

Dear News Organization:

I have a pet peeve about how almost all news organizations have been reporting the Obama era EPA Corporate Average Fuel Economy (CAFE) regulations. At the end of this letter, I will provide links to up to date US government data sources and a painful description of my methods.

When you report that the Obama era regulations require car companies to have a fleet average of 54.5 MPG by 2025, you are wrong. I do not think this is intentional on your part. I do think it is lazy journalism. At this point I know you think I am a bit crazy. You are probably correct, but you are still wrong about how you report the 54.5 MPG regulation. You know that the regulation clearly states 54.5 MPG. The reason you are wrong is because the regulation is using a different MPG calculation than is on the car's window sticker or any calculation that gets close to real world MPG. By leaving the reader with the impression that the requirement is for window sticker or real world MPG, you have misinformed the reader.

Consumer Reports knows this. In their April 2018 magazine issue they state that the real world target works out to 35.5 MPG (source 1). The federal government knows this. Back in April of 2014 they published "Fuel Economy Testing and Labeling" (source 2). In it they state that the 54.5 MPG CAFE standard would work out to about 43.6 MPG (80% of 54.5). The article is a bit out dated and 39.4 MPG is a better estimate of window sticker MPG for the 54.5 CAFE MPG (see methods below). There is not an exact way to calculate window sticker MPG from CAFE MPG.

Bottom line, please report that the standard is around 39-40 MPG on the window sticker and that the 54.5 MPG figure is based on an antiquated testing method. For the news sites that allow comments, I think this will reduce the number of posts stating that it is impossible to reach 54.5 MPG in the next seven years and posts stating that only unsafe cracker box cars can meet the standard. In case you are thinking that only cracker box cars can meet the standard, a Toyota Avalon is rated at 55.2009 CAFE MPG, while its window sticker is only 40 MPG.

Here is a list of current cars that meet the 54.5 CAFE MPG standard:

Car	CAFE City	CAFE Highway	CAFE Combined	Sticker City	Sticker Highway	Sticker Combined
Toyota Prius Eco	83.5598	77.7618	80.8472	57.8088	53.3226	55.7000
Hyundai Ioniq Blue	75.7000	79.1000	77.1931	56.5105	59.4169	57.7824
Toyota Prius	76.1014	71.5862	74.0010	53.9536	50.0304	52.1147
Hyundai Ioniq	72.4397	74.9193	73.5349	54.7251	54.4521	54.6019
Toyota Camry Hybrid LE	71.6297	71.8358	71.7223	50.9562	52.6681	51.7126
Honda Accord	67.5000	69.4500	68.3638	47.1828	47.3300	47.2489
Kia Niro FE	68.2000	66.2000	67.2852	51.9792	48.6163	50.4101
Toyota Prius c	68.9295	63.9762	66.6088	48.0000	43.0402	46.2364
Chevrolet Malibu	68.3000	60.4000	64.5035	49.4795	43.0602	46.3689
Kia Niro	65.7000	62.5000	64.2204	50.8864	46.2675	48.6987
Toyota Camry Hybrid XLE/SE	61.7000	64.5000	62.9293	44.1939	47.0000	46.2351
Lincoln MKZ Hybrid FWD	62.0301	62.3884	62.1908	41.0000	38.0000	40.0000
Ford Fusion Hybrid FWD	62.0301	62.3884	62.1908	43.0000	41.0000	42.0000
Hyundai Sonata Hybrid SE	56.0000	64.0000	59.3377	40.0000	46.0000	42.0000
Hyundai Sonata Hybrid	55.9000	64.0000	59.2760	39.0000	44.3066	41.0000
Kia Niro Touring	60.0000	58.4000	59.2693	45.6915	40.4520	43.1750
Kia Optima Hybrid	53.9804	62.7724	57.6115	39.0875	45.9447	41.9017
Ford C-Max Hybrid FWD	58.0000	56.3000	57.2225	41.5063	38.1914	39.9461
Mitsubishi Mirage	50.3763	64.4250	55.8575	36.8736	42.9477	39.3799
Toyota Avalon Hybrid	56.0848	54.1578	55.2009	40.3222	38.8285	39.6361
Lexus ES 300h	56.0848	54.1578	55.2009	40.3222	38.8285	39.6361

Here are some CAFE MPG figures that have been in the news lately converted to approximated window sticker MPG values:

54.5 --> 39.4

50.0 --> 36.3

46.6 --> 34.0

35.7 --> 26.5

Please start to use the 39.4 MPG figure and footnote the 54.5 CAFE MPG number.

Thanks,
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Methods:

I downloaded the raw MPG data from the EPA for 2018 (source 3). When you view the data you will see three sets of three MPG figures. The first three are what you find on the window sticker (City, Highway, Combined). The next three are the CAFE MPG figures. The last three are the same as the window sticker figures, except they have not been rounded to the nearest integer. I am not a fan of Microsoft's Excel (I hate the ribbon interface), so I used OpenOffice version 4.1.2. I warned you that the methods were going to be in painful detail. To derive the formula for calculating an approximated window sticker MPG from CAFE MPG, I sorted the data by the CAFE combined MPG column (column O, Comb Unadj FE - Conventional Fuel). Next I did an XY scatter plot of CAFE combined MPG vs window sticker combined MPG, not rounded (column R, Comb Unrd Adj FE - Conventional Fuel). Next I added a linear trend line with formula and R^2 value. That resulted in the following, where x is the CAFE MPG and $f(x)$ is the approximated window sticker MPG:

$$f(x) = 0.6842221827x + 2.097062542$$
$$R^2 = 0.9932581032$$

If you need a fast and dirty conversion, just take 70% of the CAFE value, not the 80% the EPA used back in April of 2014.

For the cars that currently make the 54.5 CAFE MPG standard, I just looked at the sorted list.

Sources:

- (1) <https://www.consumerreports.org/fuel-economy-efficiency/the-race-to-improve-fuel-economy/>
Search for 35.5 to find the statement.
- (2) <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100IENB.PDF?Dockey=P100IENB.PDF>
Go to question 10. I suggest reading the full article.
- (3) <https://www.fueleconomy.gov/feg/download.shtml>
Download the 2018 Datafile. It is more complete than the 2019 Datafile and more up to date than the others. This file is updated from time to time. I used "2018 FE Guide for DOE for posting 5-8-2018-release dates before 5-9-2018-no-sales-5-4-2018public.xlsx".