**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
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ANN ARBOR, MICHIGAN 48105-2498

OFFICE OF
AIR AND RADIATION

July 26, 2021

CD-2021-08 (LDV/LDT/ICI/LIMO)

**SUBJECT: Fuel Economy Label Information for 2022 Model Year**

Dear Manufacturer:

The purpose of this manufacturer information letter is to supplement the information provided in Environmental Protection Agency (EPA) letter CD-2020-20, issued December 28, 2020. This information is designed to guide you in your 2022 model year fuel economy labeling program.

**"Electronic-Only" Guide**

Similar to the approach used for the *2018, 2019, 2020* and *2021 Fuel Economy Guides*, EPA and the Department of Energy (DOE) intend to use an "all-electronic format" for providing the *2022 Fuel Economy Guide* to automobile dealers, credit unions and libraries. This change will be transparent to manufacturers, with no noticeable changes from previous years in the timing or the process of testing fuel economy vehicles, calculating FE label (window sticker) values, providing data to EPA's EV-CIS (formerly Verify) database, etc.

Instead of providing paper copies of the *Guide* to automobile dealers, DOE will provide an electronic copy of the *Guide* to dealers for printing in November 2021. Dealers will have the option to print copies of the *2022 Guide* for customers or to provide customers with access to the www.fueleconomy.gov website on a computer or electronic device in the dealership display area. Throughout the model year, dealers may also download and print copies of an up-to-date *Guide* which DOE will make available at https://www.fueleconomy.gov/feg/printGuides.shtml.

A similar approach will be used to provide copies of the *2022 Guide* to credit unions and libraries located throughout the United States and U.S. territories.

Enclosure 1

"Fuel Economy Supplementary Information for 2022 Model Year" contains information about the *Fuel Economy Guide* and about posting 2022 fuel economy data on the EPA/DOE website (www.fueleconomy.gov).

Enclosure 2

Enclosure 2 provides instructions for submitting information to EPA for the *Fuel Economy Guide* for alternative-fueled vehicles, CNG vehicles, electric vehicles, plug-in hybrid vehicles, sport utility vehicles, engine/model type descriptors, voluntarily lowered mpg values, voluntarily increased $CO_2$ values, and label format for dual fuel CNG vehicles.

Enclosure 3

Enclosure 3 contains the timetable for inclusion of fuel economy label values in the 2022 model year electronic *Fuel Economy Guide* which will be provided to automobile dealers, credit unions and libraries.

The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

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

Sincerely,

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

Enclosures

cc: Mike Laughlin, DOE

**ENCLOSURE 1**
**to CD-2021-08**

## Fuel Economy Supplementary Information for the 2022 Model Year

### *2022 Fuel Economy Guide* Provided to Automobile Dealerships, Credit Unions and Libraries in Electronic Format Only

As was done for the *2018, 2019. 2020 and 2021 Guides*, EPA and the Department of Energy (DOE) will use an "all-electronic format" for the *2022 Fuel Economy Guide*. For example, in mid-November, 2021, an electronic version of the *2022 Fuel Economy Guide* will be provided to automobile dealerships and made available for downloading at https://www.fueleconomy.gov/feg/download.shtml.[1] Dealers are expected to 1) print copies of the *2022 Guide* for customers; or 2) provide customers with access to the www.fueleconomy.gov website on a computer or electronic device in the dealership display area. Throughout the model year, dealers may also download and print up-to-date copies of the *2022 Fuel Economy Guide* available at https://www.fueleconomy.gov/feg/printGuides.shtml.

A similar approach will be used to provide copies of the *2022 Fuel Economy Guide* to credit unions and libraries located throughout the United States and U.S. territories.

### Annual Fuel Cost Estimates

Fuel cost estimates needed to calculate annual fuel cost estimates for 2022 model year fuel economy labels (window stickers of new vehicles) were provided in EPA guidance letter CD-2020-20, December 28, 2020.

### Fuel Economy Ranges to be Placed on FE Labels

Fuel economy ranges to be used on 2022 model year fuel economy labels were provided in EPA guidance letter CD-2020-20, December 28, 2020.

### Fuel Economy Data to be Included in the (Electronic) Printed Fuel Economy Guide

Unless otherwise instructed, EPA will forward to DOE all releasable 2022 MY fuel economy label values in the EPA database beginning on the date indicated in Enclosure 3 and continuing throughout the 2022 model year. DOE is then responsible for compiling and distributing the *Fuel Economy Guide* to automobile dealerships, credit unions, libraries and the general public.

### Release Date

The manufacturer-specified "release date" in the EV-CIS (formerly VERIFY) database should correspond to the date that the vehicle will be introduced into commerce. EPA will use this date to determine when fuel economy information for a model type will be included in the EPA Press Release (typically in October or early November each year), included in the *Fuel Economy Guide*, released to the public, and listed at www.fueleconomy.gov.

[1] Prior to mid-November, 2021, a preliminary version of the *2022 Fuel Economy Guide* will be available at https://www.fueleconomy.gov/feg/download.shtml, but it will not include the front or back covers, updated text, 2022 model year leader lists, 2022 best-in-class models, etc.

## EPA/DOE Fuel Economy Website (www.fueleconomy.gov)

EPA and DOE maintain a website devoted to fuel economy and related information: www.fueleconomy.gov. The website contains the 2022 model year fuel economy label information in the EPA database (as the data becomes available throughout the model year), plus tips and general information about the fuel economy of passenger cars and light trucks. The website is normally updated four times a month (normally on the 1st, 9th, 15th and 23rd of the month or the next regularly scheduled work day). As mentioned above, EPA will use the manufacturer-provided Release Date to determine which data are available to post on the website. If you need a 2022 fuel economy label posted on www.fueleconomy.gov on a specific date and time (e.g., to coincide with a manufacturer's press release), please contact Tristin Rojeck of my staff at (734) 214-4649 or rojeck.tristin@epa.gov.

EPA encourages automobile manufacturers (and dealers) to link their websites to the EPA/DOE site, as a public reference for fuel economy of passenger cars and light-duty trucks.

## Displaying "fueleconomy.gov" on FE Labels (Window Stickers)

As a reminder, EPA labeling regulations require the EPA/DOE website address to be listed on your fuel economy labels, ref. 40 CFR 600.302-12(b)(5).

## Gas Guzzler Tax

If, according to your calculations, one or more of your model types are subject to the Gas Guzzler Tax, those model types are noted by the letter "G" in the engine description section of the *Fuel Economy Guide*.

The total amount of tax is determined by the Internal Revenue Service (IRS). The manufacturer is responsible to the IRS for reporting and paying the Gas Guzzler Tax. The amount of the Gas Guzzler tax is required to be shown on the label, as determined from the tax schedule shown in 40 CFR 600.513-08, unless the manufacturer has been granted an alternative tax rate schedule. However, the IRS may audit your records and make its own determination about your tax liability. If the IRS determines a different tax rate after the model year, you will not be required to re-label unsold vehicles.

## Limousine Manufacturers

Under the Revenue Consolidation Act of 1991, limousine manufacturers or modifiers are subject to the Gas Guzzler requirements. Manufacturers or modifiers of such vehicles should obtain fuel economy labels for their vehicles and conversions and pay the appropriate tax to the IRS.

**ENCLOSURE 2**
**to CD-2021-08**

**Supplementary Instructions for Submitting Fuel Economy Information to EPA for the *2022 Fuel Economy Guide***

## 1. Background Information

For the *2022 Fuel Economy Guide*, EPA will list all gasoline, diesel and alternative fuel vehicles together. This will help consumers find alternative fuel vehicles and compare their fuel economy with gasoline vehicles more conveniently through "one stop shopping."

The *2022 Fuel Economy Guide* will also separately list the following advanced technology and alternative- fueled vehicles:

Plug-in Hybrid-Electric Vehicles (PHEVs)
Hydrogen Fuel Cell Vehicles (FCVs)
Electric Vehicles (EVs)
Diesel Fueled Vehicles
Ethanol (E85) Flexible-Fueled Vehicles
Compressed Natural Gas (CNG) Vehicles
Liquefied Petroleum Gas (LPG) Vehicles

For dual-fueled vehicles, the gasoline mpg values for the vehicle will be listed in both the Gasoline section of the *Guide* and the appropriate alternative-fuel section of the *Guide*.

## 2. Listing New Technology and Alternative-Fueled Vehicles

Manufacturers should provide the information as specified in the FE Label module of EPA's EV-CIS database for new technology and alternative-fueled vehicles.

For **flexible fueled and dual-fueled vehicles,** manufacturers should enter the data into the EPA EV-CIS database for both fuels in the same model type index by clicking on the buttons to "Add Another Fuel Usage" and "Add Another Base Level Fuel Usage." For example, enter the gasoline test data in "Base Level Fuel Usage #1" and the E85 test data in "Base Level Fuel Usage #2." Please do not enter the gasoline and alternative fuel data using two separate index numbers.

For **compressed natural gas (CNG) vehicles**, manufacturers should provide the city, highway and combined fuel economy values in miles per gallon-equivalent, where one gallon-equivalent is equal to 121.5 standard cubic feet of CNG; ref. the "gasoline gallon equivalent" definition provided in 40 CFR 600.002.

For **electric vehicles**, manufacturers should provide the city, highway and combined fuel economy/energy consumption values when operating on electricity in units of miles per gallon-equivalent and also kW-hr/100 miles, where one gallon of gasoline is equivalent to 33.705 kilowatt-hours of electricity; ref. the "gasoline gallon equivalent" definition provided in 40 CFR 600.002. In addition, please email a copy of the latest version of the EPA generic EV FE Label calculator to EPA with all applicable fields completed. The most up to date generic EV FE Label calculator template is available at https://www.epa.gov/ve-certification/certification-and-fuel-economy-light-duty-passenger-cars-and-trucks; then scroll down to Step 5.

When entering charge depleting data in the Test Information module of EV-CIS, please enter MFR FE in units of miles per gallon (not in units of kW-hr/100 miles). If this is your first time entering EV charge depleting data into EPA's Verify database, please email Tristin Rojeck (Rojeck.tristin@epa.gov) for an example template showing our preferred method of entering charge depleting test data into EPA's data base.

For **plug-in hybrid vehicles**, manufacturers should email a copy of the latest version of the EPA PHEV calculator to EPA for EPA review with all applicable fields completed. This process should be repeated every model year even if the data inputs are carryover datasets. The most up to date PHEV calculator template is available at https://www.epa.gov/ve-certification/certification-and-fuel-economy-light-duty-passenger-cars-and-trucks; then scroll down to Step 5.

Once a manufacturer has entered all test data into the PHEV calculator, they should use the calculator inputs and outputs to enter the appropriate data into EV-CIS (in both the fuel economy label module and the manufacturer test information module). Manufacturers should especially make sure that the UDDS and Highway transition cycles are determined correctly in the PHEV calculator (and entered correctly in EV-CIS). EPA will perform a review of the PHEV calculator and EV-CIS data before the fuel economy data will be posted on www.fueleconomy.gov.[2] Please allow adequate time for EPA review before the release date of all PHEVs when possible.

The completed PHEV calculator should be emailed to Dave Good at good.david@epa.gov with a copy to Tristin Rojeck at rojeck.tristin@epa.gov. In addition to the PHEV calculator, please include 1) the test mode information (what mode the charge depleting tests were performed in and what modes are available for the vehicle); 2) a PHEV window sticker to aid EPA and DOE when posting the data on www.fueleconomy.gov; and 3) confirmation that the output results from the EV-CIS "manufacturer test information" module matches the PHEV calculator results exactly.

### 3. Placeholders for New Technology and Alternative-Fueled Vehicles Which will be Available Later in the 2022 Model Year

If the city and highway fuel economy values and driving ranges will not be available by September 1, 2021, manufacturers should submit the information in the tables below with the fuel economy and driving ranges listed as "NA" (not available). Please include the manufacturer/division name, carline name, transmission type, engine displacement in liters, engine number of cylinders, vehicle class, interior volume for 2-door, 4-door, hatchback models, and the cargo volume (if applicable). Please don't send placeholder information for vehicles which are already in EPA's EV-CIS database. The information should be emailed to Tristin Rojeck at rojeck.tristin@epa.gov with a copy to Dave Good at good.david@epa.gov on or before the date listed in Enclosure 3.

To provide placeholder information for **fuel cell vehicles**, manufacturers should provide an Excel file with the following information, plus a short explanation of the availability of the vehicles, as follows:

[2] Included in the PHEV calculator are CAFE and GHG values for each vehicle which should agree with the EV-CIS-determined CAFE and GHG values that will be used for the end of Model Year CAFE/GHG Reports.

| Model Name | Veh. Class, Body type, Pass/Cargo Volume | Trans Type | Type of Fuel Cell | Motor Type & Power | Energy Storage Device and Rating | Fuel Type | Miles Per Kilogram | | Driving Range (miles) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | City | Hwy | |
| AB | Compact 2dr – 91/12 | Auto (A1) | PEM | 100 kW-AC Induction | 144 Volt Nickel Metal Hydride | Hydrogen | NA | NA | NA |
| CD | SUV | Auto CVT | PEM | 100 kW-DC Brushless | 244 Volt Lithium Ion | Hydrogen | NA | NA | NA |

Availability:

AB Fuel Cell vehicles are initially available in California and Arizona only.

CD Fuel Cell vehicles will be available nationwide (for lease only) in the late fall of 2021.

Additional information may also be included if necessary, to describe your vehicles.

To provide placeholder information for **electric vehicles,** manufacturers should provide an Excel file plus a short explanation of the availability of the vehicles, as follows:

| Carline Name | Veh. Class, Body Type, Pass/Cargo Volume | Type of Battery | Trans Type | Motor Size (kW) and Type | Energy Consumption (kW-hr/100mi) | | Driving Range (miles) |
|---|---|---|---|---|---|---|---|
| | | | | | City | Hwy | |
| AB Electric | Large Cars 4dr-113/13 | Lead-Acid | Auto (A1) | 95 kW AC Induction | NA | NA | NA |
| AB Electric | Large Cars 4dr-113/13 | Nickel-Metal Hydride | Auto (A2) | 45 kW AC Induction | NA | NA | NA |
| CD Electric | Subcompact 2 dr-85/11 | Lithium-Ion | Auto CVT | 62 kW DC | NA | NA | NA |

Availability:

AB Electric vehicles are initially available to the U.S. Postal Service in California and Arizona only.

CD Electric vehicles will be available nationwide (initially for lease only) in the late fall of 2021.

Additional information may also be included if necessary, to describe your vehicles.

To provide placeholder information for **other alternative fuel, diesel and flexible fueled vehicles**, manufacturers should provide an Excel file with the following information:

| Model Name | Vehicle Class, Body Type Pass/Cargo | Trans Type | No. of cyl. | Engine | Fuel Type | Miles Per Gallon | | Driving Range (miles) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | City | Hwy | |
| AA | Compact 4dr - 95/11 | Auto(A6) | 4 | 1.8L | Dedicated CNG | NA | NA | NA |
| BB | SUV-4WD | Auto(A8) | 8 | 5.3L | E85 | NA | NA | NA |
| | | | | | Gasoline | NA | NA | NA |

To provide placeholder information for **plug-in hybrid electric vehicles (PHEVs)**, manufacturers should provide an Excel file with the information from both the electric

vehicle table above and the "other alternative and flexible fueled vehicle" table above.

**4. Listing Driving Ranges for Alternative-Fueled Vehicles**

The calculation of the EPA driving range should be based on the adjusted combined fuel economy label value (rounded to the nearest whole mpg value) as determined in 40 CFR 600.210-12(c), (d), and (e), as applicable, and the useable fuel tank capacity of the vehicle (rounded to the nearest tenth of a gallon). Manufacturers should enter the driving range(s), rounded to the nearest mile, in the model type driving range field in the Fuel Economy Label module of EPA's EV-CIS data base.

If several fuel tank capacities are available for a vehicle, a manufacturer should enter the driving range, rounded to the nearest mile, for the smallest and largest fuel tank available for the vehicle. Manufacturers should enter this information in the "model type driving range" field in the Fuel Economy Label module of EPA's Verify database. For example, manufacturers should enter 'nnn' for a single driving range or 'nnn/nnn' for model types which are available with multiple fuel tank capacities. For dual-fueled vehicles, manufacturers should provide the driving range of the vehicle when operated on gasoline or diesel fuel, and the driving range when operated on any alternative fuel.

For **ethanol vehicles,** manufacturers should determine the vehicle's driving range rounded to the nearest mile by multiplying the adjusted combined fuel economy label value (rounded to the nearest whole mpg) by the vehicle's useable fuel storage capacity (rounded to the nearest tenth of a gallon); ref. 40 CFR 600.311-12(j)(1).

For **CNG vehicles,** manufacturers should determine the vehicle's driving range rounded to the nearest mile by multiplying the adjusted combined fuel economy label value (rounded to the nearest whole mpg equivalent) by the vehicle's useable fuel storage capacity (rounded to the nearest tenth of a gasoline gallon equivalent); ref. 40 CFR 600.311-12(j)(3). The CNG fuel tank capacity used to calculate the EPA driving range should be based on 80 percent of the nominal fuel tank capacity (using a slow fill rate) in order to account for the reduced fuel tank capacity, which results from a fast fill rate.

For **electric vehicles,** manufacturers should determine the unadjusted city and highway driving range as outlined in Section 7 or 8 of SAE J1634, Electric Vehicle Energy Consumption and Range Test Procedure, as published October 2012,[3] ref. 40 CFR 600.311-12(j)(2). Manufacturers should determine the combined driving range (rounded to the nearest mile) by arithmetically averaging the adjusted city and highway driving ranges, weighted 0.55 (city) and 0.45 (highway). The driving ranges shall be adjusted to reflect actual in-use driving conditions using one of the methods described in 40 CFR 600.210-12(d)(3).

For **plug-in hybrid vehicles when operating on electricity,** manufacturers should determine the adjusted city, highway and combined driving range (rounded to the nearest mile) as outlined in the provisions of 40 CFR 600.311-12(j)(4). For example, manufacturers should determine the unadjusted city and highway charge-depleting driving range values (rounded to the nearest mile) as outlined in SAE J1711, Recommended Practice for Measuring the Exhaust Emissions and Fuel Economy of Hybrid-Electric Vehicles, Including Plug-In Hybrid Vehicles, June 2010.

[3] With prior EPA approval, manufacturers may determine the unadjusted city and highway driving range as outlined in Section 8 of SAE J1634 (July 2017) using the 65-mph multicycle test (MCT). [4] Note that the provisions of 40 CFR 600.210-12(c)(2)(i) require that the unrounded (adjusted) city and the unrounded (adjusted) highway $CO_2$ values be used as input values to calculate the adjusted combined $CO_2$ value.

Manufacturers should determine the combined driving range by arithmetically averaging the adjusted city and highway driving ranges, weighted 0.55 (city) and 0.45 (highway). The driving ranges shall be adjusted to reflect actual in-use driving conditions.

For **hydrogen fuel cell vehicles**, manufacturers should determine the vehicle's adjusted driving range rounded to the nearest mile by multiplying the adjusted combined fuel economy label value (rounded to the nearest whole miles per kilogram) by the vehicle's useable fuel storage capacity (rounded to the nearest hundredth of a kilogram); ref. 40 CFR 600.311-12(j)(5). The driving range shall be adjusted to reflect actual in-use driving conditions.

**5. Battery Charge Time for Electric Vehicles and Plug-in Hybrid Vehicles**

For **electric and plug-in hybrid vehicles,** manufacturers should determine the time it takes to charge a fully depleted battery using a 120- and 240-volt power source as outlined in the provisions of 40 CFR 600.311-12(k). For example, manufacturers should charge the battery to the point that the battery meets the manufacturer's end-of-charge criteria, consistent with the procedures specified in SAE J1634 for electric vehicles and in SAE J1711 for plug-in hybrid electric vehicles.

**6. Comparable Classes**

**2WD SUV Classification:** When labeling 2-wheel drive SUVs, please continue to use the same vehicle classification category as in past model years (even though 2-wheel drive SUVs equal to or less than 6000 lbs GVWR will be included in 2022 passenger car CAFEs). For fuel economy labeling purposes, EPA will require 2022 and later model year 2WD SUVs to continue to be included in the 2WD SUV comparable class based on the provisions of 40 CFR 600.315-08(a)(1) and 600.315-08(a)(2).

**Special Purpose Vehicle Classification:** The "Special Purpose Vehicle" class is to be used when a vehicle does not fit into the definition of any comparable class, ref. 40 CFR 600.315-08(a)(3)(i). Manufacturers should use the Special Purpose Vehicle class for small transit vans, camper vans, limousines, dune buggies, amphibious vehicles, cab chassis vehicles, and other special vehicles. In addition, if a vehicle has features that could apply to more than one comparable class, EPA will determine which class is more appropriate, ref. 40 CFR 600.315-08(a)(3)(ii).

**7. Engine /Model Type Descriptors:** Engine and model type descriptors are only needed to identify two otherwise identical model types (so that the customer can easily identify the model). Please enter any needed basic engine/model type descriptors in the EV-CIS FE Label module "Model Type Descriptor" field (field GL-78.2). The engine/model type description should be clear and concise (30 characters or less). For example, a manufacturer could enter "4-valve" in the model type descriptor field to distinguish between otherwise identical 2-valve models. The use of an engine/model type descriptor is subject to EPA approval. Please leave this field blank, or enter N/A in this field unless needed to identify two (or more) otherwise identical model types.

**8. Relabeling:** When relabeling vehicles for reasons specified 40 CFR 600.507-12(a) and 600.314-08(e)(4), please revise the original Index with the revised FE label information and also revise the release date to the effective date when the FE Label was revised. Please include in the

model type comment field the reason for relabeling. Note that the provisions of 40 CFR 600.314-08(a) require that label values must not change for entire model year, except for the reasons outlined in the provisions of 600.507-12(a) and 600.314-08(e)(4).

**9. Adjusted Combined Fuel Consumption (gallons/100 miles):** Please enter the Manufacturer-Calculated Adjusted Combined Model Type Fuel Consumption (GL-214) in units of U.S. gallons per 100 miles, calculated according to the provisions of 600.311-12(c). For example, fuel consumption should be based on the rounded adjusted combined MPG label value (not the unrounded adjusted combined MPG value), calculated as follows:

Adjusted Combined Model Type Fuel Consumption = (100/rounded adjusted combined MPG label value). Please use the voluntarily lowered MPG label value, if applicable.

**10. Voluntarily Lowering MPG Values and Increasing $CO_2$ Values:** As outlined in the provisions of 40 CFR 600.210-12(a), "Manufacturers may voluntarily lower fuel economy values and raise $CO_2$ values if they determine that the label values from any method are not representative of the fuel economy or $CO_2$ emissions for that model type." We encourage manufacturers to use these provisions as necessary, so that potential customers will be provided with accurate and representative fuel economy and $CO_2$ information for each vehicle.

**10.1 Calculating Voluntarily Increased $CO_2$ Values:** If manufacturers voluntarily lower city, highway or combined mpg values, then the provisions of 40 CFR 600.210-12(a) require that $CO_2$ values be increased accordingly. EPA calculates voluntarily increased city, highway and combined $CO_2$ values based on 1) the unrounded adjusted mpg value, 2) the unrounded adjusted $CO_2$ value, and 3) the rounded, voluntarily lowered mpg value, as outlined in the following example:

Given:
unrounded adjusted combined mpg = 21.6949 mpg
unrounded adjusted combined $CO_2$ = 408.4 grams/mile
voluntarily lowered combined Label mpg = 20 mpg

Then: Voluntarily increased combined $CO_2$ = (21.6949 mpg x 408.4 gpm) / 20 mpg = 443.01 gpm; which rounds to 443 grams/mile $CO_2$.

Similar calculations are used to calculate voluntarily increased city and highway $CO_2$ values.

**10.2 Calculating Adjusted Combined $CO_2$ Value for Labels with a Voluntarily Decreased City or Highway MPG Value Which Doesn't Result in a Lower Combined MPG Value:**

In some cases, the adjusted combined $CO_2$ values may need to be increased even though the adjusted combined mpg value is not lowered, e.g. when a city mpg or highway mpg value is voluntarily lowered which (due to rounding) doesn't result in the adjusted combined mpg being lowered. For those cases, EPA calculates the adjusted combined $CO_2$ value as follows:

**Step 1:** If the city mpg was voluntarily lowered, calculate an unrounded[4] adjusted voluntarily increased city $CO_2$ value as outlined in Section 10.1 (above), where:

> Voluntarily Increased City $CO_2$ (gpm) = [(unrounded adjusted City mpg x unrounded adjusted City $CO_2$) / voluntarily lowered City Label mpg value]. Don't round this intermediate $CO_2$ value.

**Step 2:** If the highway mpg was voluntarily lowered, calculate an unrounded adjusted voluntarily increased highway $CO_2$ value as outlined in Section 10.1 (above), where:

> Voluntarily Increased Highway $CO_2$ (gpm) = [(unrounded adjusted Highway mpg x unrounded adjusted Highway $CO_2$) / voluntarily lowered Highway Label mpg value]. Don't round this intermediate $CO_2$ value.

**Step 3:** Calculate the rounded adjusted voluntarily increased combined $CO_2$ value as follows:

> Voluntarily increased combined $CO_2$ (gpm) = 0.55 x unrounded adjusted city $CO_2$ (from step 1 if appropriate) + 0.45 x unrounded adjusted highway $CO_2$ (from step 2 if appropriate); ASTM round the result to the nearest whole number.

**Example Calculation:**

Given:

City Label mpg = 28 mpg
Normal (not lowered) highway Label mpg = 36 mpg
Voluntarily lowered highway Label mpg = 35 mpg
Combined Label mpg = 31 mpg
Unrounded adjusted highway mpg = 35.5043 mpg
Unrounded unadjusted city $CO_2$ value = 239.1 gpm
Unrounded adjusted highway $CO_2$ = 249.2 gpm
Normal (not increased) adjusted combined $CO_2$ Label value = 285 gpm

Calculate the voluntarily increased adjusted combined $CO_2$ Label value (gpm) as follows:

**Step 1:** Calculate an unrounded adjusted city $CO_2$ value using the same method as used to determine the FE Label values for the vehicle, e.g. using 1) the vehicle specific 5-cycle method outlined in 40 CFR 600.114-12(d)(2) and (e)(3) or 2) using the 2022 derived 5-cycle method outlined in EPA guidance letter CD-2015-15 and 40 CFR 600.210-12(a)(2)(B). This example uses the 2022 derived 5-cycle method, as follows:

> Unrounded adjusted city $CO_2$ = (.004091 x 8887) + (1.1601 x 239.1 gpm) = 313.736627 gpm

**Step 2:** Calculate the unrounded adjusted voluntarily increased highway $CO_2$ value as follows:

> Voluntarily increased highway $CO_2$ = (35.5043 mpg x 249.2 gpm) / 35 mpg = 252.790606 gpm

**Step 3:** Calculate the voluntarily increased combined $CO_2$ value as follows:

Voluntarily increased Combined $CO_2$ (gpm) = 0.55 x 313.736627 gpm + 0.45 x 252.790606 gpm = 286.3109221; which ASTM rounds to **286 gpm**.

[4] Note that the provisions of 40 CFR 600.210-12(c)(2)(i) require that the unrounded (adjusted) city and the unrounded (adjusted) highway $CO_2$ values be used as input values to calculate the adjusted combined $CO_2$ value.

**11. FE Label (Window Sticker) Format for Dual Fuel CNG Vehicles:** The provisions of 40 CFR Part 600 Appendix VI do not provide an example of the recommended format for a dual fuel CNG vehicle. For these vehicles, we believe that it is important to show fuel economy, driving range and cost values for both fuels on the label. Please email Tristin Rojeck at rojeck.tristin@epa.gov or Dave Good at good.david@epa.gov if you need an example of the EPA recommended format for a dual fuel CNG vehicle.

**12. Calculating Derived 5-Cycle $CO_2$ Values for CNG Vehicles:** The provisions of 40 CFR 600.210-12(a)(2)(i)(B) and (a)(2)(ii)(B) provide the formula used to calculate city and highway derived 5-cycle CO2 values, however an "A" term is not provided in the formula for CNG test fuel. Please use an "A" value of 7030 for CNG test fuel, ref. Smart Way document "Guidance for Implementing Section 141 of the Energy Independence and Security Act of 2007;" February 22, 2010, updated April 8, 2015, Table 1 on page 3, available at http://www.epa.gov/otaq/climate/documents/420b15070.pdf.

**ENCLOSURE 3**
**to CD-2021-08**

## Timetable for *2022 Model Year Fuel Economy Guide*

| Task | Significant Dates | Responsible Party |
|---|---|---|
| 1. Obtain an EPA Certificate which covers all model types to be included in the *Guide*. | August 19, 2021 | Manufacturer |
| 2. Enter general label fuel economy values and any other related information required by the *Guide* into EPA EV-CIS (formerly Verify) database for all model types to be included in the *Guide*. | August 19, 2021 | Manufacturer |
| 3. Provide EPA **"placeholder"** descriptions (as outlined in Enclosure 2) for alternative fuel and diesel vehicles which will not be available until later in the model year. | August 19, 2021 | Manufacturer |
| 4. Compile a list from EV-CIS with all necessary information for model types to be included in *Guide* for each manufacturer; send list to individual manufacturer for data accuracy review. | August 19, 2021 | EPA |
| 5. Complete review of all information provided in "4" above, make necessary corrections in the EV-CIS database and notify EPA that the data in EV-CIS is complete and accurate. | August 31, 2021 | Manufacturer |
| 6. Send the complete *Guide* information to DOE for compiling the 2022 Fuel Economy *Guide*. | Beginning September 1, 2021; continuing until end of the model year. | EPA |
| 7. EPA announces *2022 Guide* via a Press Release | October, 2021 | EPA |

## Comparable Class Fuel Economy Ranges

| Task | Significant Dates | Responsible Party |
|---|---|---|
| Release the comparable class fuel economy ranges to be used on fuel economy labels to the manufacturers. | Previously provided in CD-2020-20; will be updated in a December, 2021 guidance letter | EPA |

EPA intends to include in the *Guide*, all releasable information which is submitted to EPA prior to 6AM September 1, 2021. August 31, 2021 is the last day for manufacturers to make changes to the EPA computer database.

Manufacturers should pay close attention to the "release date" for each label. EPA will use the release date to determine when fuel economy information for a vehicle model type are included in the EPA press release (typically in October or early-November each year); included in the electronic *Guide* which is provided to dealerships, credit unions and libraries; released to the public; and listed at www.fueleconomy.gov.