

Paperwork Reduction Act Burden Statement

This collection of information is approved by OMB under the Paperwork Reduction Act, 44 U.S.C. (No. 2060-0104). Responses to this collection of information are voluntary. An agency may not collect information from a person unless it displays a currently valid OMB control number. The estimated public reporting and recordkeeping burden for this collection of information is estimated to range from 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information, to 3 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided instructions, and suggested methods for minimizing respondent burden to the Information Engagement Division, U.S. Environmental Protection Agency (2821T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in your correspondence. Do not send the completed form to this address.

[The purpose of this form is to provide manufacturers with a uniform way to submit PHEV data to EPA.](#)

Instructions for Completing PHEV Calculator Tab

The data that is needed to complete this calculator is on the 'PHEV Calculator' tab. All data is entered in Column J under the heading "ENTER BASIC VEHICLE INFORMATION HERE". The required fields have a background color of orange. Many have a pre-populated drop down to select from.

Once the required fields are complete, click on the "Import CD XML File" and "Import CS XML File" buttons to import the EV-CIS exported XML files for the corresponding PHEV label. There are 3 buttons to allow the user to import up to 3 different data sets.

Authorities and References

Definitions	40 CFR 600.002
Guidance	IACD-2025-07
Fuel Economy Regulations	40 CFR Part 600

Form #
PFN-3420

	<div>OMB Control # 2060-0104</div> <div>Expires MM/DD/YYYY</div>
<p>C. 3501 et seq. (OMB Control conduct or sponsor, and a valid OMB control number. The range from 5 to 30 minutes per ded burden estimates and any Director, U.S. Environmental OMB control number in any</p>	
<p>to EPA that will allow manufactu</p>	
<p>fields are in (13 total)</p>	
<p>e(s)" sets</p>	

Version No.	Release Date	Comments
23		Same calculations as version 22. Expanded data input range to allow up to 30 charge-depleting cycles. Updated label inputs (fuel prices, ratings scales, etc.) for 2018 model year based on EPA guidance. Some text changes to improve clarity.
24		Found an error in some of the calculations for multiple test sets. These calculations referenced the transition cycle for the first test set, instead of the current test set. This would only impact the unusual situation where the transition cycle differed across test sets.
25	12/27/2017	Fixed an error where the 5-cycle adjustment (0.7 or derived 5-cycle result) was incompletely propagated throughout the charge-depleting calculations. The impact on label values should be none to very minor, affecting only those vehicles that would have been able to use an adjustment for the transition cycle that differs from 0.7. This does not happen often. Fixed an error in the calculation of the unadjusted highway electricity Kw-Hr/100 miles, where the calculation was referencing the charge-depleting fraction from the city schedule. This does not affect any label values, only values put on the web in the online spreadsheets. Revised the calculation of all-electric range. Previous versions summed the distances of all-electric cycles without attention to whether the first cycle was all-electric. Thus PHEVs with no all-electric range could have appeared to have an all-electric range. You should, of course, continue to override this estimate with the actual range recorded from the test, if available. Improved the ability to look at all-electric range and determine whether or not a PHEV is eligible for Corporate Average Fuel Economy (CAFE) dual fuel vehicle calculations. Corrected an error in the Average New Vehicle 5-Year Fuel Cost for model year 2018. The correct value is \$6,750, per EPA guidance CD-16-18. Added label inputs - fuel prices, ratings scales, etc. - for the 2019 model year. From EPA guidance letter cd-17-18. Added error-checking where Carbon Related Exhaust Emissions (CREE) will not be calculated without both charge-depleting and charge-sustaining CREE data. Fixed some cell references in Test Set #2 and #3 cost per mile calculations where formulae inadvertently referred to Test Set #1 test data.
26a	5/31/2019	Added some conditional formatting to visualize non-default values entered by users. For example, fuel density and heating value. Corrected the equation in cell F84, for Hwy2 Unadj FE - Alternative Fuel. There was a cell referencing error that could possibly affect vehicles with multiple highway tests. This does not affect CAFE, GHG, or label values. Added the capability to use Deterioration Factors (DF) for CREE values. Because City and Highway values are submitted via a table in Verify, at this point a DF must be applied separately to each value, thus adjusting each value with a DF. The user may enter different City and Highway DFs. Equations were changed to perform rounding consistent with Engines and Vehicles Compliance Information System (EV-CIS) rounding. Superfluous values were removed. Default method for calculating Zn is now using Amp-hours, per the regulations. This is also designed into the EV-CIS calculations. Calculated intermediate values were rearranged to consolidate those values calculated specifically and solely from charge-depleting test data. Those values requiring charge-sustaining or other inputs are grouped separately. Similar metrics are now grouped together. Increased the number of charge-depleting cycles accommodated by the calculator to 35. Explanatory comments have been added to many of the inputs and calculated parameters.
26b	8/15/2019	Changed release date of v26a above from "TBD" to May 31, 2019. Added cell borders to charge-sustaining input section. Amended formulae for "CD AC electricity consumption rate (Rcda, adjusted)" to round the kW-hr input to 4 decimal places; was previously rounded to 1 decimal. Changed cell F23 (combined CD electricity consumption) to be rounded to 4 decimal places. Was previously rounded to one decimal. Correct an error in cells D23 and E23. Values need to be multiplied by 100. Corrected cell references in cells D15 and E15.
26c	10/10/2019	Changed the rounding of label city and highway Killowatt-hours per 100 miles to 3 decimal places. Previously was rounded to 4 decimals. Added 2020 model year label inputs. See guidance document CD-18-13, 12/17/2018. Revised these version notes to reflect the current state of the calculator. Removed values from the blank version of the template.

Version No.	Release Date	Comments
26d	1/8/2020	Added 2021 model year label inputs. See guidance document CD-19-13 (Dec. 16, 2019). Changed fleet utility factor calculations such that each individual calculated FUF is not rounded. Continue to round the incremental fractional FUF (i.e., FUF(n) - FUF(n-1)) to 3 decimals. This fix was applied both the 55/44 and 43/57 utility factors. The Highway calculations in column BY were found to apply slightly different rounding than the UDDS calculations in column AX. The UDDS calculations are correct, and Highway calculations were fixed to match, rounding to a whole number after the calculation.
26e	3/24/2020	Added 2022 model year label inputs. See EPA Guidance Letter CD-2020-20 (Dec. 28, 2020). Added the following comments: - Added a comment in cells S10, S58, S106, AA10, AA58, AA106 "Please enter a positive amp-hour value when current is flowing out of the battery and a negative amp-hour value when current is flowing into the battery." This change is needed in order to help determine whether the cycle is CD or CS based on NEC 1% Tolerance (in columns BR and CS). - Added a comment in cells T10, T58, T106, AB10, AB58, AB106 "Ref. SAE J1711 (June 2010); Section 6.3." - Revised terms in cells C53 to C117 to be more consistent with the terms used in EPA's EV-CIS (formerly Verify) database.
26f	3/22/2021	Fuel properties (CWF, Specific Gravity, Net Heating Value), HC-Total, and CO added to charge-depleting data tables. Fuel economy and CREE are now calculated by PHEV calculator. These values are now used in the remainder of the intermediate calculations. Values of fuel economy and CREE entered by mfr are only included for comparison. No support for Opt-CREE, there were no Opt-CREE GHG submissions by any manufacturer for 2020. Transition cycle is no longer calculated automatically. Manufacturers are now required to enter it for each CD test. Recharge energy (AC kilowatt-hours) fields were changed from 3 decimal to 4 decimal to match calculations in EV-CIS. This was a pre-existing field for electric only vehicles prior to PHEV implementation. The rounding in all formulas prior to using these values was changed from ASTM(x,3) to ASTM(x,4). Support for model years prior to 2017 has been removed. 'Average Recharge Time of Test Vehicles' calculation for both CD_UDDS and CD_Hwy added. Combined recharge time using a 55/45 weighting and a 50/50 weighting of those values has also been added. These new calculations were requested by manufacturers. Data validation and conditional formatting added for most/all input fields including main CD data input tables. Incorrect values will be highlighted in orange. New table added for entering CD and CS test numbers. CS conditional formatting based on the number of EV-CIS test numbers entered. New macro for importing data from an EV-CIS validated xml file (from Request Database Report). Can also be used to compare calculator data to xml file data and highlight differences. To run macro: select the 'blank calculator v27' tab and select one of the cells labeled 'Miles [3]' (one of the headers of largest input tables) and type: <Alt-t>,m,m. Select the desired macro. Main macro can also be ran by clicking the button included in the spreadsheet. Additional macros included for clearing a single CD test or all user data. Custom 'D5C' function added to perform Derived 5-cycle FE and CO2 calculations for gasoline vehicles (2017+ coefficients only). New function can only be used in cells for charge-sustaining adjusted FE and adjusted CO2. These cells are in the block labeled "ENTER CHARGE-SUSTAINING TEST RESULTS HERE". See "Sample EPA data" tab for examples on this function. No function available for modified or full 5-cycle labels. CREE DF calculations corrected to add the DF for each CD/CS combination rather than after all tests have been combined. For questions specifically about the changes to the V27 release, contact Robert Peavyhouse at Peavyhouse.Robert@epa.gov.
27	9/16/2021	
27a	1/12/2022	Added 2023 model year label inputs. See EPA Guidance Letter CD-2022-01, January 3, 2022. Added support for HD 2b/3, where calculations are based on CO2 instead of CREE. When 2b/3 is selected for 'Vehicle Category', many calculations will be disabled, and others modified to use CO2 instead of CREE. For example: Fuel economy calculations in columns Z and AL will be disabled, and CREE calculations in columns AA and AM will be set to their corresponding CO2 values. When 2b/3 is selected all fuel economy, 5-cycle adjusted, and CAFE values will be set to N/A. Cell formatting will be enforced to require the CREE inputs in columns N and O to be set equal to their corresponding CO2 values in the same columns.
27b	5/3/2022	
27c	3/1/2023	Added 2024 model year label inputs. See EPA Guidance Letter CD-2022-16, December 26, 2022.
27d	11/28/2023	CD_Hwy fuel economy calculation for datasets 2 and 3 were using fuel properties for dataset 1.

<u>Version</u> <u>No.</u>	<u>Release Date</u>	<u>Comments</u>
		<p>Added 2025 model year label inputs.</p> <p>Removed intermediate charge-depleting calculations already performed by the EV-CIS test module. All test data including both charge-depleting and charge-sustaining tests are now imported directly from validated EV-CIS xml files. Charge-sustaining derived 5-cycle, modified 5-cycle, and vehicle specific 5-cycle calculations are performed by macro. When the macro asks to select a Charge-Depleting test, select ONE test. When the macro asks to select Charge-Sustaining tests, select ALL of the corresponding tests. For this reason, all Charge-Sustaining tests should be located within the same directory.</p> <p>Validated xml files can be exported from EV-CIS by using the "Request Database Report" option in the Test Information Module.</p>
28	9/10/2024	Any questions about this PHEV Calculator should be directed to "Peavyhouse.Robert@epa.gov".
28a	2/3/2025	Corrected code that was too specific. FTP 21 worked, but didn't allow other FTP procedures. All FTP test procedures now ok (21, 25, 31, 35).
		<p>Added 2026 model year label inputs. They include the corrected five-year fuel costs from IACD-2025-03 (Revised).</p> <p>Locked workbook structure changes to prevent renaming sheets and to prevent multiple PHEV calc sheets in same workbook.</p> <p>Corrected formula in cells O87 and O136 that was preventing validation of vehicle data in datasets #2 and #3.</p>
28b	3/24/2025	Corrected formula in cell F22 from arithmetic weighted averaging to harmonic weighted averaging.
28c		<p>Five year savings changed from ABS() to display negative sign. Minor VBA macro logic change to detect Null data when importing CD xml data.</p> <p>Occasionally it would detect a zero as null data and reject the file.</p>

LABEL INPUTS: FROM EPA GUIDANCE LETTERS APPLICABLE TO THE APPROPRIATE MODEL YEAR

Fuel Prices										Average New Vehicle Fuel Economy				Average New Vehicle 5-Year Fuel Cost			
Model Year	Regular Unleaded	Mid-Grade Unleaded	Premium Unleaded	Diesel	E85	LPG	CNG	Electricity	Hydrogen	Model Year	MPG			Model Year	5-Year Cost		
2011	3.00	3.10	3.20	3.10	2.60		1.90	0.11		2011	NA			2011	NA		
2012	3.70	3.85	3.95	3.95	3.25		2.15	0.12		2012	NA			2012	NA		
2013	3.55	3.65	3.80	3.80	3.10		2.00	0.12		2013	23			2013	11,600		
2014	3.50	3.60	3.75	3.85	3.10		2.00	0.12		2014	23			2014	11,500		
2015	3.50	3.65	3.80	3.75	3.10		2.00	0.12		2015	24			2015	11,000		
2016	3.00	3.15	3.30	3.35	2.60		1.55	0.13		2016	25			2016	9,000		
2017	2.45	2.65	2.80	2.75	2.05		2.10	0.13		2017	26			2017	7,000		
2018	2.40	2.60	2.80	2.65	1.95		2.10	0.13		2018	27			2018	6,750		
2019	2.55	2.80	3.00	2.85	2.15		2.10	0.13		2019	27			2019	7,000		
2020	2.70	3.00	3.25	3.15	2.30		2.10	0.13		2020	27			2020	7,500		
2021	2.70	3.00	3.25	3.00	2.25		2.15	0.13		2021	27			2021	7,500		
2022	2.35	2.70	2.95	2.55	1.95		2.15	0.13		2022	27			2022	6,500		
2023	2.95	3.40	3.65	3.20	2.60		2.15	0.14		2023	28			2023	8,000		
2024	3.60	4.05	4.30	4.40	3.15		2.20	0.15		2024	28			2024	9,750		
2025	3.50	4.00	4.25	4.10	3.05		2.25	0.16		2025	28			2025	9,500		
2026	3.30	3.80	4.15	3.60	2.85		2.30	0.17		2026	29			2026	8,500		

MPG Rating				
Model Year	Min	Max	Rating	
2016	0	13	1	
2016	14	15	2	
2016	16	17	3	
2016	18	20	4	
2016	21	24	5	
2016	25	27	6	
2016	28	31	7	
2016	32	37	8	
2016	38	45	9	
2016	46	99999	10	
2017	0	14	1	
2017	15	16	2	
2017	17	18	3	
2017	19	21	4	
2017	22	25	5	
2017	26	28	6	
2017	29	32	7	
2017	33	37	8	
2017	38	43	9	
2017	44	99999	10	
2018	0	14	1	
2018	15	16	2	
2018	17	19	3	
2018	20	22	4	
2018	23	26	5	
2018	27	29	6	
2018	30	32	7	
2018	33	37	8	
2018	38	43	9	
2018	44	99999	10	
2019	0	14	1	
2019	15	16	2	
2019	17	19	3	
2019	20	22	4	
2019	23	26	5	
2019	27	29	6	
2019	30	32	7	
2019	33	37	8	
2019	38	43	9	
2019	44	99999	10	
2020	0	14	1	
2020	15	16	2	
2020	17	19	3	
2020	20	22	4	
2020	23	26	5	
2020	27	29	6	
2020	30	33	7	
2020	34	38	8	
2020	39	44	9	
2020	45	99999	10	
2021	0	14	1	
2021	15	16	2	
2021	17	19	3	
2021	20	22	4	
2021	23	26	5	
2021	27	30	6	
2021	31	35	7	
2021	36	42	8	
2021	43	52	9	
2021	53	99999	10	
2022	0	13	1	
2022	14	15	2	
2022	16	18	3	
2022	19	21	4	
2022	22	26	5	
2022	27	30	6	
2022	31	36	7	
2022	37	44	8	
2022	45	57	9	
2022	58	99999	10	
2023	0	13	1	
2023	14	15	2	
2023	16	17	3	
2023	18	21	4	
2023	22	27	5	
2023	28	33	6	
2023	34	40	7	
2023	41	51	8	

GHG Rating				
Model Year	Min	Max	Rating	
2016	659		1	
2016	574	658	2	
2016	509	573	3	
2016	435	508	4	
2016	364	434	5	
2016	324	363	6	
2016	283	323	7	
2016	238	282	8	
2016	196	237	9	
2016	0	195	10	
2017	614		1	
2017	540	613	2	
2017	481	539	3	
2017	414	480	4	
2017	350	413	5	
2017	313	349	6	
2017	274	312	7	
2017	238	273	8	
2017	205	237	9	
2017	0	204	10	
2018	614		1	
2018	540	613	2	
2018	457	539	3	
2018	396	456	4	
2018	336	395	5	
2018	302	335	6	
2018	274	301	7	
2018	238	273	8	
2018	205	237	9	
2018	0	204	10	
2019	614		1	
2019	540	613	2	
2019	457	539	3	
2019	396	456	4	
2019	336	395	5	
2019	302	335	6	
2019	274	301	7	
2019	238	273	8	
2019	205	237	9	
2019	0	204	10	
2020	614		1	
2020	540	613	2	
2020	457	539	3	
2020	396	456	4	
2020	336	395	5	
2020	302	335	6	
2020	266	301	7	
2020	232	265	8	
2020	201	231	9	
2020	0	200	10	
2021	614		1	
2021	540	613	2	
2021	457	539	3	
2021	396	456	4	
2021	336	395	5	
2021	292	335	6	
2021	251	291	7	
2021	210	250	8	
2021	170	209	9	
2021	0	169	10	
2022	659		1	
2022	574	658	2	
2022	481	573	3	
2022	414	480	4	
2022	336	413	5	
2022	292	335	6	
2022	244	291	7	
2022	201	243	8	
2022	156	200	9	
2022	0	155	10	
2023	659		1	
2023	574	658	2	
2023	509	573	3	
2023	414	508	4	
2023	324	413	5	
2023	266	323	6	
2023	220	265	7	
2023	174	219	8	

PHEV Calculator Version 28c

CALCULATED Corporate Average Fuel Economy (CAFE), Greenhouse Gas (GHG), AND LABEL VALUES

CAR Values			
Airway emissions dual fuel criteria	City	Highway	Combined
1. Heavy Duty 2010 Composite Miles Per Gallon (mpg/Gal)	HCW/102	HCW/101	HCW/103
2. Composite Miles Per Gallon (mpg/Gal)	HCW/102	HCW/101	HCW/103
3. Heavy Duty 2010 test dual fuel criteria	City	Highway	Combined
4. Light Duty Fuel Consumption (mpg/Gal)	City	Highway	Combined
5. Light Duty Fuel Consumption (mpg/Gal)	City	Highway	Combined
Based on all the electric range, is this HEV a dual fuel vehicle for CAE?			NO
City = 35.4, and Highway = 46.2			
60 Electric Range (miles, unqualified)	426	Gasoline	0.0
	0.00	0.00	0.0
GWP Values	City	Highway	Combined
Community Carbon Standard Exhaust Emissions (CO2eq), without DP (g/mi)	HCW/102	HCW/101	HCW/103
Community Carbon Standard Exhaust Emissions (CO2eq), with DP (g/mi)	DP HCW/102	DP HCW/101	DP HCW/103
Label Values (5-Cycle Adjusted)			
Charging Range (Miles)	City	Highway	Combined
Charging-Discharge Range (Miles)	HCW/102	HCW/101	HCW/103
Air Emission Range (Miles)	HCW/102	HCW/101	HCW/103
Total Driving Range (Miles)	HCW/102	HCW/101	HCW/103
CO2 Fuel Economy (mpg/Gal)	HCW/102	HCW/101	HCW/103
CO2 Electric Consumption (kWh/100mi)	HCW/102	HCW/101	HCW/103
CO2 Electric Consumption (kWh/100mi)	HCW/102	HCW/101	HCW/103
CO2 Electric Consumption (gal/100mi)	City	Highway	Combined
Charging Efficiency (%)	HCW/102	HCW/101	HCW/103
CO2 Fuel Economy (Miles Per Gallon (MPG))	HCW/102	HCW/101	HCW/103
Composite CO2 (g/mi)	HCW/102	HCW/101	HCW/103
CO2 Fuel Consumption (gal/100mi)	HCW/102	HCW/101	HCW/103
Composite CO2 (g/mi)	HCW/102	HCW/101	HCW/103
Annual Fuel Cost (\$/year)	HCW/102	HCW/101	HCW/103
5-Year Fuel Savings Value (\$/5 years)	HCW/102	HCW/101	HCW/103
Composite CO2 (g/mi)	HCW/102	HCW/101	HCW/103
CO2 Fuel Economy (mpg/Gal)	HCW/102	HCW/101	HCW/103
MPG Rating (on scale of 1-10)	HCW/102	HCW/101	HCW/103

THE FOLLOWING VALUES ARE USED FOR OTHER EPA PUBLICATIONS OR PROGRAMS

[illegible]

ENTER BASIC VEHICLE INFORMATION HERE

[illegible]

Test Unit #2		1	
Test Unit name (e.g., Eco, Power):			
Production Volume (expected or actual):			
REPORT CHARGE-DEPLETING TEST KWH DATA			
Charge-Depleting Test (Required):	CP Procedure	Test Number	Vehicle ID/City
Charge-Depleting Test (Required):			
REPORT CHARGE-SUSTAINING KWH DATA			
Charge-Sustaining Test (Required):	CP Procedure	Test Number	Vehicle ID/City
Charge-Sustaining Test (Required):			
Charge-Sustaining Test (Optional):			
Charge-Sustaining Test (Optional):			
Charge-Sustaining Test (Optional):			
Charge-Sustaining Test (Optional):			
Charge-Sustaining Test (Optional):			
Charge-Sustaining Test (Optional):			
Charge-Sustaining Test (Optional):			
REPORT CALCULATED CHARGE-SUSTAINING TEST RESULTS			
	CP City	CP Highway	Calc Types
Fuel Economy, Unadjusted (MPG):			
Fuel Economy, S-Curve Adjusted (MPG):			
CRUI (g/mi)			
COC, Unadjusted (g/mi):			

INTERMEDIATE CALCULATIONS AND INPUTS		Test Set #	0
Energy Dispatching (CD) Test Results			
DRIVING DISTANCE VALUES			
CD	City	CD Hwy	
1 driving distance (Block, unadjusted (mi)) [2] 2 driving distance (Block, adjusted (mi)) [2] 3 all electric driving distance (Block, unadjusted (mi)) [2] 4 all electric driving distance (Block, adjusted (mi)) [2] 5 AC electric Range, adjusted (mi) [2]			
WATER CONSUMPTION & ECONOMIC VALUES			
CD	City	CD Hwy	
1 AC electricity consumption (Block, unadjusted (Watt hours)) [2] 2 AC electricity consumption (Block, adjusted (kWh to 1000Wh)) [2] 3 true total AC energy consumed, unadjusted (Watt hours) [3] 3 true total AC energy consumed, unadjusted (kWh to 1000kWh) [3] 5 AC electricity consumption (Block, adjusted (gal per mile)) [4] 6 unadjusted fuel tank consumption rate (42.57 F, Block, unadjusted (gal per mile/mph)) [4] 7 unadjusted fuel tank consumption rate (42.57 F, Block, unadjusted (gal per mile/mph)) [4] 8 unadjusted fuel tank consumption rate (42.57 F, Block, unadjusted (gal per mile/mph)) [4] 9 gasoline consumption (Block, unadjusted (gal)) [1] 10 gasoline consumption (Block, adjusted (gal)) [1] 11 gasoline consumption rate (Block, adjusted (gal per 100mi)) [4] 12 gasoline consumption rate (Block, adjusted (gal per 100mi)) [4] 13 gasoline consumption rate (Block, adjusted (gal per 100mi)) [4] 14 AC electricity consumption (Block, unadjusted (kWh to 1000kWh)) [3]			
WATER EMISSIONS VALUES			
CD	City	CD Hwy	
1 CO2 emissions rate (Block, unadjusted (g per mile)) [2] 2 CO2 emissions rate (Block, adjusted (g per mile)) [2] 3 unadjusted CO2 (AC/DC, Block, adjusted (g per mile)) [2] 4 unadjusted CO2 (120-140 F, Block, unadjusted (g per mile)) [2] 5 unadjusted CO2 (42.57 F, Block, unadjusted (g per mile)) [2] 6 unadjusted CO2 (42.57 F, Block, adjusted (g per mile)) [2]			
UTILITY METRICS & OTHER METRICS			
CD	City	CD Hwy	
1 55-45 Furb Utility Factor (FUF) for Node [2] 2 42.57 Furb Utility Factor (FUF) [2] 3 FUF based on unadjusted Node [2] 4 FUF based on adjusted Node [2]			
Intermediate Results Resulting in Charge-Subtracting (CD) Test Results or Other Outputs			

[illegible]

Test Set ID:				2
Test Set name (e.g., Eco, Power):				
Production Volume (projected or actual):				
IMPORT CHARGE-PROJECTING TEST AVE, DATA				
Charge-Projecting Test (Required):	CS Procedure	Test Number	Vehicle ID/City	
Charge-Projecting Test (Required):				
IMPORT CHARGE-SUSTAINING XRL DATA				
Charge-Sustaining Test (Optional):	CS Procedure	Test Number	Vehicle ID/City	
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
Charge-Sustaining Test (Optional):				
MACRO CALCULATED CHARGE-SUSTAINING TEST RESULTS				
Test Economy, Unadjusted (MPG)	CS City	CS Highway	Calc. Type	
Test Economy, 5-Cycle Adjusted (MPG)				
WHTL				
CO ₂ , Unadjusted (g/mi)				
CO ₂ , 5-Cycle Adjusted (g/mi)				

INTERMEDIATE CALCULATIONS AND INPUTS		Year 2040
DRIVING DISTANCE 21 driving distance (RdMil, unadjusted) [miles] 21 22 driving distance (RdMil, adjusted) [miles] 22 23 all electric driving distance, unadjusted [miles] 23 24 all electric driving distance, unadjusted [miles] 24 25 All Electric Range, adjusted [mi] 25		
City	City	City
USE, CONSUMPTION & ECONOMIC VALUES 26 AC electricity consumption rate (RdMil, unadjusted) [Watt/hour/mile] 26 27 AC electricity consumption rate (RdMil, adjusted) [Watt/hour/mile] 27 28 test total DC energy consumption, unadjusted [Watt/hour] 28 29 test total fuel consumption rate (RdMil, unadjusted) [gpm/mile] 29 30 additional total fuel consumption rate (53.43/F, RdMil, unadjusted) [gal/gpm/mile] 30 31 utilized total fuel consumption rate (42.57/F, RdMil, adjusted) [gal/gpm/mile] 31 32 additional total fuel consumption rate (53.43/F, RdMil, adjusted) [gal/gpm/mile] 32 33 gasoline consumption rate (RdMil, unadjusted) [gal/100mi] 33 34 test economy (RdMil, adjusted) [mpg/100mi] 34 35 gasoline consumption rate (RdMil, adjusted) [gal/100mi] 35 36 fuel economy (RdMil, adjusted) [mpg/100mi] 36 37 AC electricity consumption rate (RdMil, unadjusted) [kWh/100mi] 37 38 AC electricity consumption rate (RdMil, adjusted) [kWh/100mi] 38		
City	City	City
PER DISBURSE VALUES 39 CO2 emissions rate (RdMil, unadjusted) [gpm] 39 40 CO2 emissions rate (RdMil, adjusted) [gpm] 40 41 utilized CO2 (RdMil, RdMil, unadjusted) [gpm] 41 42 utilized CO2 (53.43/F, RdMil, unadjusted) [gpm] 42 43 utilized CO2 (42.57/F, RdMil, adjusted) [gpm] 43 44 utilized CO2 (53.43/F, RdMil, adjusted) [gpm] 44		
City	City	City
UTILITY FACTORS & OTHER METRICS 45 50-60 FWH Utility Factor (F) for Road 33 46 42-57 FWH Utility Factor (F) for Road 33 47 50-60 FWH adjusted Road Factor (F) 47 48 42-57 FWH adjusted Road Factor (F) 48 49 50-60 FWH adjusted Road Factor (F) 49 50 42-57 FWH adjusted Road Factor (F) 50 51 50-60 FWH adjusted Road Factor (F) 51 52 42-57 FWH adjusted Road Factor (F) 52 53 50-60 FWH adjusted Road Factor (F) 53 54 42-57 FWH adjusted Road Factor (F) 54 55 50-60 FWH adjusted Road Factor (F) 55 56 42-57 FWH adjusted Road Factor (F) 56 57 50-60 FWH adjusted Road Factor (F) 57 58 42-57 FWH adjusted Road Factor (F) 58 59 50-60 FWH adjusted Road Factor (F) 59 60 42-57 FWH adjusted Road Factor (F) 60 61 50-60 FWH adjusted Road Factor (F) 61 62 42-57 FWH adjusted Road Factor (F) 62 63 50-60 FWH adjusted Road Factor (F) 63 64 42-57 FWH adjusted Road Factor (F) 64 65 50-60 FWH adjusted Road Factor (F) 65 66 42-57 FWH adjusted Road Factor (F) 66 67 50-60 FWH adjusted Road Factor (F) 67 68 42-57 FWH adjusted Road Factor (F) 68 69 50-60 FWH adjusted Road Factor (F) 69 70 42-57 FWH adjusted Road Factor (F) 70 71 50-60 FWH adjusted Road Factor (F) 71 72 42-57 FWH adjusted Road Factor (F) 72 73 50-60 FWH adjusted Road Factor (F) 73 74 42-57 FWH adjusted Road Factor (F) 74 75 50-60 FWH adjusted Road Factor (F) 75 76 42-57 FWH adjusted Road Factor (F) 76 77 50-60 FWH adjusted Road Factor (F) 77 78 42-57 FWH adjusted Road Factor (F) 78 79 50-60 FWH adjusted Road Factor (F) 79 80 42-57 FWH adjusted Road Factor (F) 80 81 50-60 FWH adjusted Road Factor (F) 81 82 42-57 FWH adjusted Road Factor (F) 82 83 50-60 FWH adjusted Road Factor (F) 83 84 42-57 FWH adjusted Road Factor (F) 84 85 50-60 FWH adjusted Road Factor (F) 85 86 42-57 FWH adjusted Road Factor (F) 86 87 50-60 FWH adjusted Road Factor (F) 87 88 42-57 FWH adjusted Road Factor (F) 88 89 50-60 FWH adjusted Road Factor (F) 89 90 42-57 FWH adjusted Road Factor (F) 90 91 50-60 FWH adjusted Road Factor (F) 91 92 42-57 FWH adjusted Road Factor (F) 92 93 50-60 FWH adjusted Road Factor (F) 93 94 42-57 FWH adjusted Road Factor (F) 94 95 50-60 FWH adjusted Road Factor (F) 95 96 42-57 FWH adjusted Road Factor (F) 96 97 50-60 FWH adjusted Road Factor (F) 97 98 42-57 FWH adjusted Road Factor (F) 98 99 50-60 FWH adjusted Road Factor (F) 99 100 42-57 FWH adjusted Road Factor (F) 100		
City	City	City
DRIVING DISTANCE 101 driving distance (RdMil, unadjusted) [miles] 101 102 driving distance (RdMil, adjusted) [miles] 102 103 all electric driving distance, unadjusted [miles] 103 104 all electric driving distance, unadjusted [miles] 104 105 All Electric Range, adjusted [mi] 105		
City	City	City
USE, CONSUMPTION & ECONOMIC VALUES 106 AC electricity consumption rate (RdMil, unadjusted) [Watt/hour/mile] 106 107 AC electricity consumption rate (RdMil, adjusted) [Watt/hour/mile] 107 108 test total DC energy consumption, unadjusted [Watt/hour] 108 109 test total fuel consumption rate (RdMil, unadjusted) [gpm/mile] 109 110 additional total fuel consumption rate (53.43/F, RdMil, unadjusted) [gal/gpm/mile] 110 111 utilized total fuel consumption rate (42.57/F, RdMil, adjusted) [gal/gpm/mile] 111 112 additional total fuel consumption rate (53.43/F, RdMil, adjusted) [gal/gpm/mile] 112 113 gasoline consumption rate (RdMil, unadjusted) [gal/100mi] 113 114 test economy (RdMil, adjusted) [mpg/100mi] 114 115 gasoline consumption rate (RdMil, adjusted) [gal/100mi] 115 116 fuel economy (RdMil, adjusted) [mpg/100mi] 116 117 AC electricity consumption rate (RdMil, unadjusted) [kWh/100mi] 117 118 AC electricity consumption rate (RdMil, adjusted) [kWh/100mi] 118		
City	City	City
PER DISBURSE VALUES 119 CO2 emissions rate (RdMil, unadjusted) [gpm] 119 120 CO2 emissions rate (RdMil, adjusted) [gpm] 120 121 utilized CO2 (RdMil, RdMil, unadjusted) [gpm] 121 122 utilized CO2 (53.43/F, RdMil, unadjusted) [gpm] 122 123 utilized CO2 (42.57/F, RdMil, adjusted) [gpm] 123 124 utilized CO2 (53.43/F, RdMil, adjusted) [gpm] 124		
City	City	City
UTILITY FACTORS & OTHER METRICS 125 50-60 FWH Utility Factor (F) for Road 33 126 42-57 FWH Utility Factor (F) for Road 33 127 50-60 FWH adjusted Road Factor (F) 127 128 42-57 FWH adjusted Road Factor (F) 128 129 50-60 FWH adjusted Road Factor (F) 129 130 42-57 FWH adjusted Road Factor (F) 130 131 50-60 FWH adjusted Road Factor (F) 131 132 42-57 FWH adjusted Road Factor (F) 132 133 50-60 FWH adjusted Road Factor (F) 133 134 42-57 FWH adjusted Road Factor (F) 134 135 50-60 FWH adjusted Road Factor (F) 135 136 42-57 FWH adjusted Road Factor (F) 136 137 50-60 FWH adjusted Road Factor (F) 137 138 42-57 FWH adjusted Road Factor (F) 138 139 50-60 FWH adjusted Road Factor (F) 139 140 42-57 FWH adjusted Road Factor (F) 140 141 50-60 FWH adjusted Road Factor (F) 141 142 42-57 FWH adjusted Road Factor (F) 142 143 50-60 FWH adjusted Road Factor (F) 143 144 42-57 FWH adjusted Road Factor (F) 144 145 50-60 FWH adjusted Road Factor (F) 145 146 42-57 FWH adjusted Road Factor (F) 146 147 50-60 FWH adjusted Road Factor (F) 147 148 42-57 FWH adjusted Road Factor (F) 148 149 50-60 FWH adjusted Road Factor (F) 149 150 42-57 FWH adjusted Road Factor (F) 150 151 50-60 FWH adjusted Road Factor (F) 151 152 42-57 FWH adjusted Road Factor (F) 152 153 50-60 FWH adjusted Road Factor (F) 153 154 42-57 FWH adjusted Road Factor (F) 154 155 50-60 FWH adjusted Road Factor (F) 155 156 42-57 FWH adjusted Road Factor (F) 156 157 50-60 FWH adjusted Road Factor (F) 157 158 42-57 F		

[illegible]

Test set no. ()		3	
Test set name (e.g., CS, Power)			
Collection Volume (projected or actual)			
IMPORT CHARGE COPIING TEST KML DATA			
Charge Copying Test (Required)	CS Procedures	Test Number	Vehicle (U/V/g)
Charge Copying Test (Required)			
IMPORT CHARGE SUSTAINING KML DATA			
Charge Sustaining Test (Optional) - none	CS Procedures	Test Number	Vehicle (U/V/g)
Charge Sustaining Test (Required)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
Charge Sustaining Test (Optional)			
IMPORT CALCULATED CHARGE SUSTAINING TEST RESULTS			
Real Economy, Unadjusted (MPC)	CS City	CS Highway	Calc Type
Real Economy, 5-Cycle Adjusted (MPC)			
Real (acres)			
CO ₂ , Unadjusted (in/mi)			
CO ₂ , 5-Cycle Adjusted (in/mi)			

OVERALL INPUTS, CALCULATIONS AND INPUTS		Year 2010	Year 2050
DRIVING DISTANCE VALUES			
CD	City	CD	City
10 driving distance (Rural, unadjusted) [miles] [1] 11 driving distance (Rural, adjusted) [miles] [2] 12 all electric driving distance, unadjusted [miles] [3] 13 AC Electric Range, adjusted [miles] [4]			
FUEL CONSUMPTION & ECONOMY VALUES			
		CD	City
14 AC electricity consumption rate (Rural, unadjusted) [Watt/hr/mile] [5] 15 AC electricity consumption rate (Rural, adjusted) [Watt/hr/mile] [6] 16 test fuel test energy consumed, unadjusted (Watt/hrs) [7] 17 test fuel test energy consumed, adjusted (Watt/hrs) [8] 18 utilized fuel test consumption rate (CD) [gals/eq-mph/mile] [9] 19 utilized fuel test consumption rate (Rural) [gals/eq-mph/mile] [10] 20 utilized fuel test consumption rate (MDOF, Rural, adjusted) [gals/eq-mph/mile] [11] 21 gasoline consumption rate (Rural, unadjusted) [gals] [12] 22 fuel economy (Rural, adjusted) [MPG/mi] [13] 23 gasoline consumption rate (Rural, adjusted) [gals/eq/100mi] [14] 24 fuel economy (Rural, unadjusted) [MPG/mi] [15] 25 AC electricity consumption rate (Rural, adjusted) [Watt/hr/100mi] [16]			
PER PERSON VALUES			
		CD	City
26 CO2 emissions rate (Rural, unadjusted) [g/mi] [17] 27 CO2 emissions rate (Rural, adjusted) [g/mi] [18] 28 utilized CO2 (MDOF, Rural, adjusted) [g/mi] [19] 29 utilized CO2 (CD) [gals, Rural, unadjusted] [g/mi] [20] 30 utilized CO2 (CD) [gals, Rural, adjusted] [g/mi] [21] 31 utilized CO2 (CD) [gals, Rural, adjusted] [g/mi] [22]			
		CD	City
UTILITY FACTORS & OTHER METRICS			
32 30/45 Fuel Utility Factor (Fuel) for Rural [33] 33 45/75 Fuel Utility Factor (Fuel) [34] 34 Rural factor = adjusted Rural [35] 35 MDOF factor = adjusted Rural [36]			
Intermediate, Results Reporting Change (Stabilizing CO2 Test Results or Other Impacts Results)			
		CD	City
		IN	IN
36 Equivalent All Electric Range (EAER), Unadjusted [mi]		IN	IN

[illegible]