the rating scale established in Step 1 (converted to fuel consumption) and the fuel consumption value defining a rating of 10 established in Step 2, we can then determine the intermediate ratings of 6 through 9. The regulations require that we divide this range into equal fuel consumption intervals. Doing so results in the following divisions between ratings, shown in both consumption and rounded miles per gallon:

Rating	Lower limit (gal/mi)	Lower limit (MPG)	Upper limit (MPG)
10	0.02481	40	-
9	0.02948	34	39
8	0.03414	29	33
7	0.03881	26	28
6	0.04348	23	25

Step 5: Establish the ratings from 2 to 5

Using the midpoint of the rating scale established in Step 1 (converted to fuel consumption) and the fuel consumption value defining a rating of 1 established in Step 3, we can then determine the intermediate ratings of 2 through 5. The regulations require that we divide this range into equal fuel consumption intervals. Doing so results in the following divisions between ratings, shown in both consumption and rounded miles per gallon:

Rating	Lower limit (gal/mi)	Lower limit (MPG)	Upper limit (MPG)
5	0.05116	20	22
4	0.05885	17	19
3	0.06653	15	16
2	0.07421	13	14
1		-	12

Step 6: Determine GHG ratings

The regulations specify that the GHG ratings will be determined from the MPG ratings using the conversion factor of 8887 grams of CO₂ per gallon of gasoline. Carrying out this operation on the values determined above yields the following complete set of fuel economy and greenhouse gas ratings for 2013 model year vehicles:

Rating	MPG		GHG	
	≥	≤	≥	≤
10	40	-	0	222
9	34	39	223	261
8	29	33	262	306
7	26	28	307	342
6	23	25	343	386
5	20	22	387	444
4	17	19	445	523
3	15	16	524	592
2	13	14	593	684
1	-	12	685	