

User Guide on Projections Reporting Template for Light Duty



NHTSA Version 2.4

VERSION HISTORY

Version	Date	Organization	Change Summary	Comments
1.0	08/02/2018	NHTSA	Original	Draft for NPRM
1.1	08/30/2018	NHTSA	Formatted title block.	Proposed with NPRM
2.0	09/20/2019	NHTSA	Edited based on NPRM public comments; the majority of the changes are related to the calculation of fuel economy.	Proposed for FR
2.1 – 2.23	07/02/2020	NHTSA	Updated the template to include FE Configuration and FE Base Level tabs for all three fleets. Updated name manager, VBA code, data definition tab, supporting tabs and calculation tab. Updated color coding of the columns, added and removed some extra columns, updated the data definition tab, updated the formulas. Updated based on discussion with manufacturer, updated the Fuel Economy calculation, Data definition tab now includes data filters.	Draft for NPRM
2.24	07/16/2020	NHTSA	Updated the List of manufacturers and formatting.	Draft for NPRM
2.25	01/10/2022	NHTSA	Updated the template based on NPRM comments received.	Draft for NPRM
2.30	10/02/2022	NHTSA	Updated the template based on the feedback received from OEMs.	Draft for NPRM
2.31	11/02/2022	NHTSA	Updated the template based on the feedback received from OEMs.	Released
2.4	05/24/2023	NHTSA	Updated the template based on the feedback received from OEMs.	Released

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I. INTRODUCTION

A. Purpose

This User Guide is designed to provide light-duty vehicle manufacturers with simplified instructions on how to complete the NHTSA CAFE Projections Reporting Template. This guide is divided into sections based on the individual worksheets within the template; each worksheet has its own corresponding section in this guide. The sections contain any combination of descriptions, screen captures, and step-by-step instructions.

Note: This user guide is a living document. It will be updated concurrently with changes to the template, and as needed to improve its effectiveness.

If you have questions or concerns at any point in the reporting process, send an email to <mailto:CAFE@dot.gov>.

B. Audience

This guide is developed and distributed for the following audience:

Light-Duty Vehicle Manufacturers

C. Background

EPCA, as amended by EISA, requires vehicle manufacturers to submit fuel economy reports to the Secretary of Transportation prior to, and during each model year. To implement these reporting requirements, NHTSA issued 49 CFR Part 537, “Automotive Fuel Economy Reports,” which specifies three types of fuel economy reports that manufacturers must submit to the agency. Manufacturers are required to submit a pre-model year (PMY) report between December 1st and 31st of the calendar year prior to the model year, a mid-model year (MMY) report between July 1st and 31st of the model year, and supplemental reports throughout the model year, as necessary. Manufacturers must submit confidential and redacted versions of each report to NHTSA. Confidential reports contain estimated production sales information; however, that data is withheld from public disclosure for up to one year, hence the requirement of a redacted version.

In the 2019 joint rulemaking, titled “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks,” NHTSA altered its reporting requirements to mandate the use of a new standardized reporting template for reporting the fuel economy information specified in 49 CFR Parts 537.7 and 537.8. The NHTSA CAFE Projections Reporting Template will assist manufacturers in providing the agency with necessary data and complying with CAFE regulations. The template organizes the data in a manner consistent with NHTSA and EPA regulations, and simplifies the reporting process by incorporating standardized responses consistent with those provided to EPA. It collects user-entered data, calculates intermediate and final values in accordance with EPA and NHTSA methodologies, and aggregates all the required final values in a single summary worksheet.

D. Design

Manufacturers will complete the confidential version of the template. It contains 27 separate worksheets (see Table 1)—too many to see collectively at the bottom of a screen. On the bottom left of the template, there are toggle arrows that will scroll left or right through the worksheets when clicked (see Figure 01). Five groupings of worksheets (i.e., Footprint & SubConfig., Fuel Economy, Vehicle Classification, AC Efficiency, and Off-Cycle) consist of three nearly identical versions of themselves with Fuel Economy being further sub grouped based on sub-configuration (merged with footprint and target), configuration,

Base Level and Model Type worksheets— one for each compliance category, i.e., DP, IP, and LT. The only difference between each of the three versions is the compliance category designation in the top left of each of the worksheets.

The template is locked for editing to prevent accidental changes to formulas and calculation methodologies; however, most worksheets have cells that permit users to enter data. Generally, cells with no fill and blue, bolded font are available for users to enter data. These cells can consist of either an empty field or a field that contains a dropdown list of available values. Cells with grey fill and black text will be populated based on information the user has entered elsewhere in the template.

Table 1: NHTSA CAFE Projections Reporting Template Worksheets

1. Data Definitions	15. Fuel Economy Model Type - LT
2. General Info.	16. Vehicle Classification
3. Summary	17. AC Efficiency - DP
4. Footprint & SubConfig. - DP	18. AC Efficiency - IP
5. Footprint & SubConfig. - IP	19. AC Efficiency - LT
6. Footprint & SubConfig. - LT	20. OC & Full-Size PU Truck Tech.
7. Fuel Economy Configuration - DP	21. Off-Cycle - DP
8. Fuel Economy Configuration - IP	22. Off-Cycle - IP
9. Fuel Economy Configuration - LT	23. Off-Cycle - LT
10. Fuel Economy Base Level - DP	24. Pickup Truck - LT
11. Fuel Economy Base Level - IP	25. Supporting
12. Fuel Economy Base Level - LT	26. Supporting 2
13. Fuel Economy Model Type - DP	27. Calculations
14. Fuel Economy Model Type - IP	

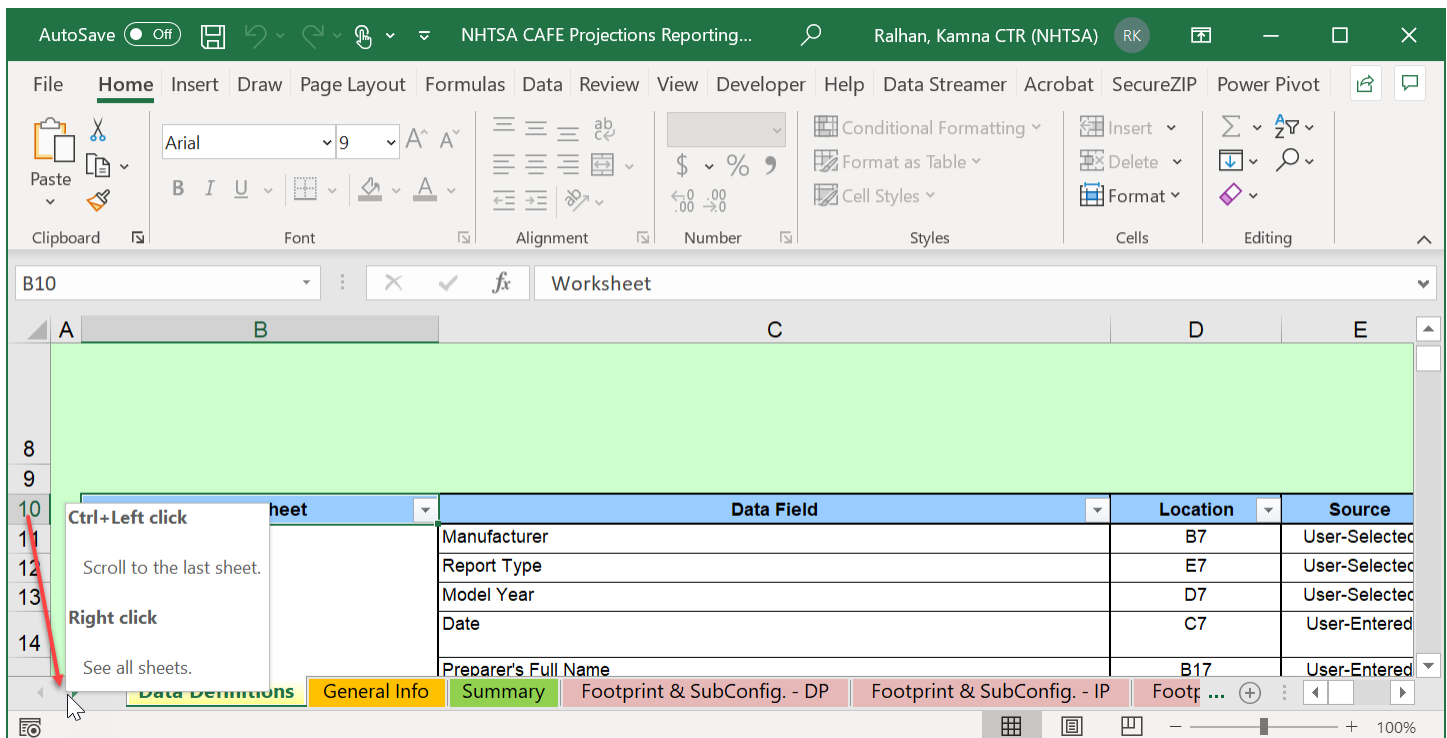


Figure 01: Showing toggle arrows that will scroll left or right through the worksheets

II. WORKSHEETS

A. Data Definitions

The template commences with the sortable and filterable Data Definitions tab. This worksheet provides the user with the worksheet, location, source, data type/format, data definition/description, and regulatory citation for each data field within the template. The Data Definitions worksheet is a guide that users can reference when completing the template.

B. General Info

This worksheet is where users inform NHTSA of general information about the submission, like manufacturer, report type, model year, and submission data. Users will also enter contact information, like name, title, company, and address for each of the three agents designated by the manufacturer, i.e., the Preparer, Designated Signatory, and Point of Contact.

The remaining important aspect of this worksheet is the “Generate Public Report” button (see Figure 02). By clicking on this button, users can generate a redacted version of the report. The public report is a clone of the confidential report where production volumes and other data fields derived from production volumes are left blank.

United States
Department of Transportation
National Highway Transportation Safety Administration

NHTSA CAFE Projections Reporting Template (OMB Control No. 2127-0019)
NHTSA Form Number 1474
49 CFR 537, 40 CFR 600.208-12, 40 CFR 600.510-12, 40 CFR 86.1868-12, 40 CFR 86.1869-12, and 40 CFR 86.1870-12

Version Number: 2.0; Last Revision: 09/20/2019; Expiration Date: xxxxxxxxxx

SECTION 1: General Information

Manufacturer (Select Manufacturer)	Report Type (Select Report Type)	Model Year (Select Model Year)	Date (mm/dd/yyyy)	Generate Public Report
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Figure 02: Showing Generate Public Report button on General Info. worksheet

C. Summary

The Summary worksheet aggregates all the required final values into a single location. The manufacturer, manufacturer code, model year, and report type are all found at the top of the worksheet. These fields are populated based on user responses in the General Info worksheet. The remaining data is separated into eight distinct summary sections: 1) Footprint and Target, 2) Fuel Economy, 3) Vehicle Classification, 4) Production Volume, 5) Fuel Economy Adjustment, 6) Alternative Dual Fuel, 7) AC Efficiency, Off-Cycle, and Full-Size Pickup Truck, and 8) Final. The Summary worksheet also has places where users can

enter an additional standard value in accordance with 49 CFR 537.7(b)(4) and an additional performance value in accordance with 49 CFR 537.7(b)(2).

D. Footprint & SubConfig.

Each of the Footprint & SubConfig. worksheets (Footprint & SubConfig. - DP, Footprint & SubConfig. - IP, and Footprint & SubConfig. - LT) use data entered by the user along with calculation methodologies established by NHTSA to produce intermediate values necessary for calculating the fleet average standard. Each record corresponds to sub-configuration/footprint combination. Each row is identified by serial number in column B. Users are required to provide vehicle's model type index, sub-configuration index, configuration index, and base level index in column C, D, E, and F respectively. Columns J through Y contain the model-type data specific to the associated model type index. Column Z is the production volume for each of the unique sub-configuration/footprint combination. Columns AA through AI are data fields related to the calculation of the target value for each record and standard value for the compliance category. Users will enter the front and rear base tires, front and rear track widths, and wheelbase. The worksheet will calculate the average track width, footprint, & target for each record.

Further Columns AJ through AY contain data used to further distill model types down to the sub-configuration level. If there is production in 2 different ETW ranges, user must split the data and report the appropriate production for each of them. Columns AZ through BC allow users to provide additional vehicle characteristic data. Columns BD through BM are data fields necessary for calculating fuel economy performance for an entire fleet (i.e., compliance category). Specifically, columns BE through BH are data fields for a base fuel, columns BI through BL are data fields for an alternative fuel (if applicable). Column BM calculates the production volume for tested vehicles at Sub-configuration level based on sub-configuration index.

To Complete a **Footprint & SubConfig.** worksheet see **Figure 03** to **Figure 08**:

Figure 03: Model Type Data

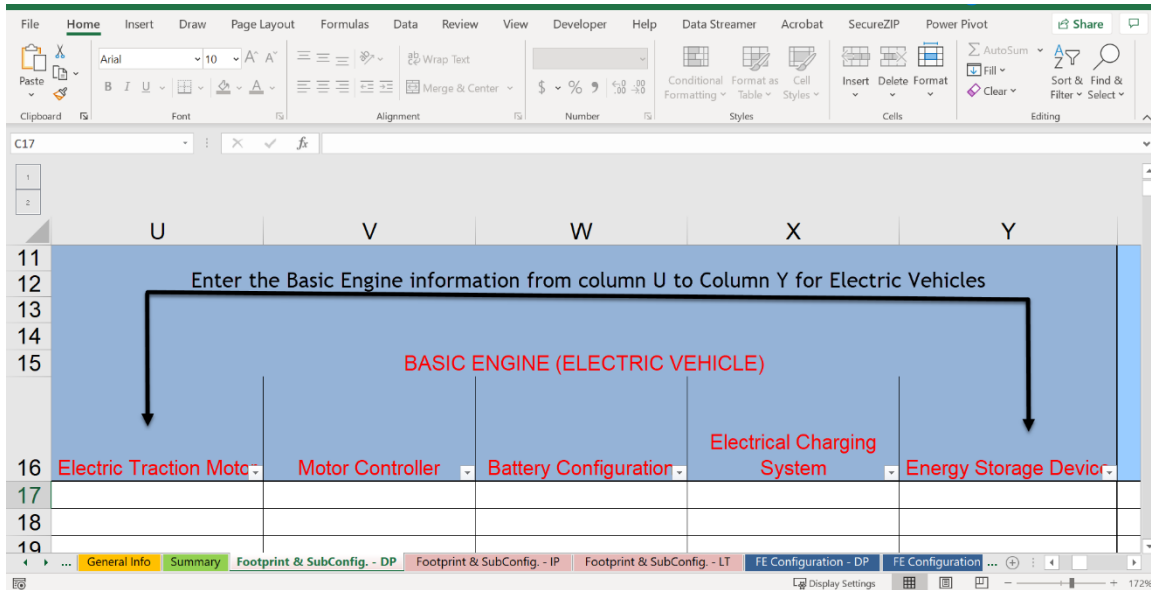


Figure 04: Basic Engine for Electric Vehicles

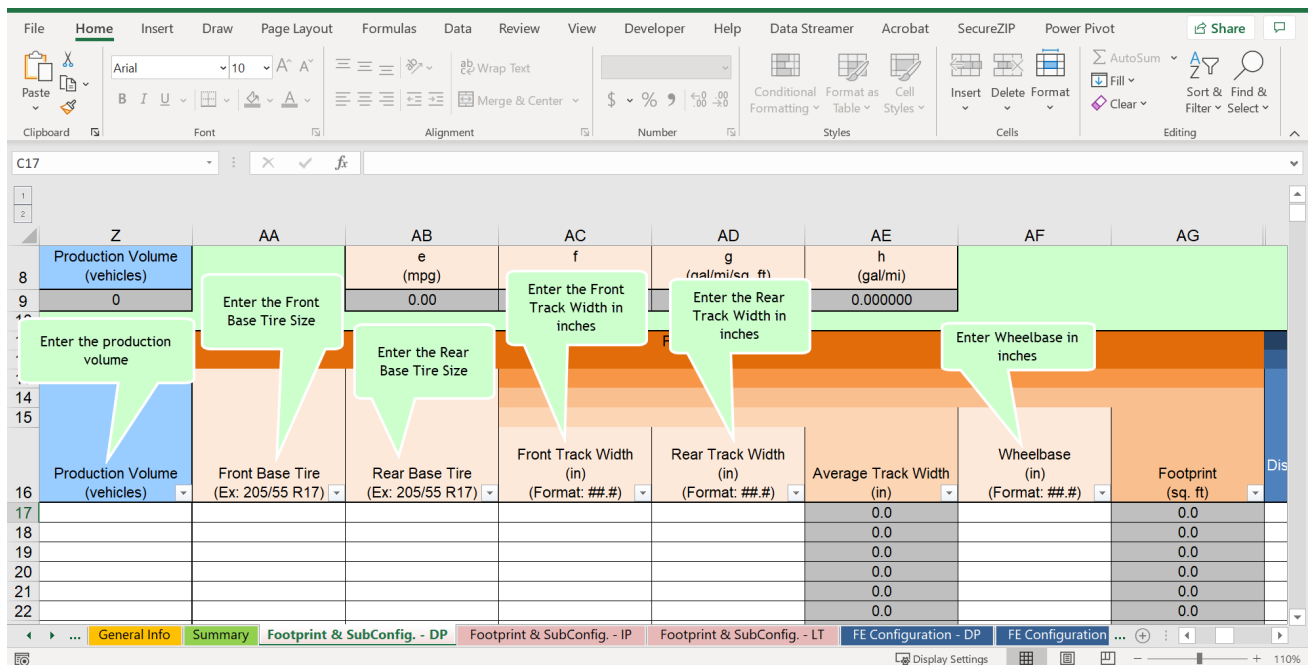
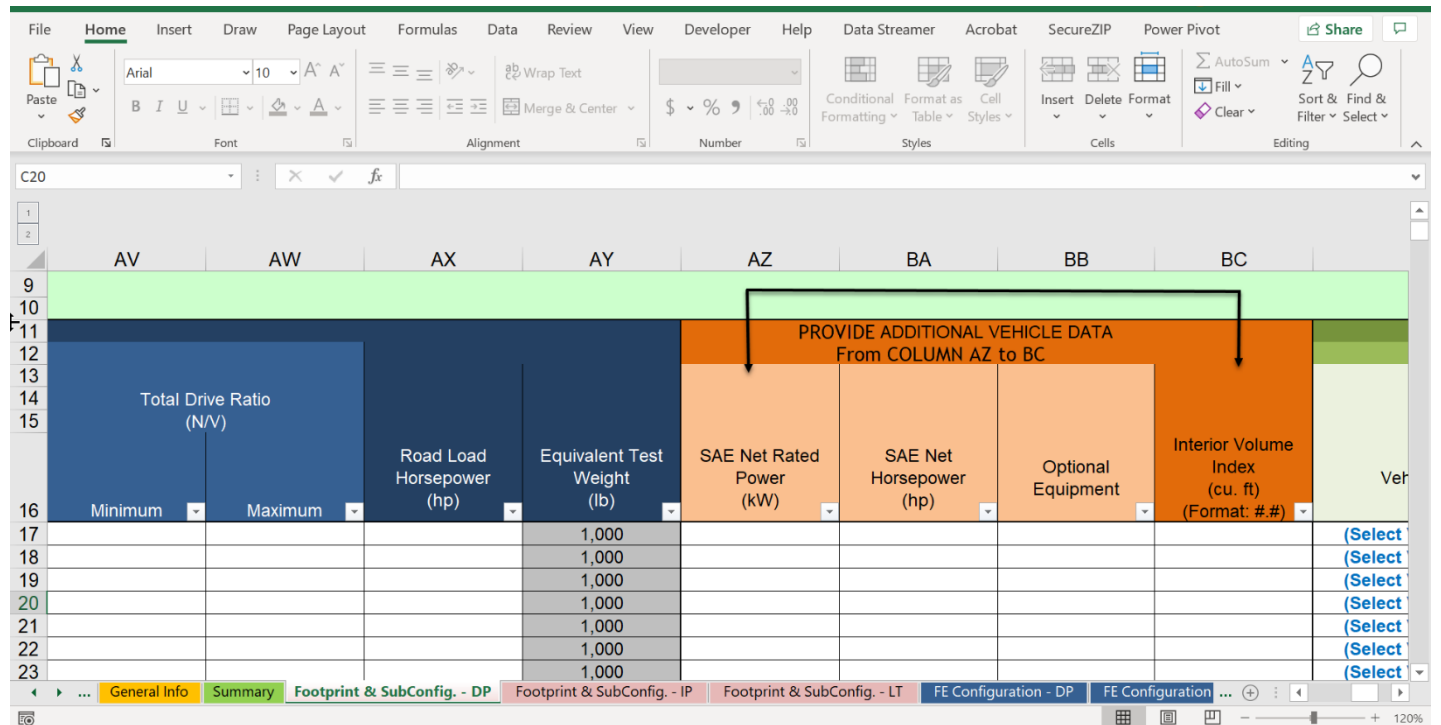
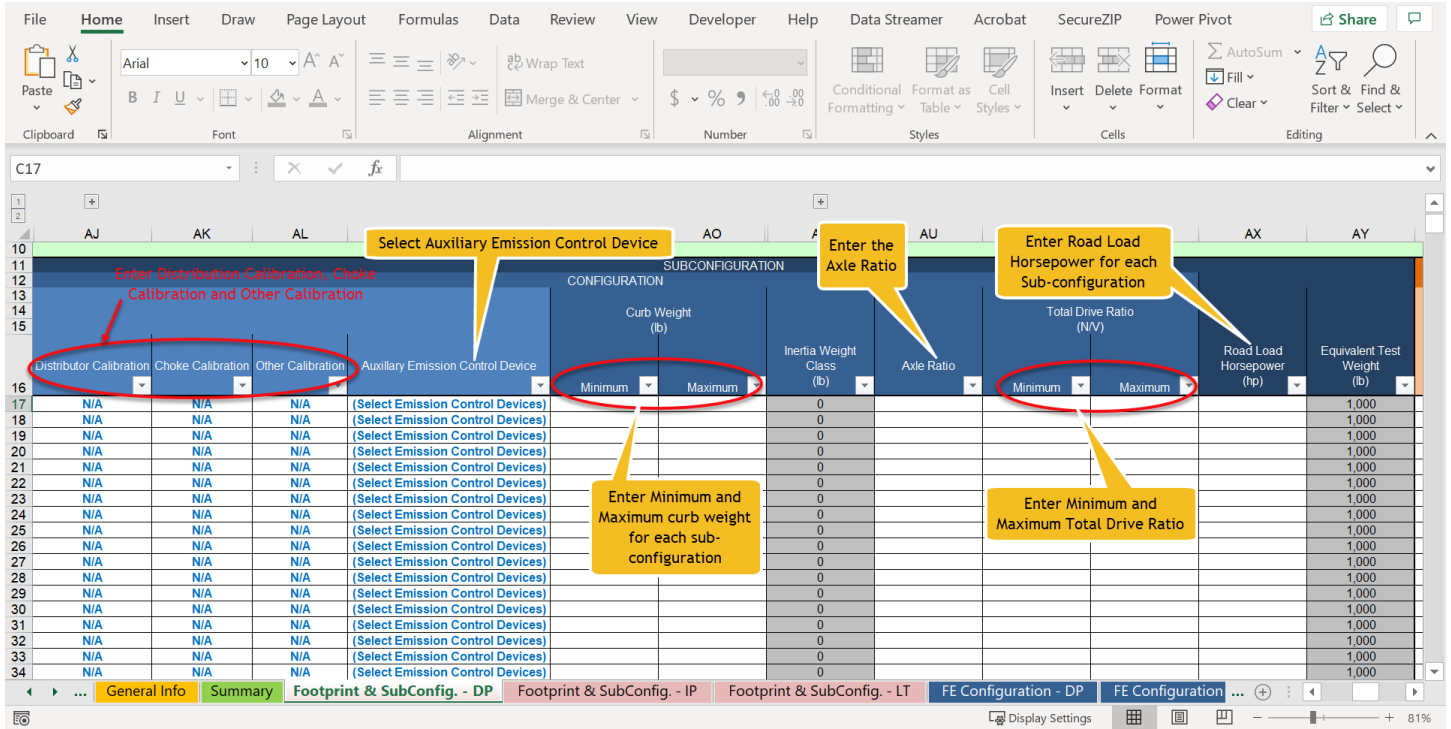


Figure 05: Production volume and footprint data



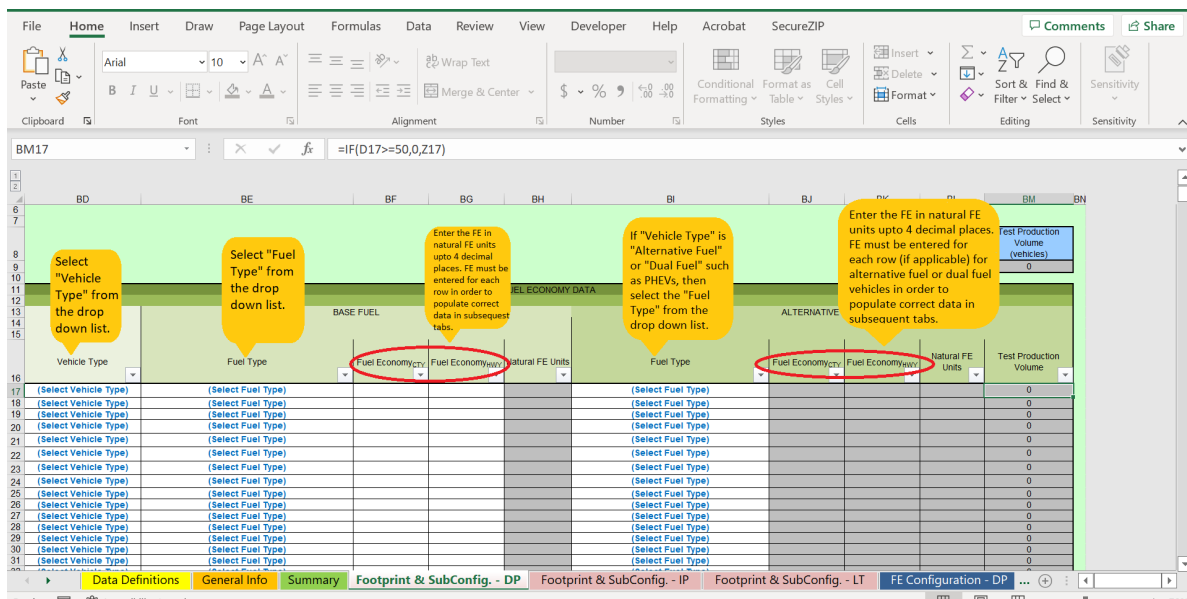


Figure 08: Fuel Economy Data

E. Fuel Economy Configuration

Each of the Fuel Economy Configuration worksheet (FE Configuration - DP, FE Configuration - IP, and FE Configuration - LT) use data entered by the user along with calculation methodologies established by EPA to produce intermediate values necessary for calculating the fleet average fuel economy at the configuration level. Based on the serial number in column B the data will auto-populate in subsequent columns except for DOE Petroleum Equivalence Factor, Source for Utility Factor and Utility Factor for City and Highway. The user will have to select the DOE Petroleum Equivalence Factor and Source for Utility Factor from drop-down menu and enter the Utility Factor for "PHEVs" or F-Factor for "Flex Fuel Vehicles" for City and Highway respectively.

To Complete a **Fuel Economy Configuration**. worksheet see **Figure 09**:

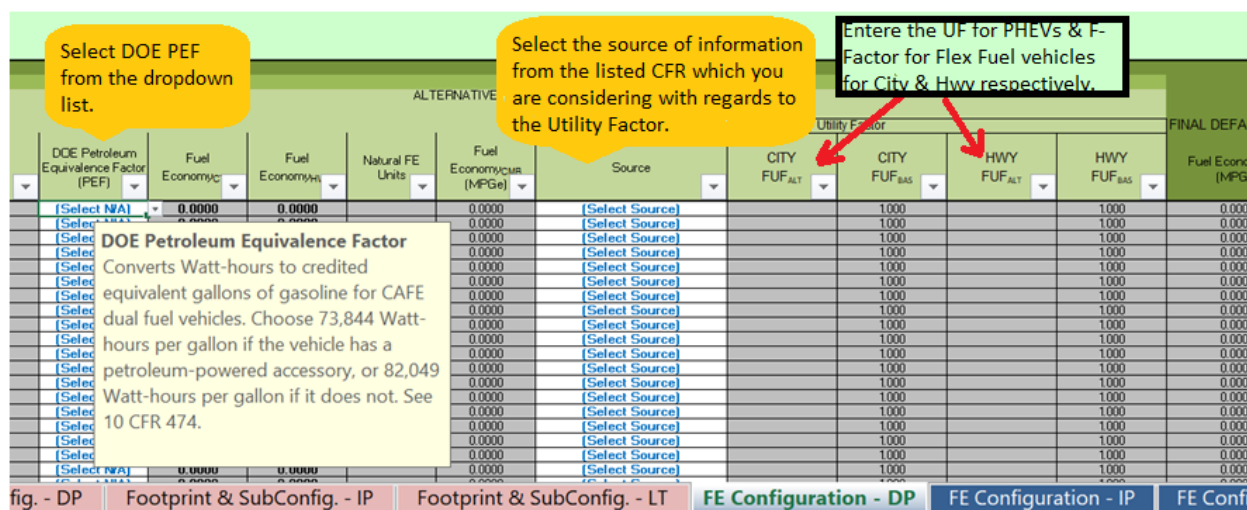


Figure 09: Fuel Economy Configuration

F. Fuel Economy Base Level

Each of the Fuel Economy Base Level worksheet (FE Base Level - DP, FE Base Level - IP, and FE Base Level - LT) use data entered by the user along with calculation methodologies established by EPA to produce intermediate values necessary for calculating the fleet average fuel economy at the base level. Based on the serial number entered in column B the data will be auto populated and calculated in the subsequent columns. User doesn't have to enter any data in the "FE Base Level" tab. Some of the FE columns are unprotected to allow user to edit if needed.

G. Fuel Economy Model Type

Each of the Fuel Economy Model Type worksheet (FE Model Type - DP, FE Model Type - IP, and FE Model Type - LT) use data entered by the user along with calculation methodologies established by EPA to produce intermediate values necessary for calculating the fleet average fuel economy. Column C is the vehicle's model type index. User doesn't have to enter any data other than number of doors and carline class under additional vehicle data in the "FE Model Type" tab. Some of the FE columns are unprotected to allow user to edit if needed.

To Complete a **Fuel Economy Model Type** worksheet see **Figure 10**:

S. No.	Model Type Index	Carline Name	Drive System	Engine Displacement (L) (Format: #.#)	Fuel System	Number of Doors	Carline Class	Production Volume (vehicles)	Vehicle Type
1	0					Select	(Select Carline Class)		
2						Select	(Select Carline Class)		
3						Select	(Select Carline Class)		
4						Select	(Select Carline Class)		
5						Select	(Select Carline Class)		
6						Select	(Select Carline Class)		
7						Select	(Select Carline Class)		
8						Select	(Select Carline Class)		
9						Select	(Select Carline Class)		
10						Select	(Select Carline Class)		
11						Select	(Select Carline Class)		
12						Select	(Select Carline Class)		
13						Select	(Select Carline Class)		
14						Select	(Select Carline Class)		
15						Select	(Select Carline Class)		
16						Select	(Select Carline Class)		
17						Select	(Select Carline Class)		
18						Select	(Select Carline Class)		
19						Select	(Select Carline Class)		
20						Select	(Select Carline Class)		
21						Select	(Select Carline Class)		
22						Select	(Select Carline Class)		
23						Select	(Select Carline Class)		
24						Select	(Select Carline Class)		
25						Select	(Select Carline Class)		
26						Select	(Select Carline Class)		
27						Select	(Select Carline Class)		

Figure 10: Fuel Economy Model Type

H. Vehicle Classification - LT

The Vehicle Classification worksheet uses data entered by the user and criteria established by NHTSA to determine which vehicles should be classified as light trucks in accordance with NHTSA regulations, as well as identify those vehicles that meet EPA's definition of a full-size pickup truck. Column C is a vehicle's model type index, and columns D through T contain the vehicle attribute data specific to the associated model type index. Column U is the production volume for each of the model types. The columns B through U will auto-populate based on the data entered in FE model type worksheet.

Columns V through AK are data fields related to the classification of light trucks via the Functional Ability pathway. Columns V and W are related to the passenger-carrying compartment of the vehicle, columns X and Y are related to the vehicle's ability to transport 10 or more people, columns Z and AA are related to the vehicle's ability to provide temporary living quarters, columns AB through AD are related to the vehicle's ability to transport property on an open cargo bed, columns AE through AF are related to the vehicle's ability to carry cargo without a bed, and columns AI through AK are related to the vehicle's ability to expand its cargo-carrying volume. Column AM identifies whether the vehicle qualifies as a light truck via the Functional Ability pathway.

Columns AN through BD are data fields related to the classification of light trucks via the Off-Highway Operation pathway. Column AN identifies whether the vehicle has four-wheel drive, columns AO through AP are related to the vehicle's gross vehicle weight rating (GVWR), and column AQ identifies whether Step 1 of the Off-Highway operation has been met. Columns AR and AS are related to the vehicle's approach angle, columns AT and AU are related to the vehicle's breakover angle, columns AV and AW are related to the vehicle's departure angle, columns AX and AY are related to the vehicle's running clearance, columns AZ through BB are related to the vehicle's front and rear axle clearances, and column BC identifies whether Step 2 of the Off-Highway Operation has been met. Column BD identifies whether the vehicle qualifies as a light truck via the Off-Highway Operation pathway. Column BE identifies whether the vehicle qualifies as a light truck and column BF identifies whether the vehicle qualifies as a light truck via multiple pathways.

Columns BG through BL are data fields related to defining a vehicle as a full-size pickup truck. Column BG is the vehicle's gross combination weight rating (GCWR), column BH is the vehicle's GVWR, column BI is the vehicle's curb weight, column BJ is the vehicle's towing capacity, column BK is the vehicle's payload capacity, and column BL identifies whether a vehicle qualifies as a full-size pickup truck.

I. AC Efficiency

Each of the AC Efficiency worksheets (AC Efficiency - DP, AC Efficiency - IP, and AC Efficiency - LT) use data entered by the user along with calculation methodologies established by EPA to produce intermediate values necessary for calculating fuel consumption improvement values, and ultimately the fleet average fuel economy. Column B is the vehicle's model type index, columns C through R (which are populated based on the value in column B) contain data specific to the model type, and column S is the vehicle's production volume.

Columns T through AC are data associated with specific AC efficiency technologies. For Reduced Reheat and Default to Circulated Air technologies, manufacturers will have to identify if the vehicle is equipped with that type of technology and enter the associated credit benefit in grams of CO₂ per mile. Column AD sums all the benefits per model type, column AE applies the mandated cap to the benefit total, and column AF converts the capped benefits to a credit subtotal in megagrams of CO₂.

J. OC & Full-Size PU Truck Tech.

The Off-Cycle and Full-Size Pickup Truck Technologies worksheet is where users describe the high-efficiency lighting packages by selecting the lighting technologies corresponding to each technology package. The worksheet also includes a section for 5-cycle technology and alternative method technology where the user has to provide the name of the technology and credit benefit associated with the technology (if applicable). For the full-size pickup trucks with hybrid technology, the user has to provide the technology description with the associated credit benefit in the section provided for full-size pickup trucks (if applicable) under 40 CFR Part 86.1870-12.

K. Off-Cycle

Each of the Off-Cycle worksheets (Off-Cycle - DP, Off-Cycle - IP, and Off-Cycle - LT) use data entered by the user along with calculation methodologies established by EPA to produce intermediate values necessary for calculating fuel consumption improvement values, and ultimately, the fleet average fuel economy. Column B is the vehicle's model type index, columns C through R (which are populated based on the value in column B) contain data specific to the model type, and the vehicle's production volume is variable depending on the technology for the specific model type.

Columns S through BL are data fields associated with off-cycle "menu" technologies, i.e., those technologies whose benefits (in grams of CO₂ per mile) are provided in 40 CFR Part 86.1869-12(b). Columns BM through BQ are related to 5-Cycle Technologies and columns BR through BV are related to Alternative Methodology Technologies.

L. Pickup Truck - LT

The Pickup Truck - LT worksheet uses data entered by the user along with calculation methodologies established by EPA to produce intermediate values necessary for calculating a fuel consumption improvement value for full-size pickup trucks, and ultimately the fleet average fuel economy. Column B is the vehicle's model type index, columns C through R (which are populated based on the value in column B) contain data specific to the model type, and column S is the vehicle's production volume. Columns T through AJ are data associated with Hybrid technologies, columns AK through AY are data associated with Emission Performance Technologies, and column AZ is the total full-size pickup truck credits in megagrams of CO₂.

To complete the Pickup Truck - LT worksheet:

Vehicle Attribute Data – Model-Type Level

1. Enter a Model Type Index in column B.

Production Volume Data

2. Enter the Production Volume in column S.

Off-Cycle Data – Full-Size Pickup Truck Hybrid Technologies

3. For the Hybrid Technologies entered in the Off-Cycle and Full-Size Pickup Truck Non-Listed Technologies worksheet, enter the associated benefit (in grams CO₂ per mile) in columns U through AD, as appropriate.

Off-Cycle Data – Full-Size Pickup Emission Performance Technologies

4. For the Emission Performance Technologies entered in the Off-Cycle and Full-Size Pickup Truck Non-Listed Technologies worksheet, enter the associated benefit (in grams CO₂ per mile) in columns AK through AV, as appropriate.