

Light-Duty Automotive Technology,  
Carbon Dioxide Emissions, and  
Fuel Economy Trends:  
1975 Through 2017

Trends

 Report

---

**NOTICE:**

*This technical report does not necessarily represent final EPA decisions or positions. It is intended to present technical analysis of issues using data that are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments.*

---

## TABLE OF CONTENTS

<b>1. Introduction</b>	<b>1</b>
<b>2. Fleetwide Trends Overview</b>	<b>3</b>
A. Overview of Final MY 2016 Data	3
B. Overview of Preliminary MY 2017 Data	3
C. Overview of Long-Term Trends	5
<b>3. Vehicle Class, Type, and Attributes</b>	<b>14</b>
A. Vehicle Class	14
B. Vehicle Type	16
C. Vehicle Footprint, Weight, and Horsepower	24
D. Vehicle Acceleration	34
<b>4. Manufacturers and Makes</b>	<b>37</b>
A. Manufacturer and Make Definitions	37
B. Manufacturer and Make Fuel Economy and CO <sub>2</sub> Emissions	39
C. Manufacturer Technology and Attribute Trends	47
D. Manufacturer Specific Impact of Alternative Fuel Vehicles	52
<b>5. Powertrain Technologies</b>	<b>54</b>
A. Overall Engine Trends	54
B. Trends in Conventional Engines	57
C. Trends in Alternative Fuel Vehicles	77
D. Trends in Transmission Types	79
E. Trends in Drive Types	83
<b>6. Technology Adoption Rates</b>	<b>90</b>
A. Industry-Wide Technology Adoption Since 1975	91
B. Technology Adoption by Manufacturers	92
C. Technology Adoption in the Last Five Years	98
<b>7. Alternative Fuel Vehicle Metrics</b>	<b>100</b>
A. MY 2017 Vehicles	100
B. Alternative AFV Metrics	112
C. Additional Note on PHEV Calculations	112
<b>8. High Fuel Economy/Low CO<sub>2</sub> and Advanced Technology Choices</b>	<b>113</b>
A. Methodology	113
B. High Fuel Economy Vehicle Offerings	115
C. Advanced Technology Vehicle Offerings	117
<b>9. Regulatory Context</b>	<b>118</b>
A. Personal Vehicle Fuel Economy and Greenhouse Gas Emissions Standards	118
B. Current Vehicles That Meet Future EPA CO <sub>2</sub> Emissions Compliance Targets	119
C. Comparison of EPA and NHTSA Fuel Economy Data, 1975-2017	121
D. Comparison of MY 2016 Unadjusted, Laboratory and Estimated CAFE Data by Manufacturer	123
<b>10. Additional Database and Report Details</b>	<b>125</b>
A. Sources of Input Data	125
B. Harmonic Averaging of Fuel Economy Values	126
C. Fuel Economy Metrics Used in This Report	127
D. Vehicle Tailpipe CO <sub>2</sub> Emissions Data	135
E. Vehicle-Related GHG Emissions Sources Other Than Tailpipe CO <sub>2</sub> Emissions	138
F. Other Database Methodology Issues	140
G. Comparison of Preliminary and Final Fleetwide Fuel Economy Values	142
H. Definitions and Acronyms	144
I. Links for More Information	146
J. Authors and Acknowledgements	147
<b>References</b>	<b>148</b>
<b>List of Appendices</b>	<b>153</b>

## LIST OF FIGURES

Figure 2.1 Adjusted CO <sub>2</sub> Emissions by Model Year .....	6
Figure 2.2 Adjusted Fuel Economy by Model Year.....	6
Figure 2.3 Change in Adjusted Fuel Economy, Weight, and Horsepower Since 1975.....	7
Figure 2.4 Adjusted Fuel Economy Distribution by Model Year, AFVs Excluded.....	10
Figure 3.1 Car and Truck Production Share by Model Year .....	15
Figure 3.2 Vehicle Classes and Types Used in This Report.....	16
Figure 3.3 Car Type Production Share vs. Interior Volume for High Volume Manufacturers, MY 1978 and 2017 .....	17
Figure 3.4 Vehicle Type Production Share by Model Year .....	19
Figure 3.5 Adjusted CO <sub>2</sub> Emissions, Adjusted Fuel Economy and Other Key Parameters by Vehicle Type .....	28
Figure 3.6 Footprint by Vehicle Type for MY 2008-2017 .....	29
Figure 3.7 Car and Truck Production Share by Vehicle Inertia Weight Class.....	30
Figure 3.8 Unadjusted, Laboratory Fuel Consumption vs. Footprint, Car and Truck, MY 2016, AFVs Excluded.....	31
Figure 3.9 Unadjusted, Laboratory Fuel Consumption vs. Inertia Weight, Car and Truck, MY 1975 and 2016, AFVs Excluded.....	32
Figure 3.10 Unadjusted, Laboratory Fuel Consumption vs. Car Interior Volume, MY 1978 and 2016, AFVs Excluded.....	33
Figure 3.11 Calculated 0-to-60 Acceleration Performance.....	35
Figure 3.12 Acceleration Performance by Vehicle Type.....	36
Figure 4.1 Manufacturer Adoption of Emerging Technologies for MY 2017.....	47
Figure 4.2 Adjusted Fuel Economy and Percent Truck by Manufacturer for MY 1975 - 2017 .....	51
Figure 5.1 Production Share by Engine Technology.....	55
Figure 5.2 Engine Power and Displacement, AFVs Excluded .....	58
Figure 5.3 Percent Change for Specific Engine Metrics, AFVs Excluded.....	59
Figure 5.4 Production Share by Number of Engine Cylinders, AFVs Excluded .....	60
Figure 5.5 Engine Metrics for Different Engine Technology Packages, AFVs Excluded .....	62
Figure 5.6 Market Share of Gasoline Turbo Vehicles.....	63
Figure 5.7 Distribution of Gasoline Turbo Vehicles by Displacement and Horsepower, MY 2010, 2013, and 2017.....	65
Figure 5.8 Hybrid Production MY 2000 - 2017 (With 3-Year Moving Average), AFVs Excluded.....	66
Figure 5.9 Hybrid Adjusted Fuel Economy Distribution by Year, Car Only, AFVs Excluded .....	67
Figure 5.10 Hybrid and Non-Hybrid Fuel Economy for Midsize Cars, MY 2000 - 2017, Gasoline only.....	68
Figure 5.11 Highway/City Fuel Economy Ratio for Hybrids and Non-Hybrids, AFVs Excluded .....	69
Figure 5.12 Percent Improvement in Adjusted Fuel Consumption for Hybrid Vehicles, MY 2016, AFVs Excluded.....	70
Figure 5.13 Percent Improvement in Adjusted Fuel Consumption for Diesel Vehicles, MY 2016, AFVs Excluded.....	72
Figure 5.14 Percent Improvement in CO <sub>2</sub> Emissions for Diesel Vehicles, MY 2016, AFVs Excluded.....	73
Figure 5.15 Historical Production of EVs, PHEVs, FCVs and CNG Vehicles, MY 1995 - 2016.....	78
Figure 5.16 Transmission Production Share .....	80
Figure 5.17 Average Number of Transmission Gears for New Vehicles.....	81
Figure 5.18 Comparison of Manual and Automatic Transmission Adjusted Fuel Economy .....	82
Figure 5.19 Front, Rear, and Four Wheel Drive Usage - Production Share by Vehicle Type .....	84
Figure 5.20 Differences in Adjusted Fuel Consumption Trends for FWD, RWD, and 4WD/AWD Vehicles, MY 2016 .....	85
Figure 6.1 Industry-Wide Car Technology Penetration After First Significant Use .....	92
Figure 6.2 Manufacturer Specific Technology Adoption over Time for Key Technologies.....	94
Figure 6.3 Maximum Three- and Five-Year Adoption for Key Technologies.....	96
Figure 6.4 VVT Adoption Details by Manufacturer.....	97
Figure 6.5 Five Year Change in Light Duty Vehicle Technology Penetration Share.....	98
Figure 8.1 Number of Models Meeting Fuel Economy Thresholds in MY 2012 and 2017 .....	115
Figure 8.2 Advanced Technology and Alternative Fuel Vehicle Models in MY 2012 and 2017.....	117
Figure 9.1 MY 2017 Vehicle Production That Meets or Exceeds Future CO <sub>2</sub> Emission Targets.....	120

## LIST OF TABLES

Table 2.1 Adjusted CO <sub>2</sub> Emissions, Adjusted Fuel Economy, and Key Parameters by Model Year .....	4
Table 2.2 Comparison of MY 2016 with MY 2008 and MY 2004 .....	9
Table 2.3 Top Ten Highest Fuel Economy Vehicles Since 1975, AFVs Excluded .....	11
Table 2.4 Top Ten Highest Fuel Economy Trucks Since 1975, AFVs Excluded .....	13
Table 3.1 Vehicle Type Production Share by Model Year.....	20
Table 3.2 Vehicle Type Adjusted Fuel Economy and CO <sub>2</sub> Emissions by Model Year.....	22
Table 3.3 Car-Truck Classification of SUVs with Inertia Weights of 4000 Pounds or Less .....	23
Table 3.4.1 Car Adjusted CO <sub>2</sub> Emissions, Adjusted Fuel Economy, and Key Parameters by Model Year .....	26
Table 3.4.2 Truck Adjusted CO <sub>2</sub> Emissions, Adjusted Fuel Economy, and Key Parameters by Model Year.....	27
Table 4.1 Manufacturers and Makes for MY 2015 - 2017.....	38
Table 4.2 Adjusted Fuel Economy (MPG) by Manufacturer and Make for MY 2015 - 2017.....	42
Table 4.3 Adjusted CO <sub>2</sub> Emissions (g/mi) by Manufacturer and Make for MY 2015 - 2017.....	43
Table 4.4 Unadjusted, Laboratory Fuel Economy (MPG) by Manufacturer and Make for MY 2015 - 2017.....	45
Table 4.5 Unadjusted, Laboratory CO <sub>2</sub> Emissions (g/mi) by Manufacturer and Make for MY 2015 - 2017.....	46
Table 4.6 Footprint (square feet) by Manufacturer for MY 2015 - 2017 .....	48
Table 4.7 Adjusted Fuel Economy and Production Share by Vehicle Classification and Type for MY 2016.....	49
Table 4.8 Vehicle Footprint, Weight, and Horsepower by Manufacturer for MY 2016.....	50
Table 4.9 MY 2016 Alternative Fuel Vehicle Impact on Manufacturer Averages .....	53
Table 5.1 Production Share by Powertrain .....	56
Table 5.2 Distribution of MY 2017 (Preliminary) Gasoline Turbocharged Engines.....	64
Table 5.3.1 Engine Technologies and Parameters, Both Car and Truck, AFVs Excluded .....	74
Table 5.3.2 Engine Technologies and Parameters, Car Only, AFVs Excluded .....	75
Table 5.3.3 Engine Technologies and Parameters, Truck Only, AFVs Excluded.....	76
Table 5.4.1 Transmission Technologies, Both Car and Truck.....	86
Table 5.4.2 Transmission Technologies, Car Only.....	87
Table 5.4.3 Transmission Technologies, Truck Only .....	88
Table 5.5 Production Share by Drive Technology .....	89
Table 7.1 MY 2017 Alternative Fuel Vehicle Classification and Size .....	101
Table 7.2 MY 2017 Alternative Fuel Vehicle Powertrain and Range .....	103
Table 7.3 MY 2017 Alternative Fuel Vehicle Fuel Economy Label Metrics.....	105
Table 7.4 MY 2017 Alternative Fuel Vehicle Label Tailpipe CO <sub>2</sub> Emissions Metrics.....	107
Table 7.5 MY 2017 Alternative Fuel Vehicle Upstream CO <sub>2</sub> Emission Metrics.....	109
Table 9.1 EPA Adjusted, EPA Unadjusted Laboratory, and CAFE Values by Model Year .....	122
Table 9.2 Comparison of MY 2016 EPA Unadjusted, Laboratory and Estimated CAFE (MPG) Values by Manufacturer.....	124
Table 10.1 Fuel Economy Metrics for the MY 2017 Toyota Prius Eco.....	133
Table 10.2 Unadjusted, Laboratory and Adjusted Fuel Economy (MPG) for MY 1975 - 2017, Car and Truck.....	134
Table 10.3 Factors for Converting Industry-Wide Fuel Economy Values from this Report to Carbon Dioxide Emissions Values .....	137
Table 10.4 Comparison of Preliminary and Final Fuel Economy Values, Both Car and Truck.....	143

# 1 Introduction

---

*Trends is the authoritative reference for CO<sub>2</sub> emissions, fuel economy, and technology trends in the automotive industry from MY 1975-2017*

This report (the “Trends” report) has been published annually since 1975 to summarize trends in **real world** tailpipe CO<sub>2</sub> emissions and fuel economy, and associated automotive technologies. The data supporting this report were obtained by the U.S. Environmental Protection Agency (EPA), directly from automobile manufacturers, in support of EPA’s greenhouse gas (GHG) emissions and the U.S. Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) Corporate Average Fuel Economy (CAFE) programs. These data have been collected and maintained by EPA since 1975, and comprise the most comprehensive database of its kind. While this report is based on the same underlying data as EPA and NHTSA regulatory programs, the Trends report does **not** provide compliance values.

Data for model years (MY) 1975 through 2016 are **final**. These data are submitted to the EPA and NHTSA at the conclusion of the model year and include actual production data and the results of emission and fuel economy testing performed by the manufacturers and EPA. Data for MY 2017 are **preliminary** and based on projected production data provided to EPA by automakers for vehicle certification and labeling prior to MY 2017 sales. MY 2017 values will be finalized in next year’s report. All data in this report are based on production volumes delivered for sale in the U.S. by model year, and may vary from publicized data based on calendar year sales.

## What’s New This Year

- EPA applied an updated methodology for calculating adjusted CO<sub>2</sub> and fuel economy values for MY 2011 and later vehicles. This change was required based on adjustments made to vehicle testing methodologies, as detailed in Section 10. Therefore, the values in this report are **not** comparable to values in previous reports.
- The Department of Justice, on behalf of EPA, alleged violations of the Clean Air Act by Fiat Chrysler Automobiles based on the sale of certain 2014 through 2016 model year vehicles equipped with devices that defeat the vehicles’ emission control systems. In addition, the Department of Justice and EPA have reached a settlement with Volkswagen over the use of defeat devices for certain 2009 through 2016 model year vehicles. In this report, EPA uses the CO<sub>2</sub> emissions and fuel economy data from the initial certification of these vehicles. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports. For more information on actions to resolve these alleged violations, see [www.epa.gov/vw](http://www.epa.gov/vw) and [www.epa.gov/fca](http://www.epa.gov/fca).

Section 2 gives an overview of fleetwide trends, while Sections 3 and 4 report trends by vehicle class, type, attribute, manufacturer, and make. Trends in new and conventional technologies are examined in Sections 5 through 8. Regulatory context and additional methodology details are given in Sections 9 and 10.

## Understanding Fuel Economy Metrics in this Report

The primary CO<sub>2</sub> and fuel economy data in the Trends report are **adjusted** values that represent EPA's best estimates of **real world** performance. The adjusted data for this report are based on the same underlying data submitted to EPA for the both the consumer label and the CAFE and GHG compliance programs, but there are some important differences.

**Unadjusted, laboratory** values are used to determine automaker **compliance** with the standards, along with various regulatory incentives and credits. These values are measured with EPA's City and Highway Test procedures (the "2-cycle" tests). A combined city/ highway value is then calculated using a 55% city and 45% highway weighted average. These unadjusted, laboratory values do not fully represent real world driving, but are occasionally presented in this report because they provide a consistent baseline for comparing trends in vehicle design over time.

The consumer data reported on the current EPA/DOT Fuel Economy and Environment Labels ("window stickers") use a more realistic "5-cycle" test procedure intended to better reflect real world performance. The combined city/highway Label values use the 55% city and 45% highway weighting. The **adjusted** values in the Trends report are also derived from 5-cycle test values, but use a weighting of 43% city and 57% highway, consistent with fleetwide driver activity data. Adjusted CO<sub>2</sub> emissions values are, on average, about 25% higher than unadjusted CO<sub>2</sub> values, and adjusted fuel economy values are about 20% lower than unadjusted fuel economy values.

CO <sub>2</sub> and Fuel Economy Data Type	Purpose	Current City/Highway Weighting	Current Test Basis
Adjusted	Best estimate of real world performance	43% / 57%	5-cycle
Label	Consumer information to compare individual vehicles	55% / 45%	5-cycle
Unadjusted, Laboratory	Basis for automaker compliance with standards	55% / 45%	2-cycle

Section 10 presents a detailed methodological explanation of the fuel economy and CO<sub>2</sub> values used in this report, and how they have changed over time. Since major methodological changes are generally propagated backwards through the historical database in order to maintain the integrity of long-term trends, this report supersedes previous versions in the series and should not be compared to past reports.

### For Additional Information:

- Access the Trends report online: [www.epa.gov/fuel-economy-trends](http://www.epa.gov/fuel-economy-trends)
- *Manufacturer Performance Report for the 2016 Model Year*: [www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles](http://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles)
- NHTSA's CAFE Public Information Center: [https://one.nhtsa.gov/cafe\\_pic/CAFE\\_PIC\\_Home.htm](https://one.nhtsa.gov/cafe_pic/CAFE_PIC_Home.htm)

# 2 Fleetwide Trends Overview

This section provides an overview of important fleetwide data for MY 1975-2017, including a reference table for CO<sub>2</sub> emissions, fuel economy, and other key parameters. Fleetwide refers to the production-weighted analysis of *new* vehicles produced for the U.S. fleet. Alternative fuel vehicle data is integrated with data for gasoline vehicles and diesel vehicles. CO<sub>2</sub> emissions from alternative fuel vehicles represent tailpipe emissions, while fuel economy for alternative fuel vehicles is reported as miles per gallon of gasoline equivalent, or mpge, the miles an alternative fuel vehicle can travel on an amount of energy equivalent to that in a gallon of gasoline. Unless otherwise noted, all CO<sub>2</sub> emissions and fuel economy data are adjusted values that reflect real world performance, and are not comparable to unadjusted, laboratory values that are the basis for EPA GHG emissions and NHTSA CAFE standards compliance. Subsequent sections of the report analyze the Trends data in more detail.

## A. OVERVIEW OF FINAL MY 2016 DATA

Table 2.1 shows that the fleetwide average real world CO<sub>2</sub> emissions rate for new vehicles produced in MY 2016 is 359 grams per mile (g/mi), a drop of 2 g/mi from MY 2015. The MY 2016 fuel economy value is 24.7 miles per gallon (mpg), an increase of 0.1 mpg from MY 2015. These MY 2016 values are based on final data and represent a new record low for CO<sub>2</sub> emissions and a record high for fuel economy. Over the last twelve years, CO<sub>2</sub> emissions and fuel economy have improved ten times and worsened twice.

Truck production share of the overall personal vehicle market increased by 2.1 percentage points in MY 2016. Car and truck production share has been volatile in recent years, and has had significant impacts on other parameters. Average personal vehicle weight held constant at 4035 pounds. Average power increased by 1 horsepower to 230 horsepower, tied for the all-time high with MY 2011 and MY 2014. Average vehicle footprint increased from MY 2015 by 0.1 square feet to 49.5 square feet.

Tables 3.4.1 and 3.4.2, shown later in this report, disaggregate the data in Table 2.1 for the individual car and truck fleets, respectively, for MY 1975-2017.

## B. OVERVIEW OF PRELIMINARY MY 2017 DATA

Preliminary MY 2017 adjusted fleetwide average CO<sub>2</sub> emissions is 352 g/mi with a corresponding fuel economy value of 25.2 mpg. If achieved, these values will be record levels and an improvement over MY 2016. The preliminary MY 2017 data suggest that truck production share will fall almost 3 percentage points. Horsepower and weight are projected to increase slightly, while footprint is projected to remain constant.

**Table 2.1****Adjusted CO<sub>2</sub> Emissions, Adjusted Fuel Economy, and Key Parameters by Model Year<sup>1</sup>**

Model Year	Production (000)	Adj CO <sub>2</sub> (g/mi)	Adj Fuel Economy (MPG)	Weight (lbs)	HP	Footprint (sq ft)	Car Production	Truck Production	AFV Share of Production
1975	10,224	681	13.1	4060	137	-	80.7%	19.3%	-
1976	12,334	625	14.2	4079	135	-	78.9%	21.1%	-
1977	14,123	590	15.1	3982	136	-	80.1%	19.9%	-
1978	14,448	562	15.8	3715	129	-	77.5%	22.5%	-
1979	13,882	560	15.9	3655	124	-	77.9%	22.1%	-
1980	11,306	466	19.2	3228	104	-	83.5%	16.5%	-
1981	10,554	436	20.5	3202	102	-	82.8%	17.2%	-
1982	9,732	425	21.1	3202	103	-	80.5%	19.5%	-
1983	10,302	426	21.0	3257	107	-	78.0%	22.0%	-
1984	14,020	424	21.0	3262	109	-	76.5%	23.5%	-
1985	14,460	417	21.3	3271	114	-	75.2%	24.8%	-
1986	15,365	407	21.8	3238	114	-	72.1%	27.9%	-
1987	14,865	405	22.0	3221	118	-	72.8%	27.2%	-
1988	15,295	407	21.9	3283	123	-	70.9%	29.1%	-
1989	14,453	415	21.4	3351	129	-	70.1%	29.9%	-
1990	12,615	420	21.2	3426	135	-	70.4%	29.6%	-
1991	12,573	418	21.3	3410	138	-	69.6%	30.4%	-
1992	12,172	427	20.8	3512	145	-	68.6%	31.4%	-
1993	13,211	426	20.9	3519	147	-	67.6%	32.4%	0.0%
1994	14,125	436	20.4	3603	152	-	61.9%	38.1%	0.0%
1995	15,145	434	20.5	3613	158	-	63.5%	36.5%	0.0%
1996	13,144	435	20.4	3659	164	-	62.2%	37.8%	0.0%
1997	14,458	441	20.2	3727	169	-	60.1%	39.9%	0.0%
1998	14,456	442	20.1	3744	171	-	58.3%	41.7%	0.0%
1999	15,215	451	19.7	3835	179	-	58.3%	41.7%	0.0%
2000	16,571	450	19.8	3821	181	-	58.8%	41.2%	0.0%
2001	15,605	453	19.6	3879	187	-	58.6%	41.4%	0.0%
2002	16,115	457	19.5	3951	195	-	55.2%	44.8%	0.0%
2003	15,773	454	19.6	3999	199	-	53.9%	46.1%	0.0%
2004	15,709	461	19.3	4111	211	-	52.0%	48.0%	0.0%
2005	15,892	447	19.9	4059	209	-	55.6%	44.4%	0.0%
2006	15,104	442	20.1	4067	213	-	57.9%	42.1%	0.0%
2007	15,276	431	20.6	4093	217	-	58.9%	41.1%	0.0%
2008	13,898	424	21.0	4085	219	48.9	59.3%	40.7%	0.0%
2009	9,316	397	22.4	3914	208	48.1	67.0%	33.0%	0.0%
2010	11,116	394	22.6	4001	214	48.5	62.8%	37.2%	0.0%
2011	12,018	399	22.3	4126	230	49.5	57.8%	42.2%	0.1%
2012	13,449	377	23.6	3979	222	48.8	64.4%	35.6%	0.4%
2013	15,198	368	24.2	4003	226	49.1	64.1%	35.9%	0.7%
2014	15,512	369	24.1	4060	230	49.7	59.3%	40.7%	0.7%
2015	16,739	361	24.6	4035	229	49.4	57.4%	42.6%	0.7%
2016	16,267	359	24.7	4035	230	49.5	55.3%	44.7%	0.8%
2017 (prelim)	-	352	25.2	4044	232	49.5	58.1%	41.9%	1.9%

<sup>1</sup> Adjusted CO<sub>2</sub> and fuel economy values reflect real world performance and are not comparable to automaker standards compliance levels. Adjusted CO<sub>2</sub> values are, on average, about 25% higher than the unadjusted, laboratory CO<sub>2</sub> values that form the starting point for GHG standards compliance, and adjusted fuel economy values are about 20% lower, on average, than unadjusted fuel economy values.

---

We caution the reader about focusing on these preliminary MY 2017 values. The production estimates for these values were provided to EPA by automakers in 2016, and there is always uncertainty associated with such projections. This uncertainty is magnified this year as U.S. gasoline prices have remained low and consumer preference continues to move towards sport utility vehicles (SUVs) and larger vehicles. Final values for MY 2017, based on actual production values, will be published in next year's report.

## C. OVERVIEW OF LONG-TERM TRENDS

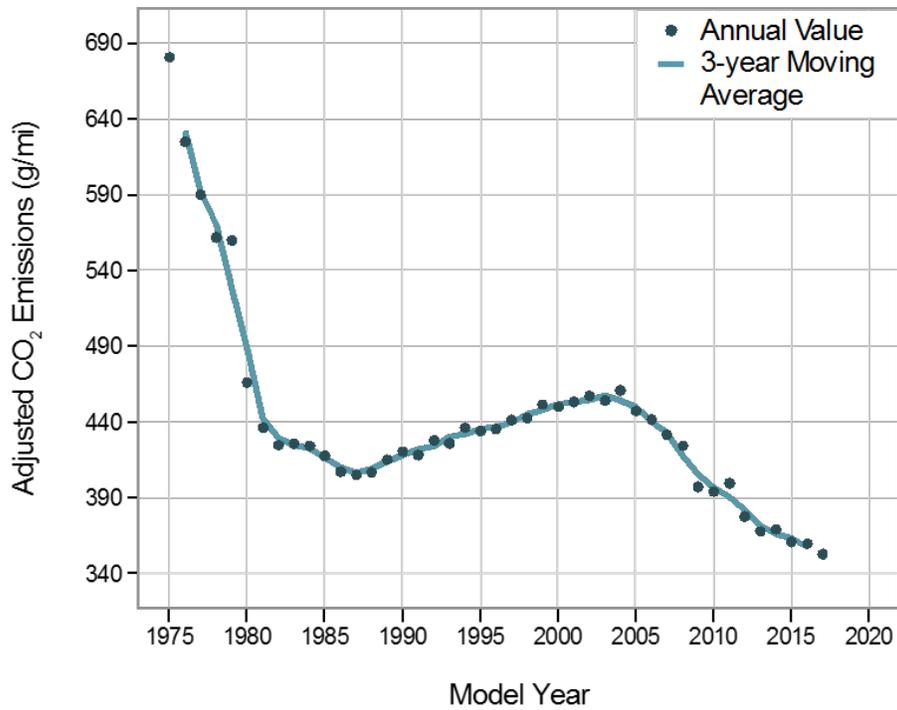
While the most recent annual changes often receive the most public attention, the greatest value of the Trends database is to document long-term trends. This is because: 1) year-to-year variability can reflect short-term trends (two examples are the Cash for Clunkers rebates in 2009 and the impact of the tsunami aftermath on Japan-based manufacturers in 2011) that may not be meaningful from a long-term perspective, and 2) the magnitude of year-to-year changes in annual CO<sub>2</sub> emissions and fuel economy tend to be small relative to longer, multi-year trends.

Figures 2.1 and 2.2 show fleetwide adjusted CO<sub>2</sub> emissions and fuel economy from Table 2.1 for MY 1975-2017. For both figures, the individual data points represent annual values, and the curves represent 3-year moving averages (where each year represents the average of that model year, the model year prior, and the model year following, e.g., the value for MY 2016 represents the average of MY 2015-2017) which “smooth out” the year-to-year volatility. The two curves are essentially inversely proportional to each other, i.e., vehicle tailpipe CO<sub>2</sub> emissions (grams per mile) are proportional to fuel consumption (gallons per mile), which is the reciprocal of fuel economy (miles per gallon).

These two figures show that fleetwide adjusted CO<sub>2</sub> emissions and fuel economy have undergone four clearly defined phases since 1975. Figure 2.3 shows fleetwide adjusted fuel economy, weight, and horsepower data for MY 1975-2017 from Table 2.1. All of the data in Figure 2.3 are presented as percentage changes since 1975. It's important to note, other things being equal, that vehicle weight and horsepower increases are generally associated with increased CO<sub>2</sub> emissions and decreased fuel economy.

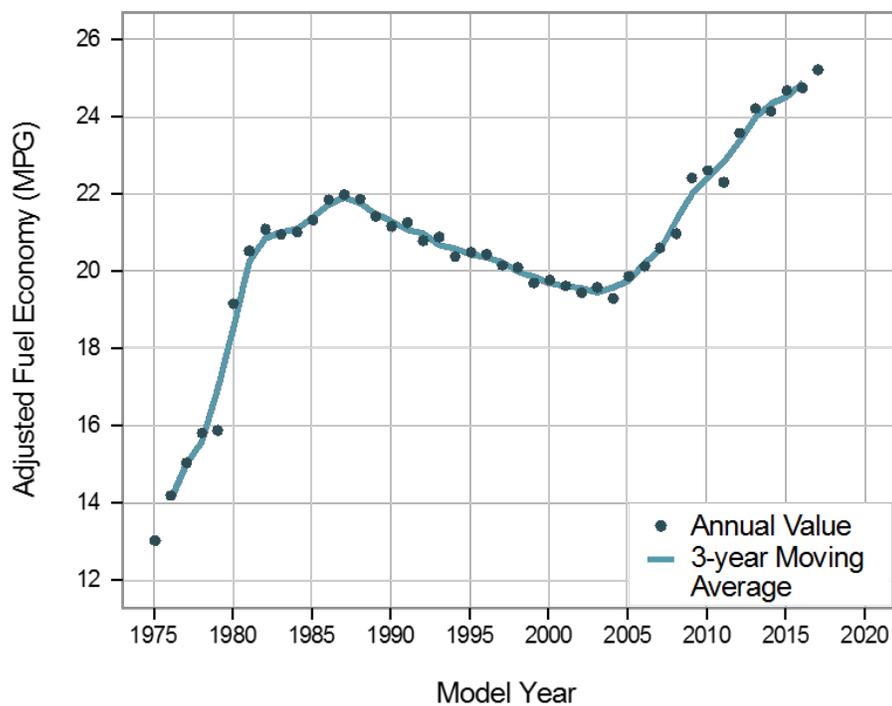
**Figure 2.1**

*Adjusted CO<sub>2</sub> Emissions by Model Year*



**Figure 2.2**

*Adjusted Fuel Economy by Model Year*



### Long-Term CO<sub>2</sub> Emissions and Fuel Economy Phases:

- *Rapid improvements from MY 1975 through MY 1981, with fleet wide adjusted CO<sub>2</sub> emissions decreasing by 36% and fuel economy increasing by 56% over those six years*
- *Slower improvements from MY 1982 through MY 1987*
- *A slow, but steady reversal of improvements from MY 1988 through MY 2004, with CO<sub>2</sub> emissions increasing by 13% and fuel economy decreasing by 12%, even as technology innovation continued to evolve*
- *A very favorable trend beginning in MY 2005, with annual CO<sub>2</sub> emissions and fuel economy improvements in ten of the twelve individual years, and with CO<sub>2</sub> emissions decreasing by 22% and fuel economy increasing by 28% since MY 2004*

**Figure 2.3**

*Change in Adjusted Fuel Economy, Weight, and Horsepower Since 1975*

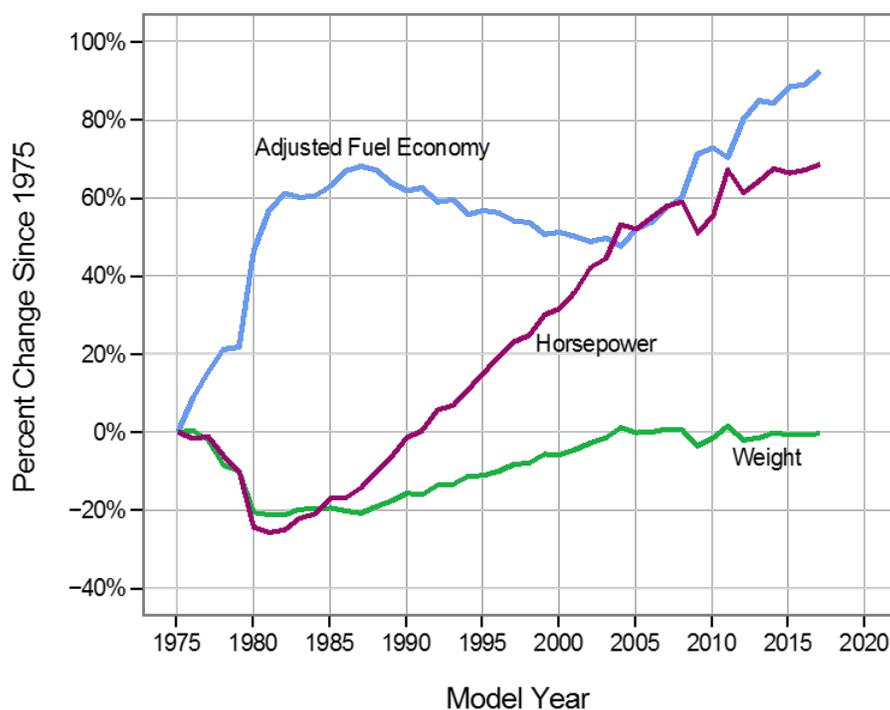


Figure 2.3 shows some very significant long-term trends. Both average vehicle weight and horsepower decreased in the late 1970s as fuel economy increased. During the two decades from the mid-1980s to the mid-2000s, vehicle weight and horsepower rose consistently and significantly, while fleetwide fuel economy slowly and steadily decreased. It is clear from Figure 2.3 that the considerable technology innovation during these two decades, on a fleet-wide basis, supported attributes such as vehicle weight and power (and associated utility functions such as vehicle size, acceleration performance, safety features and content), but did not improve fuel economy. Since MY 2005, new automotive technology has improved fuel

---

economy while keeping vehicle weight relatively constant. Horsepower has generally increased, but may be flattening out. As a result, recent vehicles have greater acceleration performance, higher fuel economy, and lower CO<sub>2</sub> emissions.

Table 2.1 also shows data for vehicle footprint. Footprint is a critical vehicle attribute since it is the basis for current and future GHG emissions and fuel economy standards. The Trends database includes footprint data from informal, external sources beginning in MY 2008 and from data provided directly by automakers since MY 2011. Average footprint has been stable, with small fluctuations, between MY 2008 and MY 2016. Footprint trends are explored in more detail in Section 3.

Table 2.1 does not include 0-to-60 time acceleration data, which are not provided by automakers and are calculated by EPA using equations from the literature. See Section 3.D for 0-to-60 acceleration time data, and for more detail on weight, horsepower, and footprint data.

Table 2.1 also shows that truck share increased consistently from 1980 through 2004. The truck share increases from 1988 through 2004 were a critical underlying factor in the increase in fleetwide weight and power discussed above, as well as in the higher fleetwide CO<sub>2</sub> emissions and lower fleetwide fuel economy over that same period. Between MY 2004 and MY 2012 truck share was volatile, affected by factors such as the economic recession of 2009, the Car Allowance Rebate System (also known as Cash for Clunkers) in 2009, and the aftermath of the earthquake and tsunami in Japan in 2011. More recently, truck share has been climbing again, driven by the demand for SUVs. For more data and discussion of relative car/truck production share, as well as data for the separate car and truck fleets, see Section 3.

Table 2.2 shows a comparison, for fuel economy and several other key attributes, of final MY 2016 data with MY 2008 and MY 2004 data.

MY 2008 is selected for comparison for three reasons: 1) several years provide a sufficient time to see meaningful multi-year trends, 2) it preceded a multi-year period of variability beginning in MY 2009, and 3) there have only been relatively minor changes in key vehicle attributes that influence fuel economy in the six years that followed. From MY 2008 to MY 2016, weight decreased by 1.2% (which would be expected to result in a slight increase in fuel economy, other things being equal), while horsepower increased by 5.2% and footprint increased by 1.3% (both of which would be expected to result in a decrease in fuel economy). Fuel economy, on the other hand, increased by 3.8 mpg, or 18%, from MY 2008 to MY 2016.

MY 2004 is shown in Table 2.2 primarily because it is the “valley year,” i.e., it is the year with the lowest adjusted fuel economy since MY 1980 and therefore now represents a 37-year low. As with the comparison of MY 2008 and MY 2016 above, the changes in weight and horsepower from MY 2004 to MY 2016 have gone in opposite directions—weight has decreased by 1.9% and horsepower has increased by 9.2%. We do not have footprint data for MY 2004. From MY 2004 to MY 2016, fuel economy has increased by 5.4 mpg, or 28%. The

only other period with a greater and more rapid fuel economy increase was from MY 1975 through MY 1981, driven by higher oil and gasoline prices and the initial CAFE standards.

Table 2.2 also shows fuel savings that would accrue to consumers who owned and operated average MY 2016 vehicles relative to MY 2008 and MY 2004 vehicles. Table 2.2 is based on the assumptions used to generate the 5-year savings/cost values shown on current Fuel Economy and Environment Labels: consumer operates the new vehicle for five years, averaging 15,000 miles per year, gasoline prices of \$2.40 per gallon<sup>1</sup>, and no discounting to reflect the time value of money (of course, people can drive more or less miles per year and gasoline prices can vary significantly). As shown in Table 2.2, the 3.8 mpg increase in average fuel economy from MY 2008 to MY 2016 would save a typical consumer \$1300 over five years, and the 5.4 mpg increase from MY 2004 to MY 2016 would save the same consumer \$2050.

**Table 2.2**  
**Comparison of MY 2016 with MY 2008 and MY 2004\***

MY 2016 Relative to MY 2008				
Adjusted Fuel Economy	5-Year Fuel Savings	Weight	Horsepower	Footprint
+3.8 MPG +18%	\$1,300	-1.2%	+5.2%	+1.3%
MY 2016 Relative to MY 2004				
Adjusted Fuel Economy	5-Year Fuel Savings	Weight	Horsepower	Footprint
+5.4 MPG +28%	\$2,050	-1.9%	+9.2%	-

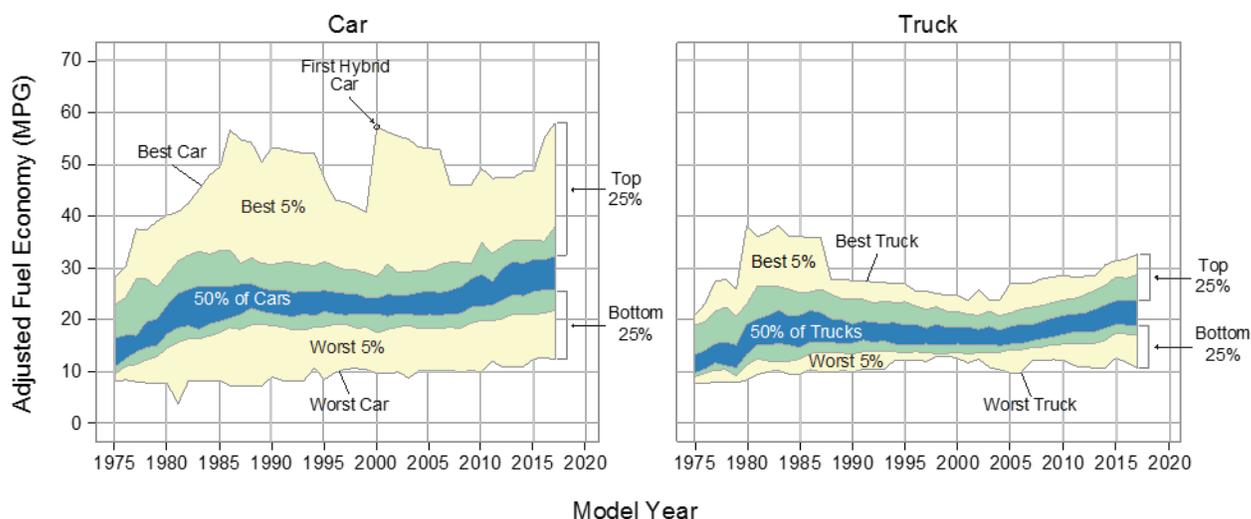
\*Note: some of the % values in this table may differ slightly from calculations based on the absolute values in Table 2.1 due to rounding.

Figure 2.4 shows the production-weighted distribution of adjusted fuel economy by model year, for gasoline (including conventional hybrids) and diesel vehicles. Alternative fuel vehicles are excluded, as they would otherwise dominate this list as many achieve 100 mpge or greater. It is important to note that the methodology used in this report for calculating adjusted fuel economy values has changed over time (see Section 10 for a detailed explanation). For example, the adjusted fuel economy for a 1980s vehicle in the Trends database is somewhat higher than it would be if the same vehicle were being produced today as the methodology for calculating adjusted values has changed over time to reflect real world vehicle operation. These changes are small for most vehicles, but larger for extremely high fuel economy vehicles. For example, the “Best Car” line in Figure 2.4 for MY 2000 through MY 2006 represents the original Honda Insight hybrid, and the several miles per gallon decrease over that period is primarily due to the change in methodology for adjusted fuel economy values, with just a 1 mpg decrease due to minor vehicle design changes during that time.

<sup>1</sup> Annual fuel cost estimate for regular gasoline, in accordance with EPA’s labeling guidance for MY 2018 vehicles (CD-16-18).

## Figure 2.4

### Adjusted Fuel Economy Distribution by Model Year, AFVs Excluded



Since 1975, half of car production has consistently been within several mpg of each other. The fuel economy difference between the least efficient and most efficient car increased from about 20 mpg in MY 1975 to nearly 50 mpg in MY 1986 (when the most efficient car was the General Motors Sprint ER) and in MY 2000 (when the most efficient car was the original Honda Insight hybrid), and is now about 45 mpg. Hybrids have defined the “Best Car” line since MY 2000. The ratio of the highest-to-lowest fuel economy value has increased from about three-to-one in MY 1975 to nearly five-to-one today, as the fuel economy of the least fuel efficient cars has remained roughly constant in comparison to the most fuel efficient cars whose fuel economy has nearly doubled since MY 1975.

The overall fuel economy distribution for trucks is narrower than that for cars, with a peak in the fuel economy of the most efficient truck in the early 1980s when small pickup trucks equipped with diesel engines were sold by Volkswagen and General Motors. As a result, the fuel economy range between the most efficient and least efficient truck peaked at about 25 mpg in the early 1980s. The fuel economy range for trucks then narrowed, and is now about 20 mpg. Like cars, half of the trucks built each year have always been within a few mpg of each year's average fuel economy value.

All of the above data are adjusted, combined city/highway CO<sub>2</sub> emissions and fuel economy values for the combined car and truck fleet. Table 10.2 provides, for the overall car and truck fleets, adjusted and unadjusted, laboratory values for city, highway, and combined city/highway. Appendices B and C provide more detailed data on the distribution of adjusted fuel economy values by model year.

Table 2.3 shows the highest fuel economy gasoline and diesel vehicles for the MY 1975-2017 time frame (while the Trends report database began in MY 1975, we are confident that these are also the highest fuel economy values of all time for mainstream vehicles in the U.S.

market). Note that alternative fuel vehicles, such as electric and plug-in hybrid electric vehicles, are excluded from this table (see Section 7 for information on alternative fuel vehicles). See Appendix A for a listing of the highest and lowest fuel economy vehicles, based on unadjusted fuel economy values, for each year since 1975.

*Unadjusted, laboratory* fuel economy (weighted 55% city and 45% highway) values are used to rank vehicles in Table 2.3, since the test procedures and methodology for determining unadjusted, laboratory fuel economy values have remained largely unchanged since 1975. Accordingly, unadjusted, laboratory values provide a more equitable fuel economy metric, from a vehicle design perspective, over the historical time frame, than the adjusted fuel economy values used throughout most of this report, as the latter also reflect changes in real world driving behavior such as speed, acceleration, and use of air conditioning.

For Table 2.3, vehicle models with the same powertrain and essentially marketed as the same vehicle to consumers are shown only once, as are “twins” where very similar vehicle designs are marketed by two or more makes or brands. Models are typically sold for several years before being redesigned, so the convention for models with the same fuel economy for several years is to show MY 2017, if applicable, and otherwise to show the first year when the model achieved its maximum fuel economy. Data are also shown for number of seats and inertia weight class.

**Table 2.3**

**Top Ten Highest Fuel Economy Vehicles Since 1975, AFVs Excluded**

Model					Unadjusted, Laboratory Combined Fuel Economy (MPG)	Number of Seats	Inertia Weight Class (lbs)
Year	Manufacturer	Make	Model	Powertrain			
2017	Toyota	Toyota	Prius Eco	Gasoline Hybrid	81	5	3000
2017	Hyundai	Hyundai	Ioniq Blue	Gasoline Hybrid	77	5	3000
2000	Honda	Honda	Insight	Gasoline Hybrid	76	2	2000
2017	Toyota	Toyota	Prius	Gasoline Hybrid	74	5	3500
2013	Toyota	Toyota	Prius c	Gasoline Hybrid	71	5	2750
2017	Honda	Honda	Accord	Gasoline Hybrid	70	5	4000
1986	GM	Chevrolet	Sprint ER	Conv. Gasoline	67	4	1750
2017	Kia	Kia	Niro FE	Gasoline Hybrid	67	5	3500
1994	GM	Geo	Metro XFi	Conv. Gasoline	66	4	1750
2017	GM	Chevrolet	Malibu	Gasoline Hybrid	65	5	3500

As expected, all of the vehicles listed in Table 2.3 are cars. Somewhat more surprisingly, no diesel cars made the list.<sup>2</sup> The top fuel economy vehicle is the new MY 2017 Toyota Prius Eco, which achieved an unadjusted, laboratory value of 81 mpg. The Prius Eco is followed by the

<sup>2</sup> The most fuel efficient diesel car in the historical Trends database is the Nissan Sentra from the mid-1980s which had an unadjusted, laboratory fuel economy of 56 mpg. The most efficient MY 2016 diesel car is the BMW 328d, which has an unadjusted, laboratory value of 50 mpg.

---

MY 2017 Hyundai Ioniq Blue. The third most efficient vehicle is the MY 2000 Honda Insight, a two-seater that was the first hybrid vehicle sold in the U.S. market.

Seven of the highest ten fuel economy vehicles of all time are on the market in MY 2017<sup>3</sup>, and all of these are conventional hybrids. Other than the MY 2000 Insight, also a conventional hybrid, the remaining two vehicles in Table 2.3 are non-hybrid gasoline vehicles from the late 1980s and early 1990s. The non-hybrid vehicle with the highest fuel economy is the 1986 Chevrolet Sprint ER with an unadjusted, laboratory fuel economy of 67 mpg.

One of the most important lessons from Table 2.3 is that there are important differences between the highest fuel economy vehicles of the past and those of today. All of the pre-MY 2015 vehicles in Table 2.3 had 2 or 4 seats, while the MY 2017 vehicles all seat 5 passengers. The older vehicles had inertia weight class values of 1750 pounds, while the MY 2017 vehicles are in inertia weight classes of 2750-4000 pounds, or 1000-2000 pounds heavier. Though not shown in Table 2.3, the MY 2016 vehicles also have faster acceleration rates and are also required to meet more stringent EPA emissions standards and DOT safety standards than vehicles produced in the earlier model years. One clear conclusion from Table 2.3 is that conventional hybrid technology has enabled manufacturers to offer high fuel economy vehicles with much greater utility, while simultaneously meeting more stringent emissions and safety standards, than the high fuel economy vehicles of the past.

Finally, since all of the vehicles in Table 2.3 are cars, Table 2.4 shows a comparable table for the highest fuel economy gasoline and diesel trucks since MY 1975. The methodological approach for selecting the trucks shown in Table 2.4 is the same as discussed above for cars in Table 2.3. The most fuel efficient gasoline/diesel truck in the historical Trends database is a small Volkswagen diesel pickup truck sold in the early 1980s with an unadjusted, laboratory fuel economy of 45 mpg. This year, the MY 2017 Nissan Rogue AWD hybrid rose to second on this list and also achieved an unadjusted, laboratory fuel economy of 45 mpg, only very slightly lower fuel economy than the VW pickup.

The most fuel efficient trucks are a more diverse mix than the most fuel efficient cars—while all three trucks from the 1980s were small diesels, the seven trucks from recent years include six gasoline hybrids, and one conventional gasoline, with inertia weight ratings of 3500-5000 pounds. As shown in Table 2.3 for cars, more efficient powertrain technology in the last few years has enabled automakers to offer high fuel economy trucks with greater seating capacity and inertia weight than the high fuel economy diesel trucks of the early 1980s, while simultaneously meeting more stringent emissions and safety standards.

---

<sup>3</sup> The Toyota Prius c is available as a MY 2017 vehicle, however the MY 2013 version was slightly more efficient and shows up in Table 2.3 instead of the MY 2017 version.

## Table 2.4

### Top Ten Highest Fuel Economy Trucks Since 1975, AFVs Excluded

Model					Unadjusted, Laboratory Combined Fuel Economy (MPG)	Number of Seats <sup>4</sup>	Inertia Weight Class (lbs)
Year	Manufacturer	Make	Model	Powertrain			
1983	VW	VW	Pickup 2WD	Diesel	45	2	2250
2017	Nissan	Nissan	Rogue AWD	Gasoline Hybrid	45	5 or 7	4000
2017	Toyota	Toyota	RAV4 AWD	Gasoline Hybrid	45	5	4000
2017	Toyota	Lexus	NX 300h AWD	Gasoline Hybrid	44	5	4500
1982	GM	Chevrolet	Pickup 2WD	Diesel	43	2	2750
2015	Subaru	Subaru	XV Crosstrek	Gasoline Hybrid	42	5	3500
1983	Grumman Olson	Grumman Olson	Kubvan	Diesel	42	2	2250
2017	Toyota	Lexus	RX 450h AWD	Gasoline Hybrid	41	5	5000
2017	Toyota	Toyota	Highlander AWD	Gasoline Hybrid	40	7 or 8	5000
2017	Honda	Honda	CR-V AWD	Conv. Gasoline	40	5	3500

<sup>4</sup> The Nissan Rogue and Toyota Highlander have optional packages available that can increase seating.

---

# 3 Vehicle Class, Type, and Attributes

## A. VEHICLE CLASS

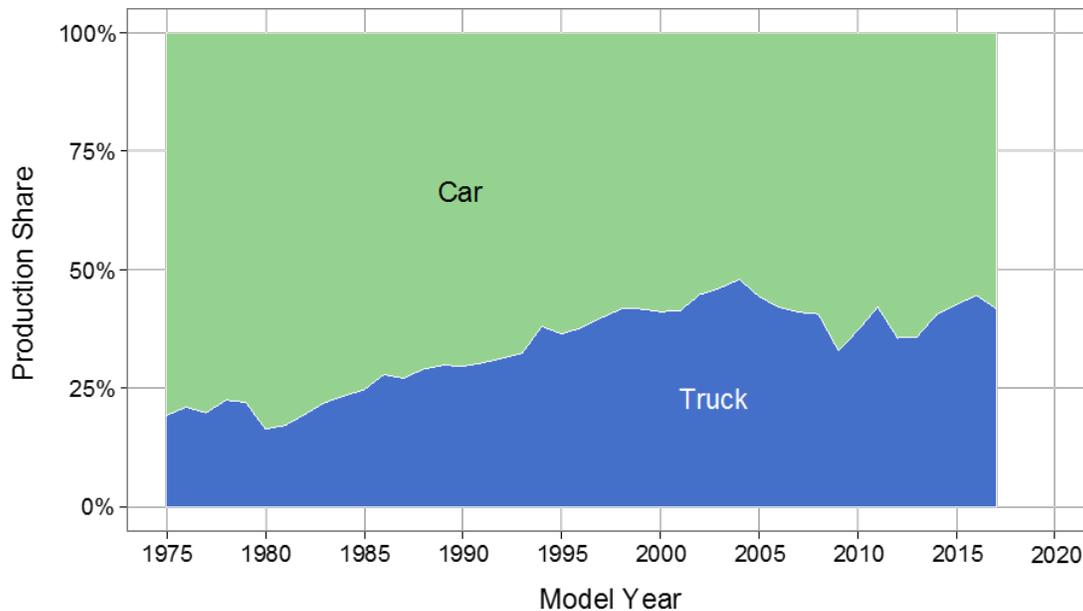
We use “class” to refer to the overall division of light-duty (or personal) vehicles into the two classes of “cars” and “trucks.” This car-truck distinction has been recognized since the database was originally created in 1975, though the precise definitions associated with these two classes have changed somewhat over time. Car-truck classification is important both because of functional differences between the design of many cars and trucks, and because there are separate footprint-based CO<sub>2</sub> emissions and fuel economy standards curves for cars and trucks. The regulatory challenge has been where to draw the line between cars and trucks, and this has evolved over time.

Car and truck classifications in this report are based on the current regulatory definitions used by both EPA and NHTSA for CO<sub>2</sub> emissions and CAFE standards. These current definitions are somewhat different than those used in older versions of this report. The most important change was re-classification of many small and mid-sized, 2-wheel drive sport utility vehicles (SUVs) from the truck category to the car category. As with other such changes in this report, this change has been propagated back throughout the entire historical database. This re-classification reduced the absolute truck share by approximately 10% for recent years. A second change was the inclusion of medium-duty passenger vehicles (MDPVs), those SUVs and passenger vans with gross vehicle weight ratings between 8,500 and 10,000 pounds and which previously had been treated as heavy-duty vehicles, into the light-duty truck category. This is a far less important change, since the number of MDPVs is much smaller than it once was (e.g., only an estimated 6,500 MDPVs were produced for sale in MY 2012). In this report, “cars” include passenger cars and most small and mid-sized, 2 wheel-drive SUVs, while “trucks” include all other SUVs and all minivans and vans, and pickup trucks below 8500 pounds gross vehicle weight rating.

Figure 3.1 shows the car and truck production volume shares using the current car-truck definitions throughout the MY 1975-2017 database.

**Figure 3.1**

**Car and Truck Production Share by Model Year**



Truck share was around 20% from MY 1975-1982, and then started to increase steadily through MY 2004, when it peaked at 48%. Between MY 2004 and MY 2012, truck share was volatile, affected by factors such as the economic recession of 2009, the Car Allowance Rebate System (also known as Cash for Clunkers) in 2009, and the earthquake and tsunami aftermath in Japan in 2011. Since MY 2012, truck share has increased four years in a row and by nearly 10 percentage points, due to growing SUV sales. Increases, or decreases, in the truck share over time are a critical factor in the overall fleetwide CO<sub>2</sub> and fuel economy trends. The final truck share value for MY 2016 is 45%, 2 percentage points higher than in MY 2015 but 3 percentage points lower than the peak truck share of 48% in MY 2004. The preliminary MY 2017 truck market share is projected to decrease to 42%, though this is very uncertain given low gasoline prices.

---

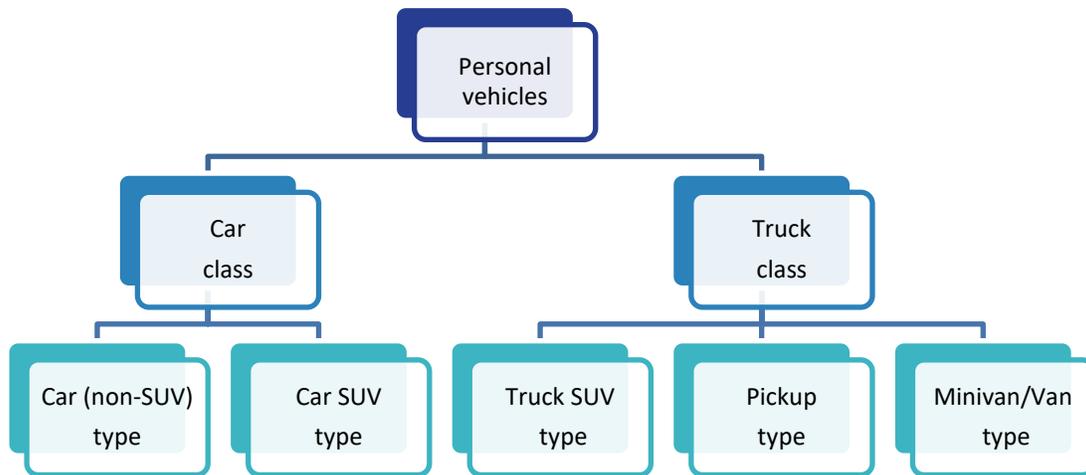
## B. VEHICLE TYPE

We use vehicle “type” to refer to secondary divisions within the car and truck classes. Vehicle type is not relevant to standards compliance, as all cars (and, separately, all trucks) use the same footprint-CO<sub>2</sub> emissions and footprint-fuel economy target curves, but we believe that certain vehicle type distinctions are illustrative and meaningful from both vehicle design and marketing perspectives.

This report breaks the car class into two types—cars and car SUVs. The truck class is split into three types—truck SUVs, pickups, and minivans/vans. This is a simpler approach than that used in some older versions of this report.

### Figure 3.2

*Vehicle Classes and Types Used in This Report*

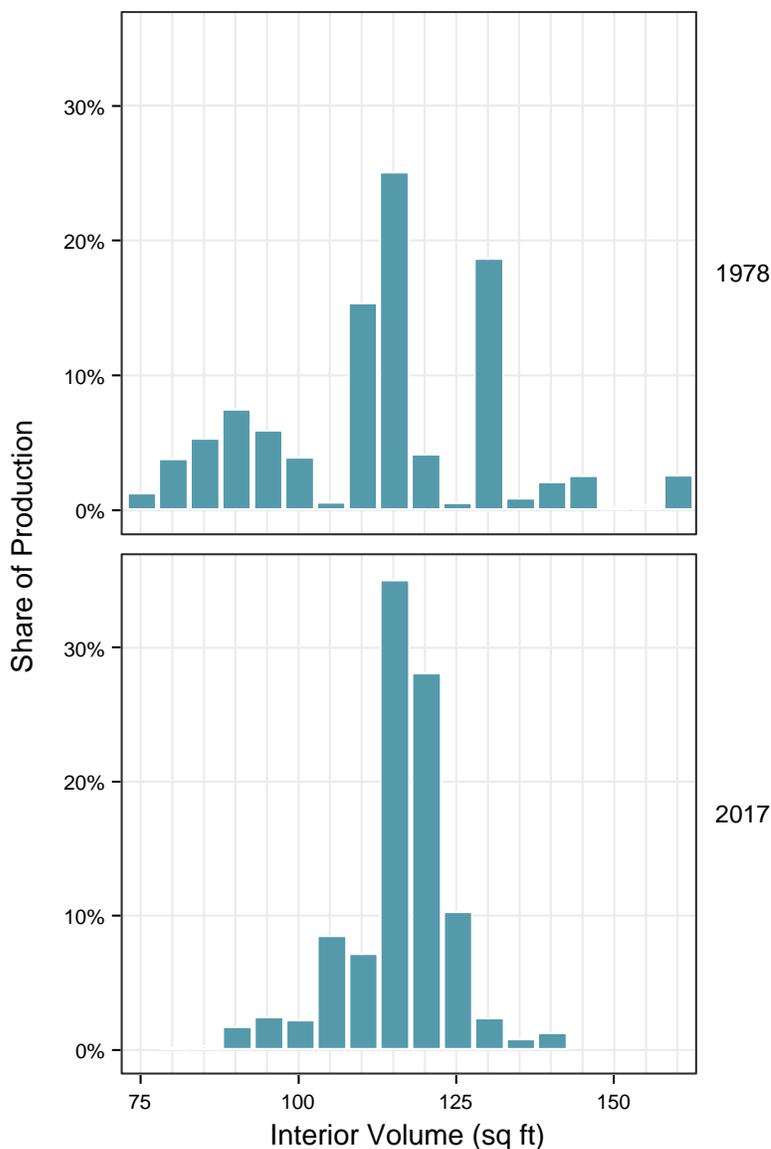


For cars, pre-2013 versions of this report generally divided the car class into as many as 9 types/sizes (Cars, Wagons, and Car SUVs, each further subdivided into small, medium, and large sizes based on interior volume). We no longer use wagons as a car type in this report.

More importantly, we believe that interior volume (the sum of passenger volume and cargo volume, typically measured in cubic feet), the metric that was historically used to differentiate among car type vehicles, is not as informative as it once was. For example, Figure 3.3 shows production share versus interior volume for car type vehicles for two years, MY 1978 and MY 2017, for high-volume manufacturers.

**Figure 3.3**

**Car Type Production Share vs. Interior Volume for High Volume Manufacturers, MY 1978 and 2017**



The data in Figure 3.3 illustrate the “compression” in the range of interior volumes for car type vehicles since 1978 (each bar represents a band of 5 cubic feet). Two-seater cars are excluded from this figure as automakers do not provide interior volume data for 2-seaters. In MY 1978, there were mainstream car type vehicles on the market with interior volumes ranging from about 70 cubic feet to about 160 cubic feet, with meaningful production volume at both ends of the spectrum. Today, mainstream offerings range from about 80 cubic feet to about 130 cubic feet (some 4-seat cars in the 55-60 cubic feet interior volume range do not show up in this figure due to very low production volume). The compression is even greater when considering production volumes. We reviewed the data for one high-volume make that offered seven car type models in MY 2012. The interior volume of these seven models ranged

---

from 97-124 cubic feet, with 75% of sales within a very narrow interior volume range of 104-111 cubic feet, and about 50% of production (representing 3 models) with essentially the same interior volume (110-111 cubic feet).

Accordingly, we believe that interior volume is no longer very useful as a differentiator among car type vehicles in the Trends database. We believe that vehicle footprint is a more appropriate indicator of car size because it is the basis for both CO<sub>2</sub> emissions and fuel economy standards (and it is relevant to both cars and trucks). Interior volume data for car type vehicles will still be included in the Trends database.

This report divides the car class into two types, a car SUV type, and a car type. Vehicles classified as part of the car SUV type must meet two criteria: 1) they are classified as an SUVs per the fuel economy labeling program (see [www.fueleconomy.gov](http://www.fueleconomy.gov)), and 2) they do not meet the light truck definition in the GHG and fuel economy standards. Vehicles designated as a minicompact, subcompact, compact, midsize, large, two-seater cars, or station wagons as part of the labeling program are classified as part of the car type in this report. For propagating back in the historical database, station wagons are generally allocated to the car type.

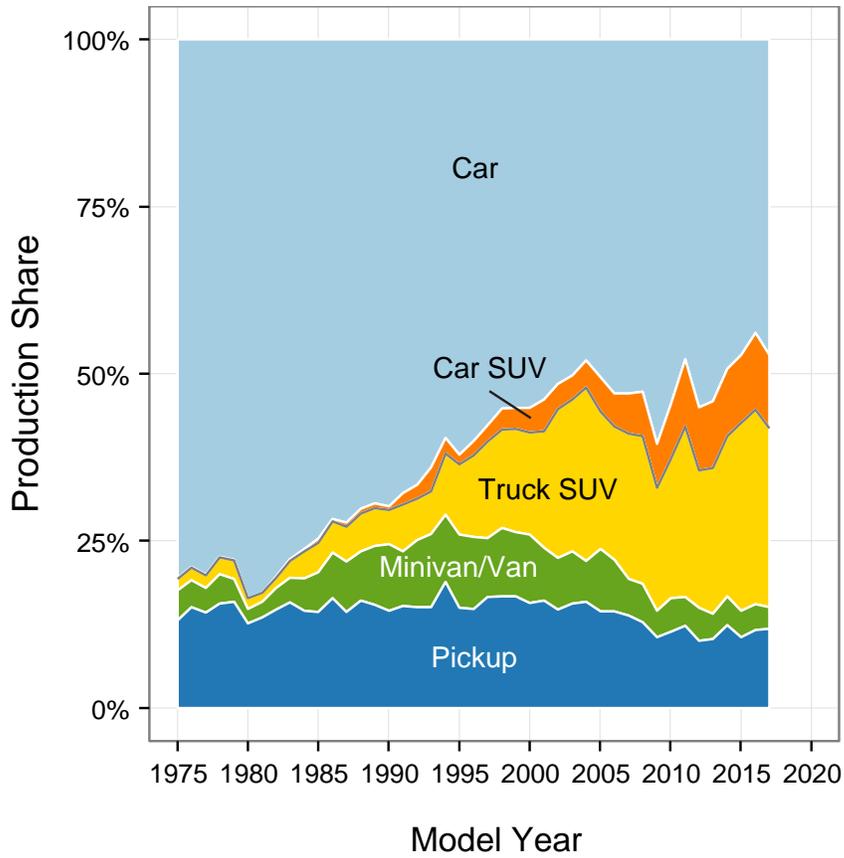
For trucks, pre-2013 versions of this report divided the truck class into 9 types/sizes (SUVs, Pickups, and Vans (including minivans), each further subdivided into small, medium, and large sizes based on vehicle wheelbase). This report retains the three historical truck types because we believe that there continue to be meaningful functional and marketing differences between truck SUVs (those SUVs that must meet the truck GHG emissions and fuel economy standards), pickups, and minivans/vans. See Section 10 for the definitions for SUVs, pickups, minivans, and vans and for more information about car-truck classifications. We use engineering judgment to allocate the very small number of special purpose vehicles (as designated on [www.fueleconomy.gov](http://www.fueleconomy.gov)) to the three truck types.

It is important to note that this report no longer uses wheelbase to differentiate between truck type sizes. The rationale for this change, similar to that for car interior volume above, is that the wheelbase metric is not as informative as it once was. For example, under the wheelbase thresholds that were used in the 2012 report, 99% of MY 2011 pickups were “large” and 99% of MY 2011 minivans/vans were “medium.” In addition, wheelbase is one of the two factors that comprise vehicle footprint (wheelbase times average track width).

Figure 3.4 shows the car and truck production volume shares for MY 1975-2017, subdivided into the two car types and three truck types. Table 3.1 shows the same data in tabular form.

**Figure 3.4**

*Vehicle Type Production Share by Model Year*



**Table 3.1****Vehicle Type Production Share by Model Year**

<b>Model Year</b>	<b>Car (non- SUV)</b>	<b>Car SUV</b>	<b>All Car</b>	<b>Truck SUV</b>	<b>Pickup</b>	<b>Minivan/ Van</b>	<b>All Truck</b>
1975	80.6%	0.1%	80.7%	1.7%	13.1%	4.5%	19.3%
1976	78.8%	0.1%	78.9%	1.9%	15.1%	4.1%	21.1%
1977	80.0%	0.1%	80.1%	1.9%	14.3%	3.6%	19.9%
1978	77.3%	0.1%	77.5%	2.5%	15.7%	4.3%	22.5%
1979	77.8%	0.1%	77.9%	2.8%	15.9%	3.5%	22.1%
1980	83.5%	0.0%	83.5%	1.6%	12.7%	2.1%	16.5%
1981	82.7%	0.0%	82.8%	1.3%	13.6%	2.3%	17.2%
1982	80.3%	0.1%	80.5%	1.5%	14.8%	3.2%	19.5%
1983	77.7%	0.3%	78.0%	2.5%	15.8%	3.7%	22.0%
1984	76.1%	0.4%	76.5%	4.1%	14.6%	4.8%	23.5%
1985	74.6%	0.6%	75.2%	4.5%	14.4%	5.9%	24.8%
1986	71.7%	0.4%	72.1%	4.6%	16.5%	6.8%	27.9%
1987	72.2%	0.6%	72.8%	5.2%	14.4%	7.5%	27.2%
1988	70.2%	0.7%	70.9%	5.6%	16.1%	7.4%	29.1%
1989	69.3%	0.7%	70.1%	5.7%	15.4%	8.8%	29.9%
1990	69.8%	0.5%	70.4%	5.1%	14.5%	10.0%	29.6%
1991	67.8%	1.8%	69.6%	6.9%	15.3%	8.2%	30.4%
1992	66.6%	2.0%	68.6%	6.2%	15.1%	10.0%	31.4%
1993	64.0%	3.6%	67.6%	6.3%	15.2%	10.9%	32.4%
1994	59.6%	2.3%	61.9%	9.1%	18.9%	10.0%	38.1%
1995	62.0%	1.5%	63.5%	10.5%	15.0%	11.0%	36.5%
1996	60.0%	2.2%	62.2%	12.2%	14.9%	10.7%	37.8%
1997	57.6%	2.5%	60.1%	14.5%	16.7%	8.8%	39.9%
1998	55.1%	3.1%	58.3%	14.7%	16.7%	10.3%	41.7%
1999	55.1%	3.2%	58.3%	15.4%	16.7%	9.6%	41.7%
2000	55.1%	3.7%	58.8%	15.2%	15.8%	10.2%	41.2%
2001	53.9%	4.8%	58.6%	17.3%	16.1%	7.9%	41.4%
2002	51.5%	3.7%	55.2%	22.3%	14.8%	7.7%	44.8%
2003	50.2%	3.6%	53.9%	22.6%	15.7%	7.8%	46.1%
2004	48.0%	4.1%	52.0%	25.9%	15.9%	6.1%	48.0%
2005	50.5%	5.1%	55.6%	20.6%	14.5%	9.3%	44.4%
2006	52.9%	5.0%	57.9%	19.9%	14.5%	7.7%	42.1%
2007	52.9%	6.0%	58.9%	21.7%	13.8%	5.5%	41.1%
2008	52.7%	6.6%	59.3%	22.1%	12.9%	5.7%	40.7%
2009	60.5%	6.5%	67.0%	18.4%	10.6%	4.0%	33.0%
2010	54.5%	8.2%	62.8%	20.7%	11.5%	5.0%	37.2%
2011	47.8%	10.0%	57.8%	25.5%	12.3%	4.3%	42.2%
2012	55.0%	9.4%	64.4%	20.6%	10.1%	4.9%	35.6%
2013	54.1%	10.0%	64.1%	21.8%	10.4%	3.8%	35.9%
2014	49.2%	10.1%	59.3%	23.9%	12.4%	4.3%	40.7%
2015	47.2%	10.2%	57.4%	28.1%	10.7%	3.9%	42.6%
2016	43.8%	11.5%	55.3%	29.1%	11.7%	3.9%	44.7%
2017 (prelim)	47.2%	11.0%	58.1%	26.8%	11.9%	3.2%	41.9%

---

The data from Table 3.1 show that car type market share has dropped from around 80% in the MY 1975-1985 timeframe to below 50% today. Pickups accounted for most of the remaining market share in MY 1975-1985. In the late 1980s, both minivans/vans and truck SUVs began to erode car type market share, with truck SUV market share reaching 29% in MY 2016. More recently, car SUVs have become more popular and have increased market share to over 11%. Total SUVs, including both car SUVs and truck SUVs, have increased market share to over 40% in MY 2016. Pickup market share was approximately 15% from MY 1975 through MY 2005, but has declined slightly to approximately 12% in MY 2016.

Table 3.2 shows adjusted fuel economy and CO<sub>2</sub> emissions by model type since 1975. Each of the 5 vehicle types are at or near record fuel economy and CO<sub>2</sub> emissions levels in the final MY 2016 data. The car type achieves the highest fuel economy value for MY 2016, followed by car SUVs, truck SUVs, minivans/vans, and pickups. In the preliminary MY 2017 data, the car type and minivans/vans are expected to further improve, with pickups and truck SUVs staying the same and car SUVs slightly decreasing. Interestingly, over the 5-year period from MY 2012-2017, the vehicle types that have achieved the largest improvement in CO<sub>2</sub> emissions are those with the lowest absolute fuel economy. Truck SUVs have reduced CO<sub>2</sub> emissions by 44 g/mi since MY 2012 and pickups have reduced CO<sub>2</sub> emissions by 46 g/mi since MY 2012, while the other vehicle types all showed smaller reductions.

**Table 3.2**

*Vehicle Type Adjusted Fuel Economy and CO<sub>2</sub> Emissions by Model Year*

Model Year	Car (non- SUV)		Car SUV		Pickup		Truck SUV		Minivan/Van	
	Adj Fuel Economy (MPG)	Adj CO <sub>2</sub> (g/mi)	Adj Fuel Economy (MPG)	Adj CO <sub>2</sub> (g/mi)	Adj Fuel Economy (MPG)	Adj CO <sub>2</sub> (g/mi)	Adj Fuel Economy (MPG)	Adj CO <sub>2</sub> (g/mi)	Adj Fuel Economy (MPG)	Adj CO <sub>2</sub> (g/mi)
1975	13.5	660	11.1	799	11.9	746	11.0	806	11.1	800
1976	14.9	598	10.6	840	12.4	714	11.8	755	11.8	754
1977	15.6	570	12.2	731	13.6	656	12.8	692	12.5	710
1978	16.9	525	11.6	768	13.3	668	12.3	723	12.1	736
1979	17.2	517	14.3	623	13.2	674	10.5	844	11.5	774
1980	20.0	446	14.6	610	16.5	541	13.2	676	14.1	629
1981	21.4	418	14.7	605	17.9	500	14.3	621	14.8	599
1982	22.2	402	19.8	450	18.5	486	14.7	616	14.7	605
1983	22.1	403	20.7	430	18.9	473	15.8	568	15.1	593
1984	22.4	397	19.3	461	18.3	488	16.2	551	16.1	552
1985	23.0	387	20.1	443	18.2	489	16.5	538	16.5	537
1986	23.7	375	18.9	470	18.9	471	17.0	523	17.5	509
1987	23.8	373	19.4	458	19.0	467	17.3	515	17.7	503
1988	24.1	368	19.2	462	18.1	490	17.0	522	17.9	497
1989	23.7	375	19.1	465	17.8	499	16.6	537	17.8	499
1990	23.3	381	18.8	472	17.4	511	16.4	541	17.8	498
1991	23.4	379	18.2	488	18.2	489	16.7	531	17.9	496
1992	23.1	385	17.8	498	17.5	508	16.2	548	17.9	496
1993	23.5	379	17.0	522	17.6	505	16.3	546	18.2	488
1994	23.3	382	18.0	493	17.4	510	16.0	555	17.8	498
1995	23.4	379	17.8	499	16.9	526	16.0	555	18.1	492
1996	23.3	381	18.4	482	17.1	518	16.2	548	18.3	485
1997	23.4	380	19.2	462	16.8	528	16.1	551	18.2	489
1998	23.4	380	18.2	487	17.0	523	16.2	550	18.7	475
1999	23.0	386	18.5	480	16.3	546	16.1	553	18.3	486
2000	22.9	388	17.9	497	16.7	534	16.0	555	18.6	478
2001	23.0	386	18.8	472	16.0	557	16.4	541	18.0	493
2002	23.1	385	19.3	460	15.8	564	16.3	545	18.7	475
2003	23.3	382	19.9	446	16.1	553	16.4	541	19.0	468
2004	23.1	384	20.0	445	15.7	565	16.5	539	19.2	464
2005	23.5	379	20.2	440	15.8	561	16.7	531	19.3	460
2006	23.3	382	20.5	434	16.1	551	17.2	518	19.5	455
2007	24.1	369	20.6	431	16.2	550	17.7	503	19.5	456
2008	24.3	366	21.2	419	16.5	539	18.2	489	19.8	448
2009	25.3	351	22.0	403	16.9	526	19.3	461	20.1	443
2010	26.2	340	23.0	386	16.9	527	19.7	452	20.1	442
2011	25.8	344	23.5	378	17.2	516	19.8	449	20.9	424
2012	27.6	322	23.3	381	17.2	516	20.0	445	21.3	418
2013	28.4	313	24.3	365	17.5	509	20.8	427	21.1	422
2014	28.4	313	24.4	364	18.0	493	21.6	412	21.3	418
2015	29.0	306	25.1	353	18.8	474	21.9	406	21.8	408
2016	29.2	303	26.2	338	18.9	471	22.2	400	21.7	410
2017 (prelim)	30.0	295	26.0	339	18.9	470	22.2	401	22.8	390

One particular vehicle type trend of interest is associated with small SUVs that are classified as cars if they have 2-wheel drive and as trucks if they have 4-wheel drive and meet other requirements such as minimum angles and clearances. For this analysis, summarized in Table 3.3, we reviewed MY 2000-2017 SUVs with inertia weights of 4000 pounds or less (SUVs with inertia weights of 5000 pounds or more are typically categorized as trucks regardless of whether they are 2-wheel or 4-wheel drive). Note that we have propagated the current car-truck definitions back to previous years in the Trends database in order to maintain the integrity of historical trends (i.e., some vehicles that were defined as trucks in past years are now defined as cars for those same years in the Trends database).

**Table 3.3**

**Car-Truck Classification of SUVs with Inertia Weights of 4000 Pounds or Less**

Model Year	Car SUV Production (000)	Truck SUV Production (000)	Total SUV Production (000)	Percent Car SUV	Percent Truck SUV
2000	617	796	1,413	43.7%	56.3%
2001	743	920	1,663	44.7%	55.3%
2002	602	928	1,531	39.4%	60.6%
2003	575	994	1,569	36.6%	63.4%
2004	599	1,116	1,715	34.9%	65.1%
2005	753	867	1,620	46.5%	53.5%
2006	691	758	1,449	47.7%	52.3%
2007	761	843	1,604	47.4%	52.6%
2008	748	799	1,547	48.4%	51.6%
2009	539	575	1,115	48.4%	51.6%
2010	659	854	1,512	43.5%	56.5%
2011	985	1,044	2,029	48.5%	51.5%
2012	1,039	867	1,907	54.5%	45.5%
2013	1,177	1,190	2,367	49.7%	50.3%
2014	1,340	1,533	2,872	46.6%	53.4%
2015	1,427	1,949	3,376	42.3%	57.7%
2016	1,683	2,072	3,755	44.8%	55.2%
2017 (prelim)	-	-	-	46.1%	53.9%

Table 3.3 shows that the fraction of SUVs with curb weights less than 4000 pounds that are classified as trucks, using the current car-truck definitions propagated back in time, has declined from a high of 65% in the early 2000s to around 55% in recent years.

Appendix D gives additional data stratified by vehicle type.

---

## C. VEHICLE FOOTPRINT, WEIGHT, AND HORSEPOWER

This sub-section focuses on three key attributes that impact CO<sub>2</sub> emissions and fuel economy. These attributes are footprint, weight, and horsepower. All three attributes are relevant to all light-duty vehicles and were included in the Table 2.1 fleetwide data. Vehicle acceleration is discussed in the following sub-section.

Vehicle footprint is a very important attribute since it is the basis for the current CO<sub>2</sub> emissions and fuel economy standards. Footprint is the product of wheelbase times average track width (or the area defined by where the centers of the tires touch the ground). We provide footprint data beginning with MY 2008, though it is important to highlight that we have higher confidence in the data beginning in MY 2011. Footprint data from MY 2008-2010 were aggregated from various sources, some independent of formal automaker data, and EPA has less confidence in the consistency and precision of this data. Beginning in MY 2011, the first year when both car and truck CAFE standards were based on footprint, automakers began to formally submit reports to EPA with footprint data at the end of the model year, and this formal footprint data is reflected in the final data through MY 2016. EPA projects footprint data for the preliminary MY 2017 fleet based on footprint values for existing models from previous years and footprint values for new vehicle designs available through public sources. With these caveats, Table 2.1 above shows that average fleetwide footprint has hovered around 49 square feet since MY 2008. The MY 2016 footprint is 49.5 square feet, which is a 0.1 square feet decrease relative to MY 2015. The preliminary MY 2017 footprint value is 49.5 square feet, which would be no change.

Vehicle weight is a fundamental vehicle attribute, both because it can be related to utility functions such as vehicle size and features, and because higher weight, other things being equal, will increase CO<sub>2</sub> emissions and decrease fuel economy. All Trends vehicle weight data are based on inertia weight class. Each inertia weight class represents a range of loaded vehicle weights, or vehicle curb weights plus 300 pounds. Vehicle inertia weight classes are in 250-pound increments for classes below 3000 pounds, while inertia weight classes over 3000 pounds are divided into 500-pound increments. Table 2.1 shows that average fleetwide vehicle weight decreased from nearly 4100 pounds in MY 1976 to 3200 pounds in MY 1981, likely driven by both increasing fuel economy standards (which, at that time, were universal standards, and not based on any type of vehicle attribute) and higher gasoline prices. Average vehicle weight then grew slowly but steadily over the next 23 years (in part because of the increasing truck share), to 4111 pounds in MY 2004. Since 2004, average vehicle weight has stayed fairly constant in the range of 4000 to 4100 pounds, reaching 4126 pounds in MY 2011, an all-time high since the database began in 1975. Average MY 2016 weight was 4035 pounds, which is exactly the same as MY 2015. The preliminary MY 2017 value for weight is 4044 pounds, which if realized would represent a 9 pound increase compared to MY 2016.

---

Horsepower (hp) is of interest as a direct measure of vehicle power. In the past, higher power generally increased CO<sub>2</sub> emissions and decreased fuel economy, though this relationship is now less important with turbo and hybrid packages. Horsepower data for all gasoline (including conventional hybrids) and diesel vehicles in the Trends database reflect engine rated horsepower. Average fleetwide horsepower dropped from 137 hp in MY 1975 to 102 hp in MY 1981. Since MY 1981, horsepower values have increased just about every year (again, in part due to the increasing truck share through 2004), and current levels are over twice those of the early 1980s. Average MY 2016 horsepower was 230 hp, a 1 hp increase relative to MY 2015 and tied with the record high achieved in MY 2014 and MY 2011. The preliminary value for MY 2017 is 232 hp.

The following two tables provide data for the three attributes discussed above for the car and truck classes separately (these data are shown for the entire fleet in Table 2.1 above).

Table 3.4.1 shows that car adjusted fuel economy reached its all-time high of 28.5 mpg in MY 2016, which is more than twice the MY 1975 level of 13.5 mpg, and an increase of 0.3 mpg from MY 2015. Car adjusted CO<sub>2</sub> emissions decreased by 3 g/mi to a new all-time low of 311 g/mi. Car weight dropped 23 lbs on average, horsepower fell slightly, and footprint was unchanged from MY 2015 to MY 2016. Car fuel economy is projected to increase by 0.6 mpg in MY 2017 to another record high, while car weight, horsepower, and footprint are projected to increase by 1% or less from MY 2016. The interior volume data shown in Table 3.4.1 is only for car type vehicles, as EPA does not collect interior volume data for car SUVs.

Table 3.4.2 shows that truck adjusted fuel economy was a record high 21.2 mpg in MY 2016, which was a 0.1 mpg increase over MY 2015. Truck weight was down 24 lbs on average, while horsepower was up slightly and footprint was down slightly from MY 2015 to MY 2016. Truck weight, horsepower, and footprint are all projected to increase in MY 2017, while fuel economy is projected to be unchanged.

**Table 3.4.1****Car Adjusted CO<sub>2</sub> Emissions, Adjusted Fuel Economy, and Key Parameters by Model Year**

Model Year	Gasoline and Diesel Production (000)	Car Production Share	Adj CO <sub>2</sub> (g/mi)	Adj Fuel Economy (MPG)	Weight (lbs)	HP	Footprint (sq ft)	Interior Volume*
1975	8,247	80.7%	661	13.5	4057	136	-	-
1976	9,734	78.9%	598	14.9	4059	134	-	-
1977	11,318	80.1%	570	15.6	3944	133	-	110
1978	11,191	77.5%	525	16.9	3588	124	-	109
1979	10,810	77.9%	517	17.2	3485	119	-	109
1980	9,444	83.5%	446	20.0	3101	100	-	104
1981	8,734	82.8%	418	21.4	3076	99	-	106
1982	7,832	80.5%	402	22.2	3053	99	-	106
1983	8,035	78.0%	403	22.1	3112	104	-	109
1984	10,730	76.5%	397	22.4	3101	106	-	108
1985	10,879	75.2%	387	23.0	3096	111	-	108
1986	11,074	72.1%	375	23.7	3043	111	-	107
1987	10,826	72.8%	374	23.8	3035	113	-	107
1988	10,845	70.9%	369	24.1	3051	116	-	107
1989	10,126	70.1%	376	23.6	3104	121	-	108
1990	8,875	70.4%	382	23.3	3178	129	-	107
1991	8,747	69.6%	382	23.3	3168	133	-	107
1992	8,350	68.6%	389	22.9	3254	141	-	108
1993	8,929	67.6%	386	23.0	3241	140	-	108
1994	8,747	61.9%	386	23.0	3268	144	-	108
1995	9,616	63.5%	382	23.3	3274	153	-	109
1996	8,177	62.2%	384	23.1	3297	155	-	109
1997	8,695	60.1%	384	23.2	3285	156	-	109
1998	8,425	58.3%	386	23.0	3334	160	-	109
1999	8,865	58.3%	392	22.7	3390	164	-	109
2000	9,742	58.8%	395	22.5	3401	168	-	110
2001	9,148	58.6%	393	22.6	3411	169	-	109
2002	8,903	55.2%	390	22.8	3415	173	-	110
2003	8,496	53.9%	386	23.0	3437	176	-	110
2004	8,176	52.0%	389	22.9	3492	184	-	110
2005	8,839	55.6%	384	23.1	3498	183	-	111
2006	8,744	57.9%	386	23.0	3563	194	-	112
2007	9,001	58.9%	375	23.7	3551	191	-	110
2008	8,243	59.3%	372	23.9	3569	194	45.3	110
2009	6,244	67.0%	356	25.0	3502	186	45.2	110
2010	6,976	62.8%	346	25.7	3536	190	45.4	110
2011	6,949	57.8%	350	25.4	3617	200	46.0	111
2012	8,659	64.4%	331	26.9	3519	192	45.7	111
2013	9,740	64.1%	321	27.7	3543	197	45.9	110
2014	9,205	59.3%	322	27.6	3559	198	46.1	111
2015	9,601	57.4%	314	28.2	3556	197	46.1	111
2016	9,000	55.3%	311	28.5	3533	196	46.1	112
2017 (prelim)	-	58.1%	303	29.1	3570	198	46.2	112

\* Interior volume calculated using "Car" type only and does not include Car SUVs.

**Table 3.4.2***Truck Adjusted CO<sub>2</sub> Emissions, Adjusted Fuel Economy, and Key Parameters by Model Year*

<b>Model Year</b>	<b>Gasoline and Diesel Production (000)</b>	<b>Truck Production Share</b>	<b>Adj CO<sub>2</sub> (g/mi)</b>	<b>Adj Fuel Economy (MPG)</b>	<b>Weight (lbs)</b>	<b>HP</b>	<b>Footprint (sq ft)</b>
1975	1,977	19.3%	764	11.6	4073	142	-
1976	2,600	21.1%	726	12.2	4155	141	-
1977	2,805	19.9%	669	13.3	4136	147	-
1978	3,257	22.5%	687	12.9	4152	146	-
1979	3,072	22.1%	711	12.5	4257	138	-
1980	1,863	16.5%	565	15.8	3869	121	-
1981	1,821	17.2%	523	17.1	3806	119	-
1982	1,901	19.5%	516	17.4	3813	120	-
1983	2,267	22.0%	504	17.7	3773	118	-
1984	3,289	23.5%	512	17.4	3787	118	-
1985	3,581	24.8%	509	17.5	3803	124	-
1986	4,291	27.9%	489	18.2	3741	123	-
1987	4,039	27.2%	486	18.3	3718	131	-
1988	4,450	29.1%	498	17.8	3850	141	-
1989	4,327	29.9%	506	17.6	3932	146	-
1990	3,740	29.6%	512	17.4	4014	151	-
1991	3,825	30.4%	500	17.8	3961	150	-
1992	3,822	31.4%	512	17.3	4078	155	-
1993	4,281	32.4%	507	17.5	4098	160	-
1994	5,378	38.1%	518	17.2	4149	166	-
1995	5,529	36.5%	524	17.0	4201	168	-
1996	4,967	37.8%	518	17.2	4255	179	-
1997	5,762	39.9%	528	16.8	4394	189	-
1998	6,030	41.7%	521	17.1	4317	188	-
1999	6,350	41.7%	535	16.6	4457	199	-
2000	6,829	41.2%	528	16.8	4421	199	-
2001	6,458	41.4%	538	16.5	4543	212	-
2002	7,211	44.8%	539	16.5	4612	223	-
2003	7,277	46.1%	533	16.7	4655	224	-
2004	7,533	48.0%	538	16.5	4783	240	-
2005	7,053	44.4%	526	16.9	4763	242	-
2006	6,360	42.1%	518	17.2	4758	240	-
2007	6,275	41.1%	512	17.4	4871	254	-
2008	5,656	40.7%	499	17.8	4837	254	54.0
2009	3,071	33.0%	480	18.5	4753	252	54.0
2010	4,141	37.2%	474	18.8	4784	253	53.8
2011	5,069	42.2%	466	19.1	4824	271	54.4
2012	4,790	35.6%	461	19.3	4809	276	54.5
2013	5,458	35.9%	450	19.8	4824	277	54.7
2014	6,307	40.7%	437	20.3	4790	277	55.0
2015	7,138	42.6%	423	21.1	4680	271	53.9
2016	7,267	44.7%	420	21.2	4656	272	53.7
2017 (prelim)	-	41.9%	420	21.2	4703	279	54.0

Figure 3.5 includes summary charts showing long-term trends for adjusted CO<sub>2</sub> emissions, adjusted fuel economy, footprint, weight, and horsepower for the five vehicle types discussed above. Most of the long-term trends are similar across the various vehicle types, with the major exception being pickups, for which CO<sub>2</sub> emissions and fuel economy have not reached all-time records in recent years (unlike the other vehicle types) due to considerably greater increases in weight and horsepower relative to the other vehicle types.

**Figure 3.5**

**Adjusted CO<sub>2</sub> Emissions, Adjusted Fuel Economy and Other Key Parameters by Vehicle Type**

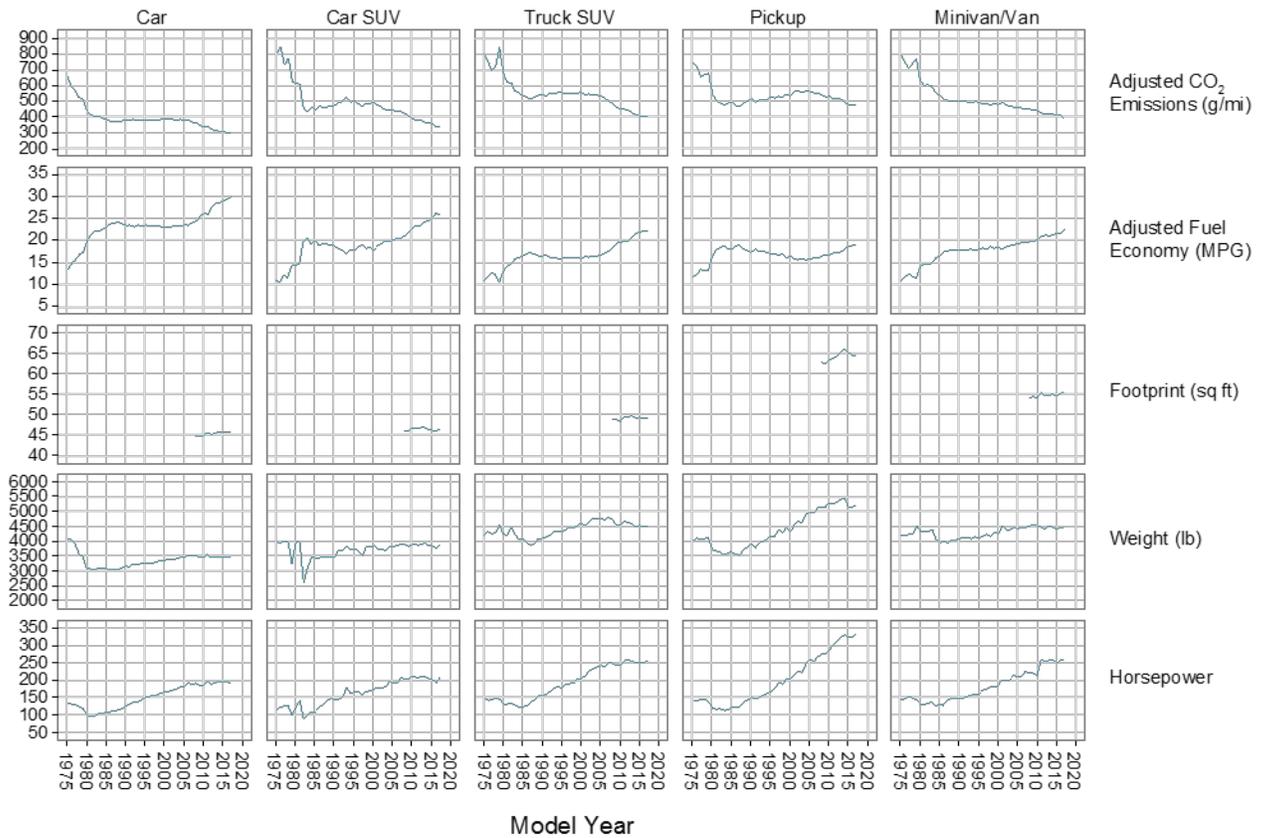


Figure 3.6 shows footprint data for average new vehicles and each of the five vehicle types since MY 2008. The average footprint within each of the five vehicle types has been relatively stable between MY 2008 and MY 2016. The average footprint for pickup trucks increased 1.5 ft<sup>2</sup> (2.4%), cars increased 1 ft<sup>2</sup> (2.1%), minivans/vans increased 1.0 ft<sup>2</sup> (1.9%), truck SUVs increased 0.4 ft<sup>2</sup> (0.7%) and car SUVs were down 0.2 ft<sup>2</sup> (-0.4%).

The overall new vehicle footprint has also been relatively stable since MY 2008. The overall average is influenced by the trends within each vehicle type, as well as the mix of new vehicles produced. In MY 2016, the market continued a shift towards car SUVs and truck SUVs, and away from cars, pickups, and minivans/vans. The result of this shift, along with the changes within each vehicle type, is that overall industry footprint increased by 1.2% between MY 2008 and MY 2016.

**Figure 3.6**  
**Footprint by Vehicle Type for MY 2008–2017**

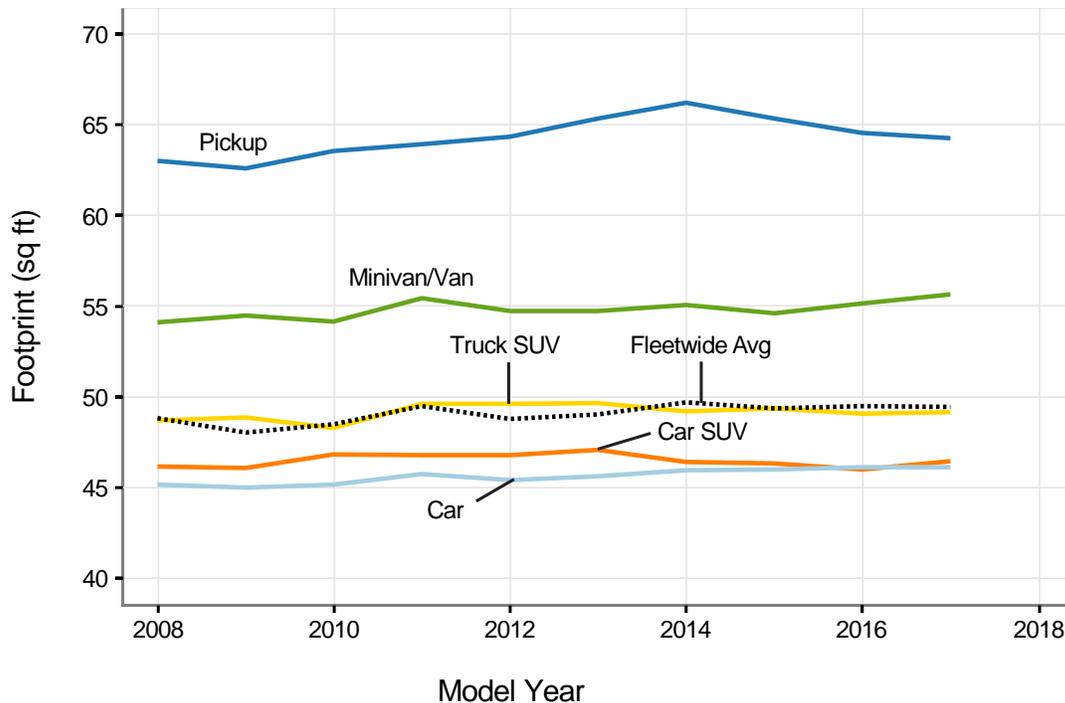
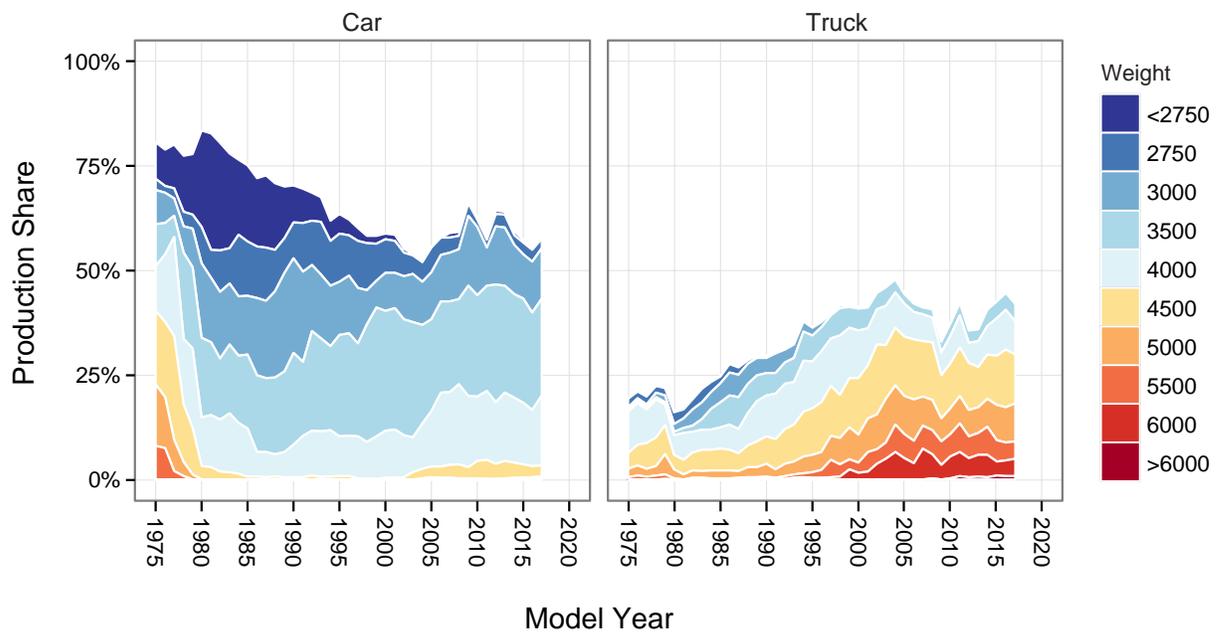


Figure 3.7 shows the annual production share of different inertia weight classes for cars and trucks. This figure again shows the “compression” on the car side that was also discussed with respect to interior volume—in the late 1970s there were significant car sales both in the <2750 pound class as well as in the 5500 pound class (interestingly, there were more 5500 pound cars sold in the late 1970s than there were 5500 pound trucks). Today, both the lightest and heaviest cars have largely disappeared from the market, and about 90% of all cars are in just three inertia weight classes (3000, 3500, and 4000 pounds). Conversely, the heavy end of the truck market has expanded markedly such that 4500 pounds and greater trucks now account for over 70% of the truck market.

**Figure 3.7**

**Car and Truck Production Share by Vehicle Inertia Weight Class**



The next three figures, Figures 3.8 through 3.10, address the engineering relationships between efficiency and three key vehicle attributes: footprint, weight, and interior volume (car type only). It is important to emphasize that, in order to best reflect the engineering relationships involved, these figures differ from most of the figures and tables presented so far in four important ways. One, they show ***fuel consumption*** (the inverse of fuel economy), because fuel consumption represents a linear relationship while fuel economy is non-linear (i.e., a 1 mpg difference at a lower fuel economy represents a greater change in fuel consumption than a 1 mpg difference at a higher fuel economy). The metric used for fuel consumption is gallons per 100 miles, also shown on new vehicle Fuel Economy and Environment Labels. Fuel consumption is an excellent surrogate for CO<sub>2</sub> emissions, as well. Two, Figures 3.8 through 3.10 show ***unadjusted, laboratory*** values (for fuel consumption), rather than the adjusted values shown primarily in this report, in order to exclude the impact of non-technology factors associated with the adjusted fuel economy values (e.g., changes in

driving speeds or use of air conditioning over time). Three, there is **no sales weighting** in either the calculations of the individual data points or the regression lines as the purpose of these figures is to illustrate the technical relationships between fuel consumption and key vehicle attributes, independent of market success. The non-hybrid gasoline, diesel, and gasoline hybrid data points in these figures are averages for each integer footprint value and are plotted separately to illustrate the differences between these technologies. The regression lines are based on the non-hybrid gasoline data points only. As would be expected, the hybrid and diesel data points almost always reflect lower fuel consumption than the regression line representing non-hybrid gasoline vehicles. Finally, these figures exclude alternative fuel vehicles.

Figure 3.8 shows unadjusted, laboratory fuel consumption as a function of vehicle footprint for the MY 2016 car and truck fleets. On average, higher footprint values are correlated with greater fuel consumption. Car fuel consumption is more sensitive to footprint (i.e., greater slope for the regression line) than truck fuel consumption, though this relationship is exaggerated somewhat by the fact that the highest footprint cars are low-volume luxury cars with very high fuel consumption. Most cars have footprint values below 55 square feet, and at these footprint levels, the average car has lower fuel consumption than the average truck. For the much smaller number of cars that have footprint values greater than 55 square feet (typically performance or luxury cars), these cars generally have higher fuel consumption than trucks of the same footprint.

### Figure 3.8

*Unadjusted, Laboratory Fuel Consumption vs. Footprint, Car and Truck, MY 2016, AFVs Excluded*

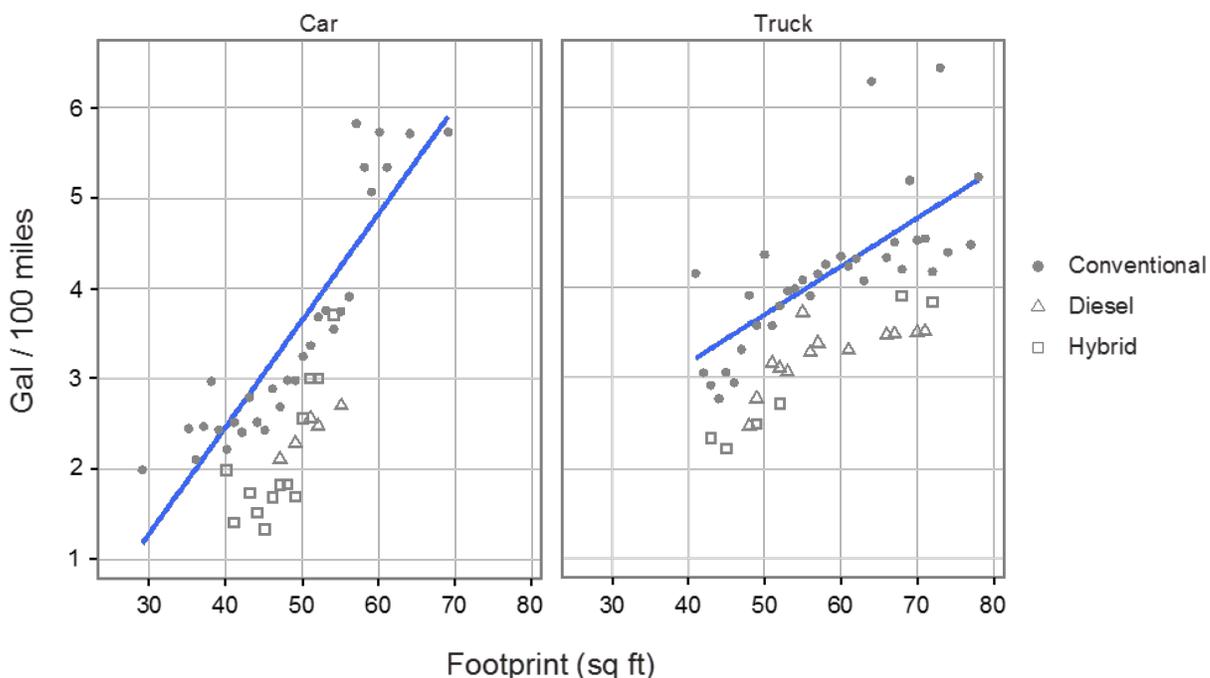
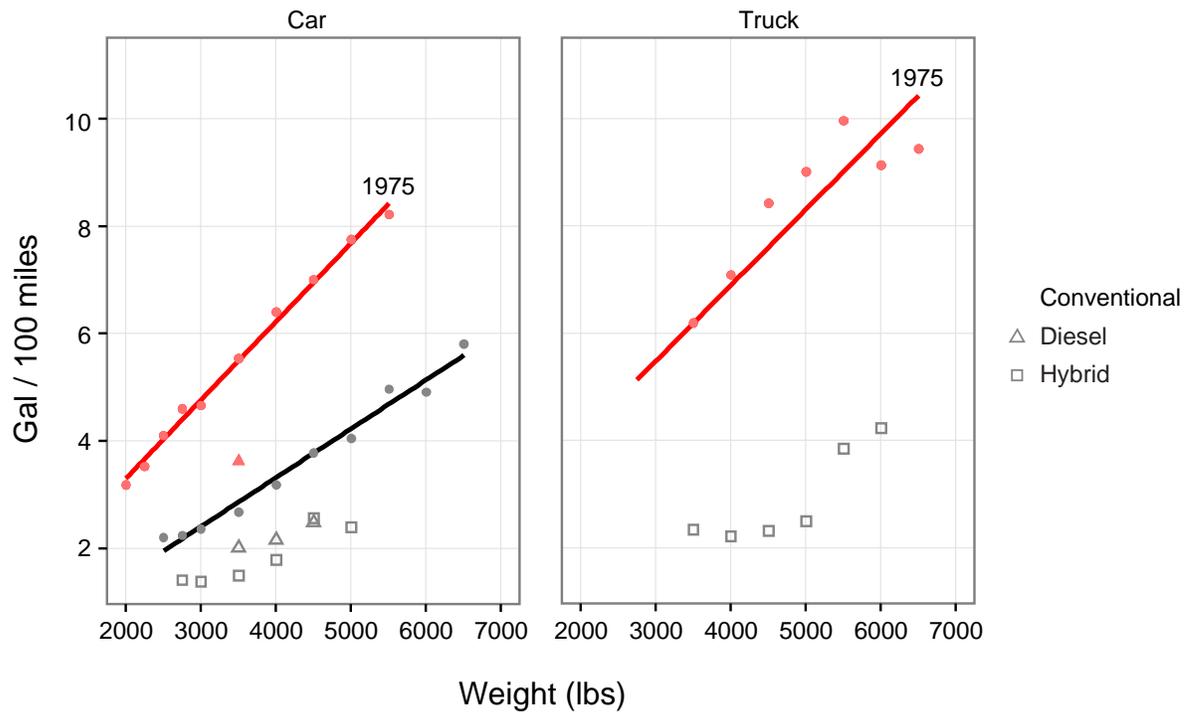


Figure 3.9 shows unadjusted, laboratory fuel consumption as a function of vehicle inertia weight for the MY 1975 and MY 2016 car and truck fleets. On average, fuel consumption increases linearly with vehicle weight, and the regressions are particularly tight for the data points representing non-hybrid gasoline vehicles. In 1975, trucks consistently had higher fuel consumption than cars for a given weight, but in 2016, the differences were much smaller, and at 5000 pounds and above, the average car had higher fuel consumption than the average truck, again likely due to the fact that very heavy cars are typically luxury and/or performance vehicles with high fuel consumption. At a given weight, most cars and trucks have reduced their fuel consumption by about 50% since 1975, with the major exception being the heaviest cars which have achieved more modest reductions in fuel consumption.

**Figure 3.9**

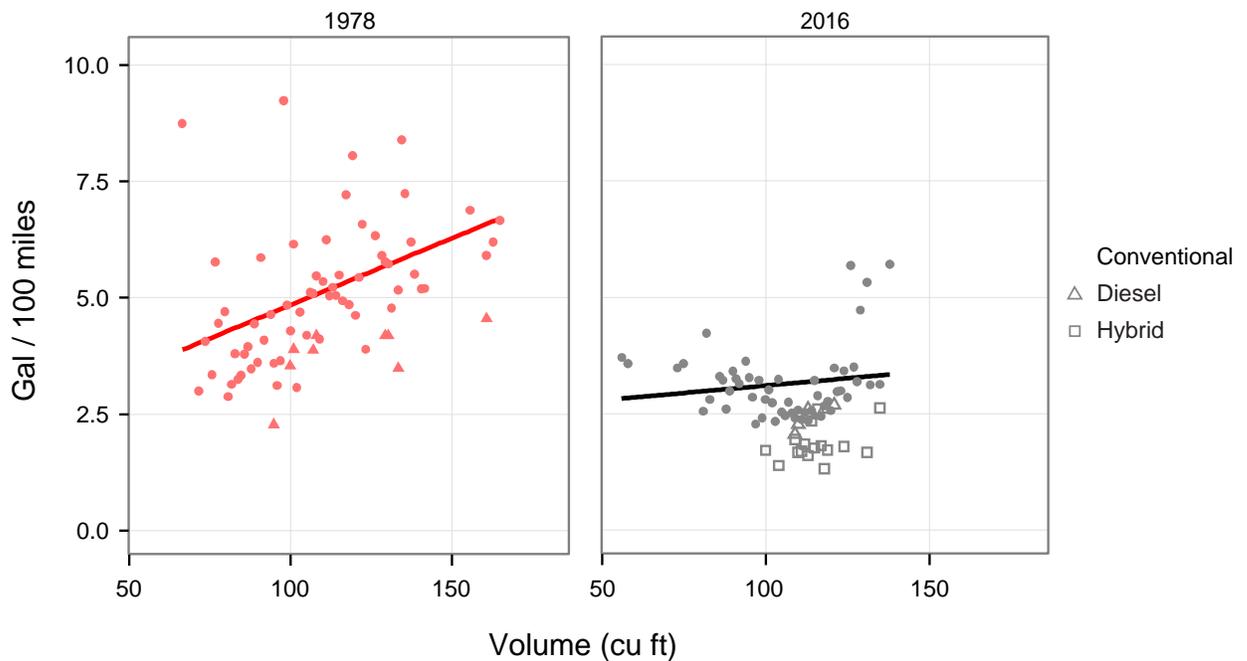
**Unadjusted, Laboratory Fuel Consumption vs. Inertia Weight, Car and Truck, MY 1975 and 2016, AFVs Excluded**



Finally, Figure 3.10 shows unadjusted, laboratory fuel consumption as a function of interior volume for MY 1978 and 2016 for the car type only. This figure excludes two-seater cars, as interior volume data is not reported for two-seaters. The data for MY 1978 is much more scattered than that for MY 2016. The slope of the regression line for non-hybrid gasoline vehicles in 2016 is nearly flat, suggesting that there is no longer much of a relationship between interior volume and fuel consumption within the car type. This MY 2016 data confirms the point made earlier in this section that interior volume is no longer a good attribute for differentiating among vehicles within the car type.

### Figure 3.10

*Unadjusted, Laboratory Fuel Consumption vs. Car Type Interior Volume, MY 1978 and 2016, AFVs Excluded*



---

## D. VEHICLE ACCELERATION

Vehicle performance can be evaluated in many ways, including vehicle handling, braking, and acceleration. In the context of this report, acceleration is an important metric because there is a general correlation between how quickly a vehicle can accelerate and fuel economy. The most common vehicle acceleration metric, and one of the most recognized vehicle metrics overall, is the time it takes a vehicle to accelerate from 0-to-60 miles per hour, also called the 0-to-60 time. There are other metrics that are relevant for evaluating vehicle acceleration, including the time to reach 30 miles per hour or the time to travel a quarter mile, but this section is limited to a discussion of 0-to-60 acceleration times. Acceleration times are calculated for most vehicles (obtained from external sources for conventional hybrids and alternative fuel vehicles) since this data is not reported by manufacturers to EPA.

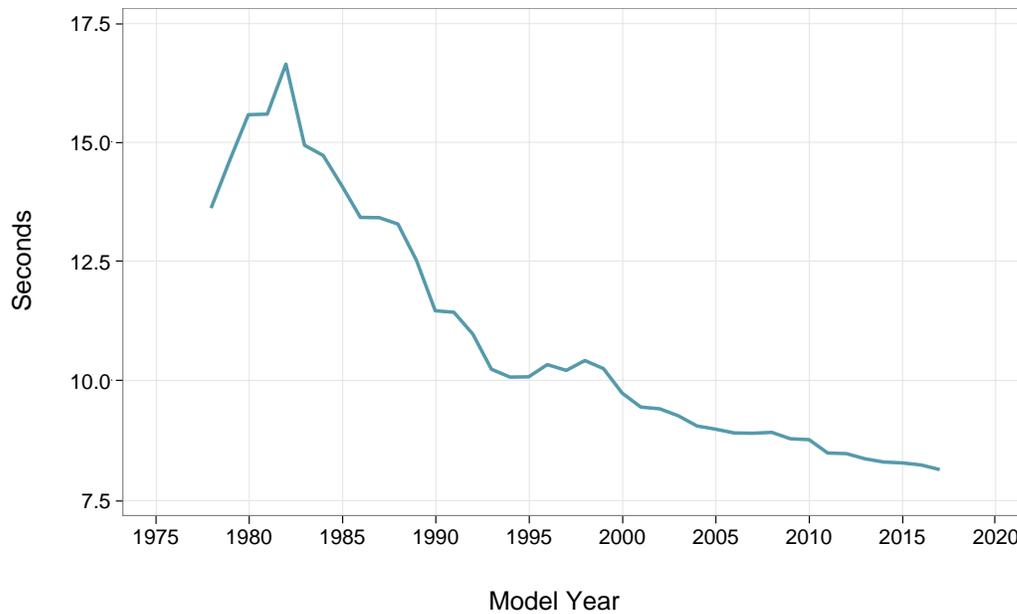
Unlike most of the data presented in this report, 0-to-60 times are based on calculations and are not directly submitted to the EPA by manufacturers. The 0-to-60 metric is a very commonly used automotive metric; however, there is no standard method of measuring 0-to-60 times. Nor, to our knowledge, is there a complete published list of measured vehicle 0-to-60 acceleration times. This report relies on calculated 0-to-60 times based on MacKenzie, 2012, for most vehicles.

### Trends in 0-to-60 Times

Since the early 1980s, there has been a clear downward trend in 0-to-60 times. Figure 3.11 shows the average new vehicle 0-to-60 acceleration time from MY 1978 to MY 2017 based on a calculation methodology described below. The average new vehicle in MY 2017 is projected to have a 0-to-60 time under 8.2 seconds, which is the fastest average 0-to-60 time since the database began in 1975. Average vehicle horsepower has also substantially increased since MY 1982, as shown in Figure 2.3, and clearly at least part of that increase in power has been focused on decreasing acceleration time (some has also been used to support larger, heavier vehicles).

### Figure 3.11

#### Calculated 0-to-60 Acceleration Performance



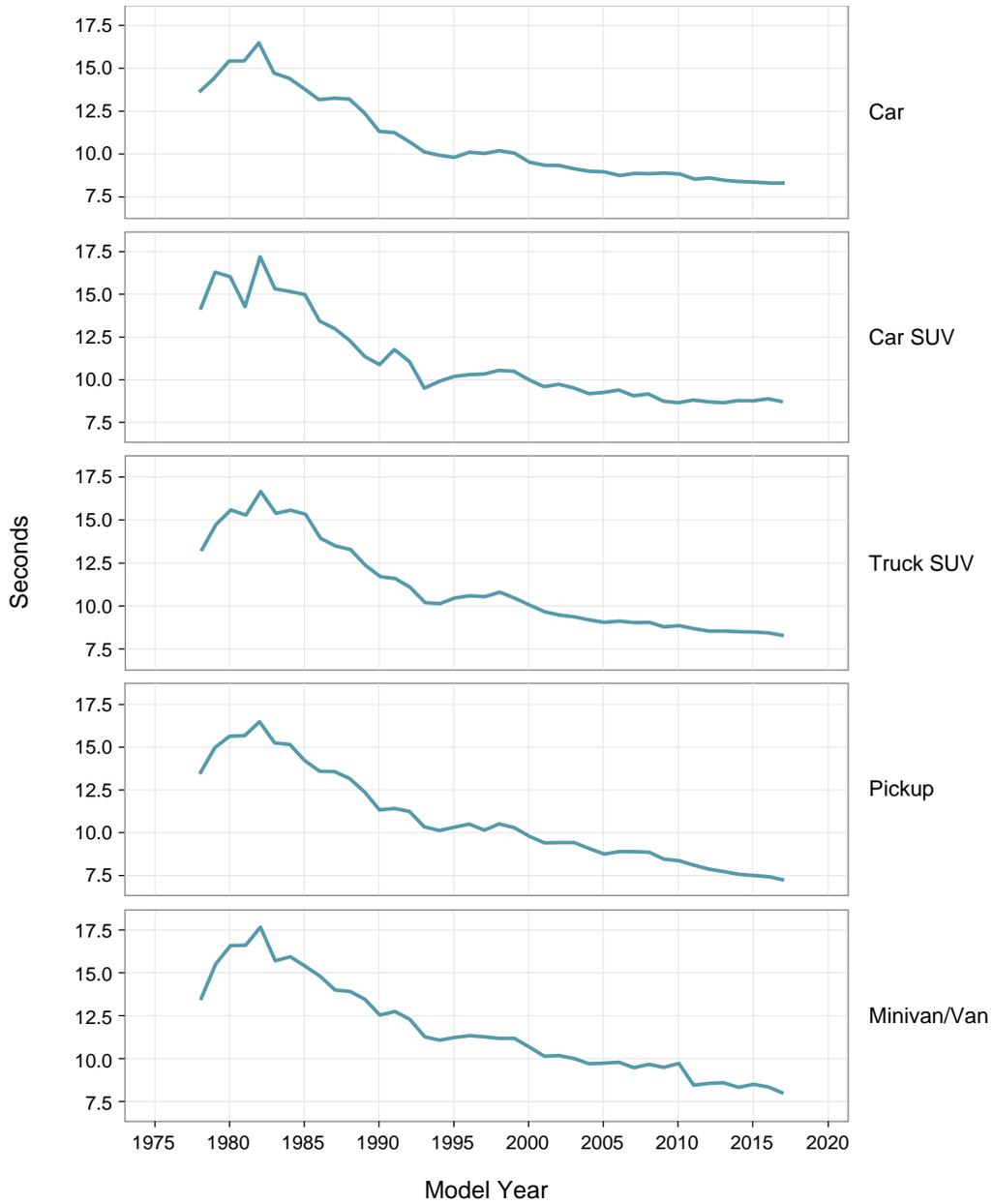
The decreasing long-term trend in 0-to-60 times is consistent across all vehicle types, as shown in Figure 3.12. The trend of decreasing acceleration time appears to be slowing somewhat in recent years for cars, car SUVs, and truck SUVs. The opposite is true for pickup trucks, where calculated 0-to-60 times continue to steadily decrease. Pickups are generally designed to emphasize towing and hauling capabilities, while maintaining adequate driving performance. The continuing decrease in pickup truck 0-to-60 times is likely due to the increasing towing and hauling capacity of pickups, which decreases the calculated 0-to-60 times of pickups.

Vehicle acceleration is determined by many factors, including weight, horsepower, transmission design, engine technologies, and body style. The impacts of these, and other factors, on 0-to-60 times have been evaluated in the literature (MacKenzie, 2012). Many of the same factors that affect acceleration also influence vehicle fuel economy, the result being a general correlation between faster 0-to-60 times and lower fuel economy. All other things equal, a vehicle with more power will likely have faster 0-to-60 acceleration and lower fuel economy. However, there are factors that can improve *both* 0-to-60 acceleration and fuel economy, such as reducing weight.

Acceleration remains an important parameter that will be tracked in this report to evaluate vehicle performance. The 0-to-60 metric is only one of many performance metrics (e.g. stopping distance, skid pad g's, lane change maneuver speed, etc.), but it remains an important parameter that will be tracked in this report due to its strong association with vehicle fuel economy and emissions.

**Figure 3.12**

**Acceleration Performance by Vehicle Type**



# 4 Manufacturers and Makes

This section groups vehicles by “manufacturer” and “make.” Manufacturer definitions are those used by both EPA and the National Highway Traffic Safety Administration (NHTSA) for purposes of implementation of GHG emissions standards and the corporate average fuel economy (CAFE) program, respectively. Each year, the manufacturer definitions in the historical Trends database are updated, if necessary, to be consistent with the current definitions used for regulatory compliance.

Most of the tables in this section show adjusted CO<sub>2</sub> emissions and fuel economy data which are the best estimates for real world CO<sub>2</sub> emissions and fuel economy performance, but are not comparable to regulatory compliance values. Two tables in this section—Tables 4.4 and 4.5—show unadjusted, laboratory fuel economy and CO<sub>2</sub> emissions values, which form the basis for regulatory compliance values, though they do not reflect various compliance credits, incentives, and flexibilities available to automakers. Adjusted CO<sub>2</sub> values are, on average, about 25% higher than the unadjusted CO<sub>2</sub> values that form the starting point for GHG standards compliance. Adjusted fuel economy values are about 20% lower, on average, than unadjusted fuel economy values (note that these values differ because CO<sub>2</sub> emissions are proportional to fuel consumption, both expressed in units of “per mile,” while fuel economy is the mathematical inverse of fuel consumption) that form the starting point for CAFE compliance.

All 2011 and later values in this section include data from alternative fuel vehicles based on the mpge fuel economy metric and the tailpipe CO<sub>2</sub> emissions metric. Section 4.D shows that the impact of including alternative fuel vehicles is measurable for some manufacturers, but zero or negligible for others. Section 7 contains additional data for alternative fuel vehicles.

Information about compliance with EPA’s GHG emissions standards, including EPA’s Manufacturer Performance Report for the 2016 Model Year, is available at [www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer](http://www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer). NHTSA provides information summarizing automaker compliance with fuel economy standards in their CAFE Public Information Center, which can be accessed at [https://one.nhtsa.gov/cafe\\_pic/CAFE\\_PIC\\_Home.htm](https://one.nhtsa.gov/cafe_pic/CAFE_PIC_Home.htm).

## A. MANUFACTURER AND MAKE DEFINITIONS

Table 4.1 lists the 13 manufacturers which had production of 150,000 or more vehicles in MY 2015 or MY 2016, and which cumulatively accounted for approximately 98% of total industry-wide production. There are no changes to the list of manufacturers in Table 4.1 included in this year’s report. Make is typically included in the model name and is generally equivalent to the “brand” of the vehicle. Table 4.1 also lists the 28 makes for which data are shown in subsequent tables. The only change in the list of makes this year is for Alfa Romeo, which was reintroduced into the U.S. market. The production threshold for makes to be included in Tables 4.2 through 4.5 is 40,000 vehicles in MY 2015 or MY 2016.

## Table 4.1

### Manufacturers and Makes for MY 2015–2017

Manufacturer	Makes Above Threshold	Makes Below Threshold
General Motors	Chevrolet, Cadillac, Buick, GMC	
Toyota	Toyota, Lexus, Scion	
Ford	Ford, Lincoln	Roush, Shelby
Honda	Honda, Acura	
Fiat-Chrysler	Chrysler, Dodge, Jeep, Ram, Fiat	Maserati, Alfa Romeo
Nissan	Nissan, Infiniti	
Hyundai	Hyundai	
Kia	Kia	
BMW	BMW, Mini	Rolls Royce
Volkswagen	Volkswagen, Audi, Porsche	Lamborghini, Bentley, Bugatti
Subaru	Subaru	
Mercedes	Mercedes	Smart, Maybach
Mazda	Mazda	
Others*		

\*Note: Other manufacturers below the manufacturer threshold are Mitsubishi, Volvo, Jaguar Land Rover, Tesla, Ferrari, Aston Martin, McLaren, Quantum (which only produces one dual fuel CNG vehicle), and Mobility Ventures.

It is important to note that when a manufacturer or make grouping is modified to reflect a change in the industry's current financial structure, EPA makes the same adjustment to the entire historical database. This maintains consistent manufacturer and make definitions over time, which allows a better identification of long-term trends. On the other hand, this means that the current database does not necessarily reflect the actual corporate arrangements of the past. For example, the 2017 database no longer accounts for the fact that Chrysler was combined with Mercedes/Daimler for several years, and includes Chrysler in the Fiat-Chrysler manufacturer grouping for the entire database even though these other companies have been financially connected for only a few years.

Automakers submit vehicle production data, rather than vehicle sales data, in formal end-of-year CAFE and GHG emissions compliance reports to EPA. These vehicle production data are tabulated on a model year basis. Accordingly, the vehicle production data presented in this report often differ from similar data reported by press sources, which typically are based on vehicle sales data reported on a calendar basis. In years past, manufacturers typically used a more consistent approach for model year designations, i.e., from fall of one year to the fall of the following year. More recently, however, many manufacturers have used a more flexible approach, and it is not uncommon to see a new or redesigned model introduced with a new model year designation in the spring or summer, rather than the fall. This means that a model year for an individual vehicle can be either shortened or lengthened. Accordingly, year-to-year comparisons can be affected by these model year anomalies, though the overall trends even out over a multi-year period.

---

## B. MANUFACTURER AND MAKE FUEL ECONOMY AND CO<sub>2</sub> EMISSIONS

Tables 4.2 through 4.5 provide comparative manufacturer- and make-specific data for fuel economy and CO<sub>2</sub> emissions for the three years from MY 2015-2017. Data are shown for cars only, trucks only, and cars and trucks combined. By including data from both MY 2015 and 2016, with formal end-of-year data for both years, it is possible to identify meaningful changes from year-to-year. Because of the uncertainty associated with the preliminary MY 2017 projections, changes from MY 2016 to MY 2017 are less meaningful.

In this section, tables are presented with both adjusted (Tables 4.2 and 4.3) and unadjusted, laboratory (Tables 4.4 and 4.5) data. Tables 4.2 and 4.3 provide adjusted data for fuel economy and CO<sub>2</sub> emissions, and therefore are consistent with tables presented earlier in the report. The data in these tables are very similar to the data used to generate the EPA/DOT Fuel Economy and Environment Labels and represent EPA's best estimate of nationwide real world fuel consumption and CO<sub>2</sub> emissions.

Tables 4.2 and 4.3 show rows with adjusted fuel economy and CO<sub>2</sub> emissions data for 13 manufacturers and 28 makes.

Two manufacturers in this report, Volkswagen and FCA (Fiat-Chrysler), are affected by ongoing investigations and/or corrective actions related to alleged violations of the Clean Air Act resulting in excess emissions of oxides of nitrogen (NO<sub>x</sub>). Oxides of nitrogen emissions are not directly related to tailpipe CO<sub>2</sub> emissions or fuel economy. In this report, EPA uses the CO<sub>2</sub> emissions and fuel economy data from the initial certification of these vehicles. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

In 2016 and 2017, the Department of Justice, on behalf of EPA, has resolved a civil enforcement case, through a series of three partial settlements, against Volkswagen AG, Audi AG, Dr. Ing. h.c. F. Porsche AG, Volkswagen Group of America, Inc., Volkswagen Group of America Chattanooga Operations, LLC, and Porsche Cars North America, Inc. (collectively referred to as Volkswagen). Subject to their reservations, these settlements resolve allegations that Volkswagen violated the Clean Air Act with the sale of certain MY 2009-2016 diesel vehicles equipped with defeat devices in the form of computer software designed to cheat on federal emissions tests. The complaint alleged that during normal vehicle operation and use, the cars emit levels of oxides of nitrogen (NO<sub>x</sub>) significantly in excess of the EPA compliant levels. For more information, see [www.epa.gov/vw](http://www.epa.gov/vw). New fuel economy and CO<sub>2</sub> data is available for some vehicles that have been modified under the VW consent decree; however, this report does not reflect these revisions. Any relevant changes will be addressed in future reports.

---

In 2017, the Department of Justice, on behalf of EPA, filed a civil complaint against FCA US LLC, Fiat Chrysler Automobiles N.V., V.M. Motori S.p.A., and V.M. North America, Inc. (collectively referred to as FCA). The complaint alleges that certain diesel vehicles are equipped with software functions that were not disclosed to regulators during the certification application process, and that the vehicles contain defeat devices. The complaint alleges that the undisclosed software functions cause the vehicles' emission control systems to perform differently, and less effectively, during certain normal driving conditions than on federal emission tests, resulting in increased oxides of nitrogen (NOx) emissions. For more information on actions to resolve these violations, see [www.epa.gov/fca](http://www.epa.gov/fca).

Because the Volkswagen and FCA diesels account for less than 1% of industry production, updates to the emissions rates, whether they are higher or lower, will not change the broader trends characterized in this report. Should the investigations and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be addressed in future reports.

Of the 13 manufacturers shown in the body of Table 4.2, 5 manufacturers increased adjusted fuel economy (combined cars and trucks) and 4 had no change between MY 2015 to MY 2016. Mazda had the highest adjusted fuel economy in MY 2016 of 29.6 mpg. Four manufacturers were closely grouped behind Mazda – Hyundai, Honda, Subaru, and Nissan – with adjusted fuel economy values between 28.8 and 27.9 mpg. Fiat-Chrysler had the lowest adjusted fuel economy of 21.5 mpg, followed by General Motors and Ford. Hyundai achieved the largest increase in adjusted fuel economy from MY 2015-2016 of 1.3 mpg, followed by Mazda at 0.4 mpg.

Four manufacturers had lower adjusted fuel economy values in MY 2016. BMW had the largest decrease in overall fuel economy at 0.6 mpg, followed by Honda and Fiat-Chrysler at 0.3 mpg and Nissan at 0.1 mpg. For MY 2016 cars only, Mazda and Honda were tied as the manufacturers with the highest adjusted fuel economy values at 31.6 mpg. Fiat-Chrysler reported the lowest adjusted car fuel economy of 24.4 mpg. For MY 2016 trucks only, Subaru had the highest adjusted fuel economy of 28 mpg.

In terms of the makes shown in Table 4.2, Scion achieved the highest combined car and truck fuel economy in MY 2016, of 32 mpg, followed by Mazda, VW, and Fiat.

Preliminary projections suggest that 8 of the 13 manufacturers shown will improve adjusted fuel economy further in MY 2017, though EPA will not have final data for MY 2017 until next year's report. Only two manufacturers are projected to have reductions in fuel economy in MY 2017.

Table 4.3 shows manufacturer-specific values for adjusted CO<sub>2</sub> emissions for the same manufacturers, makes and model years as shown in Table 4.2 for adjusted fuel economy. Of the 13 manufacturers shown, 7 manufacturers decreased adjusted CO<sub>2</sub> emissions from MY 2015 to MY 2016. Manufacturer rankings for CO<sub>2</sub> emissions are generally similar to those for fuel economy, though there can be some differences due to diesel vehicle production share

---

(since diesel has a higher carbon content per gallon than gasoline). Of the 13 manufacturers shown in Table 4.3, Mazda had the lowest adjusted CO<sub>2</sub> emissions in MY 2016 of 301 g/mi, and Fiat-Chrysler had the highest adjusted CO<sub>2</sub> emissions of 413 g/mi. Hyundai achieved the largest reduction in CO<sub>2</sub> emissions with a reduction of 15 g/mi. Mercedes and VW achieved the next largest reduction, at 5 g/mi. Preliminary values suggest that 9 of the 13 manufacturers could reduce CO<sub>2</sub> emissions in MY 2017. The make rankings for adjusted CO<sub>2</sub> emissions in Table 4.3 are also similar to those for adjusted fuel economy in Table 4.2.

**Table 4.2**

**Adjusted Fuel Economy (MPG) by Manufacturer and Make for MY 2015–2017\***

Manufacturer	Make	Final MY 2015			Final MY 2016			Preliminary MY 2017		
		Car	Truck	Car and Truck	Car	Truck	Car and Truck	Car	Truck	Car and Truck
<b>Mazda</b>	<b>All</b>	<b>31.5</b>	<b>24.5</b>	<b>29.2</b>	<b>31.6</b>	<b>26.2</b>	<b>29.6</b>	<b>30.4</b>	<b>25.4</b>	<b>29.3</b>
<b>Hyundai</b>	<b>All</b>	<b>28.0</b>	<b>21.5</b>	<b>27.5</b>	<b>29.1</b>	<b>20.6</b>	<b>28.8</b>	<b>29.6</b>	<b>21.1</b>	<b>28.9</b>
Honda	Honda	31.6	25.0	29.0	32.1	24.7	28.7	32.2	25.5	30.2
Honda	Acura	26.9	22.8	25.0	27.2	22.3	24.2	27.1	22.6	24.8
<b>Honda</b>	<b>All</b>	<b>31.1</b>	<b>24.7</b>	<b>28.5</b>	<b>31.6</b>	<b>24.3</b>	<b>28.2</b>	<b>31.8</b>	<b>25.0</b>	<b>29.5</b>
<b>Subaru</b>	<b>All</b>	<b>28.5</b>	<b>27.9</b>	<b>28.1</b>	<b>28.3</b>	<b>28.0</b>	<b>28.1</b>	<b>29.1</b>	<b>28.1</b>	<b>28.4</b>
Nissan	Nissan	31.7	22.9	28.8	30.9	23.9	28.5	31.2	22.8	28.4
Nissan	Infiniti	22.8	20.8	21.8	22.2	19.2	20.8	23.5	21.3	22.9
<b>Nissan</b>	<b>All</b>	<b>31.0</b>	<b>22.6</b>	<b>28.0</b>	<b>30.3</b>	<b>23.4</b>	<b>27.9</b>	<b>30.4</b>	<b>22.7</b>	<b>27.9</b>
<b>Kia</b>	<b>All</b>	<b>26.5</b>	<b>21.5</b>	<b>26.1</b>	<b>27.9</b>	<b>21.6</b>	<b>26.2</b>	<b>29.3</b>	<b>21.5</b>	<b>27.5</b>
BMW	BMW	26.7	22.7	25.6	26.4	22.7	25.2	27.3	22.1	25.1
BMW	Mini	29.4	-	29.4	28.7	-	28.7	28.8	-	28.8
<b>BMW</b>	<b>All</b>	<b>27.1</b>	<b>22.7</b>	<b>26.1</b>	<b>26.7</b>	<b>22.7</b>	<b>25.5</b>	<b>27.5</b>	<b>22.1</b>	<b>25.6</b>
Toyota	Toyota	31.8	20.4	25.4	31.3	20.3	25.0	32.2	20.7	26.3
Toyota	Lexus	24.3	20.6	23.0	25.2	21.5	23.8	25.8	22.0	24.4
Toyota	Scion	26.1	-	26.1	32.0	-	32.0	-	-	-
<b>Toyota</b>	<b>All</b>	<b>29.8</b>	<b>20.5</b>	<b>25.0</b>	<b>30.2</b>	<b>20.4</b>	<b>25.0</b>	<b>31.1</b>	<b>20.8</b>	<b>26.0</b>
Mercedes	Mercedes	25.4	20.4	23.4	25.7	20.4	23.7	26.3	20.4	24.2
<b>Mercedes</b>	<b>All</b>	<b>25.4</b>	<b>20.4</b>	<b>23.4</b>	<b>25.7</b>	<b>20.4</b>	<b>23.7</b>	<b>26.3</b>	<b>20.4</b>	<b>24.2</b>
Ford	Ford	27.1	20.1	22.9	27.6	20.0	22.9	26.7	20.3	22.8
Ford	Lincoln	24.9	19.7	22.2	24.2	19.3	21.8	24.0	19.8	22.4
<b>Ford</b>	<b>All</b>	<b>26.9</b>	<b>20.1</b>	<b>22.8</b>	<b>27.4</b>	<b>20.0</b>	<b>22.8</b>	<b>26.4</b>	<b>20.3</b>	<b>22.8</b>
GM	Chevrolet	27.1	19.8	23.0	28.0	19.8	23.3	30.0	19.4	24.0
GM	GMC	24.2	19.4	20.0	22.9	19.0	19.5	22.4	19.7	19.9
GM	Buick	25.6	21.2	23.7	25.7	20.6	23.6	26.8	20.8	23.6
GM	Cadillac	21.1	17.5	19.9	21.9	17.7	20.5	23.5	17.5	22.6
<b>GM</b>	<b>All</b>	<b>26.1</b>	<b>19.7</b>	<b>22.2</b>	<b>26.7</b>	<b>19.6</b>	<b>22.4</b>	<b>28.0</b>	<b>19.6</b>	<b>23.0</b>
<b>Other</b>	<b>All</b>	<b>30.9</b>	<b>21.9</b>	<b>26.6</b>	<b>35.2</b>	<b>22.0</b>	<b>25.7</b>	<b>40.5</b>	<b>22.6</b>	<b>30.6</b>
VW	VW	30.1	22.5	29.7	30.2	22.3	29.2	29.0	21.2	27.9
VW	Audi	25.5	21.6	23.9	25.9	22.9	25.0	26.4	22.4	25.2
VW	Porsche	22.6	20.6	21.5	22.1	21.2	21.5	23.6	20.5	22.0
<b>VW</b>	<b>All</b>	<b>28.2</b>	<b>21.5</b>	<b>26.6</b>	<b>28.1</b>	<b>22.2</b>	<b>26.6</b>	<b>27.7</b>	<b>21.6</b>	<b>26.3</b>
Fiat-Chrysler	Jeep	25.3	20.6	21.3	25.0	21.3	22.1	25.1	21.6	22.2
Fiat-Chrysler	Dodge	23.6	20.6	22.0	22.7	20.9	21.7	21.3	20.7	21.0
Fiat-Chrysler	Ram	24.7	18.5	18.5	25.9	18.4	18.5	-	18.4	18.4
Fiat-Chrysler	Chrysler	27.0	20.8	25.1	26.0	20.8	23.7	24.6	23.9	24.0
Fiat-Chrysler	Fiat	34.5	-	34.5	31.1	24.9	29.0	34.6	25.2	32.5
Fiat-Chrysler	All	25.5	20.2	21.8	24.4	20.4	21.5	23.9	20.9	21.5
<b>All</b>	<b>All</b>	<b>28.2</b>	<b>21.1</b>	<b>24.6</b>	<b>28.5</b>	<b>21.2</b>	<b>24.7</b>	<b>29.1</b>	<b>21.2</b>	<b>25.2</b>

\* Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or “All” values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

**Table 4.3**

**Adjusted CO<sub>2</sub> Emissions (g/mi) by Manufacturer and Make for MY 2015–2017\***

Manufacturer Make		Final MY 2015			Final MY 2016			Preliminary MY 2017		
		Car	Truck	Car and Truck	Car	Truck	Car and Truck	Car	Truck	Car and Truck
<b>Mazda</b>	<b>All</b>	<b>282</b>	<b>363</b>	<b>304</b>	<b>282</b>	<b>339</b>	<b>301</b>	<b>292</b>	<b>350</b>	<b>304</b>
<b>Hyundai</b>	<b>All</b>	<b>317</b>	<b>414</b>	<b>324</b>	<b>305</b>	<b>431</b>	<b>309</b>	<b>300</b>	<b>422</b>	<b>307</b>
Honda	Honda	281	355	306	277	360	309	275	348	294
Honda	Acura	330	389	356	326	398	367	328	392	359
<b>Honda</b>	<b>All</b>	<b>286</b>	<b>360</b>	<b>312</b>	<b>281</b>	<b>366</b>	<b>315</b>	<b>279</b>	<b>355</b>	<b>301</b>
<b>Subaru</b>	<b>All</b>	<b>312</b>	<b>319</b>	<b>317</b>	<b>315</b>	<b>318</b>	<b>317</b>	<b>305</b>	<b>316</b>	<b>312</b>
Nissan	Nissan	278	388	307	286	371	311	283	390	311
Nissan	Infiniti	390	427	408	401	463	427	378	417	387
<b>Nissan</b>	<b>All</b>	<b>285</b>	<b>394</b>	<b>316</b>	<b>292</b>	<b>379</b>	<b>318</b>	<b>291</b>	<b>392</b>	<b>317</b>
<b>Kia</b>	<b>All</b>	<b>335</b>	<b>412</b>	<b>341</b>	<b>318</b>	<b>412</b>	<b>338</b>	<b>302</b>	<b>414</b>	<b>323</b>
BMW	BMW	333	397	349	337	393	354	326	404	354
BMW	Mini	303	-	303	310	-	310	308	-	308
<b>BMW</b>	<b>All</b>	<b>328</b>	<b>397</b>	<b>342</b>	<b>333</b>	<b>393</b>	<b>349</b>	<b>323</b>	<b>404</b>	<b>347</b>
Toyota	Toyota	280	435	350	284	438	355	276	429	338
Toyota	Lexus	366	431	386	352	414	373	345	404	364
Toyota	Scion	340	-	340	278	-	278	-	-	-
<b>Toyota</b>	<b>All</b>	<b>298</b>	<b>434</b>	<b>356</b>	<b>295</b>	<b>436</b>	<b>355</b>	<b>286</b>	<b>427</b>	<b>341</b>
Mercedes	Mercedes	349	441	381	346	437	376	337	435	366
<b>Mercedes</b>	<b>All</b>	<b>349</b>	<b>441</b>	<b>381</b>	<b>346</b>	<b>437</b>	<b>376</b>	<b>337</b>	<b>435</b>	<b>366</b>
Ford	Ford	328	442	388	322	444	388	333	437	390
Ford	Lincoln	357	451	399	367	460	408	370	449	397
<b>Ford</b>	<b>All</b>	<b>330</b>	<b>443</b>	<b>389</b>	<b>325</b>	<b>445</b>	<b>389</b>	<b>337</b>	<b>438</b>	<b>390</b>
GM	Chevrolet	328	448	386	317	449	382	295	458	370
GM	GMC	367	459	443	388	468	456	397	452	446
GM	Buick	347	419	376	346	431	377	332	427	377
GM	Cadillac	421	507	446	406	502	434	378	508	394
<b>GM</b>	<b>All</b>	<b>340</b>	<b>451</b>	<b>399</b>	<b>332</b>	<b>455</b>	<b>397</b>	<b>316</b>	<b>454</b>	<b>386</b>
<b>Other</b>	<b>All</b>	<b>276</b>	<b>405</b>	<b>327</b>	<b>218</b>	<b>406</b>	<b>335</b>	<b>186</b>	<b>398</b>	<b>272</b>
VW	VW	302	403	306	292	404	303	306	419	318
VW	Audi	350	419	376	344	390	357	337	397	353
VW	Porsche	394	440	417	401	423	416	377	433	403
<b>VW</b>	<b>All</b>	<b>320</b>	<b>421</b>	<b>339</b>	<b>315</b>	<b>403</b>	<b>334</b>	<b>321</b>	<b>411</b>	<b>337</b>
Fiat-Chrysler	Jeep	351	432	417	356	418	402	353	411	400
Fiat-Chrysler	Dodge	376	431	405	391	426	410	416	430	424
Fiat-Chrysler	Ram	360	487	487	344	487	486	-	485	485
Fiat-Chrysler	Chrysler	330	427	354	342	427	376	361	372	370
Fiat-Chrysler	Fiat	244	-	244	271	357	296	239	352	258
<b>Fiat-Chrysler</b>	<b>All</b>	<b>347</b>	<b>442</b>	<b>409</b>	<b>363</b>	<b>436</b>	<b>413</b>	<b>370</b>	<b>426</b>	<b>413</b>
<b>All</b>	<b>All</b>	<b>314</b>	<b>423</b>	<b>361</b>	<b>311</b>	<b>420</b>	<b>359</b>	<b>303</b>	<b>420</b>	<b>352</b>

\* Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or “All” values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

Tables 4.4 and 4.5 provide **unadjusted, laboratory** data for both fuel economy and CO<sub>2</sub> emissions for MY 2015-2017 for manufacturers and makes. Unadjusted, laboratory data is

---

particularly relevant in a manufacturer-specific context because it is the foundation for EPA CO<sub>2</sub> emissions and NHTSA CAFE regulatory compliance. It also provides a basis for comparing long-term trends from the perspective of vehicle design only, apart from the factors that affect real world performance that can change over time (i.e., driving behavior such as acceleration rates or the use of air conditioning).

In general, manufacturer rankings based on the unadjusted, laboratory fuel economy and CO<sub>2</sub> values in Tables 4.4 and 4.5 are very similar to those for the adjusted values in Tables 4.2 and 4.3. Adjusted CO<sub>2</sub> values are, on average, about 25% higher than the unadjusted, laboratory CO<sub>2</sub> values that form the starting point for GHG standards compliance, and adjusted fuel economy values are about 20% lower, on average, than unadjusted fuel economy values that form the starting point for CAFE standards compliance.

**Table 4.4**

**Unadjusted, Laboratory Fuel Economy (MPG) by Manufacturer and Make for MY 2015–2017\***

Manufacturer	Make	Final MY 2015			Final MY 2016			Preliminary MY 2017		
		Car	Truck	Car and Truck	Car	Truck	Car and Truck	Car	Truck	Car and Truck
<b>Mazda</b>	<b>All</b>	<b>41.4</b>	<b>31.6</b>	<b>38.1</b>	<b>41.6</b>	<b>34.2</b>	<b>38.8</b>	<b>40.2</b>	<b>33.3</b>	<b>38.6</b>
<b>Hyundai</b>	<b>All</b>	<b>36.0</b>	<b>27.5</b>	<b>35.3</b>	<b>37.8</b>	<b>26.4</b>	<b>37.4</b>	<b>38.6</b>	<b>26.8</b>	<b>37.6</b>
Honda	Honda	41.8	32.0	37.8	42.4	31.7	37.5	42.5	32.9	39.5
Honda	Acura	34.7	28.8	31.8	35.0	28.7	31.1	35.0	29.4	32.1
<b>Honda</b>	<b>All</b>	<b>41.0</b>	<b>31.5</b>	<b>37.0</b>	<b>41.7</b>	<b>31.2</b>	<b>36.7</b>	<b>41.9</b>	<b>32.3</b>	<b>38.7</b>
<b>Subaru</b>	<b>All</b>	<b>37.0</b>	<b>36.4</b>	<b>36.5</b>	<b>36.7</b>	<b>36.5</b>	<b>36.6</b>	<b>38.0</b>	<b>36.8</b>	<b>37.1</b>
Nissan	Nissan	41.9	29.5	37.7	41.1	30.8	37.4	41.7	29.1	37.4
Nissan	Infiniti	28.6	26.6	27.6	28.1	24.2	26.3	29.9	26.8	29.1
<b>Nissan</b>	<b>All</b>	<b>40.7</b>	<b>29.0</b>	<b>36.5</b>	<b>40.1</b>	<b>30.1</b>	<b>36.5</b>	<b>40.4</b>	<b>28.9</b>	<b>36.6</b>
<b>Kia</b>	<b>All</b>	<b>34.0</b>	<b>27.2</b>	<b>33.4</b>	<b>36.1</b>	<b>27.2</b>	<b>33.7</b>	<b>38.3</b>	<b>27.2</b>	<b>35.6</b>
BMW	BMW	33.9	28.5	32.4	33.3	28.8	31.8	34.9	27.9	32.0
BMW	Mini	38.5	-	38.5	37.5	-	37.5	37.6	-	37.6
<b>BMW</b>	<b>All</b>	<b>34.6</b>	<b>28.5</b>	<b>33.2</b>	<b>33.9</b>	<b>28.8</b>	<b>32.4</b>	<b>35.3</b>	<b>27.9</b>	<b>32.7</b>
Toyota	Toyota	42.2	25.9	32.8	41.2	25.7	32.2	42.7	26.5	34.2
Toyota	Lexus	31.0	26.0	29.3	32.2	27.2	30.3	32.9	28.2	31.2
Toyota	Scion	33.7	-	33.7	42.4	-	42.4	-	-	-
<b>Toyota</b>	<b>All</b>	<b>39.2</b>	<b>25.9</b>	<b>32.2</b>	<b>39.5</b>	<b>25.9</b>	<b>32.2</b>	<b>40.9</b>	<b>26.7</b>	<b>33.8</b>
Mercedes	Mercedes	32.5	25.9	29.8	32.9	26.1	30.3	33.7	26.0	30.9
<b>Mercedes</b>	<b>All</b>	<b>32.5</b>	<b>25.9</b>	<b>29.8</b>	<b>32.9</b>	<b>26.1</b>	<b>30.3</b>	<b>33.7</b>	<b>26.0</b>	<b>30.9</b>
Ford	Ford	34.5	25.2	28.9	35.3	25.1	29.0	34.3	25.6	29.0
Ford	Lincoln	32.8	25.0	28.8	31.2	24.3	27.7	30.9	24.9	28.5
<b>Ford</b>	<b>All</b>	<b>34.4</b>	<b>25.2</b>	<b>28.9</b>	<b>35.0</b>	<b>25.1</b>	<b>28.9</b>	<b>34.0</b>	<b>25.5</b>	<b>28.9</b>
GM	Chevrolet	34.7	24.7	29.0	35.9	24.7	29.3	39.0	24.2	30.4
GM	GMC	31.1	24.1	25.0	29.0	23.6	24.3	28.6	24.6	25.0
GM	Buick	32.6	27.0	30.1	32.8	25.9	29.9	34.4	26.0	29.8
GM	Cadillac	26.4	21.6	24.8	27.4	21.9	25.5	29.7	21.6	28.4
<b>GM</b>	<b>All</b>	<b>33.3</b>	<b>24.6</b>	<b>28.0</b>	<b>34.1</b>	<b>24.4</b>	<b>28.2</b>	<b>36.2</b>	<b>24.4</b>	<b>29.1</b>
<b>Other</b>	<b>All</b>	<b>40.0</b>	<b>27.8</b>	<b>34.1</b>	<b>45.3</b>	<b>28.1</b>	<b>32.8</b>	<b>53.1</b>	<b>29.0</b>	<b>39.7</b>
VW	VW	38.7	28.6	38.2	38.9	28.4	37.6	37.3	27.1	35.9
VW	Audi	31.8	27.1	29.8	32.4	28.9	31.3	33.7	28.4	32.0
VW	Porsche	28.5	25.8	27.1	27.8	26.7	27.1	30.0	25.9	27.9
<b>VW</b>	<b>All</b>	<b>35.8</b>	<b>27.0</b>	<b>33.8</b>	<b>35.8</b>	<b>28.1</b>	<b>33.8</b>	<b>35.4</b>	<b>27.4</b>	<b>33.6</b>
Fiat-Chrysler	Jeep	32.5	25.9	26.9	32.1	27.0	28.1	32.2	27.3	28.2
Fiat-Chrysler	Dodge	29.5	25.6	27.4	28.2	26.0	27.0	26.3	25.7	26.0
Fiat-Chrysler	Ram	31.5	22.9	23.0	33.1	22.9	22.9	-	22.8	22.8
Fiat-Chrysler	Chrysler	33.9	25.8	31.5	32.6	25.9	29.5	30.8	30.5	30.5
Fiat-Chrysler	Fiat	45.7	-	45.7	40.3	31.8	37.4	45.2	32.2	42.2
Fiat-Chrysler	All	32.2	25.2	27.3	30.8	25.6	27.0	30.1	26.3	27.0
<b>All</b>	<b>All</b>	<b>36.5</b>	<b>26.5</b>	<b>31.4</b>	<b>36.9</b>	<b>26.8</b>	<b>31.6</b>	<b>37.9</b>	<b>26.8</b>	<b>32.3</b>

\* Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or “All” values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

**Table 4.5**

*Unadjusted, Laboratory CO<sub>2</sub> Emissions (g/mi) by Manufacturer and Make for MY 2015–2017\*.*

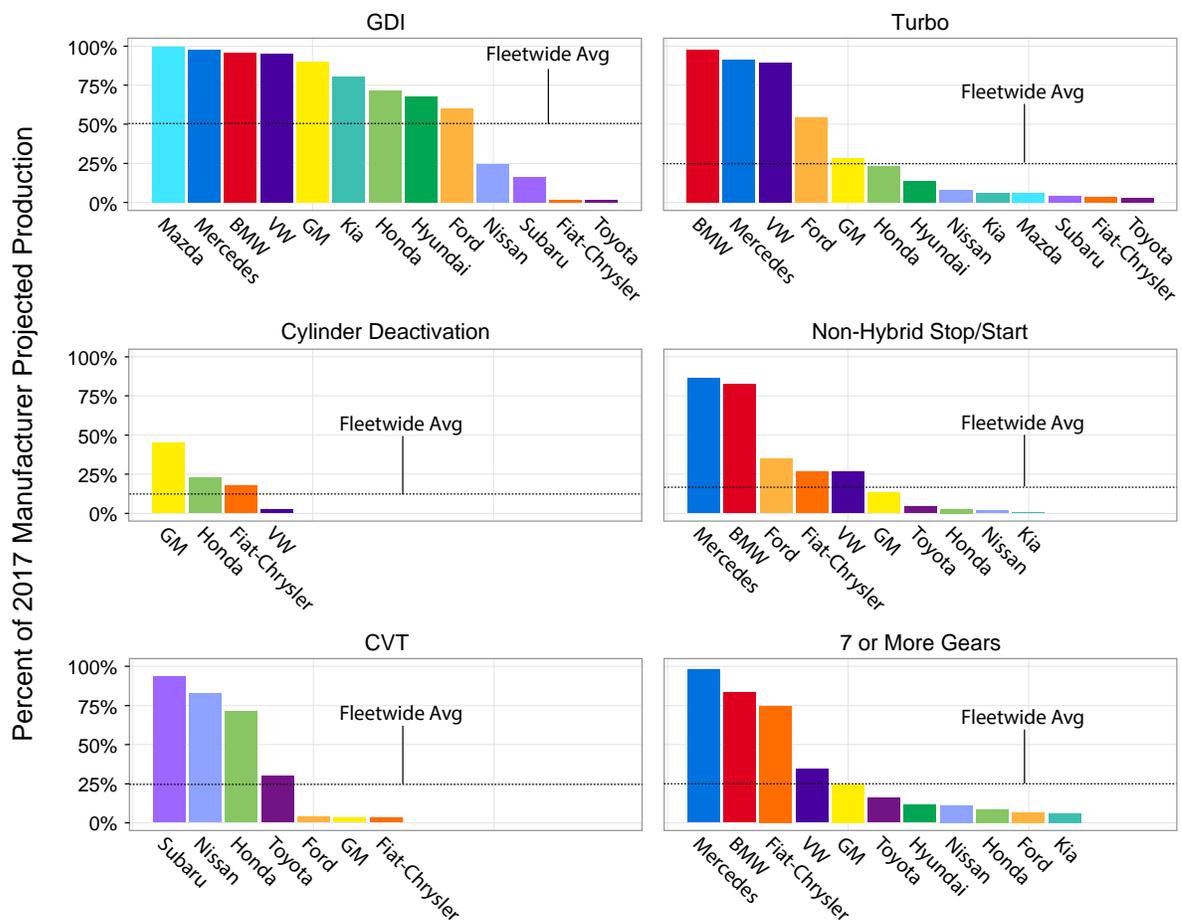
Manufacturer Make		Final MY 2015			Final MY 2016			Preliminary MY 2017		
		Car	Truck	Car and Truck	Car	Truck	Car and Truck	Car	Truck	Car and Truck
<b>Mazda</b>	<b>All</b>	215	282	233	214	260	229	221	267	230
<b>Hyundai</b>	<b>All</b>	247	323	252	235	337	238	230	332	236
Honda	Honda	213	278	235	210	281	237	209	270	225
Honda	Acura	256	309	279	254	309	286	254	303	277
<b>Honda</b>	<b>All</b>	217	282	240	213	285	242	212	275	230
<b>Nissan</b>	<b>Nissan</b>	211	302	235	216	289	237	212	306	236
Nissan	Infiniti	311	334	322	316	367	338	297	332	306
Nissan	All	217	306	242	221	296	243	219	308	242
<b>Subaru</b>	<b>All</b>	240	244	243	242	243	243	234	242	239
<b>Kia</b>	<b>All</b>	261	327	266	246	327	263	231	327	249
BMW	BMW	261	315	274	267	310	280	252	319	276
BMW	Mini	231	-	231	237	-	237	236	-	236
<b>BMW</b>	<b>All</b>	256	315	268	262	310	275	250	319	270
Toyota	Toyota	211	344	271	216	346	276	207	335	259
Toyota	Lexus	286	342	304	276	326	293	270	315	285
Toyota	Scion	264	-	264	210	-	210	-	-	-
<b>Toyota</b>	<b>All</b>	227	343	276	225	344	276	217	333	262
Mercedes	Mercedes	273	347	299	270	342	294	262	342	287
<b>Mercedes</b>	<b>All</b>	273	347	299	270	342	294	262	342	287
Ford	Ford	257	353	307	251	354	307	258	348	306
Ford	Lincoln	271	356	309	285	365	321	288	357	311
<b>Ford</b>	<b>All</b>	257	353	307	253	355	308	261	348	307
GM	Chevrolet	256	359	306	248	360	303	225	367	291
GM	GMC	286	369	355	307	378	367	311	361	356
GM	Buick	273	329	295	271	344	297	259	342	298
GM	Cadillac	337	411	359	324	407	348	300	411	313
<b>GM</b>	<b>All</b>	266	362	317	261	365	316	243	364	304
<b>Other</b>	<b>All</b>	213	320	255	171	319	263	143	309	210
VW	VW	234	317	238	227	317	235	238	328	247
VW	Audi	281	335	301	275	309	284	263	313	277
VW	Porsche	311	350	330	319	336	331	297	341	318
<b>VW</b>	<b>All</b>	252	335	267	247	319	263	250	323	264
Fiat-Chrysler	Jeep	273	343	330	277	330	316	276	325	315
Fiat-Chrysler	Dodge	301	346	325	315	341	329	338	345	342
Fiat-Chrysler	Ram	282	388	387	269	393	392	-	391	391
Fiat-Chrysler	Chrysler	262	344	283	272	344	301	289	284	285
Fiat-Chrysler	Fiat	185	-	185	211	280	231	184	276	200
Fiat-Chrysler	All	275	352	325	289	348	329	294	338	328
<b>All</b>	<b>All</b>	243	335	282	240	332	281	233	332	274

\* Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or "All" values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

## C. MANUFACTURER TECHNOLOGY AND ATTRIBUTE TRENDS

Figure 4.1 shows manufacturer specific MY 2017 production shares for several technologies, as well as the projected industry-wide average production share for each technology. The industry overall has adopted several technologies quickly in recent years, however individual manufacturers are clearly utilizing different technologies to achieve fuel economy (and performance) goals.

**Figure 4.1**  
**Manufacturer Adoption of Emerging Technologies for MY 2017**



In terms of individual technologies, Mazda had the highest projected production share for gasoline direct injection, BMW for turbocharging, GM for cylinder deactivation, Subaru for continuously variable transmissions, and Mercedes for transmissions with 7 or more gears and non-hybrid start-stop.

BMW, Mercedes, and VW have technology adoption rates higher than average for four of the six technologies shown in Figure 4.1. GM, Honda, Ford, and Fiat-Chrysler are each above average for three of the six technologies. It is important to note that the six technologies shown in Figure 4.1 do not represent a comprehensive list of all technologies being applied by manufacturers. Manufacturer adoption rates for some technology approaches, such as the high compression ratios used in the Mazda SKYACTIV engines, are outside the scope of this report. Each of the six technologies shown in Figure 4.1 are discussed in more detail in Section 5.

Table 4.6 shows footprint by manufacturer for MY 2015-2017. Footprint has been relatively stable around 49 square feet. In MY 2016 footprint increased 0.1 square feet to 49.5 square feet. Ford had the largest footprint at 53.3 square feet, followed closely by GM and Fiat-Chrysler. Subaru had the lowest footprint value at 44.7 square feet. The remaining manufacturers had average footprint values in the 46 to 49 square feet range.

**Table 4.6**  
**Footprint (square feet) by Manufacturer for MY 2015–2017**

Manufacturer	Final MY 2015			Final MY 2016			Preliminary MY 2017		
	Car	Truck	Car and Truck	Car	Truck	Car and Truck	Car	Truck	Car and Truck
GM	46.7	60.3	53.9	46.6	59.1	53.2	46.7	59.2	53.0
Toyota	45.6	52.2	48.4	45.5	52.5	48.5	45.5	53.0	48.5
Ford	46.8	58.9	53.1	46.7	59.0	53.3	47.0	57.7	52.6
Fiat-Chrysler	47.1	52.7	50.7	47.5	53.2	51.4	47.2	52.4	51.2
Honda	45.0	49.1	46.5	45.3	49.6	47.0	45.8	49.7	46.9
Nissan	45.8	50.6	47.1	45.8	50.1	47.1	45.9	52.2	47.5
Kia	46.2	52.6	46.7	45.9	51.3	47.1	46.0	51.0	46.9
Hyundai	47.2	47.0	47.2	46.3	49.2	46.3	46.4	48.9	46.6
VW	45.1	50.1	46.0	45.1	48.9	45.9	44.9	49.3	45.7
Subaru	44.7	44.7	44.7	44.7	44.8	44.7	44.9	44.9	44.9
Mazda	46.1	47.1	46.3	45.4	47.1	46.0	45.8	48.0	46.3
BMW	46.6	51.0	47.5	47.1	50.6	48.0	46.7	50.5	47.8
Mercedes	47.3	50.4	48.4	47.5	51.7	48.9	47.8	51.7	49.0
Other	45.3	47.9	46.3	49.5	49.6	49.5	47.7	49.9	48.6
<b>All</b>	<b>46.1</b>	<b>53.9</b>	<b>49.4</b>	<b>46.1</b>	<b>53.7</b>	<b>49.5</b>	<b>46.2</b>	<b>54.0</b>	<b>49.5</b>

Manufacturer-specific MY 2016 car footprint values varied little, from about 45 to 48 square feet. MY 2016 truck footprint values were much more variable, ranging from 45 (Subaru) to over 59 (General Motors) square feet.

In terms of change in footprint values from MY 2015 to MY 2016, seven manufacturers increased their average footprint, with Fiat-Chrysler having the largest increases of 0.7 square feet. Four manufacturers decreased their average footprint, with Hyundai reducing average footprint by 0.9 square feet. Industry-wide footprint is projected to stay the same in MY 2017.

Table 4.7 shows manufacturer-specific values for adjusted fuel economy and production share for the two classes (cars and trucks) and the five vehicle types (cars, car SUVs, truck SUVs, pickups, and minivans/vans) for 13 manufacturers for MY 2016. Honda had the highest adjusted fuel economy for the car type and Mazda had the highest fuel economy for car SUVs. For the truck types, Subaru reported the highest adjusted fuel economy for truck SUVs, GM had the highest pickup fuel economy, and Nissan had the highest adjusted fuel economy for minivans/vans. Subaru had the highest truck share of 72%, followed by Chrysler-Fiat at 68%, while Hyundai had truck shares below 3%.

Industry-wide, car type vehicles averaged 3 mpg higher than car SUVs in MY 2016, which is down from 4.1 mpg in MY 2015. Among truck types, truck SUVs had the highest adjusted fuel economy of 22.2 mpg, followed by minivans/vans at 21.7 mpg, and pickups at 18.9 mpg. The vehicle types with the biggest fuel economy increases since MY 2015 were car SUVs at 1.1 mpg and truck SUVs at 0.3 mpg.

**Table 4.7**

**Adjusted Fuel Economy and Production Share by Vehicle Classification and Type for MY 2016\***

Manufacturer	Car (Non-SUV)		Car SUV		All Car		Truck SUV		Pickup		Minivan/Van		All Truck	
	Adj FE (MPG)	Prod Share	Adj FE (MPG)	Prod Share	Adj FE (MPG)	Prod Share	Adj FE (MPG)	Prod Share	Adj FE (MPG)	Prod Share	Adj FE (MPG)	Prod Share	Adj FE (MPG)	Prod Share
GM	27.5	33.6%	25.0	13.9%	26.7	47.5%	19.6	26.8%	19.6	25.7%	13.1	0.0%	19.6	52.5%
Toyota	31.1	48.7%	25.7	8.2%	30.2	57.0%	21.6	27.0%	18.1	12.6%	21.0	3.4%	20.4	43.0%
Ford	28.1	36.3%	24.9	10.1%	27.4	46.5%	20.7	25.9%	19.1	25.0%	21.9	2.7%	20.0	53.5%
Honda	32.6	44.0%	29.2	15.4%	31.6	59.4%	24.7	31.2%	-	-	23.1	9.3%	24.3	40.6%
Nissan	30.7	58.9%	28.8	11.4%	30.3	70.3%	25.6	21.0%	18.8	7.4%	24.4	1.3%	23.4	29.7%
Kia	28.9	64.7%	23.9	13.3%	27.9	78.1%	21.9	14.9%	-	-	20.9	7.0%	21.6	21.9%
Hyundai	30.6	75.0%	24.9	22.2%	29.1	97.2%	20.6	2.8%	-	-	-	-	20.6	2.8%
Subaru	28.3	27.7%	-	-	28.3	27.7%	28.0	72.3%	-	-	-	-	28.0	72.3%
Mazda	32.5	47.2%	29.5	19.5%	31.6	66.6%	26.2	33.4%	-	-	-	-	26.2	33.4%
BMW	26.7	73.5%	27.3	0.9%	26.7	74.4%	22.7	25.6%	-	-	-	-	22.7	25.6%
Mercedes	25.7	61.7%	25.1	5.0%	25.7	66.7%	20.3	30.7%	-	-	22.4	2.6%	20.4	33.3%
Other	34.2	24.8%	37.4	13.0%	35.2	37.9%	22.0	61.9%	-	-	16.2	0.2%	22.0	62.1%
VW	28.5	74.7%	22.7	4.1%	28.1	78.8%	22.2	21.2%	-	-	-	-	22.2	21.2%
Fiat-Chrysler	24.1	19.5%	25.0	12.1%	24.4	31.7%	21.3	39.9%	18.2	16.0%	21.0	12.3%	20.4	68.3%
All	<b>29.2</b>	<b>43.8%</b>	<b>26.2</b>	<b>11.5%</b>	<b>28.5</b>	<b>55.3%</b>	<b>22.2</b>	<b>29.1%</b>	<b>18.9</b>	<b>11.7%</b>	<b>21.7</b>	<b>3.9%</b>	<b>21.2</b>	<b>44.7%</b>

\* Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or "All" values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

Table 4.8 shows average MY 2016 manufacturer-specific values, for all cars and trucks, for three important vehicle attributes: footprint, weight, and horsepower. The footprint data in Table 4.8 were also shown in Table 4.6 and discussed above. GM had the highest average weight of 4518 pounds, followed by Fiat-Chrysler and Mercedes. Hyundai reported the lowest average weights of around 3376 pounds. Mercedes had the highest average horsepower level of 281 hp, followed by GM, Fiat-Chrysler, and BMW. Hyundai reported the lowest horsepower level of 174 hp, followed by Mazda and Subaru.

**Table 4.8**  
**Vehicle Footprint, Weight, and Horsepower by Manufacturer for MY 2016**

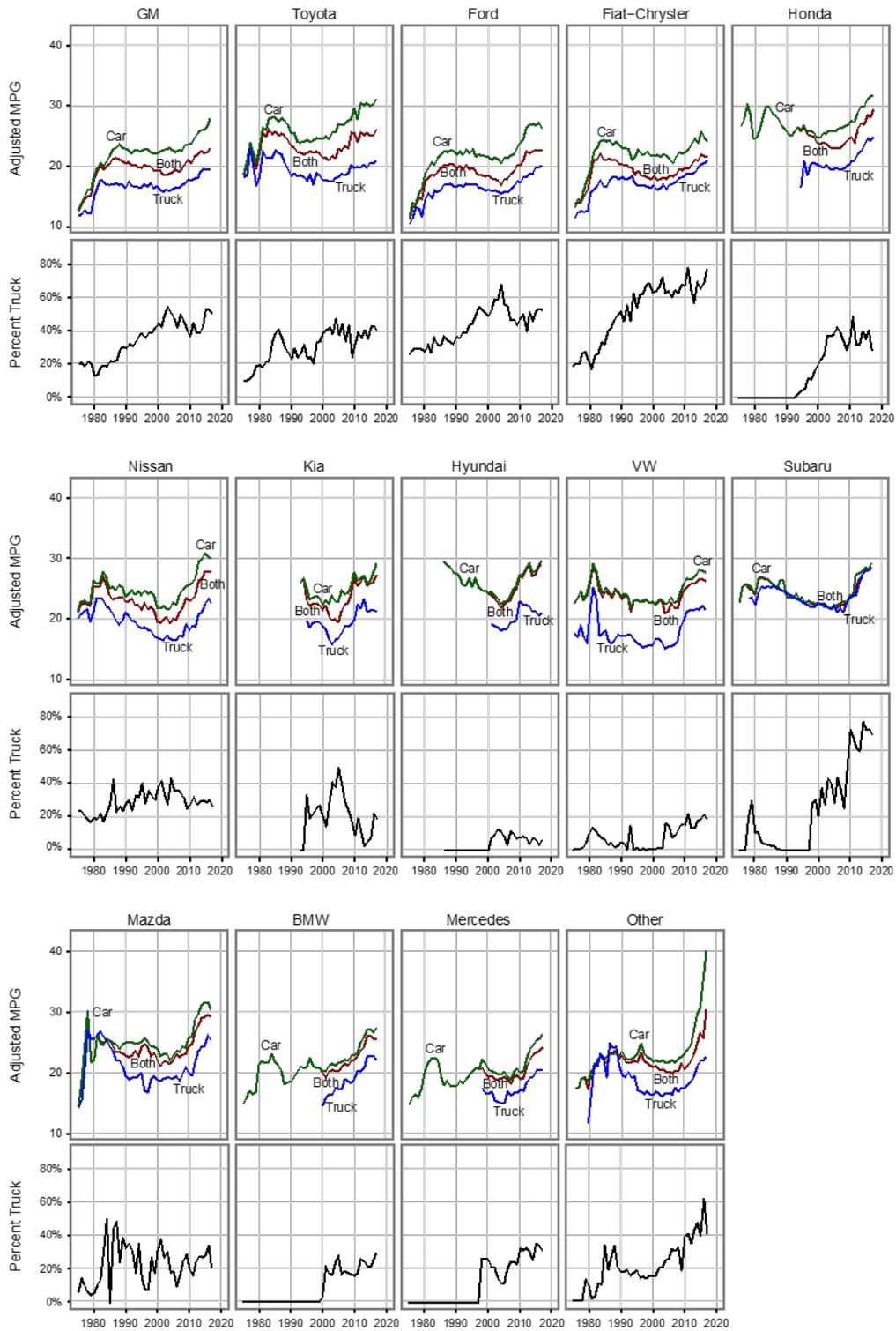
<b>Manufacturer</b>	<b>Footprint (sq ft)</b>	<b>Weight (lbs)</b>	<b>HP</b>
GM	53.2	4518	264
Toyota	48.5	3986	211
Ford	53.3	4269	261
Fiat-Chrysler	51.4	4339	263
Honda	47.0	3680	207
Nissan	47.1	3655	191
Kia	47.1	3508	187
Hyundai	46.3	3376	174
VW	45.9	3894	220
Subaru	44.7	3663	177
Mazda	46.0	3507	177
BMW	48.0	4080	263
Mercedes	48.9	4327	281
<b>All</b>	<b>49.5</b>	<b>4035</b>	<b>230</b>

Finally, Figure 4.2 provides a historical perspective, for both adjusted fuel economy and truck share, for each of the top 13 manufacturers. Adjusted fuel economy is presented for cars only, trucks only, and cars and trucks combined. One noteworthy result in Figure 4.2 is that there is very little difference between the adjusted fuel economy values for Subaru cars and trucks, the only manufacturer for which this is the case.

More information for the historic Trends database stratified by manufacturer can be found in Appendices J and K.

## Figure 4.2

### Adjusted Fuel Economy and Percent Truck by Manufacturer for MY 1975–2017



---

## D. MANUFACTURER SPECIFIC IMPACT OF ALTERNATIVE FUEL VEHICLES

In the past, this report has treated alternative fuel vehicles separately from gasoline and diesel vehicles, with the vast majority of analysis limited to gasoline and diesel vehicles only. Since alternative fuel vehicle production has generally been less than 0.1% of total vehicle production until very recently, the impact of excluding alternative fuel vehicles was negligible. However, with alternative fuel vehicles now approaching 1% of new vehicle production, these vehicles are in fact beginning to have a measurable and meaningful impact on overall new vehicle fuel economy and CO<sub>2</sub> emissions, particularly for some individual manufacturers.

This section summarizes the impact of alternative fuel vehicles on individual manufacturer fuel economy and CO<sub>2</sub> emissions. In order for data from alternative fuel vehicles to be merged with data for gasoline and diesel vehicles, this report uses miles per gallon-equivalent (mpge), which is defined as the number of miles that a vehicle travels on an amount of alternative fuel with the same energy content as a gallon of gasoline, and tailpipe CO<sub>2</sub> emissions data. These values are used on the EPA/DOT Fuel Economy and Environment Label and are the metrics that are most often associated with these vehicles. Of course, including net upstream CO<sub>2</sub> emissions for vehicles operating on electricity would change the impact of electric and plug-in hybrid electric vehicles on manufacturer-specific CO<sub>2</sub> emissions (see Section 7 for data on net upstream CO<sub>2</sub> emissions).

Table 4.9 shows the impact of alternative fuel vehicles on MY 2016 manufacturer-specific adjusted mpg and CO<sub>2</sub> emissions values. Ten of the thirteen largest manufacturers produced alternative fuel vehicles in MY 2016. Additionally, three smaller manufacturers also produced alternative fuel vehicles and are included in Table 4.9. The alternative fuel vehicle fuel economy and CO<sub>2</sub> emissions values were recalculated from label values (weighted 55% city/45% highway) to adjusted values (weighted 43% city/57% highway) to be consistent with the adjusted numbers presented in most of the sections of this report. For further discussion of the methodology behind the adjusted fuel economy and CO<sub>2</sub> values, see Section 10.

**Table 4.9****MY 2016 Alternative Fuel Vehicle Impact on Manufacturer Averages\***

Manufacturer	Adj. Fuel Economy (MPG)			Adjusted CO <sub>2</sub> Emissions (g/mi)			Total AFV Production	Percent of Manufacturer Production
	Without AFVs	With AFVs	Difference with AFVs	Without AFVs	With AFVs	Difference with AFVs		
Tesla	-	96.8	-	-	0	-	46,058	100.0%
BMW	25.1	25.5	0.4	355	349	-6	11,755	3.0%
Volvo	24.1	24.4	0.3	369	365	-4	2,183	2.4%
Ford	22.7	22.8	0.2	392	389	-3	22,343	1.1%
Nissan	27.7	27.9	0.2	321	318	-3	13,128	1.0%
Mercedes	23.6	23.7	0.1	378	376	-2	2,365	0.7%
GM	22.3	22.4	0.1	398	397	-2	12,534	0.5%
Kia	26.2	26.2	0.1	340	338	-1	2,788	0.4%
Hyundai	28.7	28.8	0.0	309	309	0	1,432	0.2%
Mitsubishi	27.0	27.1	0.0	329	328	-1	130	0.2%
Toyota	25.0	25.0	0.0	355	355	0	785	0.0%
VW	26.3	26.6	0.4	339	334	-6	12,776	2.3%
Fiat-Chrysler	21.5	21.5	0.0	414	413	-1	4,639	0.2%
<b>All</b>	<b>24.6</b>	<b>24.7</b>	<b>0.1</b>	<b>362</b>	<b>359</b>	<b>-2</b>	<b>132,916</b>	<b>0.80%</b>

\*Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or "All" values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

Alternative fuel vehicles comprised 0.8% of new vehicle production in MY 2016. Including mpg and tailpipe CO<sub>2</sub> emissions from alternative fuel vehicles increased the overall MY 2016 adjusted fuel economy by 0.1 mpg compared to what it otherwise would have been, and reduced overall CO<sub>2</sub> emissions by 2 g/mi. Of the largest manufacturers with production of over 100,000 vehicles, BMW had the highest concentration of alternative fuel vehicle production at 3%, followed by Ford, Nissan, and Mercedes at about 1%. Including alternative fuel vehicles improved BMW's performance the most, increasing MY 2016 fuel economy by 0.4 mpg overall, and decreasing CO<sub>2</sub> emissions by 6 g/mi. For Ford and Nissan, the inclusion of alternative fuel vehicles raised adjusted fuel economy by 0.2 mpg, and decreased tailpipe CO<sub>2</sub> emissions by 3 g/mi. Mercedes, GM, and Kia also increased their fuel economy by 0.1 mpg and decreased CO<sub>2</sub> emissions by 1-2 g/mi due to AFVs.

Tesla, which exclusively sells EVs, led all manufacturers in alternative fuel vehicle production. More than 2% of Volvo vehicles produced in MY 2016 were alternative fuel vehicles, which increased their overall fuel economy by 0.3 mpg and decreased CO<sub>2</sub> emissions by 4 g/mi. Mitsubishi was the only other small manufacturer to produce AFVs in MY 2016.

Section 7 of this report has further data on fuel economy, emissions, and other parameters for alternative fuel vehicles.

# 5 Powertrain Technologies

Technological innovation is a major driver of vehicle design in general, and vehicle fuel economy and CO<sub>2</sub> emissions in particular. Since its inception, this report has tracked the usage of key technologies as well as many major engine and transmission parameters. This section of the report will focus on the larger technology trends in engine and transmission production and the impact of those trends on vehicle fuel economy and CO<sub>2</sub> emissions.

Over the last 40 years, one trend is strikingly clear: automakers have consistently developed and commercialized new technologies that have provided increasing benefits to consumers. As discussed previously in Sections 2 and 3, the benefits provided by new technologies have varied over time. New technologies have been introduced for many reasons, including increasing fuel economy, reducing CO<sub>2</sub> emissions, increasing vehicle power and performance, increasing vehicle content and weight, or improving other vehicle attributes that are not easily quantifiable (e.g., handling, launch feel).

Data from alternative fuel vehicles (AFVs) are included in the report beginning with MY 2011 data. AFVs include electric vehicles (EVs), plug-in electric hybrids (PHEVs), hydrogen fuel cell vehicles (FCVs), and compressed natural gas (CNG) vehicles. AFVs are projected to reach almost 2% of production in MY 2017. AFV production has increased in recent years and has started to impact some important trends in this report. However, making technical comparisons between AFVs and conventional vehicles is difficult due to the fact that many conventional metrics are no longer relevant for electrified vehicles (number of cylinders, for example), and that some AFVs have complex operating cycles based on multiple fuels. For these reasons, the analysis in part B of this section is limited to conventional vehicles (gasoline, diesel, and gasoline hybrid) only. Part C focuses exclusively on alternative fuel vehicles, without conventional vehicles. The rest of this section includes AFVs and conventional vehicles together. For a more detailed description of individual AFVs and the parameters used to measure fuel economy and emissions, see section 7.

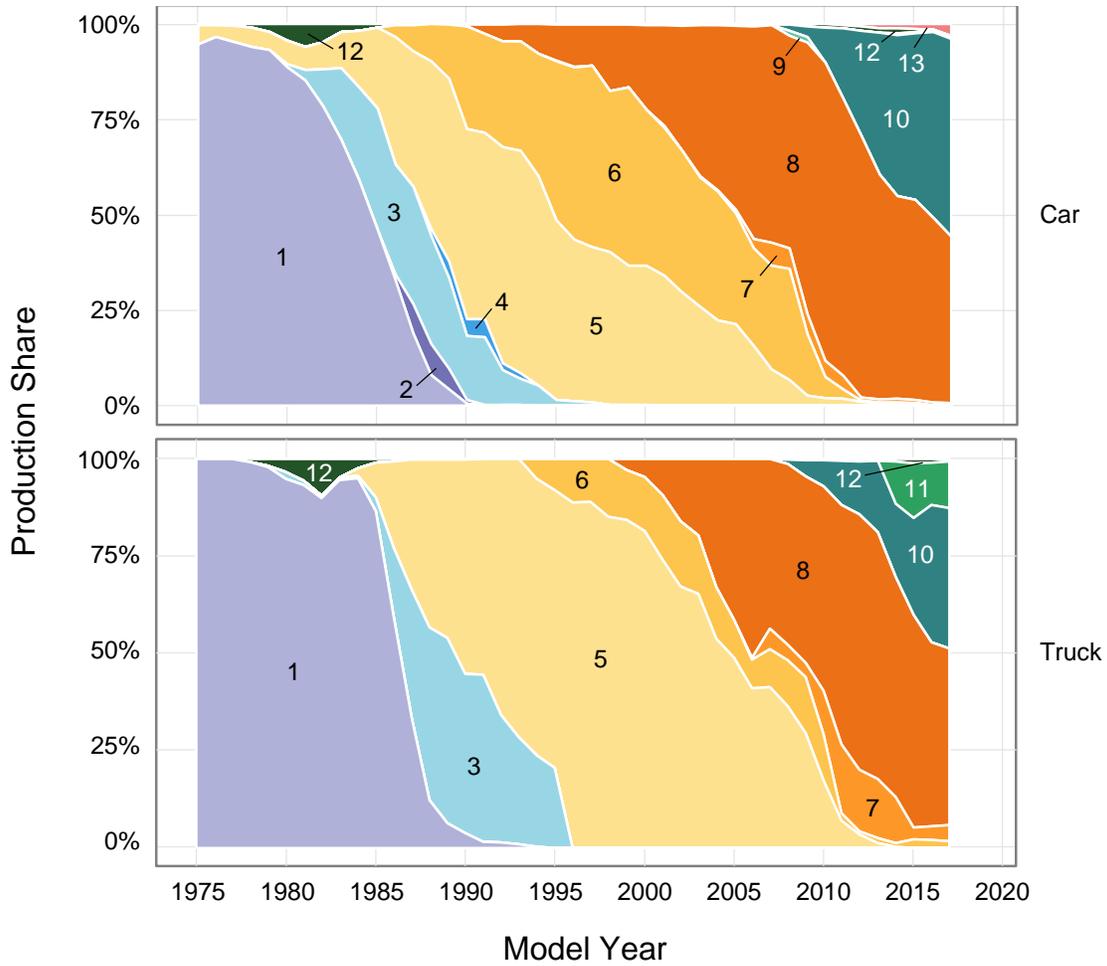
## A. OVERALL ENGINE TRENDS

Engine technology has changed radically over the last 40 years. In 1975, the first year of this report, nearly all engines were carbureted with fixed valve timing and two valves per cylinder. In MY 2017, more than half of new vehicle production will feature engines with gasoline direct injection, and nearly all feature variable valve timing, and multiple valves per cylinder. In addition, advanced AFVs production is increasing, including EVs and PHEVs that can operate on electricity or gasoline.

The evolution of vehicle engine technology over the last 40 years is shown in Figure 5.1. Engine technology has consistently changed as the industry evolved. One interesting aspect of Figure 5.1 is that engine technology has, at times, changed quite quickly. GDI engines were installed in less than 3% of vehicles produced in MY 2008, but are projected to reach about 52% of new vehicles in MY 2017. This is a rapid change, but not unprecedented in the industry. For example, nearly all trucks replaced carburetors with fuel injection engines in the 5-year period from MY 1985 to MY 1990.

**Figure 5.1**

*Production Share by Engine Technology*



Fuel Delivery	Valve Timing	Number of Valves	Key
Carbureted	Fixed	Two-Valve	1
		Multi-Valve	2
Throttle Body Injection	Fixed	Two-Valve	3
		Multi-Valve	4
Port Fuel Injection	Fixed	Two-Valve	5
		Multi-Valve	6
	Variable	Two-Valve	7
		Multi-Valve	8
Gasoline Direct Injection (GDI)	Fixed	Multi-Valve	9
	Variable	Multi-Valve	10
		Two-Valve	11
Diesel	—	—	12
Alternative Fuel	—	—	13

**Table 5.1**

**Production Share by Powertrain**

Model Year	Gasoline	Hybrid	Diesel	Plug-in		
				Hybrid Electric	Electric	Other
1975	99.8%	-	0.2%	-	-	-
1976	99.8%	-	0.2%	-	-	-
1977	99.6%	-	0.4%	-	-	-
1978	99.1%	-	0.9%	-	-	-
1979	98.0%	-	2.0%	-	-	-
1980	95.7%	-	4.3%	-	-	-
1981	94.1%	-	5.9%	-	-	-
1982	94.4%	-	5.6%	-	-	-
1983	97.3%	-	2.7%	-	-	-
1984	98.2%	-	1.8%	-	-	-
1985	99.1%	-	0.9%	-	-	-
1986	99.6%	-	0.4%	-	-	-
1987	99.7%	-	0.3%	-	-	-
1988	99.9%	-	0.1%	-	-	-
1989	99.9%	-	0.1%	-	-	-
1990	99.9%	-	0.1%	-	-	-
1991	99.9%	-	0.1%	-	-	-
1992	99.9%	-	0.1%	-	-	-
1993	100.0%	-	-	-	-	-
1994	100.0%	-	0.0%	-	-	-
1995	100.0%	-	0.0%	-	-	-
1996	99.9%	-	0.1%	-	-	-
1997	99.9%	-	0.1%	-	-	-
1998	99.9%	-	0.1%	-	-	-
1999	99.9%	-	0.1%	-	-	-
2000	99.8%	0.0%	0.1%	-	-	-
2001	99.7%	0.1%	0.1%	-	-	-
2002	99.6%	0.2%	0.2%	-	-	-
2003	99.5%	0.3%	0.2%	-	-	-
2004	99.4%	0.5%	0.1%	-	-	-
2005	98.6%	1.1%	0.3%	-	-	-
2006	98.1%	1.5%	0.4%	-	-	-
2007	97.7%	2.2%	0.1%	-	-	-
2008	97.4%	2.5%	0.1%	-	-	-
2009	97.2%	2.3%	0.5%	-	-	-
2010	95.5%	3.8%	0.7%	-	-	0.0%
2011	97.0%	2.2%	0.8%	0.0%	0.1%	0.0%
2012	95.5%	3.1%	0.9%	0.3%	0.1%	0.0%
2013	94.8%	3.6%	0.9%	0.4%	0.3%	0.0%
2014	95.7%	2.6%	1.0%	0.4%	0.3%	0.0%
2015	95.9%	2.4%	0.9%	0.3%	0.5%	0.0%
2016	96.9%	1.8%	0.5%	0.3%	0.5%	0.0%
2017 (prelim)	94.5%	3.3%	0.3%	0.9%	1.0%	0.0%

---

Gasoline combustion engines have long dominated sales in the United States. As shown in Table 5.1, non-hybrid gasoline engines are projected to be installed in 94.5% of all new vehicles in MY 2017. Gasoline hybrid vehicles are projected to account for 3.3% of new vehicles in MY 2017, with electric vehicles (EVs) and plug-in electric hybrids (PHEVs) capturing 1.0% and 0.9% of production. Diesel vehicles are projected to account for 0.3% of production, well below the 5.9% record high set in MY 1981. Hybrids are also below their record production level of MY 2010.

## B. TRENDS IN CONVENTIONAL ENGINES

Conventional engine technologies include gasoline vehicles, diesel vehicles, and gasoline hybrid vehicles. In MY 2017, these vehicles are projected to account for slightly more than 98% of vehicles produced. These vehicles all rely on combustion engines and either gasoline or diesel fuel to power the vehicle. Many of the metrics in this section, such as engine displacement, are not relevant for AFVs, so the analysis presented here excludes all AFVs. It is important to note that, because AFVs are excluded from this section, some values in this section will differ slightly from those cited elsewhere in this report where AFVs are included.

### Horsepower and Displacement

One of the most remarkable trends over the course of this report is the increase in vehicle horsepower since the early 1980s. From 1975 through the early 1980s, average horsepower decreased, in combination with lower vehicle weight (see Table 2.1 and Figure 2.3) and smaller engine displacement (see below). Since the early 1980s, the average new vehicle horsepower has more than doubled. Average horsepower climbed consistently from MY 1982 to MY 2008. Since MY 2008, horsepower trends have been less consistent, and may be beginning to flatten out. Average horsepower for conventional vehicles is projected to be a record high of 232 hp in MY 2017. The long-term trend in horsepower is mainly attributable to improvements in engine technology, but increasing production of larger vehicles and an increasing percentage of truck production have also influenced the increase of average new vehicle horsepower. The trend in average new vehicle horsepower is shown in Figure 5.2.

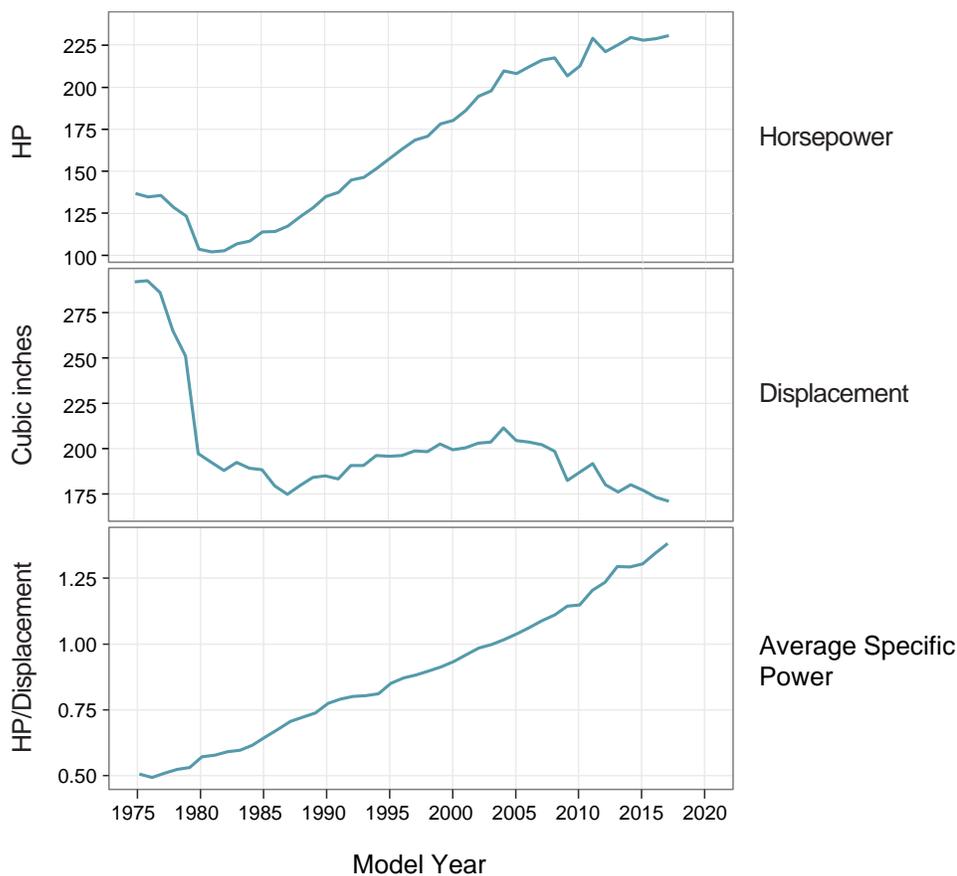
Engine size, as measured by total displacement, is also shown in Figure 5.2. Three general phases in engine displacement are discernible. From MY 1975 to 1987, the average engine displacement of new vehicles dropped dramatically by nearly 40%. From MY 1988 to 2004, displacement generally grew slowly, but the trend reversed in 2005 and engine displacement has been generally decreasing since. In MY 2017, engine displacement is projected to reach the lowest point on record, below the previous lowest average displacement reached in MY 1987.

The contrasting trends in horsepower (near an all-time high) and engine displacement (near an all-time low) highlight the continuing improvement in engines due to introduction of new technologies (e.g., increasingly sophisticated fuel injection designs) and smaller engineering improvements that are not tracked by this report (e.g., reduced internal friction). One additional way to examine the relationship between engine horsepower and displacement is to

look at the trend in *specific power*, which is a metric to compare the power output of an engine relative to its size. Here, engine specific power is defined as horsepower divided by displacement.

## Figure 5.2

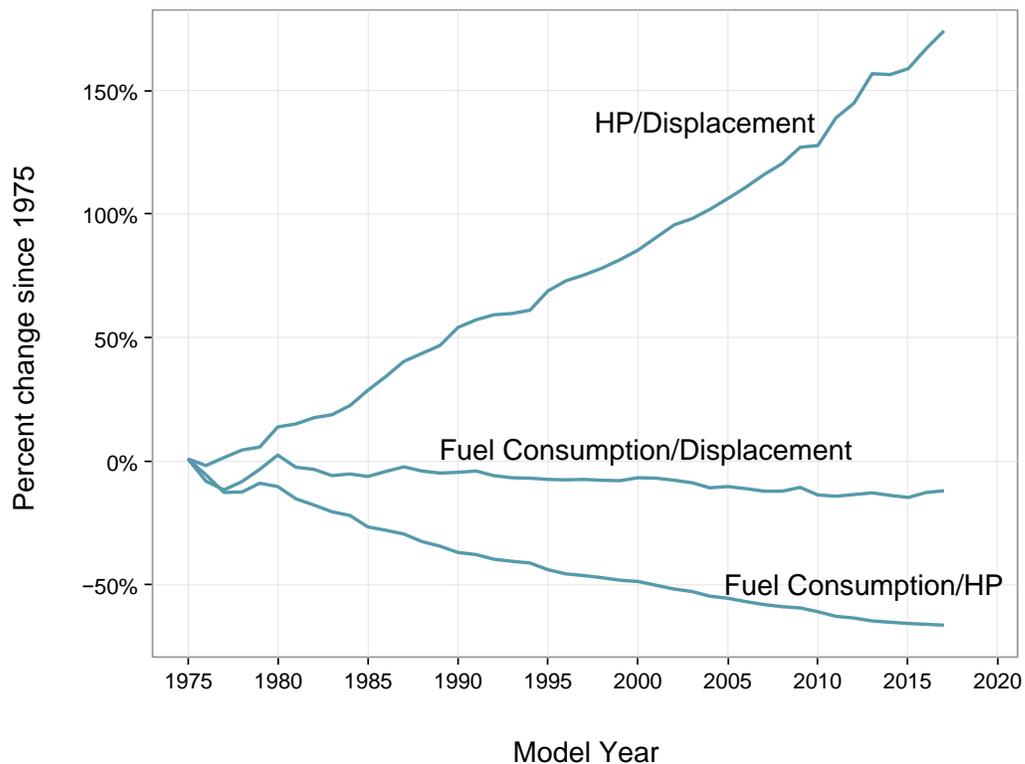
### Engine Power and Displacement, AFVs Excluded



Since the beginning of this report, the average specific power of engines across the new vehicle fleet has increased at a remarkably steady rate, as shown in Figure 5.2. Since MY 1975, the specific power of new vehicle engines has increased by about 0.02 horsepower per cubic inch every year. Considering the numerous and significant changes to engines over this time span, changes in consumer preferences, and the external pressures on vehicle purchases, the long standing linearity of this trend is noteworthy. The roughly linear increase in specific power does not appear to be slowing. Turbocharged engines, direct injection, higher compression ratios, and many other engine technologies are likely to continue increasing engine specific power.

Figure 5.3 summarizes three important engine metrics, each of which has shown a remarkably linear change over time. Specific power, as discussed above, has increased more than 150% since MY 1975 and at a very steady rate. The amount of fuel consumed by an engine, relative to the total displacement, has fallen about 15% since MY 1975, and fuel consumption relative to engine horsepower has fallen more than 65% since MY 1975. Taken as a whole, the trend lines in Figure 5.3 clearly show that engine improvements over time have been steady, continual, and have resulted in impressive improvements to internal combustion engines.

**Figure 5.3**  
**Percent Change for Specific Engine Metrics, AFVs Excluded**

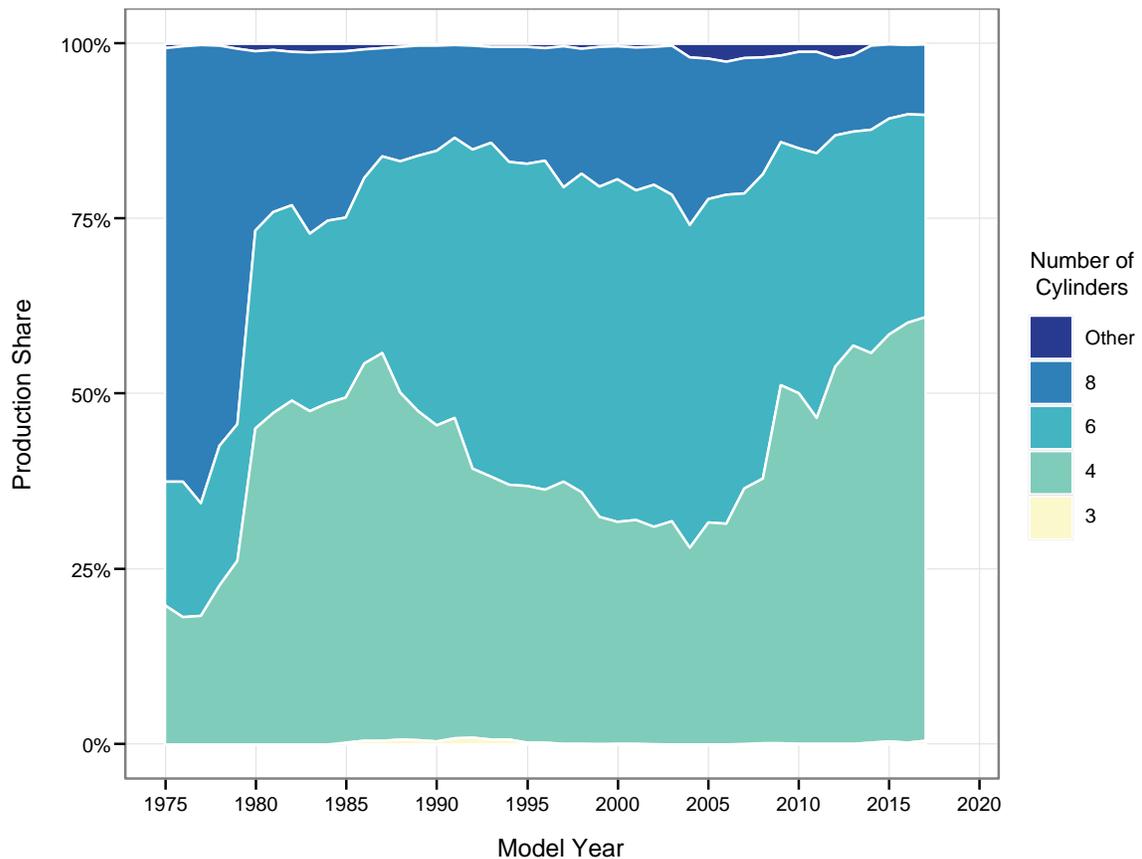


Another fundamental design parameter for internal combustion engines is the number of cylinders. Since 1975, there have been significant changes to the number of cylinders in new vehicles, as shown in Figure 5.4. In the mid and late 1970s, the 8-cylinder engine was dominant, accounting for over half of new vehicle production. In MY 1980 there was a significant change in the market, as 8-cylinder engine production share dropped from 54% to 26% and 4-cylinder production share increased from 26% to 45%. The 4-cylinder engine then continued to lead the market until overtaken by 6-cylinder engines in MY 1992. Model year 2009 marked a second major shift in engine production, as 4-cylinder engines once again became the production leader with a 51% market share (an increase of 13 percentage points in a single year), followed by 6-cylinder engines with 35%, and 8-cylinder engines at 12%. Production share of 4-cylinder engines has generally increased since, and is at the highest point on record, accounting for 60% of production in MY 2016. Production share of 8-cylinder

engines has continued to decrease, to less than 10%. Projected data for MY 2017 suggests that these trends will continue.

Engine displacement per cylinder has been relatively stable over the time of this report (around 35 cubic inches per cylinder since 1980), so the reduction in overall new vehicle engine displacement shown in Figure 5.2 is almost entirely due to the shift towards engines with fewer cylinders.

**Figure 5.4**  
*Production Share by Number of Engine Cylinders, AFVs Excluded*



---

## Fuel Delivery Systems

One aspect of engine design that has changed significantly over time is how fuel is delivered into the engine. In the 1970s and early 1980s, nearly all engines used carburetors to meter fuel delivered to the engine. Carburetors were replaced over time with throttle body injection systems (TBI) and port fuel injection systems. More recently, engines with gasoline direct injection (GDI) have begun to replace engines with port fuel injection. Engines using GDI were first introduced into the market with very limited production in MY 2007. Only 9 years later GDI engines were installed in about 48% of MY 2016 vehicles, and are projected to achieve a 52% market share in MY 2017.

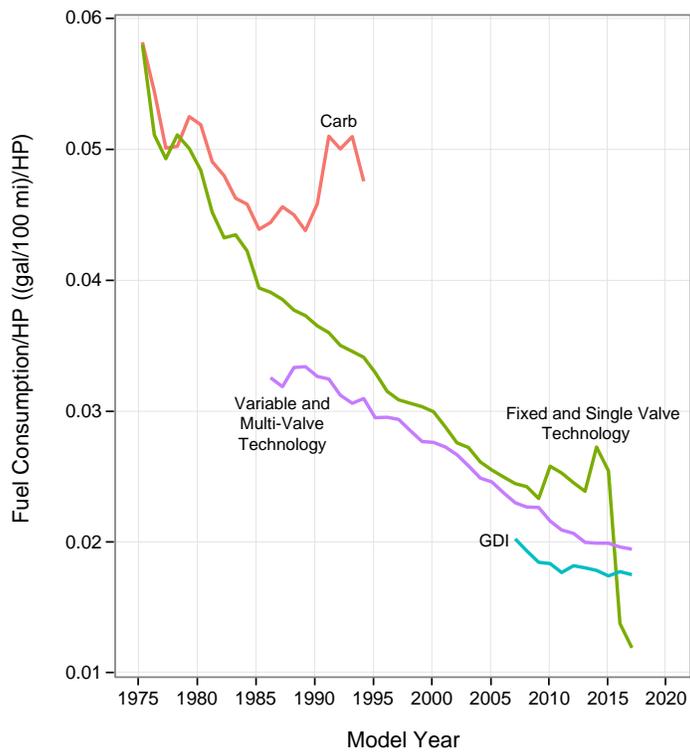
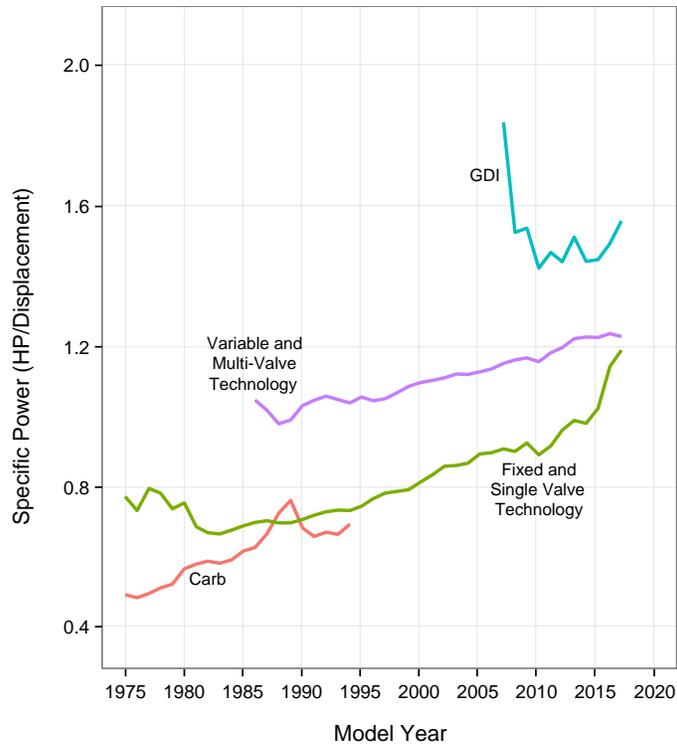
Another key aspect of engine design is the valve-train. The number of valves per cylinder and the ability to alter valve timing during the combustion cycle can result in significant power and efficiency improvements. This report began tracking multi-valve engines (i.e., engines with more than 2 valves per cylinder) for cars in MY 1986 (and for trucks in MY 1994), and since that time nearly the entire fleet has converted to multi-valve design. While some three and five valve engines have been produced, the vast majority of multi-valve engines are based on 4 valves per cylinder. In addition to the number of valves per cylinder, designs have evolved that allow engine valves to vary the timing when they are opened or closed with respect to the combustion cycle, creating more flexibility to control engine efficiency, power, and emissions. This report began tracking variable valve timing (VVT) for cars in MY 1990 (and for trucks in MY 2000), and since then nearly the entire fleet has adopted this technology. Figure 5.1 shows the evolution of engine technology, including fuel delivery method, and the introduction of VVT and multi-valve engines.

As clearly shown in Figure 5.1, fuel delivery and valve-train technologies have often developed over the same time frames. Nearly all carbureted engines relied on fixed valve timing and had two valves per cylinder, as did early port injected engines. Port injected engines largely developed into engines with both multi-valve and VVT technology. Engines with GDI are almost exclusively using multi-valve and VVT technology. These four engine groupings, or packages, represent a large share of the engines produced over the lifetime of the Trends database.

Figure 5.5 shows the changes in specific power and fuel consumption between each of these engine packages over time. There is a very clear increase in specific power of each engine package, as engines moved from carbureted engines, to two-valve port fixed engines, to multi-valve port VVT engines, and finally to GDI engines. Some of the increase for GDI engines may also be due to the fact that GDI engines are often paired with turbochargers to further increase power. Figure 5.5 also shows the reduction in fuel consumption per horsepower for each of the four engine packages.

**Figure 5.5**

**Engine Metrics for Different Engine Technology Packages, AFVs Excluded**

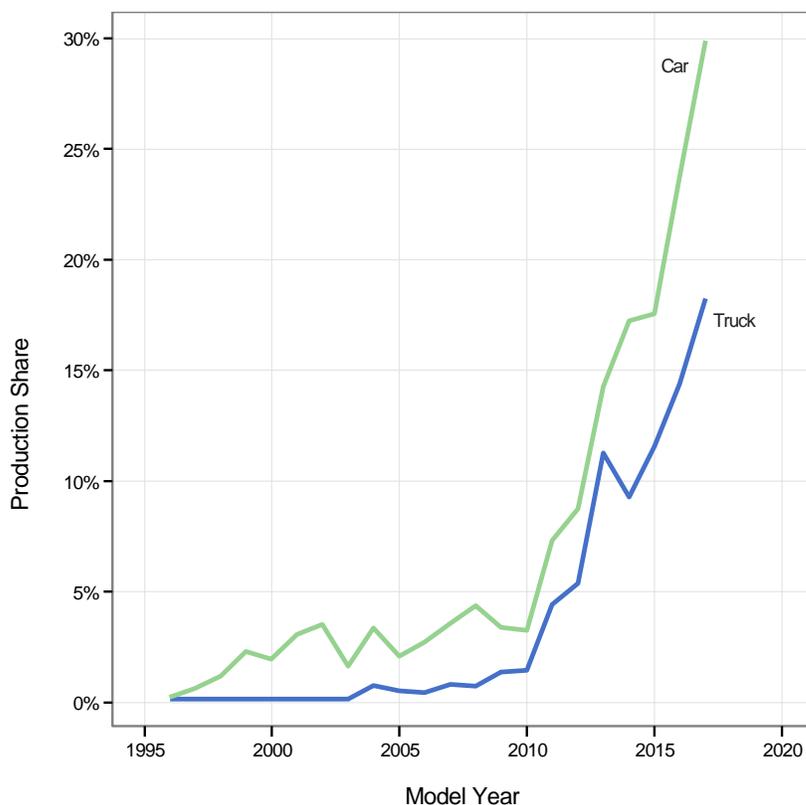


## Turbo-Downsizing

Many manufacturers have introduced engines that are considered “turbo downsized” engines. This group of engines generally has three common features: a smaller displacement than the engines they are replacing, turbochargers, and (often, but not always) GDI. Turbo downsized engines are an approach to engine design that provides increased fuel economy by using a smaller engine for most vehicle operation, while retaining the ability to provide more power via the turbocharger, when needed.

Turbocharged engines are projected to capture approximately 25% of new vehicle production in MY 2017, with all of the 13 largest manufacturers (as discussed in Section 4) offering turbocharged engine packages. This is a significant increase in market penetration over the last decade, and it is a trend that appears to be accelerating rapidly, as shown in Figure 5.6. Prior to the last few years, turbochargers (and superchargers) were available, but generally only on high performance, low volume vehicles. It is only in the last few years that turbochargers have been available as part of a downsized turbo vehicle package, many of which are now available in mainstream vehicles. The sales of these vehicles are driving the increase in turbocharger market share. Both cars and trucks have rapidly added turbocharged engine packages, as shown in Figure 5.6.

**Figure 5.6**  
**Market Share of Gasoline Turbo Vehicles**



Turbochargers are most frequently combined with 4-cylinder engines. Excluding diesel engines, 79% of turbocharged engines are combined with 4-cylinder engines and about 18% are combined with 6-cylinder engines. Over 60% of turbocharged engines are projected to be installed in 4-cylinder cars in MY 2017. The overall breakdown of turbocharger distribution in the new vehicle fleet is shown in Table 5.2.

In current engines, turbochargers are often being used in combination with GDI to allow for more efficient engine operation and to increase the resistance to engine knock (the use of variable valve timing also helps to reduce turbo lag). In MY 2017, more than 90% of new vehicles with gasoline turbocharged engines also use GDI.

## Table 5.2

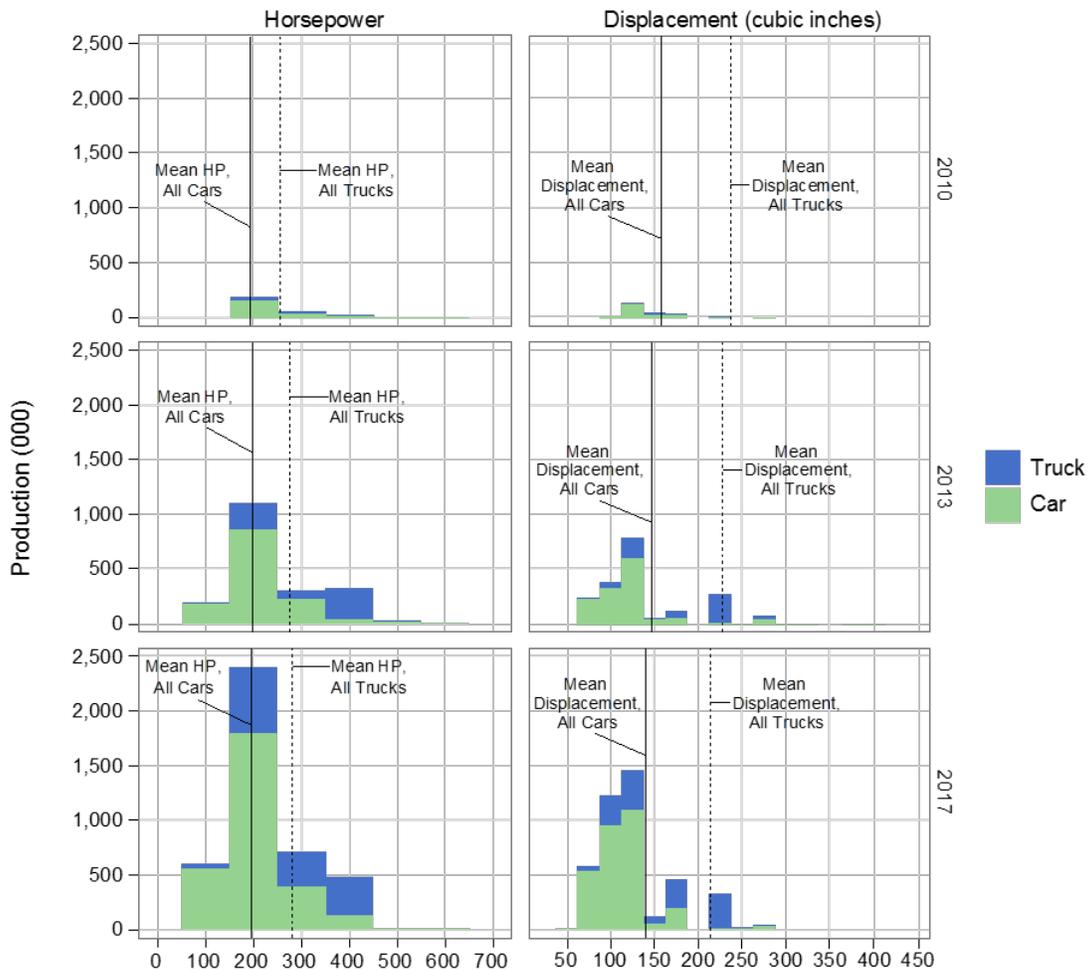
### Distribution of MY 2017 (Preliminary) Gasoline Turbocharged Engines

Category	Turbo Share
<b>Car</b>	
4 cylinder Car	61.3%
6 cylinder Car	5.0%
8 cylinder Car	1.3%
Other Car	1.2%
<b>Truck</b>	
4 cylinder Truck	17.3%
6 cylinder Truck	13.2%
8 cylinder Truck	0.6%
Other Truck	0.0%

Figure 5.7 examines the distribution of engine displacement and power of turbocharged engines for MY 2010 (top) to MY 2017 (bottom). Note that the production values for cars and trucks in each bar are additive, e.g., there are projected to be about 1,750,000 gasoline cars with turbochargers in the 200-300 horsepower range in MY 2017, with another 500,000 gasoline trucks with turbochargers in the same horsepower range. In MY 2010, turbochargers were used mostly on cars, and were available on engines both above and below the average engine displacement. The biggest increase in turbocharger use over the last few years has been in cars with engine displacement well below the average displacement. Engine horsepower has been more distributed around the average, reflecting the higher power per displacement of turbocharged engines. This trend towards adding turbochargers to smaller, less powerful engines reinforces the conclusion that most turbochargers are currently being used for turbo downsizing, and not simply just to add power for performance vehicles.

**Figure 5.7**

*Distribution of Gasoline Turbo Vehicles by Displacement and Horsepower, MY 2010, 2013, and 2017*



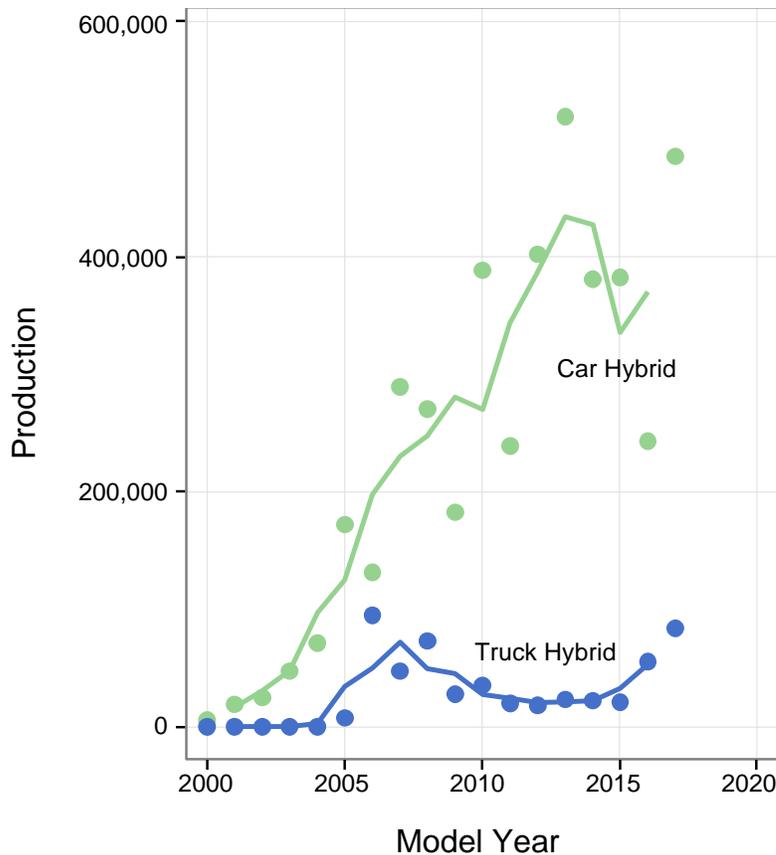
\*The horsepower graph excludes the Bugatti Veyron.

### Hybrids

Hybrid vehicles utilize larger battery packs, electric motors, and other components that can increase vehicle fuel economy. Benefits of hybrids include: 1) regenerative braking which can capture energy that is otherwise lost in conventional friction braking to charge the battery, 2) availability of two sources of on-board power which can allow the engine to be operated at or near its peak efficiency more often, and 3) shutting off the engine at idle. The introduction of the first hybrid into the U.S. marketplace occurred in MY 2000 with the Honda Insight. Hybrid production and market share increased throughout the 2000s, with hybrid production peaking in MY 2013 at over 500,000 units, as shown in Figure 5.8, and market share peaking in MY 2010 at 3.8%. In the last few years, hybrid production has fluctuated, with hybrids accounting for 1.8% market share in MY 2016. Their market share is projected to reach 3.3% in MY 2017.

**Figure 5.8**

**Hybrid Production MY 2000–2017 (With 3-Year Moving Average), AFVs Excluded**

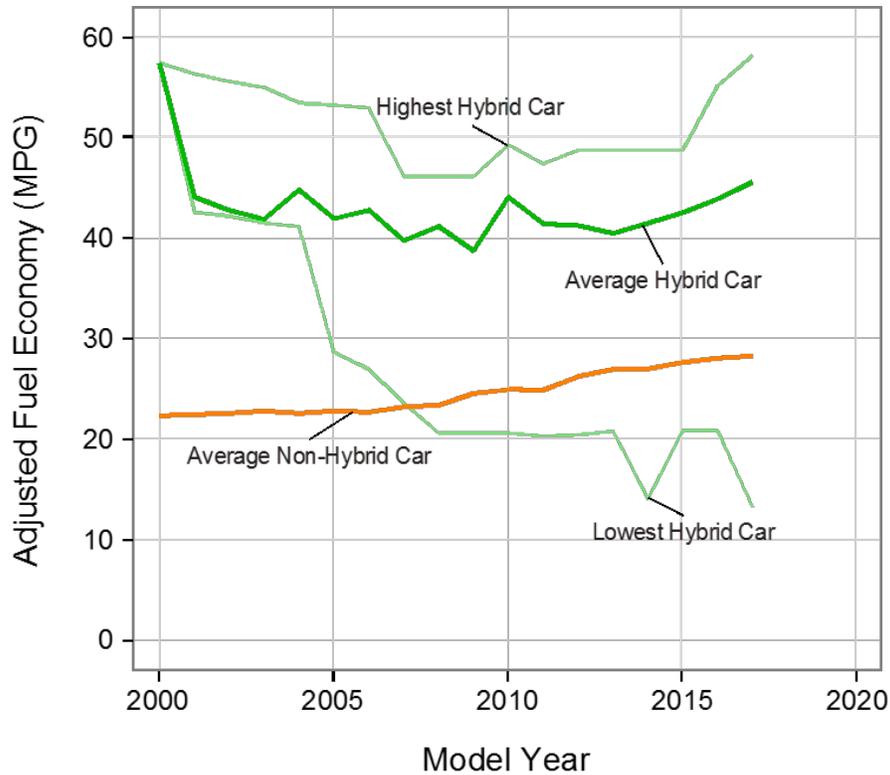


The first U.S. hybrid vehicle in MY 2000, the Honda Insight, was a low production, specialty vehicle with very high fuel economy (Table 10.2 shows various fuel economy metrics for the 2005 Insight). The Toyota Prius was first introduced in the U.S. market in MY 2001, and over time, more hybrid models were introduced. Hybrids now represent a much broader range of vehicle types and are now frequently offered as powertrain options on many popular models that are nearly indistinguishable from their non-hybrid counterparts. Most hybrids provide higher fuel economy than comparable vehicles, although some hybrids have been offered as more performance-oriented vehicles with more minor fuel economy improvements.

Figure 5.9 shows the production-weighted distribution of fuel economy for all hybrid cars by year. Hybrid cars, on average, have fuel economy more than 50% higher than the average non-hybrid car in MY 2017. As a production weighted average, hybrid cars achieved 44 mpg for MY 2016, while the average non-hybrid car achieved about 28 mpg. The increasing spread between the highest and lowest fuel economy of available hybrid cars is a reflection of the widening availability of hybrid models. Figure 5.9 is presented for cars only since the production of hybrid trucks has been limited.

**Figure 5.9**

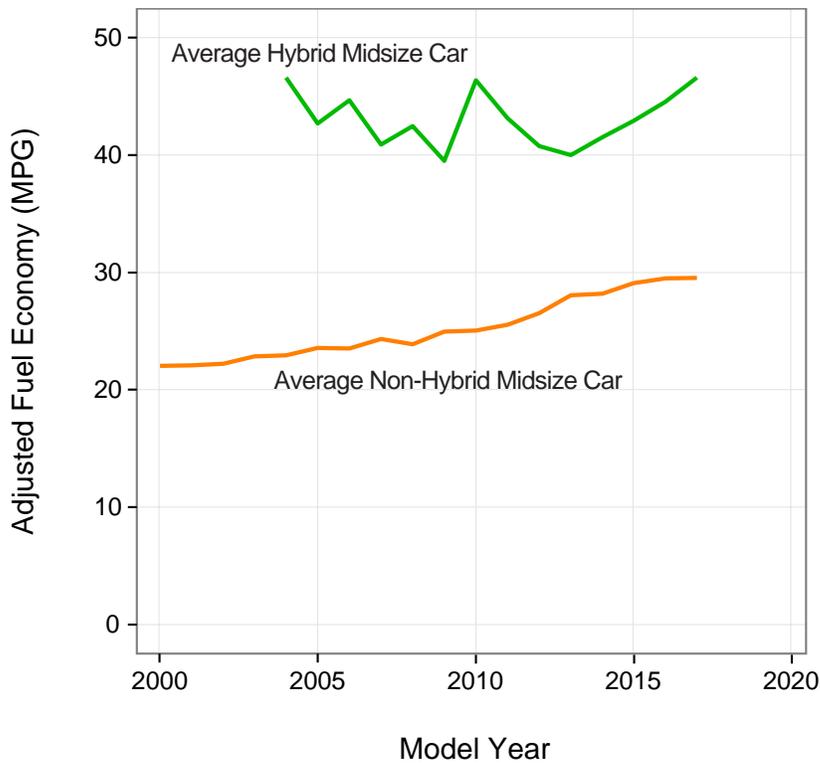
*Hybrid Adjusted Fuel Economy Distribution by Year, Car Only, AFVs Excluded*



While the average fuel economy of hybrid cars remains higher than the average fuel economy of non-hybrid cars, the difference has narrowed considerably. Average hybrid car fuel economy has been relatively stable since MY 2001, while the fuel economy of the average non-hybrid car has increased more than 26%. Figure 5.10 further explores this trend by examining midsize cars. While generally this report has moved away from using vehicle sub-classes such as midsize sedans, it is a well-established and recognized category and nearly 50% of hybrid vehicles are in the midsize car class. Comparing average midsize hybrids to average midsize non-hybrid cars, gasoline only, is an apples-to-apples comparison.

**Figure 5.10**

**Hybrid and Non-Hybrid Fuel Economy for Midsize Cars, MY 2000–2017, Gasoline Only**



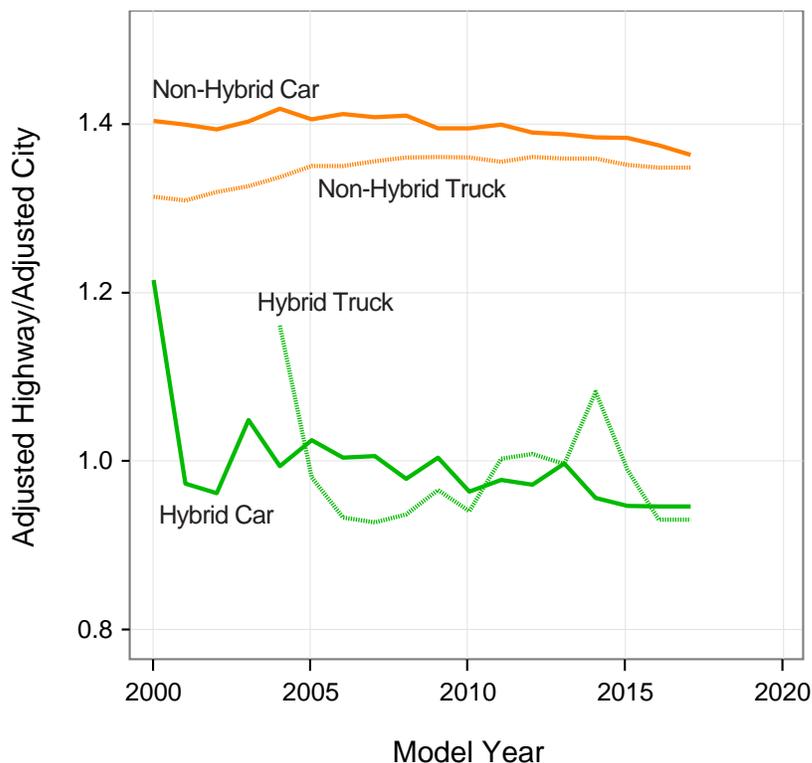
The difference in fuel economy between the average hybrid midsize car and the average non-hybrid midsize gasoline narrowed from about 25 mpg in MY 2004 to about 14 mpg in MY 2013. The primary reason for this trend was continued improvements to the internal combustion engine. Additionally, many technologies introduced or emphasized in early hybrids, such as improved aerodynamics, low rolling resistance tires, and increased use of lightweight materials, have also become more common on non-hybrid vehicles. Since MY 2013 however, the improvements in non-hybrid cars has slowed, and redesigned hybrid models have increased the average hybrid fuel economy.

One unique design aspect of hybrids is the ability to use regenerative braking to capture some of the energy lost by a vehicle during braking. The recaptured energy is stored in a battery and is then used to help propel the vehicle, generally during vehicle acceleration. This process results in significantly higher city fuel economy ratings for hybrid vehicles compared to non-hybrid vehicles, and in fact the city fuel economy of many hybrids is typically similar to, if not higher than, their highway fuel economy. Figure 5.11 shows the ratio of highway to city fuel economy for hybrid cars and trucks. Hybrid models have a ratio of highway to city fuel economy near 1.0 (meaning the city and highway fuel economy are nearly equivalent) which is much lower than the 1.4 ratio of highway to city fuel economy for non-hybrid models. This is

one aspect of operating a hybrid that is fundamentally different from a conventional vehicle and appears to be relatively steady over time.

**Figure 5.11**

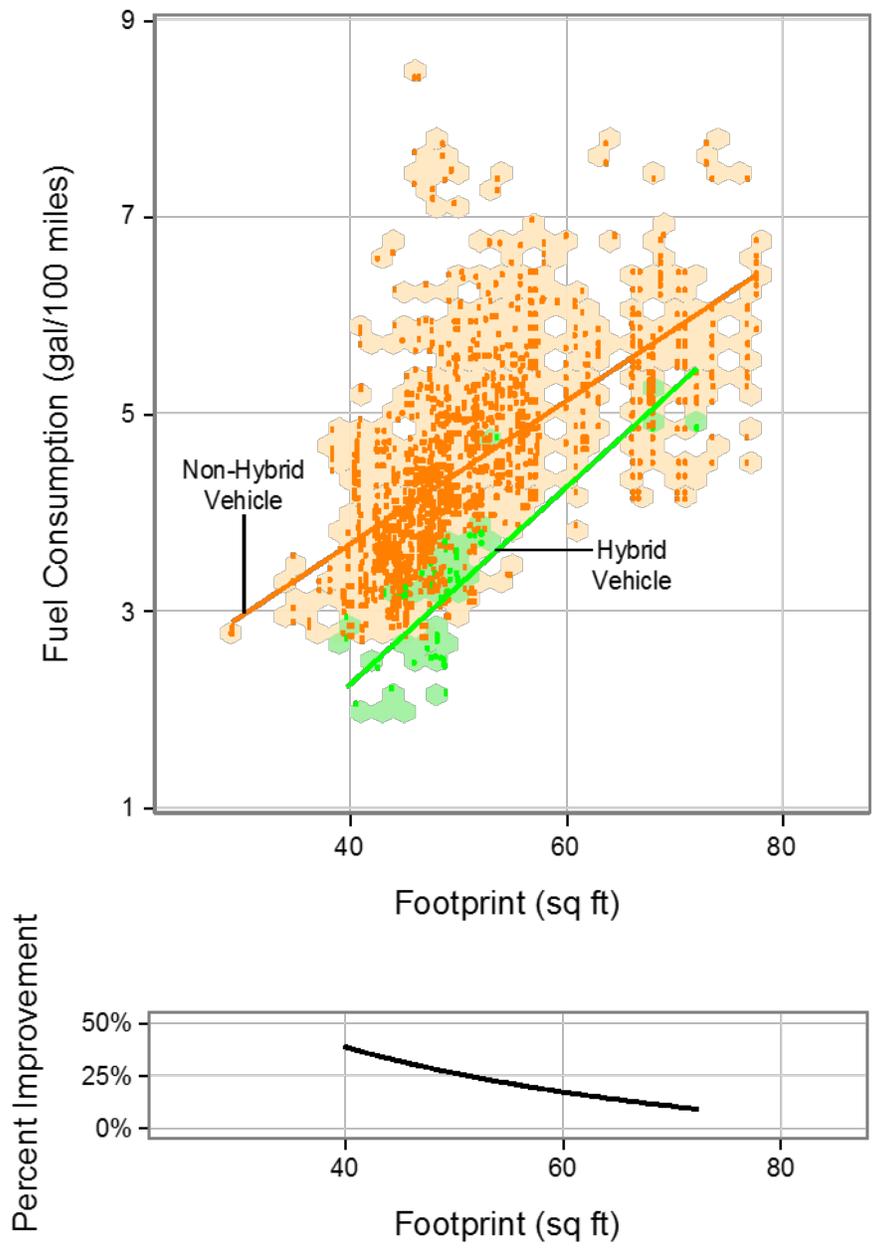
*Highway/City Fuel Economy Ratio for Hybrids and Non-Hybrids, AFVs Excluded*



The relationship between hybrids and non-hybrids is clearer if vehicles of the same footprint are compared directly. As shown in Figure 5.12, the fuel consumption of vehicles increases as the footprint increases at about the same rate for both hybrid and non-hybrid vehicles. Hybrids do achieve a higher percentage improvement in smaller vehicles, and achieve more than 30% lower fuel consumption, on average, for vehicles with a footprint of 45 square feet, which is about the size of a standard midsize sedan. The percent improvement figure at the bottom of Figure 5.12 describes the fuel consumption improvement for hybrid vehicles as compared to conventional vehicles over the range of footprints for which both hybrid and conventional vehicles are available. It depicts the percentage difference between the ‘best fit’ lines for hybrid vehicles and conventional vehicles shown in the upper part of Figure 5.12.

**Figure 5.12**

*Percent Improvement in Adjusted Fuel Consumption for Hybrid Vehicles, MY 2016, AFVs Excluded*



---

## Diesels

Diesels vehicles peaked in the U.S. at 5.9% of the market in MY 1981, before falling to 0.1% of the market for many years. Several new diesel models were introduced in recent years and production climbed back up to 1.0% in MY 2014 and MY 2015. However, production fell to about half of that in MY 2016, and is projected to be only 0.3% in MY 2017. As with hybrid vehicles, diesels generally achieve higher fuel economy than non-diesel vehicles. The relationship between diesel vehicles and all new vehicles is shown in Figure 5.13.

While diesel engines generally achieve higher fuel economy than comparable gasoline vehicles, there is less of an advantage in terms of CO<sub>2</sub> emissions. Some of the fuel economy benefit of diesel engines is negated by the fact that diesel fuel contains about 15% more carbon per gallon, and thus emits more CO<sub>2</sub> per gallon burned than gasoline. Figure 5.14 shows the impact of diesel vehicles on CO<sub>2</sub> emissions by comparing the CO<sub>2</sub> emissions of MY 2016 diesel and gasoline vehicles by footprint.

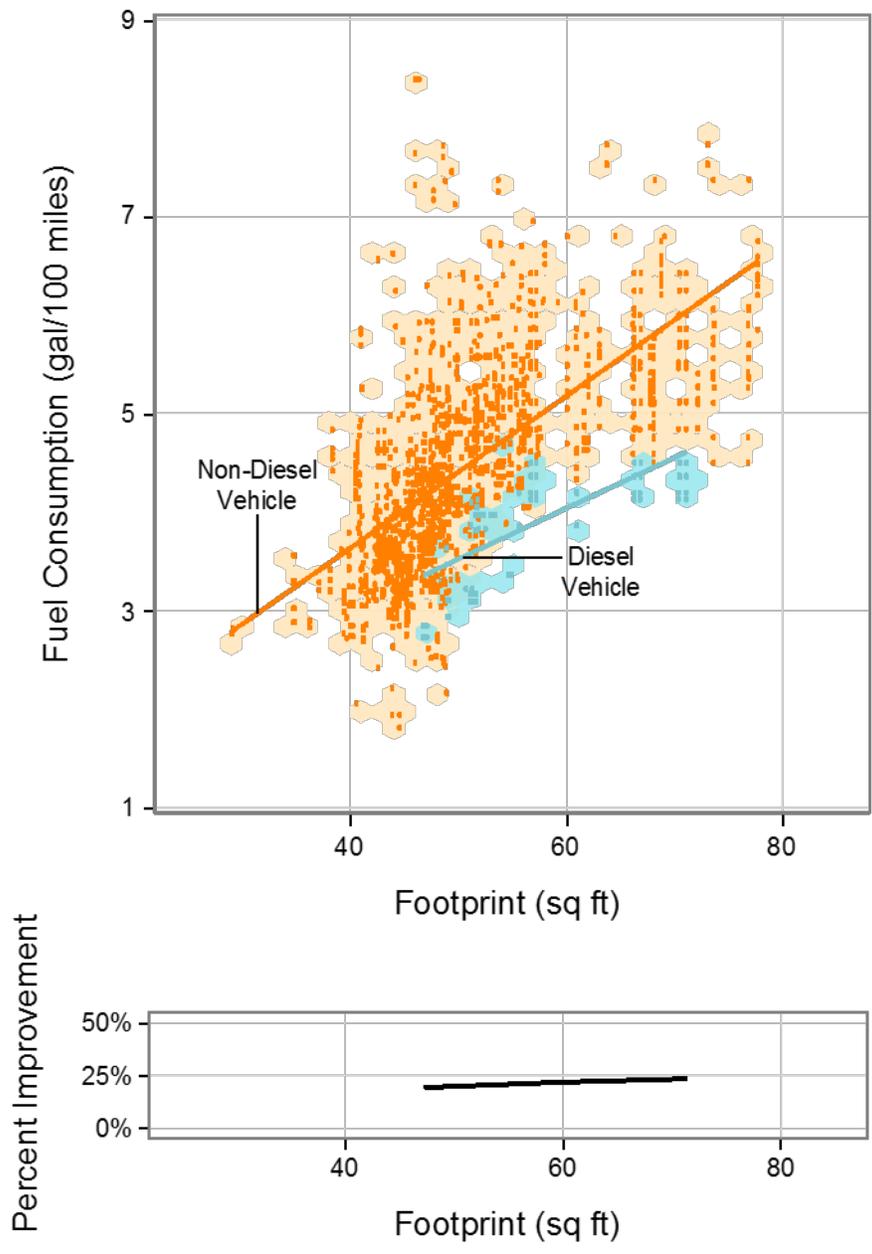
It is important to note that the Department of Justice, on behalf of EPA, alleged violations of the Clean Air Act by Fiat Chrysler Automobiles based on the sale of certain 2014 through 2016 model year vehicles equipped with devices that defeat the vehicles' emission control systems. In addition, the Department of Justice and EPA have reached a settlement with Volkswagen over the use of defeat devices for certain 2009 through 2016 model year vehicles. In this report, EPA uses the CO<sub>2</sub> emissions and fuel economy data from the initial certification of these vehicles. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports. For more information on actions to resolve these alleged violations, see [www.epa.gov/vw](http://www.epa.gov/vw) and [www.epa.gov/fca](http://www.epa.gov/fca).

## Other Technologies

Table 5.3.1 presents comprehensive annual data from MY 1975-2017 for all of the engine technologies and parameters discussed above and several additional technologies. This report added engine stop/start technology (for non-hybrid vehicles) in 2012, and stop/start technology is already projected to be included on 16.8% of new non-hybrid vehicle production in MY 2017 (note that total use of stop/start is nearly 20% of the market since hybrids typically utilize stop/start as well). Cylinder deactivation, another technology not discussed above, has also grown to capture a projected 12% of production in MY 2017. Tables 5.3.2 and 5.3.3 provide the same data for cars only and trucks only, respectively. This data, and additional data, is further broken down in Appendices E through I.

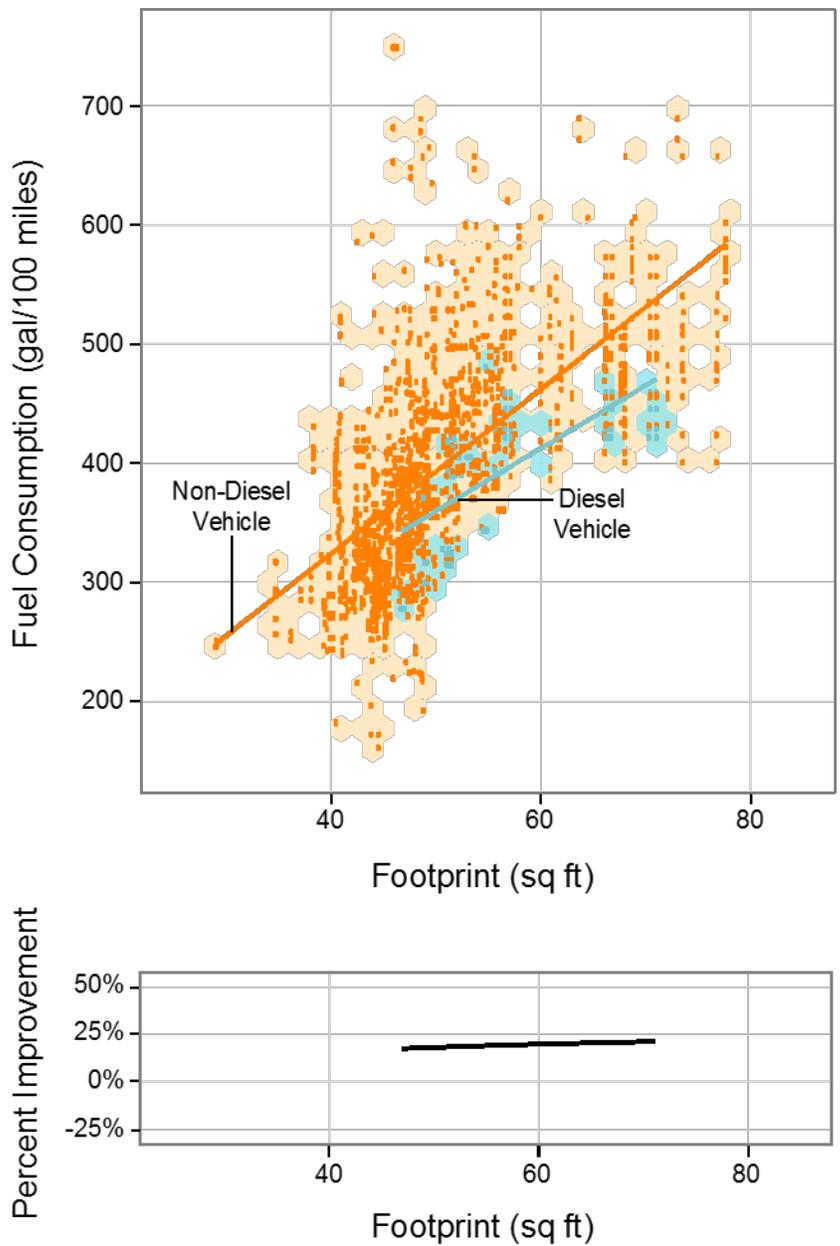
**Figure 5.13**

*Percent Improvement in Adjusted Fuel Consumption for Diesel Vehicles, MY 2016, AFVs Excluded*



**Figure 5.14**

*Percent Improvement in CO<sub>2</sub> Emissions for Diesel Vehicles, MY 2016, AFVs Excluded*



**Table 5.3.1**

**Engine Technologies and Parameters, Both Car and Truck, AFVs Excluded**

Model Year	Powertrain			Fuel Delivery Method					Avg. No. of Cylinders	CID	HP	Multi-Valve	VVT	CD	Turbo	Stop/Start
	Gasoline	Hybrid	Diesel	Carbureted	GDI	Port	TBI	Diesel								
1975	99.8%	-	0.2%	95.7%	-	4.1%	0.0%	0.2%	6.8	293	137	-	-	-	-	-
1976	99.8%	-	0.2%	97.3%	-	2.5%	0.0%	0.2%	6.9	294	135	-	-	-	-	-
1977	99.6%	-	0.4%	96.2%	-	3.4%	0.0%	0.4%	6.9	287	136	-	-	-	-	-
1978	99.1%	-	0.9%	95.2%	-	3.9%	0.0%	0.9%	6.7	266	129	-	-	-	-	-
1979	98.0%	-	2.0%	94.2%	-	3.7%	0.1%	2.0%	6.5	252	124	-	-	-	-	-
1980	95.7%	-	4.3%	89.7%	-	5.2%	0.8%	4.3%	5.6	198	104	-	-	-	-	-
1981	94.1%	-	5.9%	86.7%	-	5.1%	2.4%	5.9%	5.5	193	102	-	-	-	-	-
1982	94.4%	-	5.6%	80.6%	-	5.8%	8.0%	5.6%	5.4	188	103	-	-	-	-	-
1983	97.3%	-	2.7%	75.2%	-	7.3%	14.8%	2.7%	5.5	193	107	-	-	-	-	-
1984	98.2%	-	1.8%	67.6%	-	11.9%	18.7%	1.8%	5.5	190	109	-	-	-	-	-
1985	99.1%	-	0.9%	56.1%	-	18.2%	24.8%	0.9%	5.5	189	114	-	-	-	-	-
1986	99.6%	-	0.4%	41.4%	-	32.5%	25.7%	0.4%	5.3	180	114	3.4%	-	-	-	-
1987	99.7%	-	0.3%	28.4%	-	39.9%	31.4%	0.3%	5.2	175	118	10.6%	-	-	-	-
1988	99.9%	-	0.1%	15.0%	-	50.6%	34.3%	0.1%	5.3	180	123	14.0%	-	-	-	-
1989	99.9%	-	0.1%	8.7%	-	57.3%	33.9%	0.1%	5.4	185	129	16.9%	-	-	-	-
1990	99.9%	-	0.1%	2.1%	-	70.8%	27.0%	0.1%	5.4	185	135	23.1%	-	-	-	-
1991	99.9%	-	0.1%	0.6%	-	70.6%	28.7%	0.1%	5.3	184	138	23.1%	-	-	-	-
1992	99.9%	-	0.1%	0.5%	-	81.6%	17.8%	0.1%	5.5	191	145	23.3%	-	-	-	-
1993	100.0%	-	-	0.3%	-	85.0%	14.6%	-	5.5	191	147	23.5%	-	-	-	-
1994	100.0%	-	0.0%	0.1%	-	87.7%	12.1%	0.0%	5.6	197	152	26.7%	-	-	-	-
1995	100.0%	-	0.0%	-	-	91.6%	8.4%	0.0%	5.6	196	158	35.6%	-	-	-	-
1996	99.9%	-	0.1%	-	-	99.3%	0.7%	0.1%	5.6	197	164	39.3%	-	-	0.2%	-
1997	99.9%	-	0.1%	-	-	99.5%	0.5%	0.1%	5.7	199	169	39.6%	-	-	0.4%	-
1998	99.9%	-	0.1%	-	-	99.8%	0.1%	0.1%	5.6	199	171	40.9%	-	-	0.8%	-
1999	99.9%	-	0.1%	-	-	99.9%	0.1%	0.1%	5.8	203	179	43.4%	-	-	1.4%	-
2000	99.8%	0.0%	0.1%	-	-	99.8%	0.0%	0.1%	5.7	200	181	44.8%	15.0%	-	1.3%	-
2001	99.7%	0.1%	0.1%	-	-	99.9%	-	0.1%	5.8	201	187	49.0%	19.6%	-	2.0%	-
2002	99.6%	0.2%	0.2%	-	-	99.8%	-	0.2%	5.8	203	195	53.3%	25.3%	-	2.2%	-
2003	99.5%	0.3%	0.2%	-	-	99.8%	-	0.2%	5.8	204	199	55.5%	30.6%	-	1.2%	-
2004	99.4%	0.5%	0.1%	-	-	99.9%	-	0.1%	5.9	212	211	62.3%	38.5%	-	2.3%	-
2005	98.6%	1.1%	0.3%	-	-	99.7%	-	0.3%	5.8	205	209	65.6%	45.8%	0.8%	1.7%	-
2006	98.1%	1.5%	0.4%	-	-	99.6%	-	0.4%	5.7	204	213	71.7%	55.4%	3.6%	2.1%	-
2007	97.7%	2.2%	0.1%	-	-	99.8%	-	0.1%	5.6	203	217	71.7%	57.3%	7.3%	2.5%	-
2008	97.4%	2.5%	0.1%	-	2.3%	97.6%	-	0.1%	5.6	199	219	76.4%	58.2%	6.7%	3.0%	-
2009	97.2%	2.3%	0.5%	-	4.2%	95.2%	-	0.5%	5.2	183	208	83.8%	71.5%	7.3%	3.3%	-
2010	95.5%	3.8%	0.7%	-	8.3%	91.0%	-	0.7%	5.3	188	214	85.5%	83.8%	6.4%	3.3%	-
2011	97.1%	2.2%	0.8%	-	15.4%	83.8%	-	0.8%	5.4	192	230	86.4%	93.1%	9.5%	6.8%	-
2012	95.9%	3.1%	0.9%	-	22.6%	76.5%	-	0.9%	5.1	181	222	91.9%	96.7%	8.1%	8.4%	0.6%
2013	95.5%	3.6%	0.9%	-	30.7%	68.4%	-	0.9%	5.1	176	226	93.1%	97.7%	7.7%	14.0%	2.3%
2014	96.3%	2.6%	1.0%	-	37.7%	61.3%	-	1.0%	5.1	180	231	89.4%	97.9%	10.7%	14.9%	5.1%
2015	96.6%	2.4%	1.0%	-	42.2%	56.9%	-	1.0%	5.0	177	229	91.6%	97.7%	10.6%	15.8%	7.2%
2016	97.7%	1.9%	0.5%	-	48.3%	51.3%	-	0.5%	5.0	174	230	92.7%	98.6%	10.5%	20.0%	9.6%
2017 (prelim)	96.3%	3.3%	0.3%	-	51.5%	48.2%	-	0.3%	5.0	171	232	92.4%	98.8%	12.3%	25.2%	16.8%

**Table 5.3.2**

**Engine Technologies and Parameters, Car Only, AFVs Excluded**

Model Year	Powertrain			Fuel Delivery Method					Avg. No. of Cylinders	CID	HP	Multi-Valve	VVT	CD	Turbo	Stop/Start
	Gasoline	Hybrid	Diesel	Carbureted	GDI	Port	TBI	Diesel								
1975	99.8%	-	0.2%	94.6%	-	5.1%	-	0.2%	6.7	288	136	-	-	-	-	-
1976	99.7%	-	0.3%	96.6%	-	3.2%	-	0.3%	6.8	287	134	-	-	-	-	-
1977	99.5%	-	0.5%	95.3%	-	4.2%	-	0.5%	6.9	279	133	-	-	-	-	-
1978	99.1%	-	0.9%	94.0%	-	5.1%	-	0.9%	6.5	251	124	-	-	-	-	-
1979	97.9%	-	2.1%	93.2%	-	4.7%	-	2.1%	6.4	238	119	-	-	-	-	-
1980	95.6%	-	4.4%	88.7%	-	6.2%	0.7%	4.4%	5.5	188	100	-	-	-	-	-
1981	94.1%	-	5.9%	85.3%	-	6.1%	2.6%	5.9%	5.4	182	99	-	-	-	-	-
1982	95.3%	-	4.7%	78.4%	-	7.2%	9.8%	4.7%	5.2	175	99	-	-	-	-	-
1983	97.9%	-	2.1%	69.7%	-	9.4%	18.8%	2.1%	5.4	182	104	-	-	-	-	-
1984	98.3%	-	1.7%	59.1%	-	14.9%	24.3%	1.7%	5.3	179	106	-	-	-	-	-
1985	99.1%	-	0.9%	46.0%	-	21.3%	31.8%	0.9%	5.3	177	111	-	-	-	-	-
1986	99.7%	-	0.3%	34.4%	-	36.5%	28.7%	0.3%	5.1	167	111	4.7%	-	-	-	-
1987	99.8%	-	0.2%	26.5%	-	42.4%	30.8%	0.2%	5.0	162	113	14.6%	-	-	-	-
1988	100.0%	-	0.0%	16.1%	-	53.7%	30.2%	0.0%	5.0	161	116	19.7%	-	-	-	-
1989	100.0%	-	0.0%	9.6%	-	62.2%	28.1%	0.0%	5.1	163	121	24.1%	-	-	-	-
1990	100.0%	-	0.0%	1.4%	-	77.4%	21.2%	0.0%	5.1	163	129	32.8%	0.6%	-	-	-
1991	99.9%	-	0.1%	0.1%	-	77.2%	22.6%	0.1%	5.1	164	133	33.2%	2.4%	-	-	-
1992	99.9%	-	0.1%	0.0%	-	88.9%	11.0%	0.1%	5.2	171	141	34.0%	4.4%	-	-	-
1993	100.0%	-	-	0.0%	-	91.5%	8.5%	-	5.2	170	140	34.8%	4.5%	-	-	-
1994	100.0%	-	0.0%	-	-	94.8%	5.2%	0.0%	5.2	169	144	39.9%	7.7%	-	-	-
1995	99.9%	-	0.1%	-	-	98.6%	1.3%	0.1%	5.2	168	153	51.4%	9.6%	-	-	-
1996	99.9%	-	0.1%	-	-	98.8%	1.1%	0.1%	5.2	167	155	56.4%	11.3%	-	0.3%	-
1997	99.9%	-	0.1%	-	-	99.2%	0.8%	0.1%	5.1	165	156	58.4%	10.8%	-	0.7%	-
1998	99.8%	-	0.2%	-	-	99.7%	0.1%	0.2%	5.2	167	160	59.6%	17.4%	-	1.4%	-
1999	99.8%	-	0.2%	-	-	99.8%	0.1%	0.2%	5.2	168	164	63.2%	16.4%	-	2.5%	-
2000	99.7%	0.1%	0.2%	-	-	99.7%	0.1%	0.2%	5.2	168	168	63.2%	22.2%	-	2.2%	-
2001	99.5%	0.2%	0.2%	-	-	99.8%	-	0.2%	5.2	167	169	65.3%	26.9%	-	3.3%	-
2002	99.3%	0.3%	0.4%	-	-	99.6%	-	0.4%	5.1	167	173	69.9%	32.8%	-	3.9%	-
2003	99.1%	0.6%	0.3%	-	-	99.7%	-	0.3%	5.1	166	176	73.4%	39.8%	-	2.0%	-
2004	98.9%	0.9%	0.3%	-	-	99.7%	-	0.3%	5.2	170	184	77.1%	43.7%	-	3.6%	-
2005	97.6%	1.9%	0.4%	-	-	99.6%	-	0.4%	5.1	168	183	77.2%	49.4%	1.0%	2.4%	-
2006	97.9%	1.5%	0.6%	-	-	99.4%	-	0.6%	5.2	173	194	81.3%	58.2%	2.0%	3.2%	-
2007	96.7%	3.2%	0.0%	-	-	99.7%	-	0.0%	5.0	167	191	84.6%	63.3%	0.9%	3.6%	-
2008	96.7%	3.3%	0.1%	-	3.1%	96.9%	-	0.1%	5.0	166	194	88.0%	62.7%	2.0%	4.5%	-
2009	96.4%	2.9%	0.6%	-	4.2%	95.2%	-	0.6%	4.7	157	186	92.2%	79.1%	1.8%	4.0%	-
2010	93.5%	5.6%	0.9%	-	9.2%	89.9%	-	0.9%	4.7	158	190	93.8%	91.8%	2.1%	4.1%	-
2011	95.6%	3.4%	0.9%	-	18.4%	80.7%	-	0.9%	4.7	161	200	94.6%	94.9%	1.3%	8.2%	-
2012	94.3%	4.7%	1.0%	-	27.6%	71.4%	-	1.0%	4.6	151	192	98.2%	97.7%	1.7%	9.7%	0.9%
2013	93.5%	5.4%	1.1%	-	37.7%	61.2%	-	1.1%	4.5	147	197	98.5%	98.1%	1.9%	15.3%	3.0%
2014	94.5%	4.2%	1.3%	-	43.2%	55.5%	-	1.3%	4.5	148	198	98.1%	97.9%	2.2%	18.4%	6.8%
2015	95.1%	4.0%	0.8%	-	44.6%	54.6%	-	0.8%	4.4	146	197	98.4%	98.5%	2.2%	18.3%	8.3%
2016	97.2%	2.7%	0.1%	-	50.0%	49.9%	-	0.1%	4.4	142	196	98.5%	99.9%	2.1%	23.8%	9.1%
2017 (prelim)	94.9%	4.9%	0.2%	-	54.1%	45.7%	-	0.2%	4.4	140	197	98.7%	99.6%	4.7%	30.1%	14.2%

**Table 5.3.3**

**Engine Technologies and Parameters, Truck Only, AFVs Excluded**

Model Year	Powertrain			Fuel Delivery Method					Avg. No. of Cylinders	CID	HP	Multi-Valve	VVT	CD	Turbo	Stop/Start
	Gasoline	Hybrid	Diesel	Carbureted	GDI	Port	TBI	Diesel								
1975	100.0%	-	-	99.9%	-	-	0.1%	-	7.3	311	142	-	-	-	-	-
1976	100.0%	-	-	99.9%	-	-	0.1%	-	7.3	320	141	-	-	-	-	-
1977	100.0%	-	-	99.9%	-	-	0.1%	-	7.3	318	147	-	-	-	-	-
1978	99.2%	-	0.8%	99.1%	-	-	0.1%	0.8%	7.3	315	146	-	-	-	-	-
1979	98.2%	-	1.8%	97.9%	-	-	0.3%	1.8%	7.1	299	138	-	-	-	-	-
1980	96.5%	-	3.5%	94.9%	-	-	1.7%	3.5%	6.2	248	121	-	-	-	-	-
1981	94.4%	-	5.6%	93.3%	-	-	1.1%	5.6%	6.2	247	119	-	-	-	-	-
1982	90.6%	-	9.4%	89.9%	-	-	0.7%	9.4%	6.3	244	120	-	-	-	-	-
1983	95.2%	-	4.8%	94.6%	-	-	0.6%	4.8%	6.1	232	118	-	-	-	-	-
1984	97.6%	-	2.4%	95.0%	-	2.0%	0.6%	2.4%	6.0	225	118	-	-	-	-	-
1985	98.9%	-	1.1%	86.5%	-	8.9%	3.5%	1.1%	6.0	225	124	-	-	-	-	-
1986	99.3%	-	0.7%	59.4%	-	22.1%	17.8%	0.7%	5.7	212	123	-	-	-	-	-
1987	99.7%	-	0.3%	33.6%	-	33.3%	32.8%	0.3%	5.7	211	131	-	-	-	-	-
1988	99.8%	-	0.2%	12.4%	-	43.2%	44.3%	0.2%	6.0	228	141	-	-	-	-	-
1989	99.8%	-	0.2%	6.5%	-	45.9%	47.5%	0.2%	6.0	234	146	-	-	-	-	-
1990	99.8%	-	0.2%	3.8%	-	55.0%	40.9%	0.2%	6.2	237	151	-	-	-	-	-
1991	99.9%	-	0.1%	1.7%	-	55.3%	42.8%	0.1%	6.0	229	150	-	-	-	-	-
1992	99.9%	-	0.1%	1.6%	-	65.7%	32.6%	0.1%	6.1	236	155	-	-	-	-	-
1993	100.0%	-	-	1.0%	-	71.5%	27.5%	-	6.1	235	160	-	-	-	-	-
1994	100.0%	-	-	0.4%	-	76.2%	23.4%	-	6.2	241	166	5.2%	-	-	-	-
1995	100.0%	-	-	-	-	79.4%	20.6%	-	6.2	245	168	8.0%	-	-	-	-
1996	99.9%	-	0.1%	-	-	99.9%	-	0.1%	6.3	245	179	11.2%	-	-	-	-
1997	100.0%	-	0.0%	-	-	100.0%	-	0.0%	6.5	251	189	11.1%	-	-	-	-
1998	100.0%	-	0.0%	-	-	100.0%	-	0.0%	6.3	244	188	14.8%	-	-	-	-
1999	100.0%	-	0.0%	-	-	100.0%	-	0.0%	6.5	252	199	15.7%	-	-	-	-
2000	100.0%	-	-	-	-	100.0%	-	-	6.5	245	199	18.6%	4.6%	-	-	-
2001	100.0%	-	-	-	-	100.0%	-	-	6.6	249	212	25.9%	9.3%	-	-	-
2002	100.0%	-	-	-	-	100.0%	-	-	6.6	249	223	32.8%	16.0%	-	-	-
2003	100.0%	-	-	-	-	100.0%	-	-	6.6	248	224	34.6%	19.7%	-	0.2%	-
2004	100.0%	0.0%	0.0%	-	-	100.0%	-	0.0%	6.7	258	240	46.2%	32.9%	-	0.8%	-
2005	99.8%	0.1%	0.1%	-	-	99.9%	-	0.1%	6.6	251	242	51.1%	41.2%	0.5%	0.7%	-
2006	98.4%	1.5%	0.1%	-	-	99.9%	-	0.1%	6.5	247	240	58.4%	51.5%	5.9%	0.6%	-
2007	99.1%	0.8%	0.1%	-	-	99.9%	-	0.1%	6.6	253	254	53.3%	48.7%	16.4%	1.0%	-
2008	98.5%	1.3%	0.2%	-	1.1%	98.7%	-	0.2%	6.4	246	254	59.5%	51.6%	13.5%	1.0%	-
2009	98.8%	0.9%	0.3%	-	4.2%	95.4%	-	0.3%	6.2	236	252	66.7%	56.0%	18.3%	1.7%	-
2010	98.8%	0.9%	0.4%	-	6.8%	92.9%	-	0.4%	6.2	237	253	71.5%	70.5%	13.8%	1.8%	-
2011	99.1%	0.4%	0.5%	-	11.3%	88.1%	-	0.5%	6.2	236	271	75.2%	90.7%	20.6%	4.9%	-
2012	98.9%	0.4%	0.7%	-	13.5%	85.8%	-	0.7%	6.2	234	276	80.6%	94.9%	19.6%	6.1%	0.2%
2013	99.1%	0.4%	0.5%	-	18.4%	81.1%	-	0.5%	6.1	228	277	83.5%	96.9%	18.0%	11.7%	1.1%
2014	99.0%	0.4%	0.6%	-	29.7%	69.6%	-	0.6%	6.0	227	277	76.9%	98.0%	22.9%	9.9%	2.5%
2015	98.6%	0.3%	1.1%	-	39.0%	59.9%	-	1.1%	5.9	218	271	82.7%	96.7%	21.7%	12.6%	5.6%
2016	98.3%	0.8%	1.0%	-	46.1%	53.0%	-	1.0%	5.7	212	272	85.6%	96.9%	20.7%	15.2%	10.4%
2017 (prelim)	98.3%	1.2%	0.5%	-	48.1%	51.4%	-	0.5%	5.8	214	279	83.9%	97.7%	22.7%	18.7%	20.3%

---

## C. TRENDS IN ALTERNATIVE FUEL VEHICLES

Alternative fuel vehicles have a long history in the U.S. automotive market. Electric vehicles, for example, were available at least as far back as the early 1900s. Gasoline and diesel vehicles, however, have long dominated new light vehicles sales. Over the course of this report, OEM vehicles that operate frequently on alternative fuels have been available only in small numbers,<sup>5</sup> though those limited production vehicles have in some cases created significant consumer and media interest. AFVs are projected to surpass 1% of production in MY 2017 (see Table 5.1), though we will not have final production data until next year's report.

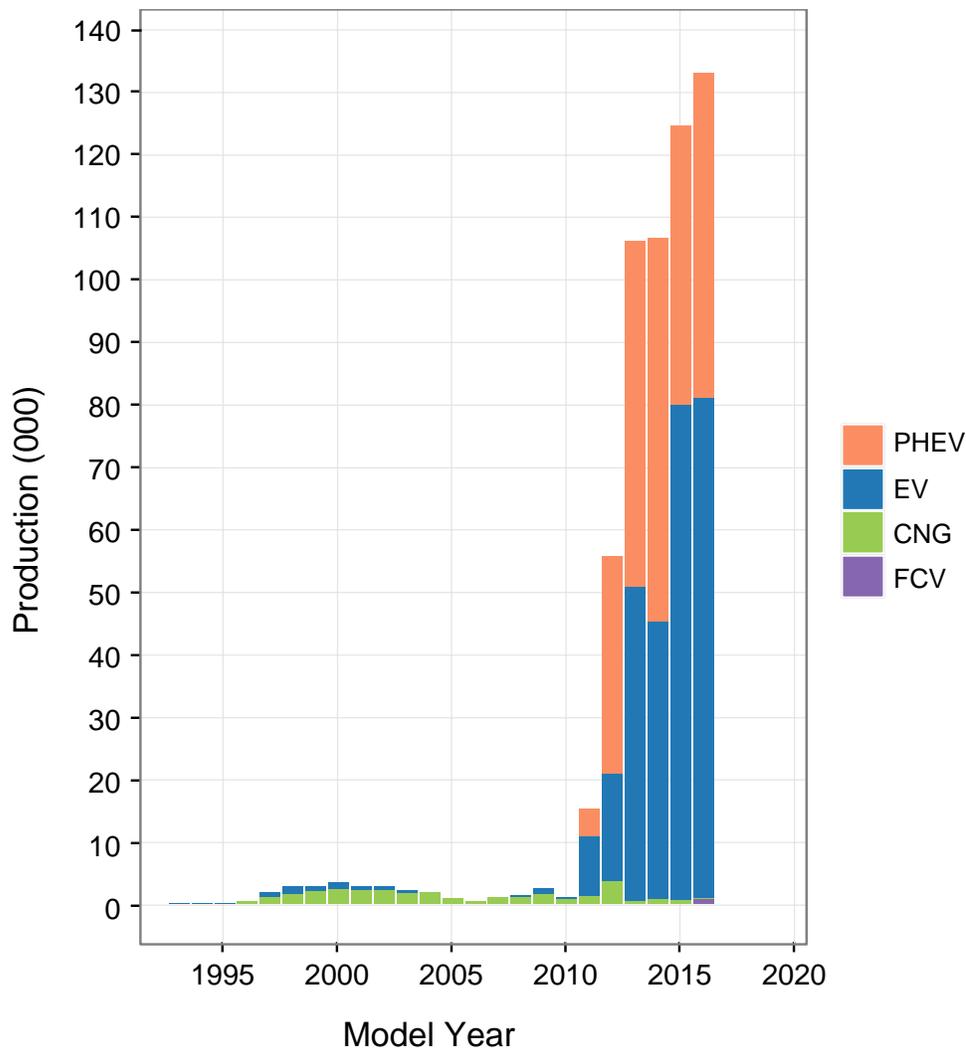
As shown in Figure 5.15, the production of AFVs has increased dramatically in recent years. Prior to MY 2011, the AFVs available to consumers were only available in small numbers, and generally only as lease vehicles. The AFV market began to change in MY 2011, with the introduction of several new vehicles, including the high profile launches of the Chevrolet Volt plug in hybrid electric vehicle (PHEV) and the Nissan Leaf electric vehicle (EV). In MY 2017, there are now 19 PHEVs available, 16 EVs, and 3 fuel cell vehicles. Dedicated CNG vehicles have been available from at least one OEM with some regularity, but have never sold more than a few thousand vehicles in any year. Figure 5.15 shows the historical sales of EVs, PHEVs, and dedicated CNG vehicles since 1995 (we do not have reliable data on alternative fuel vehicles back to 1975).

---

<sup>5</sup> Millions of ethanol FFVs have been sold in recent years, but these vehicles have operated primarily on gasoline.

**Figure 5.15**

*Historical Production of EVs, PHEVs, FCVs, and CNG Vehicles, MY 1995–2016*



Consistent with the rest of this report, Figure 5.15 was largely compiled from manufacturer CAFE submissions. Some of the historical production data was supplemented with data from Ward’s and other publically available production data<sup>6</sup>. The data only includes offerings from OEMs, and does not include data on vehicles converted to alternative fuels in the aftermarket. For a more detailed description of individual AFVs and the parameters used to measure fuel economy and emissions, see section 7.

<sup>6</sup> Some dual fuel CNG vehicles sold in the early 2000s are not included as sales data were not available.

---

## D. TRENDS IN TRANSMISSION TYPES

Transmission technologies have been rapidly evolving in new light duty vehicles. New transmission technologies have been gaining market share, and nearly all transmission types have been increasing the number of gears. Dual clutch transmission (DCTs), continuously variable transmissions (CVTs), and automatic transmissions with greater numbers of gears are increasing production shares across the fleet. This section presents analysis of trends in transmission technologies, including AFVs.

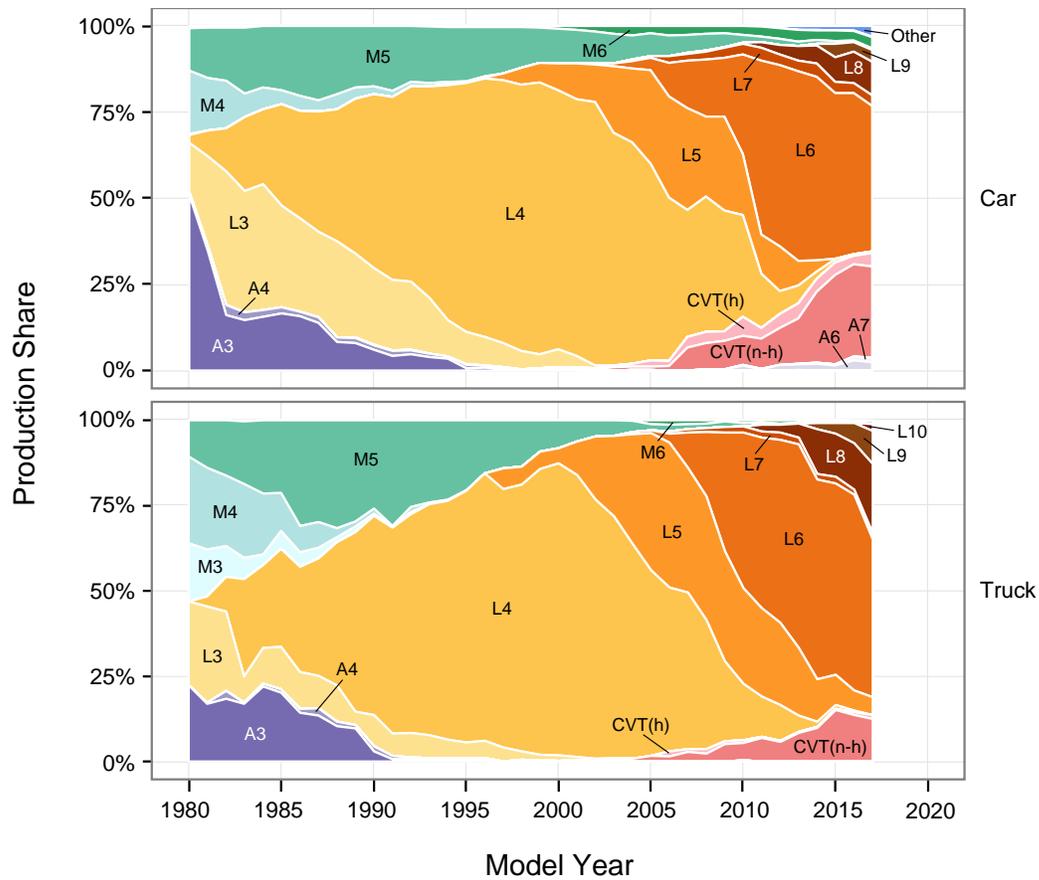
Figure 5.16 shows the evolution of transmission production share for cars and trucks since MY 1980. For this analysis, transmissions are separated into manual transmissions, CVTs, and automatic transmissions. Automatic transmissions are further separated into those with and without lockup mechanisms, which can lock up the torque converter in an automatic transmission under certain driving conditions and improve efficiency. CVT transmissions have also been split into hybrid and non-hybrid versions to reflect the fact that hybrid CVT transmissions are generally very different mechanically from traditional CVT transmissions.

Dual clutch transmissions (DCTs) are essentially automatic transmissions that operate internally much more like traditional manual transmissions. The two main advantages of DCTs are that they can shift very quickly and they can avoid some of the internal resistance of a traditional automatic transmission by eliminating the torque converter. Currently, automaker submissions to EPA do not explicitly identify DCTs as a separate transmission category. Thus, the introduction of DCTs shows up in Tables 5.4.1 through 5.4.3 as a slight increase in automatic transmissions without torque converters (although some DCTs may still be reported as traditional automatic transmissions). EPA's long-term goal is to improve DCT data collection, and transmission classifications in general, to be able to quantify DCTs in future Trends reports.

Figure 5.16 shows transmission production share for the individual car and truck fleets, beginning with MY 1980, because EPA has incomplete data on the number of transmission gears for MY 1975 through 1978. In the early 1980s, 3 speed automatic transmissions, both with and without lockup torque converters (shown as L3 and A3 in Figure 5.16) were the most popular transmissions, but by MY 1985, the 4 speed automatic transmission with lockup (L4) became the most popular transmission, a position it would hold for 25 years. Over 80% of all new vehicles produced in MY 1999 were equipped with an L4 transmission. After MY 1999, the production share of L4 transmissions slowly decreased as L5 and L6 transmissions were introduced into the market. Production of L5 and L6 transmissions combined passed the production of L4 transmissions in MY 2007. Interestingly, 5 speed transmissions were never the leading transmission technology in terms of production share.

**Figure 5.16**

**Transmission Production Share**



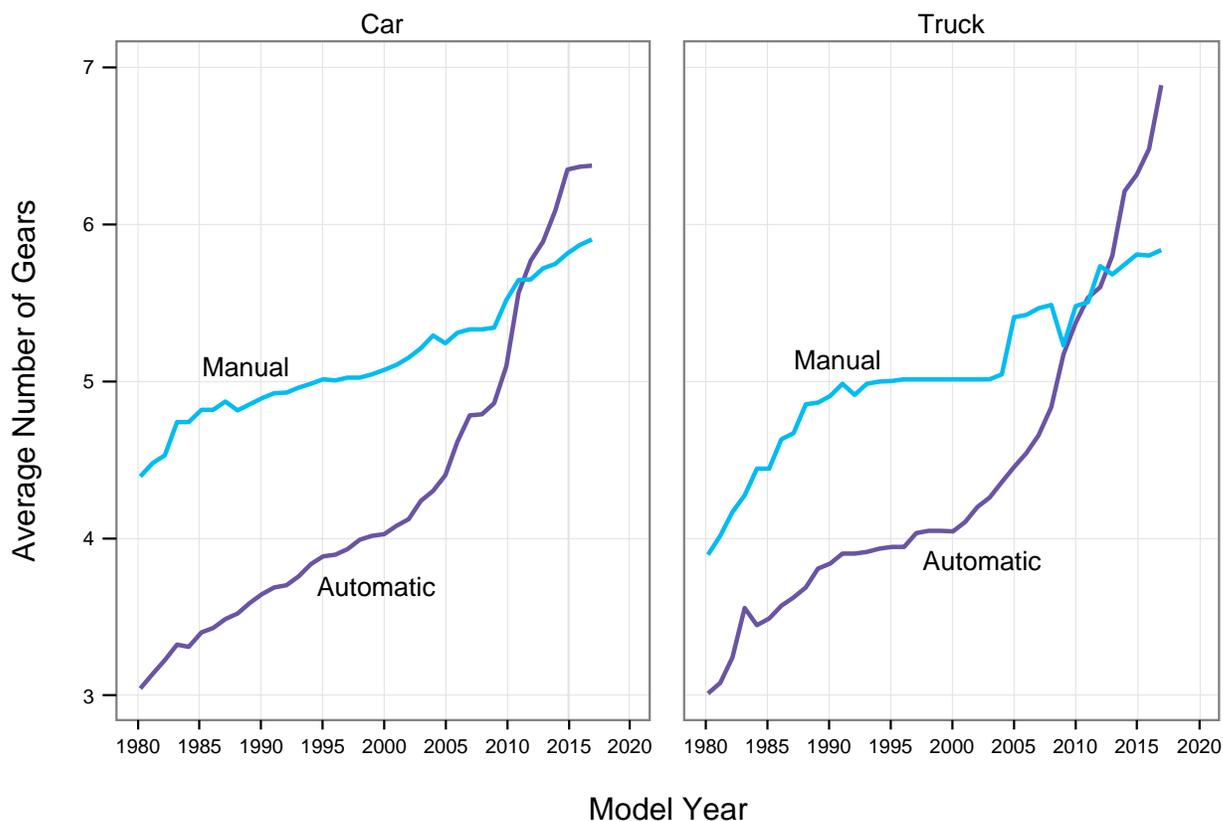
Transmission	Lockup?	Number of Gears	Key
Automatic Semi-Automatic Automated Manual	No	3	A3
		4	A4
		5	A5
		6	A6
		7	A7
	Yes	8	A8*
		2	L2*
		3	L3
		4	L4
		5	L5
Manual	-	6	L6
		7	L7
		8	L8
		9	
		10	
		3	M3
		4	M4
Continuously Variable (non-hybrid)	-	5	M5
		6	M6
		7	M7*
Continuously Variable (non-hybrid)	-	-	CVT(n-h)
Continuously Variable (hybrid)	-	-	CVT(h)
Other	-	-	Other

\*Categories A8, L2, and M7 are too small to depict in the area plot.

Six speed transmissions became the most popular transmission choice in MY 2010 and reached 60% of new vehicle production in MY 2013. However, six speed transmissions may already have peaked, as transmissions with more than six speeds and CVTs have begun to expand quickly. CVTs are projected to be installed in almost 25% of all new vehicles in MY 2016 (including hybrids). This is a significant increase considering that, as recently as MY 2006, CVTs were installed on less than 2% of vehicles produced. Transmissions with 7 or more speeds are also projected to be installed in almost 25% of vehicles in MY 2017, and are also quickly increasing. Manufacturers are publicly discussing the development of transmissions with as many as 10 or more gears, so this is a trend that the authors also expect to continue.

Figure 5.17 shows the average number of gears in new vehicle transmissions since MY 1980 for automatic and manual transmissions. During that time, the average number of gears in a new vehicle has grown from 3.5 to a projected level of 6.1 in MY 2017. The average number of gears in new vehicles is climbing for car, trucks, automatic transmissions, and manual transmissions.

**Figure 5.17**  
Average Number of Transmission Gears for New Vehicles

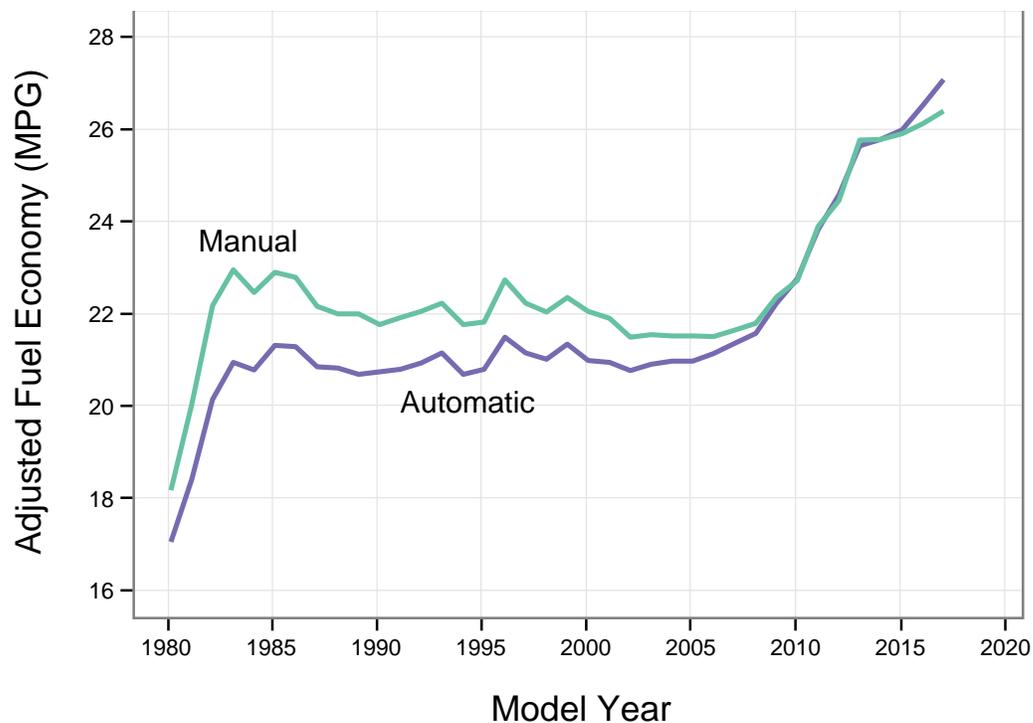


In MY 1980, automatic transmissions, on average, had fewer gears than manual transmissions. However, automatic transmissions have added gears faster than manual transmissions and now the average automatic transmission has more gears than the average manual transmission. There has also been a large shift away from manual transmissions. Manual transmission production peaked in MY 1980 at nearly 35% of production, and has since fallen to 2.2% in MY 2016. Today, manual transmissions are used primarily in small vehicles, some sports cars, and a few pickups.

In the past, automatic transmissions have generally been less efficient than manual transmissions, largely due to inefficiencies in the automatic transmission torque converter. Figure 5.18 examines this trend over time by comparing the fuel economy of automatic and manual transmission options where both transmissions were available in one model with the same engine. The average fuel economy of vehicles with automatic transmissions appears to have increased to a point where it is now slightly higher than the average fuel economy of vehicles with manual transmissions. Two contributing factors to this trend are that automatic transmission design has become more efficient (using earlier lockup and other strategies), and the number of gears used in automatic transmissions has increased faster than in manual transmissions.

**Figure 5.18**

**Comparison of Manual and Automatic Transmission Adjusted Fuel Economy**



---

## E. TRENDS IN DRIVE TYPES

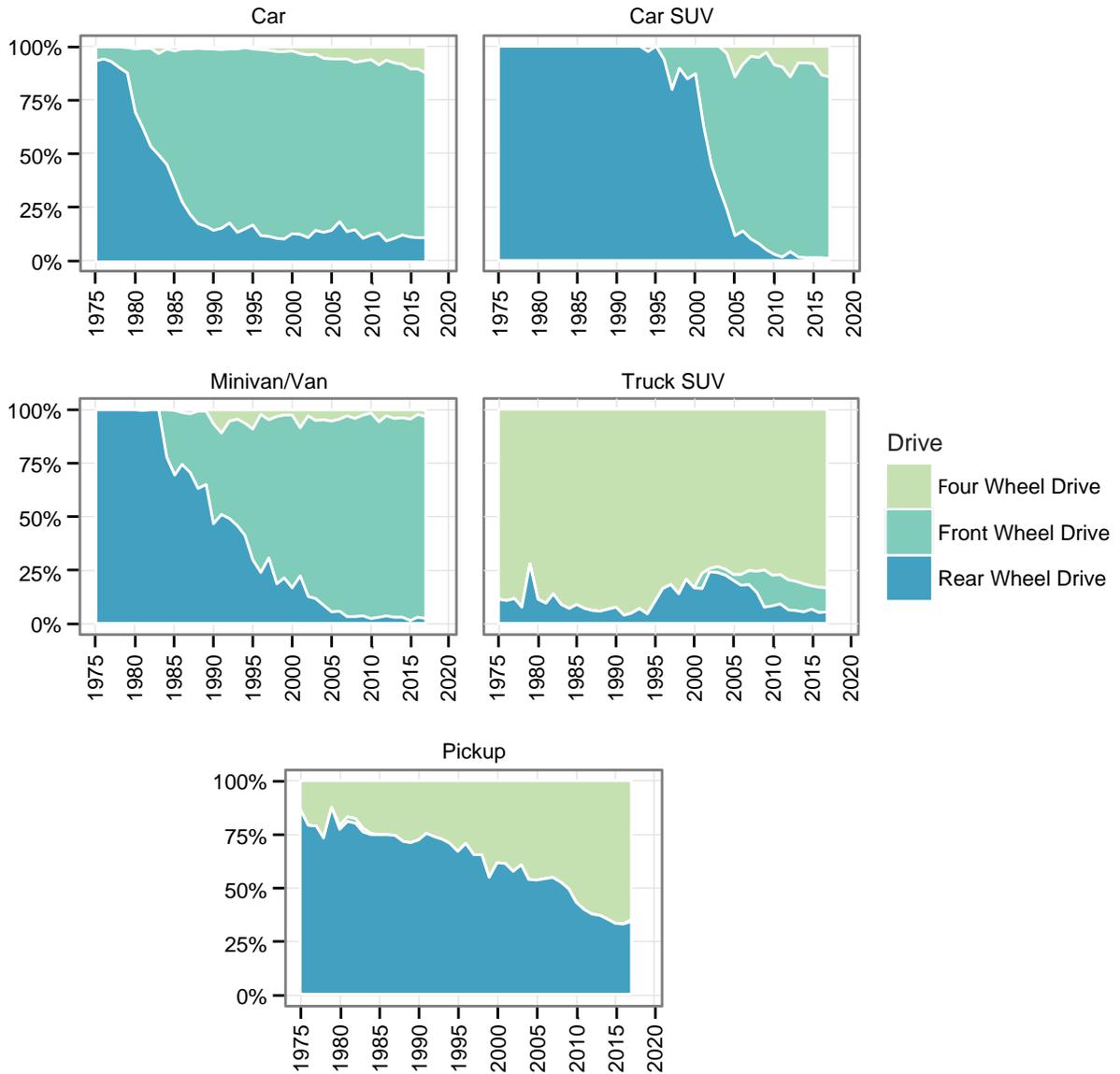
There has been a long and steady trend in new vehicle drive type away from rear wheel drive vehicles towards front wheel drive and four wheel drive vehicles, as shown in Figure 5.19. In MY 1975, over 91% of new vehicles were produced with rear wheel drive. During the 1980s, production of rear wheel drive vehicles fell rapidly, to 26% in MY 1990. Since then, production of rear wheel drive vehicles has continued to decline, albeit at a slower rate, to a projected 11% for MY 2017. Current production of rear wheel drive vehicles is mostly limited to pickup trucks and some performance vehicles.

As production of rear wheel drive vehicles declined, production of front wheel drive vehicles increased. Front wheel drive vehicle production was only 5.3% of new vehicle production in MY 1975, but it became the most popular drive technology across new vehicles in MY 1985, and has remained so to date. Since MY 1986, production of front wheel drive vehicles has remained, on average, at approximately 55% of production.

Four wheel drive vehicles (including all wheel drive), have slowly but steadily grown across new vehicle production. From 3.3% in MY 1975 to a projected 38% in MY 2017, four wheel drive production has steadily grown at approximately 0.6% per year, on average. The majority of four wheel drive vehicles are pickup trucks and truck SUVs, but there is also a small but slowly growing number of cars featuring four wheel drive (or more likely) all-wheel drive systems.

**Figure 5.19**

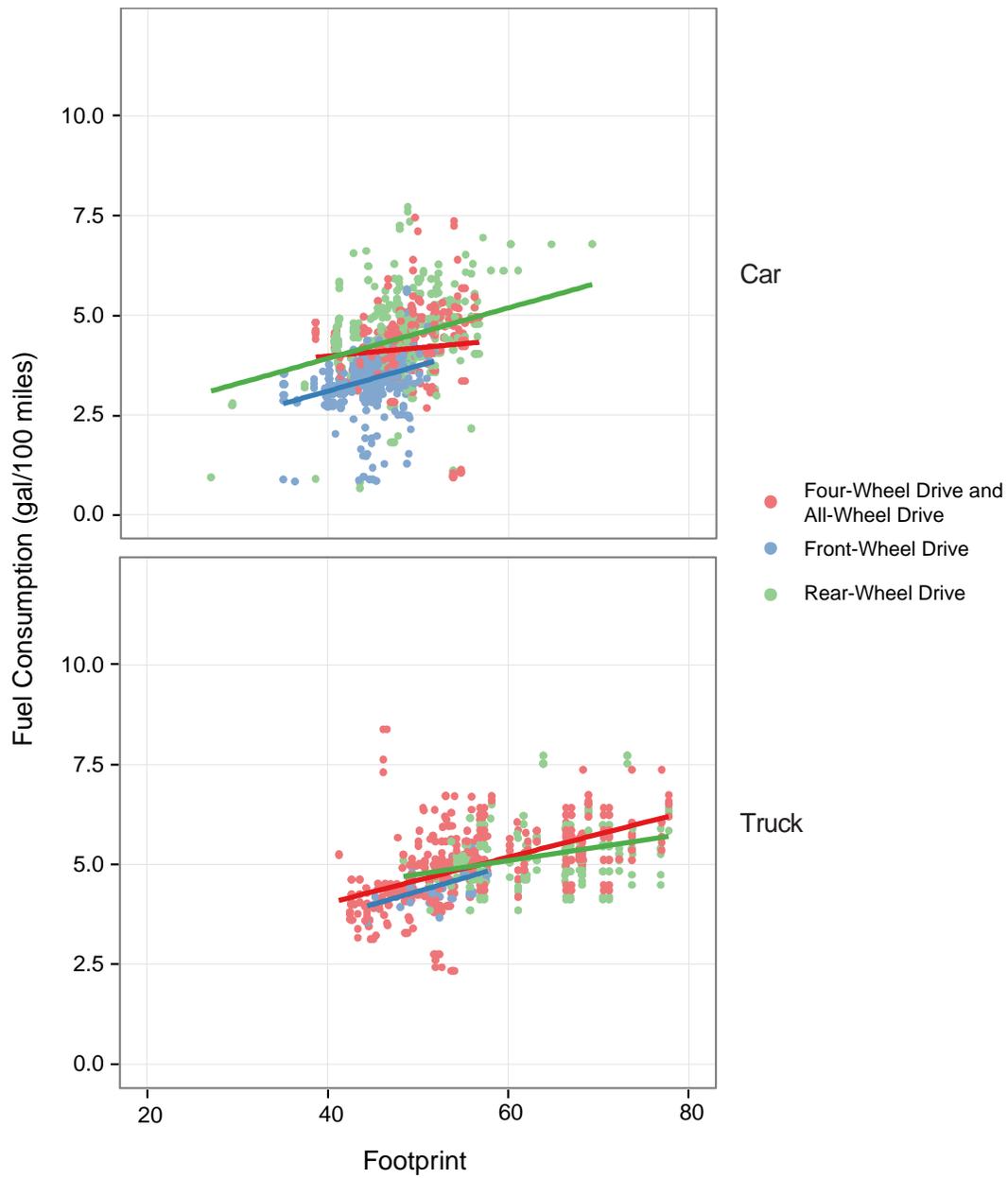
**Front, Rear, and Four Wheel Drive Usage - Production Share by Vehicle Type**



There are noticeable differences in fuel economy between vehicles with different drive types. Figure 5.20 shows the fuel consumption of MY 2015 vehicles separated by drive type and footprint. Rear wheel drive vehicles and four wheel drive vehicles have on average the same fuel consumption for equivalent footprint vehicles. Front wheel drive vehicles have much lower fuel consumption than rear wheel drive or four wheel drive vehicles of the same footprint. For 45 square foot vehicles, front wheel drive vehicles have fuel consumption about 20% lower. There are certainly other factors involved (rear wheel drive vehicles are likely more performance oriented, for example), but this is a noticeable trend across new vehicle production. The points in Figure 5.20 are generated for each combination of adjusted fuel consumption and footprint.

**Figure 5.20**

*Differences in Adjusted Fuel Consumption Trends for FWD, RWD, and 4WD/AWD Vehicles, MY 2016*



Tables 5.4.1, 5.4.2, and 5.4.3 summarize transmission production data by year for the combined car and truck fleet, cars only, and trucks only, respectively. Tables 5.5 summarizes the drive characteristics by year for the combined car and truck fleet, cars only, and trucks only, respectively.

**Table 5.4.1**

**Transmission Technologies, Both Car and Truck**

Model Year	Manual	Automatic with Lockup	Automatic without Lockup	CVT (Hybrid)	CVT (Non-Hybrid)	Other	4 Gears or Fewer	5 Gears	6 Gears	7 Gears	8 Gears	9+ Gears	CVT (Hybrid)	CVT (Non-Hybrid)	Average Number of Gears
1975	23.0%	0.2%	76.8%	-	-	-	99.0%	1.0%	-	-	-	-	-	-	-
1976	20.9%	-	79.1%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1977	19.8%	-	80.2%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1978	22.7%	5.5%	71.9%	-	-	-	92.7%	7.3%	-	-	-	-	-	-	-
1979	24.2%	7.3%	68.1%	-	-	0.4%	93.8%	6.2%	-	-	-	-	-	-	3.3
1980	34.6%	18.1%	46.8%	-	-	0.5%	87.9%	12.1%	-	-	-	-	-	-	3.5
1981	33.6%	33.0%	32.9%	-	-	0.5%	85.6%	14.4%	-	-	-	-	-	-	3.5
1982	32.4%	47.8%	19.4%	-	-	0.4%	84.4%	15.6%	-	-	-	-	-	-	3.6
1983	30.5%	52.1%	17.0%	-	-	0.4%	80.9%	19.1%	-	-	-	-	-	-	3.7
1984	28.4%	52.8%	18.8%	-	-	0.0%	81.3%	18.7%	-	-	-	-	-	-	3.7
1985	26.5%	54.5%	19.1%	-	-	-	80.7%	19.3%	-	-	-	-	-	-	3.8
1986	29.8%	53.5%	16.7%	-	-	-	76.8%	23.2%	-	-	-	-	-	-	3.8
1987	29.1%	55.4%	15.5%	-	-	0.0%	76.2%	23.8%	-	-	-	-	-	-	3.9
1988	27.6%	62.2%	10.2%	-	-	-	76.8%	23.2%	-	-	-	-	-	-	3.9
1989	24.6%	65.5%	9.9%	-	0.1%	0.0%	78.5%	21.4%	0.0%	-	-	-	-	0.1%	3.9
1990	22.2%	71.2%	6.5%	-	0.0%	0.0%	79.9%	20.0%	0.1%	-	-	-	-	0.0%	4.0
1991	23.9%	71.6%	4.5%	-	0.0%	-	77.3%	22.6%	0.0%	-	-	-	-	0.0%	4.0
1992	20.7%	74.8%	4.5%	-	0.0%	-	80.8%	19.2%	0.1%	-	-	-	-	0.0%	4.0
1993	19.8%	76.5%	3.7%	-	0.0%	-	80.9%	19.0%	0.1%	-	-	-	-	0.0%	4.0
1994	19.5%	77.6%	3.0%	-	-	-	80.8%	19.0%	0.2%	-	-	-	-	-	4.1
1995	17.9%	80.7%	1.4%	-	-	-	82.0%	17.7%	0.2%	-	-	-	-	-	4.1
1996	15.2%	83.5%	1.3%	-	0.0%	0.0%	84.7%	15.1%	0.2%	-	-	-	-	0.0%	4.1
1997	14.0%	85.5%	0.5%	-	0.0%	-	82.4%	17.3%	0.2%	-	-	-	-	0.0%	4.1
1998	12.8%	86.7%	0.5%	-	0.0%	-	82.1%	17.7%	0.2%	-	-	-	-	0.0%	4.1
1999	10.1%	89.4%	0.5%	-	0.0%	-	84.4%	15.3%	0.3%	-	-	-	-	0.0%	4.1
2000	9.7%	89.5%	0.7%	-	0.0%	-	83.7%	15.8%	0.5%	-	-	-	-	0.0%	4.1
2001	9.0%	90.3%	0.6%	0.1%	0.0%	-	80.7%	18.5%	0.7%	-	-	-	0.1%	0.0%	4.2
2002	8.2%	91.4%	0.3%	0.1%	0.1%	-	77.1%	21.6%	1.1%	-	-	-	0.1%	0.1%	4.2
2003	8.0%	90.8%	0.1%	0.3%	0.8%	-	69.2%	28.1%	1.7%	-	-	-	0.3%	0.8%	4.3
2004	6.8%	91.8%	0.3%	0.4%	0.7%	-	63.9%	31.8%	3.0%	0.2%	-	-	0.4%	0.7%	4.4
2005	6.2%	91.5%	0.1%	1.0%	1.3%	-	56.0%	37.3%	4.1%	0.2%	-	-	1.0%	1.3%	4.5
2006	6.5%	90.6%	0.0%	1.5%	1.4%	-	47.7%	39.2%	8.8%	1.4%	-	-	1.5%	1.4%	4.6
2007	5.6%	87.1%	0.0%	2.1%	5.1%	-	40.5%	36.1%	14.4%	1.5%	0.2%	-	2.1%	5.1%	4.8
2008	5.2%	86.8%	0.2%	2.4%	5.5%	-	38.8%	31.9%	19.4%	1.8%	0.2%	-	2.4%	5.5%	4.8
2009	4.8%	85.6%	0.2%	2.1%	7.3%	-	31.2%	32.2%	24.5%	2.5%	0.1%	-	2.1%	7.3%	5.0
2010	3.8%	84.1%	1.2%	3.8%	7.2%	-	24.6%	23.5%	38.1%	2.7%	0.2%	-	3.8%	7.2%	5.2
2011	3.2%	86.5%	0.3%	2.0%	8.0%	-	14.2%	18.7%	52.3%	3.1%	1.7%	-	2.0%	8.0%	5.5
2012	3.6%	83.4%	1.1%	2.7%	9.2%	-	8.1%	18.2%	56.3%	2.8%	2.6%	-	2.7%	9.2%	5.5
2013	3.5%	80.4%	1.4%	2.9%	11.8%	-	5.4%	12.8%	60.1%	2.8%	4.1%	-	2.9%	11.8%	5.6
2014	2.8%	76.7%	1.6%	2.3%	16.6%	-	2.2%	7.8%	58.4%	3.3%	8.4%	1.1%	2.3%	16.6%	5.9
2015	2.6%	72.3%	1.4%	2.2%	21.5%	-	1.5%	4.5%	54.2%	3.1%	9.5%	3.5%	2.2%	21.5%	5.9
2016	2.2%	72.4%	2.6%	1.7%	21.1%	-	1.1%	3.0%	54.9%	2.9%	11.3%	4.1%	1.7%	21.1%	6.0
2017 (prelim)	2.7%	70.2%	3.0%	2.8%	21.3%	-	1.3%	2.6%	47.6%	3.4%	14.3%	5.9%	2.8%	21.3%	6.1

**Table 5.4.2**

**Transmission Technologies, Car Only**

Model Year	Manual	Automatic with Lockup	Automatic without Lockup	CVT (Hybrid)	CVT (Non-Hybrid)	Other	4 Gears or Fewer	5 Gears	6 Gears	7 Gears	8 Gears	9+ Gears	CVT (Hybrid)	CVT (Non-Hybrid)	Average Number of Gears
1975	19.7%	0.3%	80.0%	-	-	-	98.7%	1.3%	-	-	-	-	-	-	-
1976	17.2%	-	82.8%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1977	16.9%	-	83.1%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1978	19.9%	7.1%	73.0%	-	-	-	90.7%	9.3%	-	-	-	-	-	-	-
1979	21.1%	8.8%	69.6%	-	-	0.5%	93.1%	6.9%	-	-	-	-	-	-	3.3
1980	30.9%	16.8%	51.6%	-	-	0.6%	87.6%	12.4%	-	-	-	-	-	-	3.5
1981	29.9%	33.3%	36.2%	-	-	0.6%	85.5%	14.5%	-	-	-	-	-	-	3.5
1982	29.2%	51.3%	19.1%	-	-	0.5%	84.6%	15.4%	-	-	-	-	-	-	3.6
1983	26.0%	56.7%	16.8%	-	-	0.5%	80.8%	19.2%	-	-	-	-	-	-	3.7
1984	24.1%	58.3%	17.5%	-	-	0.0%	82.1%	17.9%	-	-	-	-	-	-	3.7
1985	22.8%	58.9%	18.4%	-	-	-	81.4%	18.6%	-	-	-	-	-	-	3.7
1986	24.7%	58.1%	17.1%	-	-	-	79.7%	20.3%	-	-	-	-	-	-	3.8
1987	24.8%	59.7%	15.5%	-	-	-	78.4%	21.6%	-	-	-	-	-	-	3.8
1988	24.3%	66.2%	9.5%	-	-	-	80.2%	19.8%	-	-	-	-	-	-	3.8
1989	21.1%	69.3%	9.5%	-	0.1%	-	81.9%	17.9%	0.0%	-	-	-	-	0.1%	3.9
1990	19.8%	72.8%	7.4%	-	0.0%	-	82.4%	17.5%	0.1%	-	-	-	-	0.0%	3.9
1991	20.6%	73.7%	5.7%	-	0.0%	-	81.0%	18.9%	0.1%	-	-	-	-	0.0%	3.9
1992	17.6%	76.4%	6.0%	-	0.0%	-	83.6%	16.3%	0.1%	-	-	-	-	0.0%	3.9
1993	17.5%	77.6%	4.9%	-	0.0%	-	83.2%	16.6%	0.2%	-	-	-	-	0.0%	4.0
1994	16.9%	78.9%	4.1%	-	-	-	83.4%	16.3%	0.3%	-	-	-	-	-	4.0
1995	16.3%	81.9%	1.8%	-	-	-	83.4%	16.2%	0.4%	-	-	-	-	-	4.1
1996	14.9%	83.6%	1.5%	-	0.0%	-	84.9%	14.7%	0.3%	-	-	-	-	0.0%	4.1
1997	13.9%	85.2%	0.8%	-	0.1%	-	84.1%	15.5%	0.3%	-	-	-	-	0.1%	4.1
1998	12.2%	87.4%	0.3%	-	0.1%	-	82.8%	16.8%	0.3%	-	-	-	-	0.1%	4.1
1999	10.8%	88.6%	0.6%	-	0.0%	-	83.4%	16.1%	0.5%	-	-	-	-	0.0%	4.1
2000	10.8%	88.1%	1.0%	-	0.0%	-	81.3%	17.9%	0.8%	-	-	-	-	0.0%	4.1
2001	11.0%	88.0%	0.8%	0.2%	0.0%	-	78.5%	20.2%	1.2%	-	-	-	0.2%	0.0%	4.2
2002	10.9%	88.4%	0.2%	0.3%	0.1%	-	77.4%	20.3%	1.9%	-	-	-	0.3%	0.1%	4.2
2003	10.9%	87.7%	-	0.5%	1.0%	-	67.5%	27.9%	3.1%	-	-	-	0.5%	1.0%	4.3
2004	9.8%	88.2%	0.2%	0.8%	0.9%	-	64.5%	28.4%	5.0%	0.4%	-	-	0.8%	0.9%	4.4
2005	8.8%	88.4%	0.1%	1.7%	1.1%	-	57.3%	33.7%	5.8%	0.4%	-	-	1.7%	1.1%	4.5
2006	8.8%	88.4%	0.1%	1.5%	1.2%	-	47.5%	35.4%	12.5%	1.9%	-	-	1.5%	1.2%	4.7
2007	7.8%	82.5%	0.0%	3.0%	6.7%	-	36.8%	34.7%	16.5%	1.9%	0.4%	-	3.0%	6.7%	4.8
2008	7.2%	81.7%	0.3%	3.2%	7.7%	-	39.3%	28.2%	19.0%	2.2%	0.4%	-	3.2%	7.7%	4.8
2009	6.2%	82.4%	0.3%	2.8%	8.3%	-	35.1%	31.4%	19.3%	2.9%	0.2%	-	2.8%	8.3%	4.9
2010	5.0%	79.4%	1.6%	5.5%	8.4%	-	29.5%	20.2%	33.0%	3.1%	0.3%	-	5.5%	8.4%	5.1
2011	4.6%	83.0%	0.5%	3.1%	8.8%	-	15.9%	12.9%	53.7%	3.9%	1.6%	-	3.1%	8.8%	5.6
2012	4.9%	78.4%	1.8%	4.0%	11.0%	-	6.9%	14.8%	57.2%	3.2%	2.9%	-	4.0%	11.0%	5.5
2013	4.8%	75.0%	2.2%	4.3%	13.7%	-	5.8%	8.6%	60.0%	3.3%	4.2%	-	4.3%	13.7%	5.5
2014	4.0%	68.4%	2.7%	3.7%	21.3%	-	2.6%	4.4%	58.0%	4.3%	5.2%	0.6%	3.7%	21.3%	5.8
2015	3.9%	63.9%	2.3%	3.6%	26.3%	-	1.8%	1.1%	52.4%	3.8%	7.3%	3.8%	3.6%	26.3%	5.9
2016	3.4%	62.4%	4.7%	2.4%	27.2%	-	1.5%	0.6%	52.5%	3.9%	9.2%	2.7%	2.4%	27.2%	5.8
2017 (prelim)	4.0%	59.4%	5.1%	4.0%	27.6%	-	2.2%	0.6%	48.1%	4.4%	9.9%	3.3%	4.0%	27.6%	5.7

**Table 5.4.3**

**Transmission Technologies, Truck Only**

Model Year	Manual	Automatic with Lockup	Automatic without Lockup	CVT (Hybrid)	CVT (Non-Hybrid)	Other	4 Gears or Fewer	5 Gears	6 Gears	7 Gears	8 Gears	9+ Gears	CVT (Hybrid)	CVT (Non-Hybrid)	Average Number of Gears
1975	36.9%	-	63.1%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1976	34.7%	-	65.3%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1977	31.6%	-	68.4%	-	-	-	100.0%	-	-	-	-	-	-	-	-
1978	32.1%	-	67.9%	-	-	-	99.3%	0.7%	-	-	-	-	-	-	-
1979	35.1%	2.1%	62.8%	-	-	-	96.0%	4.0%	-	-	-	-	-	-	3.3
1980	53.0%	24.5%	22.4%	-	-	-	89.2%	10.8%	-	-	-	-	-	-	3.5
1981	51.6%	31.1%	17.3%	-	-	-	86.1%	13.9%	-	-	-	-	-	-	3.6
1982	45.9%	33.4%	20.7%	-	-	-	83.8%	16.2%	-	-	-	-	-	-	3.7
1983	46.3%	36.0%	17.4%	-	-	0.3%	81.6%	18.4%	-	-	-	-	-	-	3.9
1984	42.5%	34.6%	22.9%	-	-	0.0%	78.6%	21.4%	-	-	-	-	-	-	3.9
1985	37.6%	41.1%	21.2%	-	-	-	78.6%	21.4%	-	-	-	-	-	-	3.8
1986	43.0%	41.5%	15.5%	-	-	-	69.1%	30.9%	-	-	-	-	-	-	4.0
1987	40.5%	43.8%	15.7%	-	-	0.1%	70.1%	29.9%	-	-	-	-	-	-	4.0
1988	35.8%	52.5%	11.7%	-	-	-	68.4%	31.6%	-	-	-	-	-	-	4.1
1989	32.8%	56.4%	10.8%	-	-	0.0%	70.3%	29.7%	-	-	-	-	-	-	4.1
1990	28.1%	67.5%	4.4%	-	-	0.0%	74.1%	25.9%	-	-	-	-	-	-	4.1
1991	31.5%	66.8%	1.7%	-	-	-	69.0%	31.0%	-	-	-	-	-	-	4.2
1992	27.5%	71.3%	1.2%	-	-	-	74.6%	25.4%	-	-	-	-	-	-	4.2
1993	24.7%	74.2%	1.1%	-	-	-	76.0%	24.0%	-	-	-	-	-	-	4.2
1994	23.7%	75.3%	1.0%	-	-	-	76.7%	23.3%	-	-	-	-	-	-	4.2
1995	20.7%	78.5%	0.9%	-	-	-	79.6%	20.4%	-	-	-	-	-	-	4.2
1996	15.6%	83.4%	1.0%	-	-	0.0%	84.4%	15.6%	-	-	-	-	-	-	4.1
1997	14.1%	85.8%	0.1%	-	-	-	79.9%	20.1%	-	-	-	-	-	-	4.2
1998	13.6%	85.8%	0.6%	-	-	-	81.1%	18.9%	-	-	-	-	-	-	4.2
1999	9.2%	90.4%	0.4%	-	-	-	85.8%	14.2%	-	-	-	-	-	-	4.1
2000	8.2%	91.5%	0.3%	-	-	-	87.3%	12.7%	-	-	-	-	-	-	4.1
2001	6.3%	93.4%	0.3%	-	-	-	84.0%	16.0%	-	-	-	-	-	-	4.2
2002	4.7%	94.9%	0.3%	-	0.0%	-	76.7%	23.3%	-	-	-	-	-	0.0%	4.2
2003	4.6%	94.4%	0.3%	-	0.6%	-	71.1%	28.2%	-	-	-	-	-	0.6%	4.3
2004	3.5%	95.6%	0.3%	-	0.6%	-	63.2%	35.5%	0.8%	-	-	-	-	0.6%	4.4
2005	2.9%	95.3%	-	0.1%	1.7%	-	54.3%	41.9%	2.1%	-	-	-	0.1%	1.7%	4.5
2006	3.3%	93.7%	-	1.5%	1.6%	-	48.0%	44.3%	3.8%	0.8%	-	-	1.5%	1.6%	4.6
2007	2.6%	93.8%	-	0.7%	2.9%	-	45.8%	38.0%	11.5%	1.0%	-	-	0.7%	2.9%	4.7
2008	2.2%	94.1%	-	1.3%	2.3%	-	37.9%	37.4%	19.9%	1.2%	-	-	1.3%	2.3%	4.8
2009	2.0%	92.0%	-	0.9%	5.1%	-	23.4%	33.7%	35.2%	1.6%	-	-	0.9%	5.1%	5.2
2010	1.8%	91.9%	0.4%	0.8%	5.1%	-	16.4%	29.1%	46.7%	1.9%	-	-	0.8%	5.1%	5.4
2011	1.3%	91.4%	0.0%	0.4%	6.9%	-	11.9%	26.5%	50.5%	1.9%	1.9%	-	0.4%	6.9%	5.5
2012	1.4%	92.4%	-	0.3%	5.9%	-	10.4%	24.4%	54.6%	2.2%	2.2%	-	0.3%	5.9%	5.6
2013	1.1%	90.2%	-	0.4%	8.4%	-	4.7%	20.2%	60.3%	2.0%	4.0%	-	0.4%	8.4%	5.7
2014	0.9%	88.9%	-	0.3%	9.8%	-	1.5%	12.7%	59.1%	1.8%	13.0%	1.8%	0.3%	9.8%	6.1
2015	0.9%	83.6%	0.2%	0.3%	15.0%	-	1.1%	9.0%	56.7%	2.2%	12.5%	3.1%	0.3%	15.0%	6.0
2016	0.8%	84.8%	0.2%	0.8%	13.6%	-	0.6%	6.0%	57.9%	1.6%	13.8%	5.8%	0.8%	13.6%	6.2
2017 (prelim)	0.8%	85.3%	0.2%	1.1%	12.6%	-	-	5.5%	46.7%	2.0%	20.5%	9.6%	1.1%	12.6%	6.5

**Table 5.5**

**Production Share by Drive Technology**

Model Year	Car			Truck			Both		
	Front Wheel Drive	Rear Wheel Drive	Four Wheel Drive	Front Wheel Drive	Rear Wheel Drive	Four Wheel Drive	Front Wheel Drive	Rear Wheel Drive	Four Wheel Drive
1975	6.5%	93.5%	-	-	82.8%	17.2%	5.3%	91.4%	3.3%
1976	5.8%	94.2%	-	-	77.0%	23.0%	4.6%	90.6%	4.8%
1977	6.8%	93.2%	-	-	76.2%	23.8%	5.5%	89.8%	4.7%
1978	9.6%	90.4%	-	-	70.9%	29.1%	7.4%	86.0%	6.6%
1979	11.9%	87.8%	0.3%	-	81.9%	18.1%	9.2%	86.5%	4.3%
1980	29.7%	69.4%	0.9%	1.4%	73.6%	25.0%	25.0%	70.1%	4.9%
1981	37.0%	62.2%	0.7%	1.9%	78.0%	20.1%	31.0%	65.0%	4.0%
1982	45.6%	53.6%	0.8%	1.7%	78.1%	20.2%	37.0%	58.4%	4.6%
1983	47.1%	49.9%	3.1%	1.4%	72.5%	26.1%	37.0%	54.8%	8.1%
1984	53.5%	45.5%	1.0%	5.0%	63.5%	31.5%	42.1%	49.8%	8.2%
1985	61.1%	36.8%	2.1%	7.3%	61.4%	31.3%	47.8%	42.9%	9.3%
1986	70.7%	28.2%	1.0%	5.9%	63.4%	30.7%	52.6%	38.0%	9.3%
1987	76.4%	22.6%	1.1%	7.6%	60.2%	32.2%	57.7%	32.8%	9.6%
1988	80.9%	18.3%	0.8%	9.2%	56.7%	34.1%	60.0%	29.5%	10.5%
1989	81.6%	17.4%	1.0%	10.1%	57.1%	32.8%	60.2%	29.3%	10.5%
1990	84.0%	15.0%	1.0%	15.8%	52.4%	31.8%	63.8%	26.1%	10.1%
1991	81.1%	17.5%	1.3%	10.3%	52.3%	37.3%	59.6%	28.1%	12.3%
1992	78.4%	20.5%	1.1%	14.5%	52.1%	33.4%	58.4%	30.4%	11.2%
1993	80.6%	18.3%	1.1%	16.8%	50.6%	32.7%	59.9%	28.8%	11.3%
1994	81.3%	18.3%	0.4%	13.8%	47.0%	39.2%	55.6%	29.2%	15.2%
1995	80.1%	18.8%	1.1%	18.4%	39.3%	42.3%	57.6%	26.3%	16.2%
1996	83.7%	14.8%	1.4%	20.9%	39.8%	39.2%	60.0%	24.3%	15.7%
1997	83.8%	14.5%	1.7%	14.2%	40.6%	45.2%	56.1%	24.9%	19.0%
1998	82.9%	15.0%	2.1%	19.3%	35.5%	45.1%	56.4%	23.5%	20.1%
1999	83.2%	14.7%	2.1%	17.5%	34.4%	48.1%	55.8%	22.9%	21.3%
2000	80.4%	17.7%	2.0%	20.0%	33.8%	46.3%	55.5%	24.3%	20.2%
2001	80.3%	16.7%	3.0%	16.3%	34.8%	48.8%	53.8%	24.2%	22.0%
2002	82.9%	13.5%	3.6%	15.4%	33.1%	51.6%	52.7%	22.3%	25.0%
2003	80.9%	15.9%	3.2%	15.4%	34.1%	50.4%	50.7%	24.3%	25.0%
2004	80.2%	14.5%	5.3%	12.5%	31.0%	56.5%	47.7%	22.4%	29.8%
2005	79.2%	14.2%	6.6%	20.1%	27.7%	52.2%	53.0%	20.2%	26.8%
2006	75.9%	18.0%	6.0%	18.9%	28.0%	53.1%	51.9%	22.3%	25.8%
2007	81.0%	13.4%	5.6%	16.1%	28.4%	55.5%	54.3%	19.6%	26.1%
2008	78.8%	14.1%	7.1%	18.4%	24.8%	56.8%	54.2%	18.5%	27.3%
2009	83.5%	10.2%	6.3%	21.0%	20.5%	58.5%	62.9%	13.6%	23.5%
2010	82.5%	11.2%	6.3%	20.9%	18.0%	61.0%	59.6%	13.7%	26.7%
2011	80.1%	11.3%	8.6%	17.7%	17.3%	65.0%	53.8%	13.8%	32.4%
2012	83.8%	8.8%	7.5%	20.9%	14.8%	64.3%	61.4%	10.9%	27.7%
2013	83.0%	9.3%	7.7%	18.1%	14.5%	67.5%	59.7%	11.1%	29.1%
2014	81.3%	10.6%	8.2%	17.5%	14.2%	68.3%	55.3%	12.1%	32.6%
2015	80.4%	9.7%	9.9%	16.0%	12.6%	71.4%	52.9%	10.9%	36.1%
2016	79.8%	9.1%	11.0%	15.8%	12.2%	72.0%	51.2%	10.5%	38.3%
2017 (prelim)	78.3%	9.1%	12.6%	14.7%	13.1%	72.2%	51.7%	10.8%	37.6%

# 6 Technology Adoption Rates

---

Technology in new vehicles is continually changing and evolving. Innovative new technologies are regularly being introduced, replacing older and less effective technologies. This continuous cycle of improvement and re-invention has been the driving force behind nearly all of the trends examined in this report. Section 5 detailed many specific technological changes that have taken place since 1975. This section provides a detailed look at the rate at which the automotive industry as a whole has adopted new technology, the rate at which individual manufacturers have adopted technology, and the differences between the overall industry and manufacturer adoption rates. In recent years, several other studies have examined technology penetration trends in the automotive industry, notably researchers at Argonne National Laboratory (Plotkin, et al. 2013), MIT's Sloan Automotive Laboratory (Zoepf and Heywood 2013), EPA, and The University of Michigan (DeCicco 2010).

It is important to note that this section focuses on technologies that have achieved widespread use by multiple manufacturers and, in some cases, by all or nearly all manufacturers. This section does not look at narrowly-adopted technologies which never achieved widespread use. One consequence of a competitive and technology-driven enterprise like the automobile industry is that there will certainly be many technologies which do not achieve widespread use. A technology may not achieve widespread use for one or more of many reasons: cost, effectiveness, tradeoffs with other vehicle attributes, consumer acceptance, or, in some cases, the technology may be successful for a time but later displaced by a newer and better technology. The Trends database does not provide data on why technologies do not achieve widespread adoption, but it does provide data on how quickly successful technologies can penetrate the marketplace, and the latter is the subject of this section.

One inherent limitation in using the Trends database to track the introduction of new technologies is that there is often a lag between the introduction of a new technology and the modifications to the formal EPA vehicle compliance information system that are necessary to ensure proper tracking of the new technology. Accordingly, for many of the technologies discussed in this section, the Trends database did not begin tracking production share data until after the technologies had achieved some limited market share. For example, as shown in Tables 5.3.2 and 5.3.3, Trends did not begin to track multi-valve engine data until MY 1986 for cars and MY 1994 for trucks, and in both cases multi-valve engines had captured about 5% market share by that time. Likewise, turbochargers were not tracked in Trends until MY 1996 for cars and MY 2003 for trucks, and while turbochargers had less than a 1% market share in both cases at that time, it is likely that turbochargers had exceeded 1% market share in the late 1980s. Cylinder deactivation was utilized by at least one major manufacturer in the 1980s, well before being tracked by Trends.

Accordingly, this section best addresses the question, “How quickly have successful technologies moved from limited use to widespread use,” for both industry-wide and for individual manufacturers, and does not address other important issues such as how long it takes for technologies to be developed or to achieve limited market share, or why many technologies fail to ever achieve widespread use.

---

## A. INDUSTRY-WIDE TECHNOLOGY ADOPTION SINCE 1975

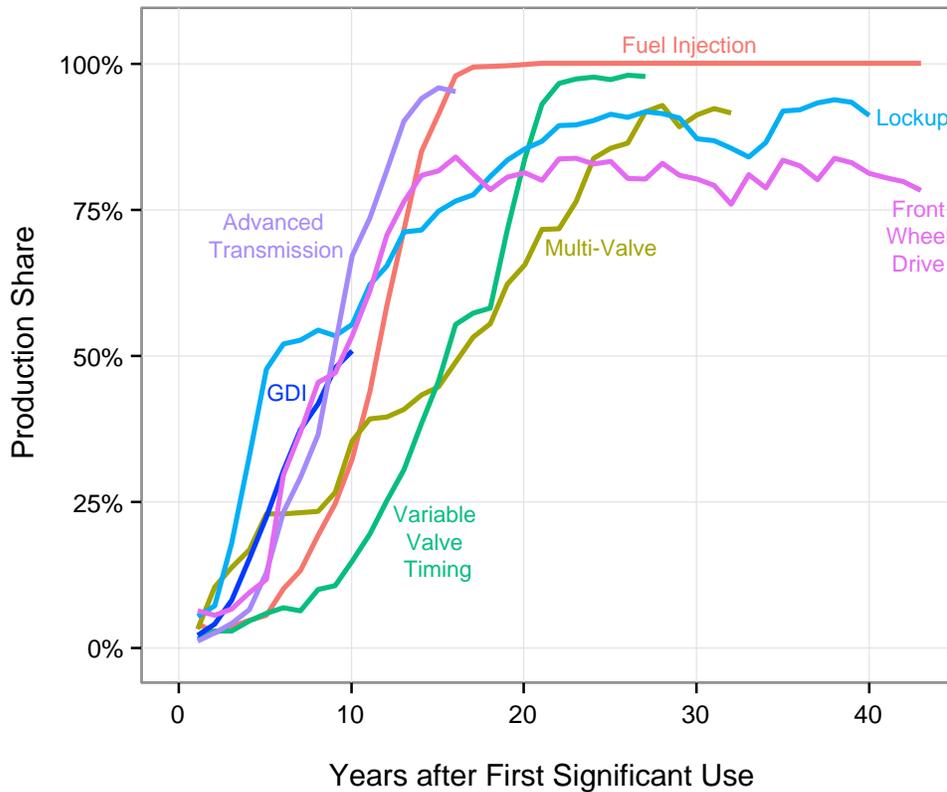
Automotive technology has continually evolved since 1975, resulting in vehicles that have better fuel economy, more power, and more content. One of the most notable examples of this continual improvement is the evolution of fuel delivery in gasoline engines. Carburetors, the dominant fuel delivery system in the late 1970s and early 1980s, were replaced by port fuel injection systems, which in turn are being replaced by direct injection systems. This trend, and the substantial impact on engine fuel economy and performance, is explored in Figures 5.1 and 5.5.

Figure 6.1 has been published in this report for many years, and has been widely cited in the literature. This figure shows industry-wide adoption rates for seven technologies in passenger cars. Six of these technologies have achieved wide adoption across the entire industry, and one newer technology appears to be quickly headed towards widespread adoption. To provide a common scale, the adoption rates are plotted in terms of the number of years after the technology achieved first significant use in the industry. First significant use generally represents a production threshold of 1%, though in some cases, where full data is not available, first significant use represents a slightly higher production share. The seven technologies included in Figure 6.1 are fuel injection (including throttle body, port, and direct injection), front wheel drive, multi-valve engines (i.e., engines with more than two valves per cylinder), engines with variable valve timing, lockup transmissions, advanced transmissions (transmissions with 6 or more speeds, and CVTs), and gasoline direct injection engines (GDI).

The technology adoption pattern shown in Figure 6.1 is roughly similar for each of the seven technologies, even though they vary widely in application, complexity, and when they were initially introduced. It has taken, on average, approximately 15-20 years for new technologies to reach maximum penetration across the industry. GDI is a newer technology that has likely not reached maximum penetration across the industry, but appears to be following the adoption trend of other more mature technologies. While some of these technologies may eventually be adopted in 100% of new vehicles, there may be reasons that other technologies, like front-wheel drive, will likely never be adopted in all vehicles. Adoption rates for these technologies in trucks are similar, with the exception of front wheel drive.

**Figure 6.1**

*Industry-Wide Car Technology Penetration after First Significant Use*



## B. TECHNOLOGY ADOPTION BY MANUFACTURERS

The rate at which the overall industry adopts technology, as shown in Figure 6.1, is actually determined by how quickly, and at what point in time, individual manufacturers adopt the technology. While it is important to understand the industry-wide adoption rates over time, the trends in Figure 6.1 mask the fact that not all manufacturers introduced these technologies at the same time, or at the same rate. The “sequencing” of manufacturers introducing new technologies is an important aspect of understanding the overall industry trend of technology adoption.

Figure 6.2 begins to disaggregate the industry-wide trends shown in Figure 6.1 to examine how individual manufacturers have adopted new technologies. The first four technologies shown in Figure 6.2, which are also shown in Figure 6.1, have reached (or are near) full market penetration for all manufacturers. Also included in Figure 6.2 are three additional technologies that are quickly increasing penetration in new vehicle production, and are projected to be installed on at least 15% of all MY 2017 vehicles. These technologies are advanced transmissions (defined here as transmissions with 6 or more speeds and CVTs), gasoline direct injection (GDI) systems, and turbocharged engines. Figure 6.2 shows the

---

percent penetration of each technology over time for the industry as a whole, and individually for the top seven manufacturers by sales. Figure 6.2 focuses on the length of time each manufacturer required to move from initial introduction to 80% penetration for each technology. After 80% penetration, the technology is assumed to be largely incorporated into the manufacturer's fleet and changes between 80% and 100% are not highlighted.

The technologies shown in Figure 6.2 vary widely in terms of complexity, application, and when they were introduced into the market. For each technology, there are clearly variations between manufacturers, both in terms of when they began to adopt a technology, and the rate with which they adopted the technology. The degree of variation between the manufacturers also varies by technology.

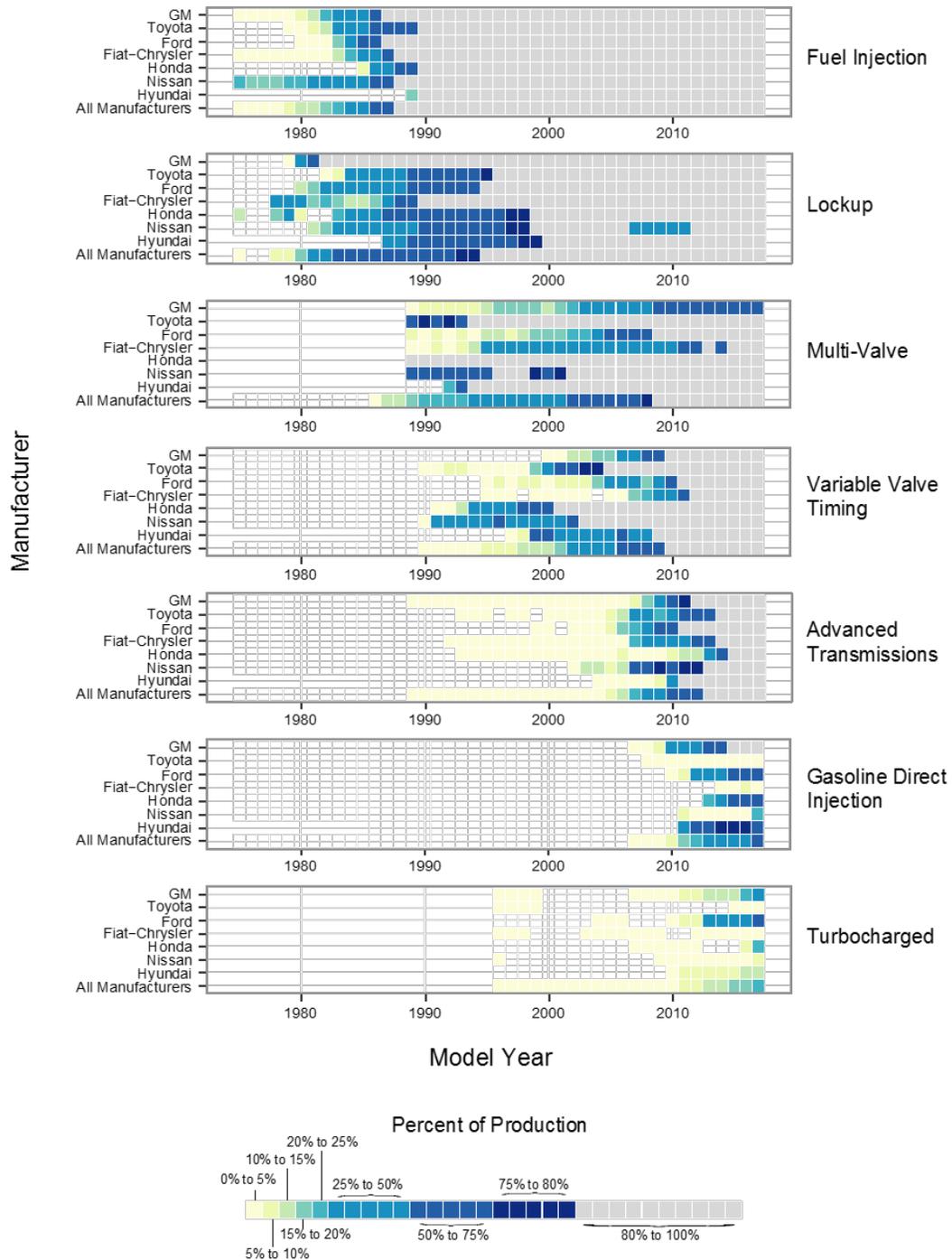
The data for variable valve timing (VVT), for example, shows that several manufacturers were able to adopt the technology much faster than the overall industry rate might suggest. As shown in Figure 6.1, it took a little over 20 years for VVT to reach 80% penetration across the industry as a whole. However, Figure 6.2 shows that several individual manufacturers were able to implement at least 80% VVT in significantly less time than the overall industry. Therefore, it was not the rate of technology adoption alone, but rather the staggered implementation time frames among manufacturers that resulted in the longer industry-wide average.

Fuel injection systems show the least amount of variation in initial adoption timing between manufacturers, which resulted in a faster adoption by the industry overall (see Figure 6.1) than technologies like VVT. One important driver for adoption of fuel injection was increasingly stringent emissions standards. Advanced transmissions, and turbocharged engines, have been available in small numbers for some time, but have very rapidly increased market penetration in recent years. Turbocharged engines and GDI systems have only recently begun to reach significant parts of the market, and while both technologies are showing variation in adoption between manufacturers, it is too early to tell whether, and how quickly, they will ultimately be adopted industry-wide.

A different way to look at technology adoption patterns is to look at the maximum rate of change that manufacturers have been able to achieve for each technology. Figure 6.3 uses this approach to look at technology adoption for the same manufacturers and technologies examined in Figure 6.2. For each technology and manufacturer, Figure 6.3 shows the maximum change in technology penetration that each manufacturer achieved over any 3-year and 5-year period.

**Figure 6.2**

**Manufacturer Specific Technology Adoption over Time for Key Technologies\***



\* This figure is based on available data. Some technologies may have been introduced into the market before this report began tracking them. Generally, these omissions are limited, with the exception of multi-valve engine data for Honda. Honda had already achieved 70% penetration of multi-valve engines when this report began tracking them in 1986, so this figure does not illustrate Honda's prior trends.

---

There are many examples of manufacturers that were able to apply new technology to a large percentage of their new vehicles in only 3 to 5 years. For example, each of the manufacturers was able to increase the percentage of their new vehicles with fuel injection systems by over 50% in 5 years, and three manufacturers were able to increase the percentage of their new vehicles with VVT by more than 85% in that time. For VVT, all of the manufacturers achieved close to or above a 70% penetration change in a 5-year period, but the industry as a whole only achieved a 40% change over any 5 years. This data reinforces the conclusion that the staggered timing of VVT adoption by individual manufacturers resulted in an overall industry adoption period that is longer than actually required by many (if not most) individual manufacturers.

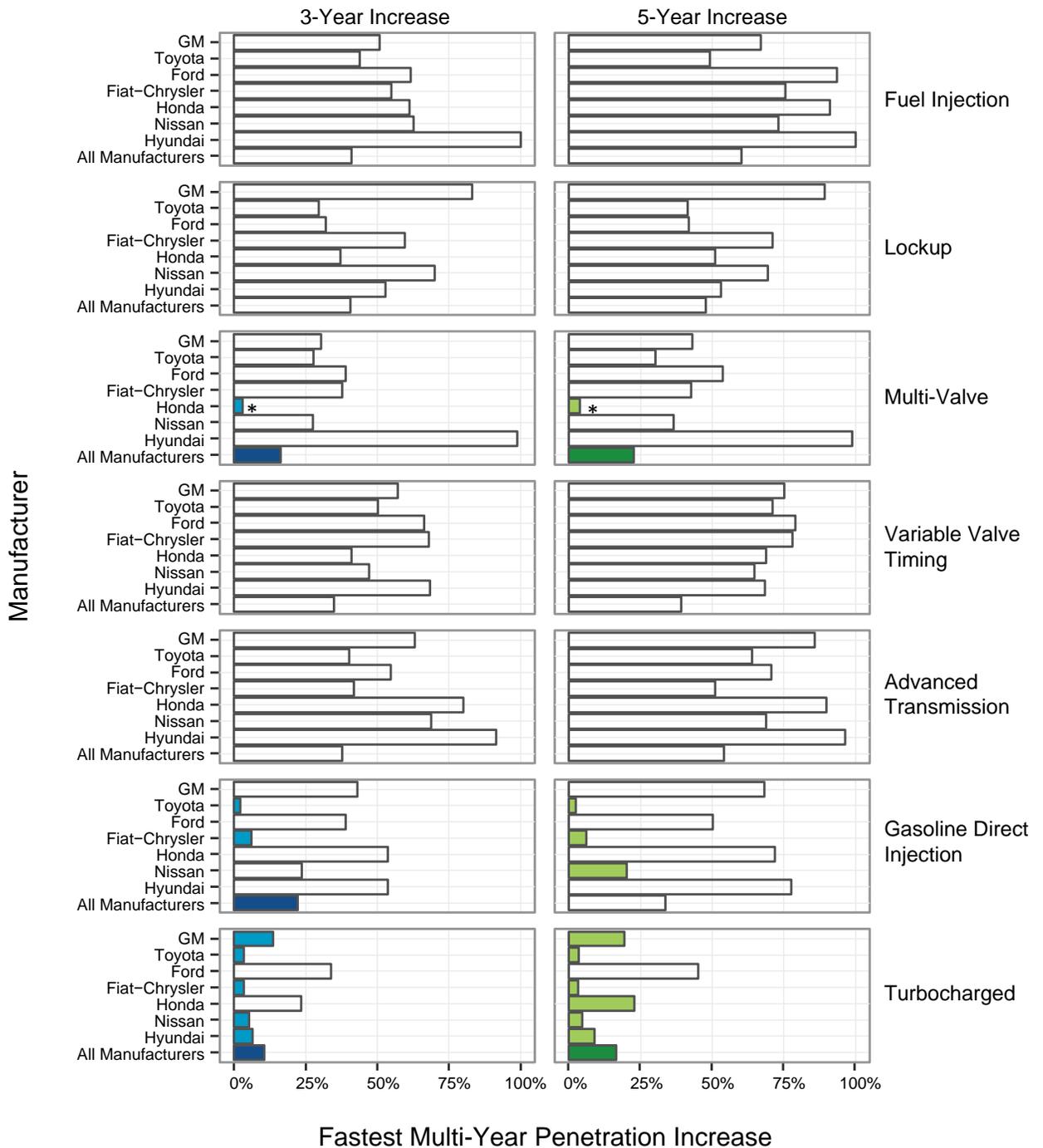
One important note for Figure 6.3 is that, in some cases, individual manufacturers were already at high rates of adoption of some technologies before Trends started collecting data for that technology (for example, Honda was using multi-valve engines throughout its fleet when EPA starting monitoring multi-valve data in the mid-1980s). Data for “rates of increase” in such cases are artificially low.

Figure 6.4 takes a more detailed look at the introduction of VVT by individual manufacturers by combining aspects of both Figure 6.2 and Figure 6.3. For each manufacturer, Figure 6.4 shows the actual percent penetration of VVT over time (solid red line) versus the average for all manufacturers (dotted grey line), and compared to the maximum penetration by any manufacturer (solid grey line) over time. Figure 6.4 also shows when the largest increase in VVT penetration over any 1, 3, and 5 year period occurred as green, orange, and yellow boxes.

VVT was first tracked in this report for cars in MY 1990 and for trucks in MY 2000. Between MY 1990 and MY 2000, there may be a small number of trucks with VVT that are not accounted for in the data. However, the first trucks with VVT produced in larger volumes (greater than 50,000 vehicles) were produced in MY 1999 and MY 2000, so the discrepancy is not enough to noticeably alter the trends in the previous figures.

**Figure 6.3**

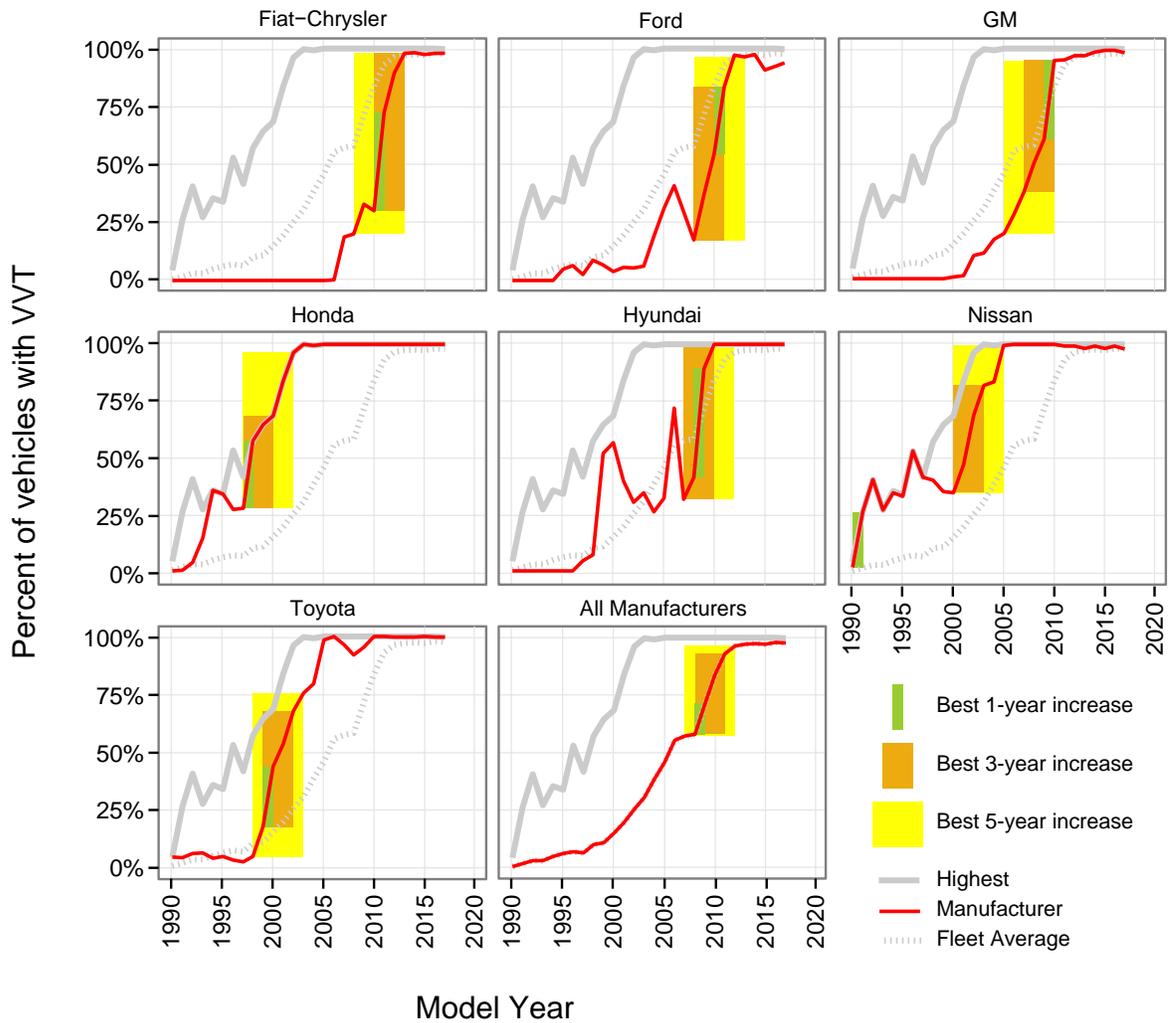
**Maximum Three- and Five-Year Adoption for Key Technologies**



\* This figure is based on available data. Some technologies may have been introduced into the market before this report began tracking them. Generally, these omissions are limited, with the exception of multi-valve engine data for Honda. Honda had already achieved 70% penetration of multi-valve engines when this report began tracking them in 1986, so this figure does not illustrate Honda's prior trends.

**Figure 6.4**

**VVT Adoption Details by Manufacturer**



As shown in Figure 6.2, each manufacturer clearly followed a unique trajectory to adopt VVT. It took over 20 years for nearly all new vehicles to adopt VVT; however, it is also very clear that individual manufacturers were able to adopt VVT across their own vehicle offerings much faster. All of the manufacturers shown in Figure 6.4 were able to adopt VVT across the vast majority of their new vehicle offerings in under 15 years, and many accomplished that feat in under 10 years. As indicated by the yellow rectangles in Figure 6.4, several manufacturers increased their penetration rates of VVT by 75% or more over a 5-year period. It is also important to note that every manufacturer shown was able to adopt VVT into new vehicles at a rate faster than the overall industry-wide data would imply. As noted earlier, the industry average represents both the rate that manufacturers adopted VVT and the effect of manufacturers adopting the technology at different times. Accordingly, the industry average shown in Figure 6.1 and Figure 6.4 does not represent the average pace at which individual manufacturers adopted VVT, which is considerably faster.

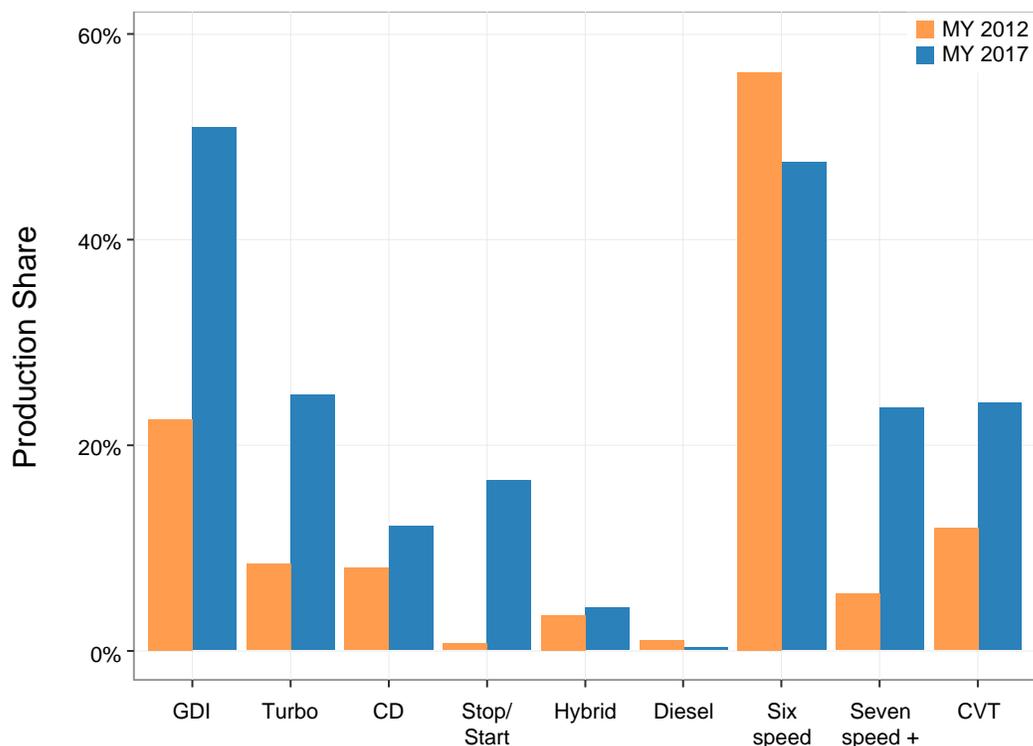
Figures 6.2 through 6.4 examine manufacturer specific technology adoption in different ways, but all three figures clearly support the conclusion that some manufacturers have been able to adopt technology much faster than industry-wide data suggest, and that there is significant variation in how individual manufacturers have adopted technology.

## C. TECHNOLOGY ADOPTION IN THE LAST FIVE YEARS

Over the last five years, engines and transmissions have continued to evolve and adopt new technologies. Figure 6.5 shows the penetration of several key technologies in MY 2012 and the projected penetration for each technology in MY 2017 vehicles. Over that five-year span, GDI is projected to increase market share by about 33%, CVTs by more than 10%, and transmissions with 7 or more speeds by more than 15% across the entire industry. These are large changes taking place across the industry over a relatively short time. As discussed in the previous section, individual manufacturers are making technology changes at even faster rates.

**Figure 6.5**

*Five Year Change in Light Duty Vehicle Technology Penetration Share*



There are many factors outside the scope of this report that influence the rate and timing of when technology is adopted by individual manufacturers (e.g., price, manufacturing constraints, regulatory drivers, etc.) While no attempt is made here to identify the underlying causes, it is important to recognize that variation between manufacturers for given technologies can be masked when only evaluating industry-wide trends. As the data in this

---

section suggest, adoption by individual manufacturers is generally more rapid than has previously been reported for the overall industry, and it is clear that the penetration of important technologies has grown significantly over the last 5 years.

# 7 Alternative Fuel Vehicle Metrics

Alternative fuel vehicles (AFVs) are included in analyses throughout this report, except when noted otherwise. While overall market penetration of AFVs is still low, AFVs production share is expected to reach almost 2% in MY 2017, more than double that of 2016. As shown in Section 4, manufacturers with higher AFV production are already showing fuel economy increases and reductions in CO<sub>2</sub> emission rates due to AFVs. Section 5 shows how AFV production has increased over time. This section addresses some of the technical metrics used to quantify AFV operation and to integrate AFV data with gasoline and diesel vehicle data.

Vehicles included as AFVs throughout this report are those vehicles that are produced by original equipment manufacturers (OEMs) which are dedicated to, or are designed and expected to frequently operate on, alternative fuels such as electricity, natural gas, and hydrogen. Non-OEM vehicles that are converted to alternative fuels by independent, aftermarket companies are *not* included in this report. Ethanol flexible fuel vehicles are widely available, but the great majority of these vehicles are operated primarily on gasoline<sup>7</sup> and therefore are not included as AFVs in this report. OEM vehicles that operate predominantly on other alternative fuels, including methanol, propane, etc., will be included in future reports if they become generally available to the public.

The focus of this section is on MY 2017 vehicles. For consistency and clarity for the reader, the data for specific vehicles discussed in this section reflect values from the EPA/DOT Fuel Economy and Environment Labels, which use a 55% city and 45% highway weighting for combined fuel economy and CO<sub>2</sub> values. When data for these vehicles is integrated into the data for the rest of the report, the adjusted highway and city values are combined using a 43% city and 57% highway weighting (see Section 10 for a detailed explanation). Additionally, some PHEV calculations are also adjusted, as explained at the end of this section.

## A. MY 2017 VEHICLES

This section will introduce the MY 2017 alternative fuel vehicles that were certified by EPA. For each of these vehicles, the report will introduce key metrics, show how they are determined, and discuss their relevance to consumers and analysts. Table 7.1 shows the alternative fuel vehicles available from OEMs in MY 2017, as well as the powertrain type of each vehicle, inertia weight class (IWT),<sup>8</sup> and footprint. These vehicles constitute a wide array of vehicle designs, sizes, and functions.

<sup>7</sup> Based on data from the Energy Information Administration, EPA projects that FFVs were fuelled with E85 less than 1 percent of the time in 2008; see 75 Federal Register 14762 (March 26, 2010).

<sup>8</sup> Each inertia weight class represents a range of loaded vehicle weights, or vehicle curb weights plus 300 pounds. Vehicle inertia weight classes are in 250-pound increments for inertia weight classes that are less than 3000 pounds, while inertia weight classes over 3000 pounds are divided into 500-pound increments.

**Table 7.1****MY 2017 Alternative Fuel Vehicle Classification and Size**

<b>Manufacturer</b>	<b>Model</b>	<b>Fuel or Powertrain</b>	<b>Car or Truck</b>	<b>IWT (lbs)</b>	<b>Footprint (sq ft)</b>
BMW	I3 BEV	EV	Car	3000	43.3
BYD Motors	e6	EV	Car	5500	47.9
Fiat-Chrysler	500e	EV	Car	3000	34.8
Ford	Focus	EV	Car	4000	43.7
GM	Bolt	EV	Car	4000	42.0
Honda	Clarity	EV	Car	4000	48.5
Hyundai	Ioniq	EV	Car	3500	44.9
Kia	Soul	EV	Car	3500	43.7
Mercedes	B250e	EV	Car	4000	44.7
Mercedes	Smart Fortwo	EV	Car	2250	29.2
Mitsubishi	i-MiEV	EV	Car	2750	38.4
Nissan	Leaf	EV	Car	3500	44.5
Tesla	Model 3	EV	Car	4000	48.9
Tesla	Model S	EV	Car	5000	53.5
Tesla	Model X	EV	Car	5500	53.6
Tesla	Model X P100D	EV	Truck	6000	53.6
VW	e-Golf	EV	Car	3500	43.2
BMW	330e	PHEV	Car	4000	47.0
BMW	740e xDrive	PHEV	Car	5000	56.2
BMW	I3 REX	PHEV	Car	3500	43.3
BMW	I8	PHEV	Car	3500	50.7
BMW	X5 xDrive40e	PHEV	Truck	5500	51.9
Fiat-Chrysler	Pacifica	PHEV	Truck	5000	57.7
Ford	C-MAX	PHEV	Car	4000	44.1
Ford	Fusion	PHEV	Car	4000	48.7
GM	CT6	PHEV	Car	4500	54.1
GM	Volt	PHEV	Car	4000	45.1
Hyundai	Sonata	PHEV	Car	4000	48.5
Kia	Optima	PHEV	Car	4000	48.5
Mercedes	C 350e	PHEV	Car	4500	47.5
Mercedes	GLE 550e 4MATIC	PHEV	Truck	6000	51.7
Mercedes	S 550e	PHEV	Car	5500	55.6
Toyota	Prius Prime	PHEV	Car	3500	44.6
Volvo	XC90 AWD	PHEV	Truck	5500	53.6
VW	A3 e-tron	PHEV	Car	4000	43.4
VW	Cayenne S	PHEV	Truck	6000	51.8
Honda	Clarity	FCV	Car	4500	48.5
Hyundai	Tucson	FCV	Car	4500	45.2
Toyota	Mirai	FCV	Car	4000	44.0

As shown in Table 7.1, there are sixteen EVs available in MY 2017, nineteen PHEVs, and three hydrogen fuel cell vehicles. This is the second year this report has included fuel cell vehicles. There are no CNG vehicles being offered for MY 2017. In some cases, there are several variants of an individual model available (e.g. Tesla S). For this report, all of those

---

variants are counted as one model, but each variation may be shown separately in the tables in this section due to differences in weight and performance.

The list of vehicles in Table 7.1 shows a wide range of vehicles, including six trucks. The footprint of the largest vehicles, the Fiat-Chrysler Pacifica, is more than double that of the smallest vehicle, which is the Smart Fortwo. The weight range of MY 2017 AFVs also significantly varies, from an IWT of 2250 to 6000.

For each of the vehicles listed in Table 7.1, Table 7.2 shows the label driving range for alternative fuel vehicles when operating on the alternative fuel, total electricity plus gasoline range for PHEVs, and introduces the concept of a utility factor for PHEVs (explained below). This report has not previously tracked or analyzed data on the range of vehicles using petroleum fuels because gasoline and diesel vehicles can generally travel at least 300 miles without refueling, and gasoline and diesel fuel stations are common and well distributed across the United States (although there are some rural areas where range may in fact be an important consideration). Vehicle range is more variable for alternative fuel vehicles and can be less, or considerably more, than an average gasoline vehicle. New electric vehicles such as the Tesla Model 3 or the GM Bolt have ranges approaching gasoline vehicles, although several electric vehicles have much shorter ranges<sup>9</sup>. Electric only range for PHEVs varies, however the combined electric and gasoline range for PHEVs generally exceeds gasoline only vehicles, as evidenced by several PHEVs that exceed 500 miles of range.

PHEVs blend EV technology with more familiar powertrain technology from petroleum-fueled vehicles. Current PHEVs feature both an electric drive system designed to be charged from an electricity source external to the vehicle (like an EV), and a gasoline internal combustion engine. There are generally three ways that a PHEV can operate:

1. Charge depleting electric only mode – In electric only mode the vehicle operates like an EV, using only energy stored in the battery to propel the vehicle.
2. Charge depleting blended mode – In blended mode the vehicle uses both energy stored in the battery and energy from the gasoline tank to propel the vehicle. Depending on the vehicle design and driving conditions, blended operation can include substantial all-electric driving.
3. Charge sustaining mode – In charge sustaining mode, the PHEV has exhausted the external energy from the electric grid that is stored in the battery and relies on the gasoline internal combustion engine. In charge sustaining mode, the vehicle will operate much like a traditional hybrid.

---

<sup>9</sup> In addition to growing EV range, the number of public electric vehicle charging stations is growing rapidly. For more information, see the U.S. Department of Energy's Alternative Fuels Data Center at <https://www.afdc.energy.gov/>.

**Table 7.2****MY 2017 Alternative Fuel Vehicle Powertrain and Range**

Manufacturer	Model	Fuel or Powertrain	Alternative Fuel Range (miles) *	Total Range (miles)	Utility Factor
BMW	I3 BEV	EV	114	114	-
BMW	I3 BEV (60Ah)	EV	81	81	-
BYD Motors	e6	EV	187	187	-
Fiat-Chrysler	500e	EV	84	84	-
Ford	Focus	EV	115	115	-
GM	Bolt	EV	238	238	-
Honda	Clarity	EV	89	89	-
Hyundai	Ioni	EV	124	124	-
Kia	Soul	EV	93	93	-
Mercedes	B250e	EV	87	87	-
Mercedes	Smart Fortwo	EV	58	58	-
Mitsubishi	i-MiEV	EV	59	59	-
Nissan	Leaf	EV	107	107	-
Tesla	Model 3	EV	310	310	-
Tesla	Model S 60 kWh	EV	210	210	-
Tesla	Model S 75 kWh	EV	249	249	-
Tesla	Model S AWD 60D	EV	218	218	-
Tesla	Model S AWD 75D	EV	259	259	-
Tesla	Model S AWD 90D	EV	294	294	-
Tesla	Model S AWD 100D	EV	335	335	-
Tesla	Model S AWD P90D	EV	270	270	-
Tesla	Model S AWD P100D	EV	315	315	-
Tesla	Model X AWD 60D	EV	200	200	-
Tesla	Model X AWD 75D	EV	238	238	-
Tesla	Model X AWD 90D	EV	257	257	-
Tesla	Model X AWD P90D	EV	250	250	-
Tesla	Model X AWD P100D	EV	289	289	-
VW	e-Golf	EV	125	125	-
BMW	330e	PHEV	14	350	0.36
BMW	740e xDrive	PHEV	14	340	0.36
BMW	I3 REX	PHEV	97	180	0.89
BMW	I8	PHEV	15	330	0.37
BMW	X5 xDrive40e	PHEV	14	540	0.35
Fiat-Chrysler	Pacifica	PHEV	33	570	0.62
Ford	C-MAX	PHEV	20	570	0.46
Ford	Fusion	PHEV	22	610	0.48
GM	CT6	PHEV	31	440	0.59
GM	Volt	PHEV	53	420	0.76
Hyundai	Sonata	PHEV	27	590	0.56
Kia	Optima	PHEV	29	610	0.57
Mercedes	C 350e	PHEV	8	410	0.30
Mercedes	GLE 550e 4MATIC	PHEV	12	460	0.31
Mercedes	S 550e	PHEV	14	450	0.35
Toyota	Prius Prime	PHEV	25	640	0.53
Volvo	XC90 AWD	PHEV	14	350	0.35
VW	A3 e-tron	PHEV	16	380	0.39
VW	Cayenne S	PHEV	14	480	0.37
Honda	Clarity	FCV	366	366	-
Hyundai	Tucson	FCV	265	265	-
Toyota	Mirai	FCV	312	312	-

\* Many PHEVs are capable of operating in blended mode and may use some gasoline to achieve the given alternative fuel range.

---

The presence of both electric drive and an internal combustion engine results in a complex system that can be used in many different combinations, and manufacturers are choosing to operate PHEV systems in different ways. This complicates direct comparisons among PHEV models in this report. For each MY 2017 PHEV, Table 7.2 shows the estimated range on alternative fuel and estimated total range. For PHEVs like the Chevrolet Volt, which cannot operate in blended mode, the alternative fuel range represents the estimated range operating in electric only mode. However, for PHEVs that operate in a blended mode, the alternative fuel range represents the estimated range of the vehicle operating in either electric only *or* blended mode, due to the design of the vehicle. For example, the BMW I8 PHEV uses electricity stored in its battery and a small amount of gasoline to achieve an alternative fuel range of 15 miles. The C-Max PHEV did not use any gasoline to achieve an alternative fuel range of 20 miles on EPA test cycles; however, certain driving conditions (e.g., more aggressive accelerations, higher speeds, and air conditioning or heater operation) would likely cause this vehicle to operate in a blended mode instead of an all-electric mode. Table 7.2 also introduces the concept of a utility factor. The utility factor is directly related to the electric range for PHEVs, and is a projection, on average, of the percentage of miles that will be driven using electricity (in electric only and blended modes) by an average driver.

Table 7.3 shows five energy-related metrics for the MY 2017 alternative fuel vehicles (no entry is shown if the metric is not applicable to that vehicle technology). These data are generally included on the EPA/NHTSA Fuel Economy and Environment labels beginning in MY 2013. Comparing the energy or fuel efficiency performance from alternative fuel vehicles raises complex issues of how to compare different fuels. Consumers and OEMs are familiar and comfortable with evaluating gasoline and diesel vehicle fuel economy in terms of miles per gallon, and it is the primary efficiency metric in this report. To enable this comparison for alternative fuel vehicles, the fuel efficiency of vehicles operating on electricity, hydrogen, and CNG are evaluated in terms of miles per gallon of gasoline equivalent (an energy metric described in more detail below).

The fourth column in Table 7.3 gives electricity consumption rates for EVs and PHEVs. The units for electricity consumption are kilowatt-hours per 100 miles (kW-hrs/100 miles). As shown on the vehicle label, the electricity consumption rate is based on the amount of electricity required from an electric outlet to charge the vehicle and includes wall-to-vehicle charging losses. The values for all of the EVs and PHEVs reflect the electricity consumption rate required to operate the vehicle in either electric-only or blended mode operation. PHEVs that are capable of operating in a blended mode may also consume some gasoline in addition to electricity. Any additional gasoline used is shown in the fifth column. For example, the BMW I8 PHEV consumes 43 kWh and 0.1 gallons of gasoline per 100 miles during this combination of electric-only and blended modes.

**Table 7.3**

**MY 2017 Alternative Fuel Vehicle Fuel Economy Label Metrics**

Manufacturer	Model	Fuel or Powertrain	Charge Depleting			Charge Sustaining	Overall Fuel Economy (mpge)
			Electricity (kW-hrs/100 miles)	Gasoline (gallons/100 miles)	Fuel Economy (mpge)	Fuel Economy (mpg)	
BMW	I3 BEV	EV	29	-	118	N/A	118
BMW	I3 BEV (60Ah)	EV	27	-	124	N/A	124
BYD Motors	e6	EV	47	-	72	N/A	72
Fiat-Chrysler	500e	EV	30	-	112	N/A	112
Ford	Focus	EV	31	-	107	N/A	107
GM	Bolt	EV	28	-	119	N/A	119
Honda	Clarity	EV	30	-	114	N/A	114
Hyundai	Ioniq	EV	25	-	136	N/A	136
Kia	Soul	EV	32	-	105	N/A	105
Mercedes	B250e	EV	40	-	84	N/A	84
Mercedes	Smart Fortwo	EV	31	-	108	N/A	108
Mitsubishi	i-MiEV	EV	30	-	112	N/A	112
Nissan	Leaf	EV	30	-	112	N/A	112
Tesla	Model 3	EV	27	-	126	N/A	126
Tesla	Model S 60 kWh	EV	34	-	99	N/A	99
Tesla	Model S 75 kWh	EV	34	-	98	N/A	98
Tesla	Model S AWD 60D	EV	32	-	104	N/A	104
Tesla	Model S AWD 75D	EV	33	-	103	N/A	103
Tesla	Model S AWD 90D	EV	32	-	104	N/A	104
Tesla	Model S AWD 100D	EV	33	-	102	N/A	102
Tesla	Model S AWD P90D	EV	35	-	95	N/A	95
Tesla	Model S AWD P100D	EV	35	-	98	N/A	98
Tesla	Model X AWD 60D	EV	36	-	93	N/A	93
Tesla	Model X AWD 75D	EV	36	-	93	N/A	93
Tesla	Model X AWD 90D	EV	37	-	92	N/A	92
Tesla	Model X AWD P90D	EV	38	-	89	N/A	89
Tesla	Model X AWD P100D	EV	39	-	86	N/A	86
VW	e-Golf	EV	28	-	115	N/A	115
BMW	330e	PHEV	47	0.0	71	30	38
BMW	740e xDrive	PHEV	52	0.0	64	27	33
BMW	I3 REX	PHEV	30	0.0	111	35	88
BMW	I8	PHEV	43	0.1	76	28	37
BMW	X5 xDrive40e	PHEV	59	0.0	56	24	29
Fiat-Chrysler	Pacifica	PHEV	40	0.0	84	32	52
Ford	C-MAX	PHEV	35	0.0	95	39	54
Ford	Fusion	PHEV	35	0.0	97	42	57
GM	CT6	PHEV	54	0.0	62	26	39
GM	Volt	PHEV	31	0.0	106	42	77
Hyundai	Sonata	PHEV	34	0.0	99	39	58
Kia	Optima	PHEV	33	0.0	103	40	61
Mercedes	C 350e	PHEV	56	0.2	51	30	34
Mercedes	GLE 550e 4MATIC	PHEV	69	0.3	43	21	25
Mercedes	S 550e	PHEV	59	0.0	58	26	31
Toyota	Prius Prime	PHEV	25	0.0	133	54	78
Volvo	XC90 AWD	PHEV	60	0.1	54	25	30
VW	A3 e-tron	PHEV	41	0.0	83	34	44
VW	Cayenne S	PHEV	71	0.0	46	22	27
Honda	Clarity	FCV	N/A	N/A	N/A	N/A	68
Hyundai	Tucson	FCV	N/A	N/A	N/A	N/A	50
Toyota	Mirai	FCV	N/A	N/A	N/A	N/A	67

---

The sixth column simply converts the electricity consumption data in the fourth column and the gasoline consumption data in the fifth column into a combined miles per gallon of gasoline-equivalent (mpge) metric. The mpge metric is a measure of the miles the vehicle can travel on an amount of energy that is equal to the amount of energy stored in a gallon of gasoline. For a vehicle operating on electricity, mpge is simply calculated as 33.705 kW-hrs/gallon divided by the vehicle electricity consumption in kW-hrs/mile. For example, for the Leaf, 33.705 kW-hrs/gallon divided by 0.30 kW-hrs/mile, which is equivalent to 30 kW-hrs/100 miles, is 112 mpge.<sup>10</sup> Because the BMW I8 consumes both electricity and gasoline over the alternative fuel range of 15 miles, the electric consumption value of 76 mpge includes both the electricity and gasoline consumption, at a rate of 43 kW-hrs/100 miles of electricity and 0.1 gal/100 miles of gasoline.

The seventh column gives label fuel economy values for vehicles operating on gasoline only, which is relevant here only for the PHEVs operating in charge sustaining mode. For PHEVs, the EPA/NHTSA label shows both electricity consumption in kW-hrs/100 miles and mpge, when the vehicle operates exclusively on electricity or in a blended mode, and gasoline fuel economy in mpg, when the vehicle operates exclusively on gasoline.

The final column gives the overall mpge values reflecting the overall energy efficiency of the vehicle on all of the fuels on which the vehicle can operate. While mpge does not reflect how all alternative fuels are sold (natural gas is in fact sold in gallons of gasoline equivalent, but electricity is not), it does provide a common metric with which to compare fuels that are sold in different units, and mpge is generally included on the EPA/NHTSA labels for that reason. For PHEVs, the mpge metric can also be used to determine the overall equivalent fuel economy for a vehicle that operates on two unique fuels. In addition to the energy metrics in the previous columns, the one key additional parameter necessary to calculate a combined electricity/gasoline mpge value for a PHEV is the utility factor that was introduced in Table 7.2. The MY 2017 Volt, for example, has a utility factor of 0.76, i.e., it is expected that, on average, the Volt will operate 76% of the time on electricity and 24% of the time on gasoline. Utility factor calculations are based on an SAE methodology that EPA has adopted for regulatory compliance (SAE 2010). For EVs and fuel cell vehicles, the last column simply reports the mpge values that are on the EPA/NHTSA label.

Tables 7.4 and 7.5 show several key CO<sub>2</sub> emissions metrics for MY 2017 alternative fuel vehicles.

---

<sup>10</sup> The actual calculations were done with unrounded numbers. Using the rounded numbers provided here may result in a slightly different number due to rounding error.

## Table 7.4

### MY 2017 Alternative Fuel Vehicle Label Tailpipe CO<sub>2</sub> Emissions Metrics

Manufacturer	Model	Fuel or Powertrain	Tailpipe CO <sub>2</sub> (g/mile)
BMW	I3 BEV	EV	0
BYD Motors	e6	EV	0
Fiat-Chrysler	500e	EV	0
Ford	Focus	EV	0
GM	Bolt	EV	0
Honda	Clarity	EV	0
Hyundai	Ioniq	EV	0
Kia	Soul	EV	0
Mercedes	B250e	EV	0
Mercedes	Smart Fortwo	EV	0
Mitsubishi	i-MiEV	EV	0
Nissan	Leaf	EV	0
Tesla	Model 3	EV	0
Tesla	Model S	EV	0
Tesla	Model S AWD	EV	0
Tesla	Model X AWD	EV	0
VW	e-Golf	EV	0
BMW	330e	PHEV	189
BMW	740e xDrive	PHEV	214
BMW	I3 REX	PHEV	29
BMW	I8	PHEV	199
BMW	X5 xDrive40e	PHEV	248
Fiat-Chrysler	Pacifica	PHEV	106
Ford	C-MAX	PHEV	122
Ford	Fusion	PHEV	112
GM	CT6	PHEV	144
GM	Volt	PHEV	51
Hyundai	Sonata	PHEV	104
Kia	Optima	PHEV	97
Mercedes	C 350e	PHEV	215
Mercedes	GLE 550e 4MATIC	PHEV	296
Mercedes	S 550e	PHEV	229
Toyota	Prius Prime	PHEV	78
Volvo	XC90 AWD	PHEV	238
VW	A3 e-tron	PHEV	158
VW	Cayenne S	PHEV	258
Honda	Clarity	FCV	0
Hyundai	Tucson	FCV	0
Toyota	Mirai	FCV	0

Table 7.4 gives vehicle tailpipe CO<sub>2</sub> emissions values. EPA and vehicle manufacturers have been measuring tailpipe emissions since the early 1970s using standardized laboratory tests. Table 7.4 gives tailpipe CO<sub>2</sub> emissions values that are included on the EPA/DOT Fuel Economy and Environment labels (and reflected in the label's Greenhouse Gas Rating) that are currently used for advanced technology vehicles. These label values reflect EPA's best estimate of the CO<sub>2</sub> tailpipe emissions that these vehicles will produce, on average, in real

---

world city and highway operation based on the EPA 5-cycle label methodology and using a 55% city/45% highway weighting. EVs, of course, have no tailpipe emissions. For the PHEVs, the label CO<sub>2</sub> emissions values utilize the same utility factors discussed above to weight the CO<sub>2</sub> emissions on electric and gasoline operation.

Table 7.5 accounts for the “upstream” CO<sub>2</sub> emissions associated with the production and distribution of electricity used in EVs and PHEVs. Gasoline and diesel fuels also have CO<sub>2</sub> emissions associated with their production and distribution, but these upstream emissions are not reflected in the tailpipe CO<sub>2</sub> emissions values discussed elsewhere in this report. Combining vehicle tailpipe and fuel production/distribution sources, gasoline vehicles emit about 80 percent of total CO<sub>2</sub> emissions at the vehicle tailpipe with the remaining 20 percent of total CO<sub>2</sub> emissions associated with upstream fuel production and distribution. Diesel fuel has a similar approximate relationship between tailpipe and upstream CO<sub>2</sub> emissions. Hydrogen and CNG vehicle upstream CO<sub>2</sub> emissions data is not included in Table 7.5.<sup>11</sup> On the other hand, vehicles powered by grid electricity emit no CO<sub>2</sub> (or other emissions) at the vehicle tailpipe; therefore, all CO<sub>2</sub> emissions associated with an EV are due to fuel production and distribution. Depending on how the electricity is produced, these fuels can have very high fuel production/distribution CO<sub>2</sub> emissions (for example, if coal is used with no CO<sub>2</sub> emissions control) or very low CO<sub>2</sub> emissions (for example, if renewable processes with minimal fossil energy inputs are used).

An additional complicating factor in Table 7.5 is that electricity production in the United States varies significantly from region to region and has been changing over time. Hydroelectric plants provide a large percentage of electricity in the northwest, while coal-fired power plants produce the majority of electricity in the Midwest. Natural gas, wind, and solar have increased their electricity market share in many regions of the country. Nuclear power plants make up most of the balance of U.S. electricity production. In order to bracket the possible GHG emissions impact, Table 7.5 provides ranges with the low end of the range corresponding to the California power plant GHG emissions factor, the middle of the range represented by the national average power plant GHG emissions factor, and the upper end of the range corresponding to the power plant GHG emissions factor for part of the Midwest (Illinois and Missouri).

---

<sup>11</sup> There is considerable uncertainty and ongoing research on the topic of GHG emissions from natural gas production, particularly with respect to hydraulic fracturing (“fracking”) processes. Hydrogen can be created using multiple pathways, each with varying GHG emissions.

## Table 7.5

### MY 2017 Alternative Fuel Vehicle Upstream CO<sub>2</sub> Emission Metrics

Manufacturer	Model	Fuel or Powertrain	Tailpipe + Total Upstream CO <sub>2</sub>			Tailpipe + Net Upstream CO <sub>2</sub>		
			Low (g/mile)	Avg (g/mile)	High (g/mile)	Low (g/mile)	Avg (g/mile)	High (g/mile)
BMW	I3 BEV	EV	87	162	250	23	98	186
BMW	I3 BEV (60Ah)	EV	81	151	233	17	87	168
BYD Motors	e6	EV	141	263	405	70	192	335
Fiat-Chrysler	500e	EV	90	168	259	29	107	198
Ford	Focus	EV	93	173	267	28	109	203
GM	Bolt	EV	84	157	241	22	94	179
Honda	Clarity	EV	90	168	259	19	96	187
Hyundai	Ioniq	EV	75	140	216	9	73	149
Kia	Soul	EV	96	179	276	31	114	211
Mercedes	B250e	EV	120	224	345	54	158	279
Mercedes	Smart Fortwo	EV	93	173	267	32	112	206
Mitsubishi	i-MiEV	EV	90	168	259	29	107	198
Nissan	Leaf	EV	90	168	259	24	102	193
Tesla	Model 3	EV	81	151	233	9	79	161
Tesla	Model S 60 kWh	EV	102	190	293	23	112	215
Tesla	Model S 75 kWh	EV	102	190	293	23	112	215
Tesla	Model S AWD 60D	EV	96	179	276	17	100	197
Tesla	Model S AWD 75D	EV	99	184	284	20	106	206
Tesla	Model S AWD 90D	EV	96	179	276	17	100	197
Tesla	Model S AWD 100D	EV	99	184	284	20	106	206
Tesla	Model S AWD P90D	EV	105	196	302	26	117	223
Tesla	Model S AWD P100D	EV	105	196	302	26	117	223
Tesla	Model X AWD 60D	EV	108	201	310	29	123	232
Tesla	Model X AWD 75D	EV	108	201	310	29	123	232
Tesla	Model X AWD 90D	EV	111	207	319	32	128	240
Tesla	Model X AWD P90D	EV	114	212	328	35	134	249
Tesla	Model X AWD P100D	EV	117	218	336	38	139	258
VW	e-Golf	EV	84	157	241	20	93	177
BMW	330e	PHEV	287	331	382	215	258	310
BMW	740e xDrive	PHEV	324	373	430	241	290	347
BMW	I3 REX	PHEV	116	185	266	52	121	202
BMW	I8	PHEV	297	339	387	219	261	310
BMW	X5 xDrive40e	PHEV	371	424	485	278	330	392
Fiat-Chrysler	Pacifica	PHEV	207	270	345	120	184	258
Ford	C-MAX	PHEV	201	243	292	140	182	231
Ford	Fusion	PHEV	190	234	285	128	171	222
GM	CT6	PHEV	276	359	456	193	276	373
GM	Volt	PHEV	135	196	267	71	132	204
Hyundai	Sonata	PHEV	187	236	293	121	170	227
Kia	Optima	PHEV	178	227	284	113	162	219
Mercedes	C 350e	PHEV	319	362	413	244	288	338
Mercedes	GLE 550e 4MATIC	PHEV	434	489	553	332	387	451
Mercedes	S 550e	PHEV	349	402	465	263	316	379
Toyota	Prius Prime	PHEV	137	171	211	83	117	157
Volvo	XC90 AWD	PHEV	360	414	476	268	322	385
VW	A3 e-tron	PHEV	246	288	336	181	223	272
VW	Cayenne S	PHEV	400	468	546	303	370	449
<b>Average Car</b>			<b>379</b>	<b>379</b>	<b>379</b>	<b>303</b>	<b>303</b>	<b>303</b>

---

Based on data from EPA's eGRID power plant database (Abt Associates 2017), and accounting for additional greenhouse gas emissions impacts for feedstock processing upstream of the power plant (Argonne 2017), EPA estimates that the electricity CO<sub>2</sub> emission factors for various regions of the country vary from 300 g CO<sub>2</sub>/kW-hr in California to 862 g CO<sub>2</sub>/kW-hr in the Midwest, with a national average of 559 g CO<sub>2</sub>/kW-hr. Emission rates for small regions in upstate New York and Alaska have lower electricity upstream CO<sub>2</sub> emission rates than California. However, California is a good surrogate for the "low" end of the range because California is a leading market for current EVs and PHEVs. Initial sales of electric vehicles have been largely, though not exclusively, focused in regions of the country with power plant CO<sub>2</sub> emissions factors lower than the national average, such as California, New York, and other coastal areas. Accordingly, in terms of CO<sub>2</sub> emissions, EPA believes that the current "sales-weighted average" vehicle operating on electricity in the near term will likely fall somewhere between the low end of this range and the national average.<sup>12</sup>

The fourth through sixth columns in Table 7.5 provide the range of tailpipe plus *total* upstream CO<sub>2</sub> emissions for EVs and PHEVs based on regional electricity emission rates. For comparison, the average MY 2017 car is also included in the last row of Table 7.5. The methodology used to calculate the range of tailpipe plus total upstream CO<sub>2</sub> emissions for EVs is shown in the following example for the MY 2017 Nissan Leaf:

- Start with the label (5-cycle values weighted 55% city/45% highway) vehicle electricity consumption in kW-hr/mile, which for the Leaf is 30 kW-hr/100 miles, or 0.30 kW-hr/mile
- Determine the regional powerplant emission rate, regional losses during electricity distribution, and the additional regional emissions due to fuel production upstream of the powerplant (for California, these numbers are 258 g/kW-hr, 4.8%, and 10.9%).
- Determine the regional upstream emission factor (for California  $258 \text{ g/kW-hr} / (1-0.048) * (1+0.109) = 300 \text{ g CO}_2/\text{kW-hr}$ )<sup>13</sup>
- Multiply by the range of Low (California = 300g CO<sub>2</sub>/kW-hr), Average (National Average = 559 g CO<sub>2</sub>/kW-hr), and High (Midwest = 862 g CO<sub>2</sub>/kW-hr) electricity upstream CO<sub>2</sub> emission rates, which yields a range for the Leaf of 90-259 grams CO<sub>2</sub>/mile.

The tailpipe plus total upstream CO<sub>2</sub> emissions values for PHEVs include the upstream CO<sub>2</sub> emissions due to electricity operation and both the tailpipe and upstream CO<sub>2</sub> emissions due to gasoline operation, using the utility factor discussed above to weight the values for electricity and gasoline operation. The tailpipe plus total upstream CO<sub>2</sub> emissions values for the average car are the average adjusted MY 2017 car tailpipe CO<sub>2</sub> emissions (from Table 4.3) multiplied by 1.25 to account for upstream emissions due to gasoline production.

---

<sup>12</sup> To estimate the upstream greenhouse gas emissions associated with operating an EV or PHEV in a specific geographical area, use the emissions calculator at [www.fueleconomy.gov/feg/Find.do?action=bt2](http://www.fueleconomy.gov/feg/Find.do?action=bt2).

<sup>13</sup> The actual calculations were done with unrounded numbers. Using the rounded numbers provided here may result in a slightly different number due to rounding error.

---

The values in columns four through six are tailpipe plus *total* upstream CO<sub>2</sub> emissions. But, all of the gasoline and diesel vehicle CO<sub>2</sub> emissions data in the rest of this report refer to tailpipe only emissions and do not reflect the upstream emissions associated with gasoline or diesel production and distribution. Accordingly, in order to equitably compare the overall relative impact of EVs and PHEVs with tailpipe emissions of petroleum-fueled vehicles, EPA uses the metric “tailpipe plus *net* upstream emissions” for EVs and PHEVs (note that this same approach has been adopted for EV and PHEV regulatory compliance with the 2012-2025 light-duty vehicle GHG emissions standards for sales of EVs and PHEVs in MY 2012-2016 and MY 2022-2025 that exceed sales thresholds). The net upstream emissions for an EV is equal to the total upstream emissions for the EV minus the upstream emissions that would be expected from a comparable-sized (size is a good first-order measure for utility and footprint is the size-based metric used for standards compliance) gasoline vehicle. The net upstream emissions for PHEVs are equal to the net upstream emissions of the PHEV due to electricity consumption in electric or blended mode multiplied by the utility factor. The net upstream emissions for a gasoline vehicle are zero.

For each EV or PHEV, the upstream emissions for a comparable gasoline vehicle are determined by first using the footprint based compliance curves to determine the CO<sub>2</sub> compliance target for a vehicle with the same footprint. Since upstream emissions account for approximately 20% of total CO<sub>2</sub> emissions for gasoline vehicles, the upstream emissions for the comparable gasoline vehicle are equal to one fourth of the tailpipe-only compliance target.

The final three columns of Table 7.5 give the tailpipe plus net upstream CO<sub>2</sub> values for EVs and PHEVs using the same Low, Average, and High electricity upstream CO<sub>2</sub> emissions rates discussed above. These values bracket the possible real world net CO<sub>2</sub> emissions that would be associated with consumer use of these vehicles. For the Leaf, these values are simply the values in columns four through six minus the upstream GHG emissions of a comparably sized gasoline vehicle. Based on the MY 2017 CO<sub>2</sub> footprint curve, the 5-cycle tailpipe GHG emissions for a Leaf-sized gasoline vehicle meeting its compliance target would be close to 263 grams/mi, with upstream emissions of one-fourth of this value, or 66 g/mi. The net upstream for the Leaf are determined by subtracting this value, 66 g/mi, from the total (tailpipe + total upstream) emissions for the Leaf. The result is a range for the tailpipe plus net upstream value of 24-193 g/mile as shown in Table 7.5, with a more likely sales-weighted value in the 24-102 g/mi range.

For PHEVs, the tailpipe plus net upstream emissions values use the utility factor values discussed above to weight the individual values for electric operation and gasoline operation.

The number of AFVs available and total AFV sales continues to increase. This report will continue to track the metrics presented in this section and report on trends in AFV CO<sub>2</sub> emissions and fuel economy as more models are introduced and more data becomes available in future years.

---

## B. ALTERNATIVE AFV METRICS

Determining metrics for AFVs that are meaningful and accurate is challenging. In particular, vehicles that are capable of using dual fuels, such as PHEVs, can have complicated modes of operation that make it difficult to determine meaningful metrics. In this section, we have reported and discussed several metrics that are used on the EPA/DOT Fuel Economy and Environment Labels and in a regulatory context, namely “mpge,” tailpipe CO<sub>2</sub> emissions, and net upstream GHG emissions. There are, however, other ways that AFV operation can be quantified.

Other energy metric options that could be considered include 1) mpge plus net fuel life-cycle energy, which would also reflect differences in upstream energy consumption in producing the alternative fuel relative to gasoline-from-oil; and 2) miles per gallon of petroleum, which would only count petroleum use and not other forms of energy. Compared to mpge, using the mpge plus net fuel life-cycle energy metric would generally result in lower numerical fuel economy values, and using the miles per gallon of petroleum metric would yield higher fuel economy values.

## C. ADDITIONAL NOTE ON PHEV CALCULATIONS

Calculating fuel economy and CO<sub>2</sub> emission values for PHEVs is a complicated process, as discussed in this section. The examples given for individual vehicles were based on calculations behind the EPA/DOT Fuel Economy and Environment Labels. In addition to the approach used for the labels, there are multiple methods for determining utility factors depending on the intended use of the value. The standardized utility factor calculations are defined in the Society of Automobile Engineers (SAE) document SAE J2841.

The utility factors that are used for fleetwide calculations are somewhat different than those used to create label values. For label values, multi-day individual utility factors (MDIUF) are used to incorporate “a driver’s day to day variation into the utility calculation.” For fleetwide calculations, fleet utility factors (FUF) are applied to “calculate the expected fuel and electric consumption of an entire fleet of vehicles.” Since the Trends report is generally a fleetwide analysis, the FUF utility factors were applied, instead of the MDIUF utility factors, when the data was integrated with the rest of the fleet data. Additionally, since Trends uses a 43% city, 57% highway weighting for combining adjusted fuel economy and CO<sub>2</sub> data, the FUF utility factors created for Trends were based on that weighting, not on 55% city, 45% highway weighting used on labels (see section 10 for a discussion of city and highway weighting).



# High Fuel Economy/Low CO<sub>2</sub> and Advanced Technology Choices

Consumers shopping for vehicles with comparatively high fuel economy and low tailpipe CO<sub>2</sub> emissions have more vehicles to choose from in MY 2017 than MY 2012. These choices reflect a more diverse range of technology packages on conventional gasoline and diesel vehicles, as well as an increasing number of electric and plug-in hybrid electric vehicle offerings. Section 5 analyzes important trends for a number of vehicle technologies. Section 7 provides data on individual alternative fuel vehicle models such as electric vehicles, plug-in hybrid electric vehicles, and hydrogen fuel cell vehicles. This section focuses specifically on trends related to the fuel economy and advanced vehicle purchase choices available to consumers in the new vehicle market.

## A. METHODOLOGY

There are some important methodological differences in the analysis in this section relative to Sections 1-6. First, the data in this section are not weighted by vehicle production levels, but instead reflect “model counts.” To an individual consumer in the market for a new vehicle, the number of models available to purchase may be more relevant than the production level of a particular model. Second, the analysis in this section focuses on the changes between MY 2012 and MY 2017, rather than trends over multiple decades. These two model years are used because a 5-year period is long enough to identify meaningful multi-year trends.

This “model count” analysis requires assumptions about how to define a model. Our objective is to count models that are generally marketed and perceived by consumers to be unique vehicle choices, but not to count multiple configurations that are generally marketed and perceived to be the same model. The application of this approach requires considerable judgment, and we have made every effort to be consistent for both MY 2012 and MY 2017. The most important guidelines used to classify vehicle configurations into unique “models” for this analysis are:

- Vehicles with the same name are generally counted as one model (e.g., all Honda Civics are counted as one model), with exceptions noted below. Vehicle options included as one model include:
  - Engine and transmission options (including hybrid, diesel, CNG, EV, PHEV, turbo, and ECO variants)
  - 2WD and 4WD versions
  - Trim levels
  - Convertible, hatchback, and wagon body styles
  - FFV and non-FFV models
  - BMW series. For example, all BMW 5 series variants are included as one model, including the ActiveHybrid 5
  - Range Rover and Range Rover Sport

- 
- Generally, performance and non-performance vehicles are counted as one model, even if they have distinct names. Vehicle variants counted as one model include:
    - Audi A4 and Audi S4
    - BMW M3 included in the BMW 3 series
    - Volkswagen Golf and Volkswagen GTI
  - Vehicles that are substantially similar, but are marketed and sold by multiple divisions, (often called “twins”) are counted as separate models. For example:
    - Chevrolet Equinox and GMC Terrain are counted as separate models
    - Chrysler Town & Country and Dodge Grand Caravan are counted as separate models
  - Vehicles that are generally marketed as distinct models are counted as separate models. For example:
    - Prius, Prius v and Prius c are counted as distinct models
  - The Mini Cooper vehicles are grouped and counted as four models (Mini Cooper, Mini Cooper Roadster, Mini Cooper Clubman, Mini Cooper Countryman/Paceman), generally based on wheelbase, with multiple trim models within each wheelbase counted as the same model

These “model count” guidelines resulted in a 4% difference in the total number of models available to consumers across the industry in MY 2012 and MY 2017: there are approximately 281 models for MY 2012 and 292 for MY 2017.

Finally, the last methodological difference between this section and most other sections of this report is that fuel economy values are aligned with the Fuel Economy and Environment label in order to be consistent with the information available to consumers. The combined fuel economy values used in Figure 8.1 are based on the 55% city/45% highway weighting used on fuel economy labels, and not on the 43% city/57% highway weighting used for adjusted fuel economy values presented elsewhere in this report. For PHEVs, the mpg value is the combined, utilized value. These values can be found in the “Overall Fuel Economy” column of Table 7.3. Data for MY 2017 are preliminary and will be finalized in next year’s report.

In this analysis, vehicle types are simplified into four broader categories: cars, SUVs, pickups, and minivans/vans (most vehicles labeled as “special purpose vehicles” are shaped like vans and are included in the minivan/van category). All SUVs are combined into a single category and are not split into car SUVs and truck SUVs as is done for compliance with standards and elsewhere in this report. See Section 3.B for more details about vehicle types.

EPA has updated fuel economy labeling guidance for vehicles beginning in MY 2017. This action resulted in small changes to fuel economy label values for derived 5-cycle vehicles. Consistent with the rest of this year’s Trends report, and with fueleconomy.gov, fuel economy values for derived 5-cycle vehicles in MY 2011–2016 have also been updated with the new methodology, providing an apples-to-apples comparison in this section. The fuel economy values in this year’s report are not directly comparable to last year’s report, in part due to these updates. See Section 10.C for more information about the derived 5-cycle updates.

## B. HIGH FUEL ECONOMY VEHICLE OFFERINGS

Figure 8.1 shows the change from MY 2012 to MY 2017 in the number of models for which at least one model variant meets various fuel economy thresholds. If at least one variant of an individual model meets a threshold (e.g., cars with fuel economy greater than 30 mpg), the model is counted only once, regardless of the number of model variants that meet the threshold. For instance, if hybrid, CNG, and gasoline variant Honda Civics exceed 30 mpg, only one Civic is counted as exceeding 30 mpg. The threshold values for EVs, PHEVs, FCVs, and CNG vehicles that are represented in Figure 8.1 use miles per gallon of gasoline-equivalent (mpge), i.e., the miles the vehicle can travel on an amount of electricity, compressed natural gas, or hydrogen that has the same amount of energy as a gallon of gasoline. See Section 7 for a detailed discussion of mpge and electric, plug-in hybrid, and hydrogen fuel cell vehicles.

**Figure 8.1**

**Number of Models Meeting Fuel Economy Thresholds in MY 2012 and 2017**

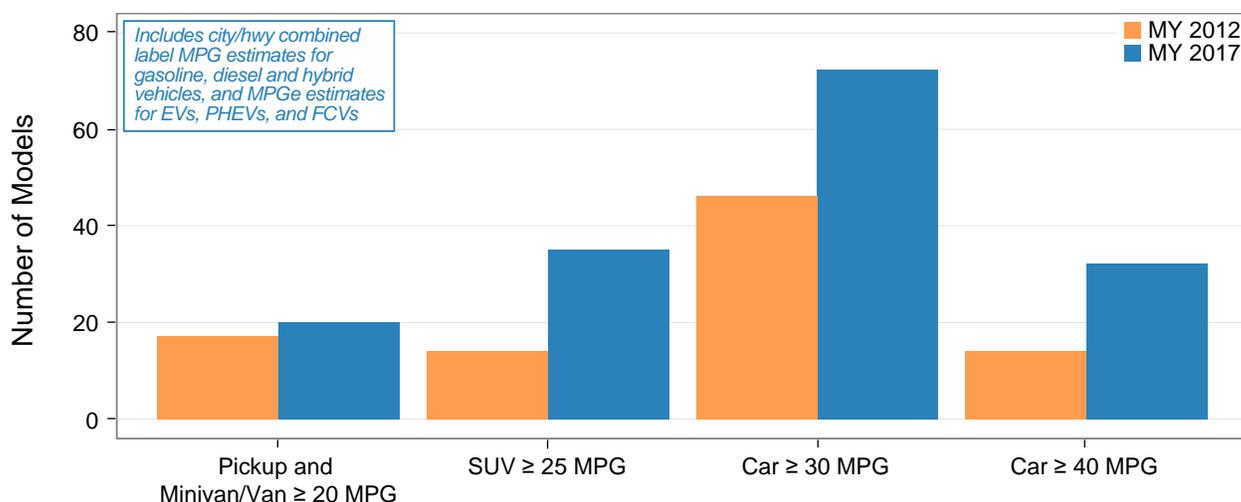


Figure 8.1 shows that there are 20 MY 2017 pickup and minivan/van models for which at least one variant of the model has a label fuel economy of 20 mpg or more, a small increase over MY 2012. Ten minivans/vans met or exceeded a 20 mpg threshold in MY 2012, and in MY 2017 eleven minivans/vans meet the 20 mpg threshold. The fuel economy label has two classification categories for pickups, based on their gross vehicle weight rating: small pickups and standard pickups. In MY 2012, the only standard-sized pickups that crossed the 20 mpg threshold were hybrids, whereas in MY 2017, four standard-sized, non-hybrid pick-ups crossed the threshold (two of the MY 2017 standard pickups also have hybrid variants that cross the 20 mpg threshold). In MY 2017 two small pickups and three minivan/vans achieved at least 25 mpg.

More than twice as many MY 2017 SUV models achieved 25 mpg or above compared to MY 2012. Of the SUVs that achieved 25 mpg in MY 2012, ten out of 14 models had at least one

---

non-hybrid gasoline variant that crossed the threshold. In MY 2017, 26 of the 35 SUV models that achieved at least 25 mpg had at least one non-hybrid, gasoline or diesel variant that crossed the threshold. There were also two electric, one hydrogen fuel cell, four PHEV, and seven hybrid SUVs variants that achieve at least 25 mpg; these total to more than the number of models shown in Figure 8.1 because three of the hybrid, one of the plug-in hybrid electric, and the fuel-cell SUVs also have either a diesel or gasoline variant that crosses the 25 mpg threshold.

In MY 2017, there are more than 70 car models available for which at least one variant has a label fuel economy of 30 mpg or more, compared to 46 car models in MY 2012. Of MY 2017 car models that achieve greater than or equal to 30 mpg, 40 models reach this threshold with at least one conventional gasoline or diesel variant, compared to 27 models in MY 2012. More than 30 MY 2017 cars achieve 40 mpg or higher, compared to 14 in MY 2012. In addition, 22 of the MY 2017 cars have at least one variant that achieves 50 mpg or higher, compared to nine cars in MY 2012. All of the MY 2017 cars that achieve at least 40 mpg consist of hybrid vehicles, electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles.

Summing the first three categories (pickups and minivans/vans  $\geq 20$  mpg, SUV's  $\geq 25$  mpg, and cars  $\geq 30$  mpg), there is an increase of 50 models from MY 2012 to MY 2017. There is no difference from last year (MY 2016 to MY 2017) for the same three categories.

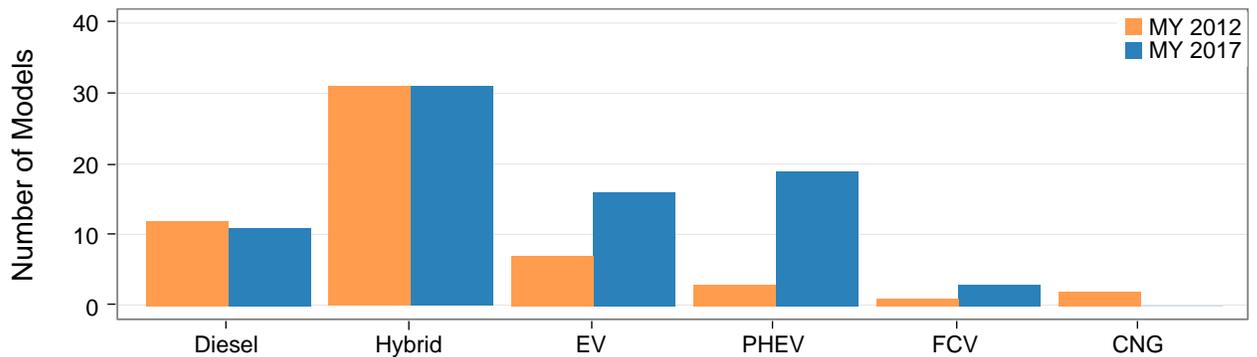
## C. ADVANCED TECHNOLOGY VEHICLE OFFERINGS

Figure 8.2 shows that there are a growing number of electric vehicles and plug-in hybrid electric vehicle models. From MY 2012 to MY 2017, the number of EVs has increased from seven to 16, and the number of PHEVs has increased from three to 19. Over the same period, the number of hybrid offerings has stayed the same, and the number of diesel offerings has decreased slightly. In MY 2012, there were two CNG vehicle offerings and one fuel cell vehicle, and in MY 2017 there are no OEM CNG vehicles, but there are three fuel cell vehicles.<sup>14</sup> For a more detailed discussion of hybrid and diesel vehicles, see Section 5B; see Section 7 for more information about alternative fuel vehicles; see section 5C for more details about trends in alternative fuel vehicles.

For Figure 8.2, the “model count” methodology is modified slightly to allow models that have more than one alternative fuel variant to be counted in each alternative fuel category (e.g., a Ford Fusion is available as both a hybrid and PHEV, so the model was counted once in each category).

**Figure 8.2**

*Advanced Technology and Alternative Fuel Vehicle Models in MY 2012 and 2017*



<sup>14</sup> Some advanced technology vehicles are generally available only in selected markets.

# 9 Regulatory Context

## A. PERSONAL VEHICLE FUEL ECONOMY AND GREENHOUSE GAS EMISSIONS STANDARDS

National fuel economy standards have been in place in the United States for cars and light trucks since 1978. The Department of Transportation, through the National Highway Traffic Safety Administration (NHTSA), has the responsibility for setting and enforcing fuel economy standards through the Corporate Average Fuel Economy (CAFE) program. Since the inception of fuel economy standards, EPA has been responsible for establishing fuel economy test procedures and calculation methods, and for collecting data used to determine vehicle fuel economy and manufacturer CAFE levels.

EPA, NHTSA, and the California Air Resources Board developed coordinated fuel economy and greenhouse gas standards that apply to MY 2012 through MY 2025<sup>15</sup> vehicles. These standards, also called the “National Program,” are expected to provide continuous increases in fuel economy and reductions in greenhouse gas emissions, while ensuring consumer choice and allowing manufacturers to meet all regulatory requirements simultaneously. As part of the rulemaking process, EPA committed to conduct a Midterm Evaluation (MTE) to review the appropriateness of the MY 2022 to MY 2025 standards. The MTE review is currently in progress<sup>16</sup> and a final determination is expected by April 1, 2018.

Prior to the National Program, truck CAFE standards were constant from MY 1996-2004 and then began to increase in MY 2005. Car CAFE standards were constant from MY 1990 until MY 2010.

Automaker compliance with CO<sub>2</sub> and CAFE standards is based on unadjusted, laboratory CO<sub>2</sub> and fuel economy values, along with various regulatory incentives and credits, rather than on the adjusted CO<sub>2</sub> and fuel economy values that are used throughout most of this report. Neither unadjusted, laboratory nor adjusted CO<sub>2</sub> and fuel economy values reflect various incentives (e.g., for flexible fuel vehicles for CAFE standards) and credits (air conditioner and other off-cycle technologies for CO<sub>2</sub> standards) that are available to manufacturers. Adjusted CO<sub>2</sub> values are, on average, about 25% higher than the unadjusted, laboratory CO<sub>2</sub> values, and adjusted fuel economy values are about 20% lower, on average, than unadjusted fuel economy values. EPA (at [www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer](http://www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer)) and NHTSA (at [www.nhtsa.gov/Laws-&-Regulations/CAFE--Fuel-Economy](http://www.nhtsa.gov/Laws-&-Regulations/CAFE--Fuel-Economy)) publish separate documents summarizing formal automaker compliance with GHG emissions and CAFE standards.

<sup>15</sup> See 75 Federal Register 25324, May 7, 2010 and 77 Federal Register 62624, October 15, 2012

<sup>16</sup> For more information on EPA’s midterm review, see <https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas>

---

## B. CURRENT VEHICLES THAT MEET FUTURE EPA CO<sub>2</sub> EMISSIONS COMPLIANCE TARGETS

This section evaluates MY 2017 vehicles against future footprint-based CO<sub>2</sub> emission targets to determine which current vehicles could meet or exceed their targets in model years 2020-2025, based on current powertrain designs. These comparisons assume future improvements in air conditioner refrigerants and efficiency, since these improvements are considered to be among the least expensive methods to reduce greenhouse gas emissions. The analysis also assumes that manufacturers will receive, on average, 5 grams/mile of off-cycle credits in all years.

It is important to note that there are no CO<sub>2</sub> emissions standards for individual vehicles. Overall manufacturer compliance is determined based on the manufacturer specific production-weighted average footprint and CO<sub>2</sub> emissions. It is fully expected that there will be a distribution of how manufacturers' vehicles compare to their fuel economy targets; some will be above their targets and some will be below. Manufacturers will likely be able to achieve compliance with roughly 50% of their vehicles meeting or exceeding the standards.

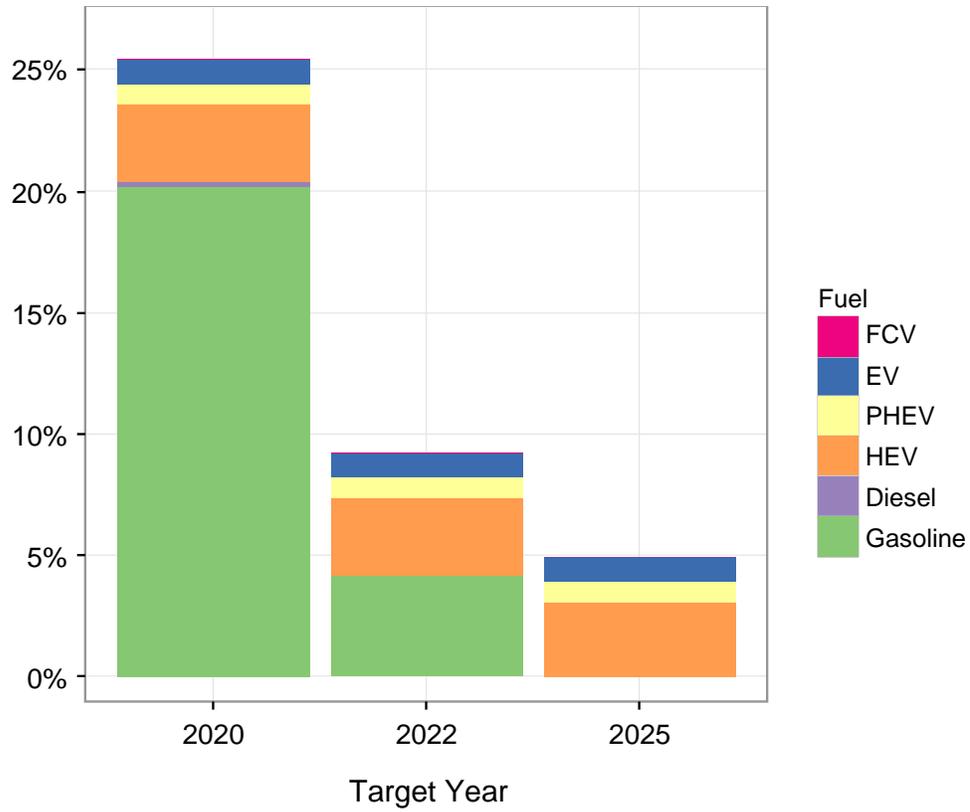
Figure 9.1 shows that 26% of projected MY 2017 vehicle production already meets or exceeds the MY 2020 CO<sub>2</sub> targets, with the addition of expected air conditioning improvements and off-cycle credits. This represents approximately 4.5 million vehicles per year being sold today. The number of vehicles meeting or exceeding the MY 2020 standards has steadily increased with each model year. Including air conditioning and off-cycle credits, less than 5% of MY 2012 vehicles met or exceeded the MY 2020 standards, the majority of which were hybrids. By MY 2017, improvements in non-hybrid gasoline vehicles led to 26% of MY 2017 vehicles meeting or exceeding the MY 2020 standards.

Looking ahead, nearly 5% of projected 2017 production already meets the MY 2025 CO<sub>2</sub> targets. Vehicles meeting the MY 2025 CO<sub>2</sub> targets are comprised solely of hybrids, plug-in hybrids, electric vehicles, and fuel cell vehicles.

Previous editions of this report presented analysis without the 5 gram/mile off-cycle credits. Without these credits, about 19% of MY 2017 vehicles meet or exceed the MY 2020 standards. The actual amount of off-cycle credits claimed by manufacturers for MY 2016 was, on average, about 3 grams/mile. This value has increased every year since off-cycle credits became available in MY 2012 and is likely to continue growing. For more information on off-cycle credits, see EPA's Manufacturer Performance Report at [www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer](http://www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer).

**Figure 9.1**

**MY 2017 Vehicle Production That Meets or Exceeds Future CO<sub>2</sub> Emission Targets**



---

## C. COMPARISON OF EPA AND NHTSA FUEL ECONOMY DATA, 1975-2017

Table 9.1 compares CAFE performance data reported by NHTSA (available at [https://one.nhtsa.gov/cape\\_pic/CAFE\\_PIC\\_Home.htm](https://one.nhtsa.gov/cape_pic/CAFE_PIC_Home.htm)) with the adjusted and unadjusted, laboratory fuel economy data in this report. With only minor exceptions over 30 years ago, the NHTSA values are higher than the EPA unadjusted, laboratory values, due primarily to alternative fuel vehicle credits, and secondarily to test procedure adjustment factors for cars. In recent years for which both Agencies report final data, the NHTSA values are typically 0.6-1.0 mpg higher than the EPA unadjusted, laboratory values. MY 2015 is the most recent year for which both agencies report final data, and NHTSA's final CAFE performance value is 0.8 mpg higher than EPA's final unadjusted, laboratory value. Final MY 2016 results will be reported when made available by NHTSA.

The individual EPA car and truck fuel economy values shown in Table 9.1 for years prior to MY 2011 differ from the values found elsewhere in this report. Beginning with the 2011 report, EPA reclassified many small and mid-sized, 2-wheel drive SUVs from trucks to cars for the entire historical database. This reflects a regulatory change made by NHTSA for CAFE standards beginning in MY 2011 and applies to the joint EPA/NHTSA greenhouse gas emissions and CAFE standards that have been finalized for MY 2012-2025. These changes were not in effect for years prior to MY 2011, and accordingly NHTSA's CAFE fuel economy values prior to MY 2011 are based on the previous car and truck definitions. To enable an apples-to-apples comparison to the NHTSA values, the EPA car and truck values in Table 9.1 through model year 2010 were calculated using the previous car and truck definitions, which is not consistent with the rest of this report. While the individual car and truck values in Table 9.1 are unique, the car and truck definitions do not affect the overall (car plus truck) fuel economy values, which are consistent with the rest of this report.

**Table 9.1**

*EPA Adjusted, EPA Unadjusted Laboratory, and CAFE Values by Model Year*

Model Year	Car				Truck				Both Car and Truck			
	EPA Adj. (MPG)	EPA Unadj. (MPG)	NHTSA CAFE (MPG)	Diff. (MPG)	EPA Adj. (MPG)	EPA Unadj. (MPG)	NHTSA CAFE (MPG)	Diff. (MPG)	EPA Adj. (MPG)	EPA Unadj. (MPG)	NHTSA CAFE (MPG)	Diff. (MPG)
1975	13.5	15.8	N/A	-	11.6	13.7	N/A	-	13.1	15.3	N/A	-
1976	14.9	17.5	N/A	-	12.2	14.4	N/A	-	14.2	16.7	N/A	-
1977	15.6	18.3	N/A	-	13.3	15.6	N/A	-	15.1	17.7	N/A	-
1978	16.9	19.9	19.9	0.0	12.9	15.2	N/A	-	15.8	18.6	19.9	+1.3
1979	17.2	20.3	20.3	0.0	12.5	14.7	18.2	+3.5	15.9	18.7	20.1	+1.4
1980	20.0	23.5	24.3	+0.8	15.8	18.6	18.5	-0.1	19.2	22.5	23.1	+0.6
1981	21.4	25.1	25.9	+0.8	17.1	20.1	20.1	-	20.5	24.1	24.6	+0.5
1982	22.2	26.0	26.6	+0.6	17.4	20.5	20.5	-	21.1	24.7	25.1	+0.4
1983	22.1	25.9	26.4	+0.5	17.8	20.9	20.7	-0.2	21.0	24.6	24.8	+0.2
1984	22.4	26.3	26.9	+0.6	17.4	20.5	20.6	+0.1	21.0	24.6	25.0	+0.4
1985	23.0	27.0	27.6	+0.6	17.5	20.6	20.7	+0.1	21.3	25.0	25.4	+0.4
1986	23.7	27.9	28.2	+0.3	18.2	21.4	21.5	+0.1	21.8	25.7	25.9	+0.2
1987	23.8	28.1	28.5	+0.4	18.3	21.6	21.7	+0.1	22.0	25.9	26.2	+0.3
1988	24.1	28.6	28.8	+0.2	17.9	21.2	21.3	+0.1	21.9	25.9	26.0	+0.1
1989	23.7	28.1	28.4	+0.3	17.6	20.9	21.0	+0.1	21.4	25.4	25.6	+0.2
1990	23.3	27.8	28.0	+0.2	17.4	20.7	20.8	+0.1	21.2	25.2	25.4	+0.2
1991	23.4	28.0	28.4	+0.4	17.8	21.3	21.3	-	21.3	25.4	25.6	+0.2
1992	23.1	27.6	27.9	+0.3	17.4	20.8	20.8	-	20.8	24.9	25.1	+0.2
1993	23.5	28.2	28.4	+0.2	17.5	21.0	21.0	-	20.9	25.1	25.2	+0.1
1994	23.3	28.0	28.3	+0.3	17.2	20.8	20.8	-	20.4	24.6	24.7	+0.1
1995	23.4	28.3	28.6	+0.3	17.0	20.5	20.5	-	20.5	24.7	24.9	+0.2
1996	23.3	28.3	28.5	+0.2	17.2	20.8	20.8	-	20.4	24.8	24.9	+0.1
1997	23.4	28.4	28.7	+0.3	17.0	20.6	20.6	-	20.1	24.5	24.6	+0.1
1998	23.4	28.5	28.8	+0.3	17.1	20.9	21.0	+0.1	20.1	24.5	24.7	+0.2
1999	23.0	28.2	28.3	+0.1	16.7	20.5	20.9	+0.4	19.7	24.1	24.5	+0.4
2000	22.9	28.2	28.5	+0.3	16.9	20.8	21.3	+0.5	19.8	24.3	24.8	+0.5
2001	23.0	28.4	28.8	+0.4	16.7	20.6	20.9	+0.3	19.6	24.2	24.5	+0.3
2002	23.1	28.6	29.0	+0.4	16.7	20.6	21.4	+0.8	19.5	24.1	24.7	+0.6
2003	23.2	28.9	29.5	+0.6	16.9	20.9	21.8	+0.9	19.6	24.3	25.1	+0.8
2004	23.1	28.9	29.5	+0.6	16.7	20.8	21.5	+0.7	19.3	24.0	24.6	+0.6
2005	23.5	29.5	30.3	+0.8	17.2	21.4	22.1	+0.7	19.9	24.8	25.4	+0.6
2006	23.3	29.2	30.1	+0.9	17.5	21.8	22.5	+0.7	20.1	25.2	25.8	+0.6
2007	24.1	30.3	31.2	+0.9	17.7	22.1	23.1	+1.0	20.6	25.8	26.6	+0.8
2008	24.3	30.5	31.5	+1.0	18.2	22.7	23.6	+0.9	21.0	26.3	27.1	+0.8
2009	25.4	32.1	32.9	+0.8	19.0	23.8	24.8	+1.0	22.4	28.2	29.0	+0.8
2010	25.8	32.7	33.9	+1.2	19.1	23.8	25.2	+1.4	22.6	28.4	29.3	+0.9
2011	25.4	32.3	33.1	+0.8	19.1	23.9	24.7	+0.8	22.3	28.1	29.0	+0.9
2012	26.9	34.4	35.3	+0.9	19.3	24.1	25.0	+0.9	23.6	29.9	30.8	+0.9
2013	27.7	35.5	36.4	+0.9	19.8	24.8	25.7	+0.9	24.2	30.7	31.6	+0.9
2014	27.6	35.6	36.5	+0.9	20.3	25.5	26.5	+1.0	24.1	30.7	31.7	+0.8
2015	28.2	36.5	37.2	+0.7	21.1	26.5	27.3	+0.8	24.6	31.4	32.2	+0.8
2016	28.5	36.9			21.2	26.8			24.7	31.6		
2017 (prelim)	29.1	37.9			21.2	26.8			25.2	32.3		

---

## D. COMPARISON OF MY 2016 UNADJUSTED, LABORATORY AND ESTIMATED CAFE DATA BY MANUFACTURER

The primary differences between EPA unadjusted, laboratory fuel economy data and EPA estimated CAFE values are flexible fuel vehicle (FFV) credits that are available to manufacturers that produce vehicles capable of operation on an alternative fuel (E85, a blend of 85 percent ethanol and 15 percent gasoline), and test procedure adjustment (TPA) credits that apply to manufacturers of passenger cars. Table 9.2 shows how the unadjusted, laboratory fuel economy values in this report, FFV credits, and TPA credits “add up” to estimated CAFE values for each of the thirteen highest volume manufacturers for cars, trucks, and cars plus trucks.

The data for this report, the CAFE compliance program, and EPA’s GHG compliance program are all based on data submitted to EPA and NHTSA by automobile manufacturers. The FFV credits, TPA credits, and estimated CAFE values were all obtained directly from the fuel economy compliance program. Alternative fueled vehicles (AFVs) are included in the EPA laboratory and estimated CAFE values, however some AFVs receive additional credits under CAFE that are not accounted for in this report. In most cases the sum of the EPA values shown in this report, the FFV credits, and the TPA credits are within 0.1 mpg of the estimated CAFE value for cars, trucks, and cars and trucks combined. Any discrepancy is largely due to the additional credits for AFVs under CAFE.

The CAFE program recognizes three categories, domestic passenger vehicles, import passenger vehicles, and light trucks and establishes separate compliance requirements for each. The passenger car FFV, TPA, and estimated CAFE numbers in Table 9.2 are calculated from the domestic and import passenger vehicle categories. The truck values were obtained directly (trucks are not eligible for TPA credits). The combined car and truck FFV and TPA credits were generated using car and truck sales. This column is shown for illustrative purposes only, since there are no CAFE standards for combined cars and trucks.

For MY 2016, three of the top 11 manufacturers (excluding Fiat-Chrysler and VW) earned FFV credits for cars and four manufacturers did so for trucks. For MY 2016, FFV credits are capped at 0.8 mpg for cars and trucks. All manufacturers were eligible for the TPA credits for cars.

## Table 9.2

### Comparison of MY 2016 EPA Unadjusted, Laboratory and Estimated CAFE (MPG) Values by Manufacturer\*

Manufacturer	Passenger Car				Light Truck				Both Car and Truck			
	EPA Unadj., Lab	FFV Credit	TPA Credit	Est. CAFE*	EPA Unadj., Lab	FFV Credit	TPA Credit	Est. CAFE*	EPA Unadj., Lab	FFV Credit	TPA Credit	Est. CAFE*
GM	34.1	0.7	0.3	35.1	24.4	0.8	0.0	25.2	28.2	0.8	0.1	29.1
Toyota	39.5	0.0	0.4	39.9	25.9	0.8	0.0	26.7	32.2	0.5	0.1	32.9
Ford	35.0	0.8	0.3	36.1	25.1	0.8	0.0	25.9	28.9	0.8	0.1	29.8
Honda	41.7	0.0	0.5	42.1	31.2	0.0	0.0	31.2	36.7	0.0	0.2	36.9
Nissan	40.1	0.0	0.3	40.5	30.1	0.0	0.0	30.1	36.5	0.0	0.2	36.7
Kia	36.1	0.0	0.4	36.6	27.2	0.0	0.0	27.2	33.7	0.0	0.3	34.0
Hyundai	37.8	0.0	0.4	38.2	26.4	0.0	0.0	26.4	37.4	0.0	0.4	37.7
Subaru	36.7	0.0	0.3	36.9	36.5	0.0	0.0	36.5	36.6	0.0	0.1	36.6
Mazda	41.6	0.0	0.5	42.1	34.2	0.0	0.0	34.2	38.8	0.0	0.3	39.1
BMW	33.9	0.0	0.3	34.1	28.8	0.0	0.0	28.8	32.4	0.0	0.2	32.6
Mercedes	32.9	0.6	0.2	33.8	26.1	0.8	0.0	26.9	30.3	0.7	0.1	31.1
VW	35.8	0.7	0.3	36.8	28.1	0.8	0.0	28.9	33.8	0.7	0.2	34.8
Fiat-Chrysler	30.8	0.8	0.2	31.8	25.6	0.8	0.0	26.4	27.0	0.8	0.1	27.9

\* EPA calculates the CAFE value for each manufacturer and provides to NHTSA per EPCA. NHTSA publishes the final CAFE values in its annual "Summary of Fuel Economy Performance" reports at [www.nhtsa.gov/Laws-&-Regulations/CAFE---Fuel-Economy](http://www.nhtsa.gov/Laws-&-Regulations/CAFE---Fuel-Economy).

\* Note: Volkswagen and FCA (Fiat-Chrysler) are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or "All" values. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports.

# 10 Additional Database and Report Details

This section addresses several Trends database topics in greater detail. While the key parameters were highlighted in Section 1, this section will help those readers who want to further understand how the database is developed and various nuances associated with the database.

## A. SOURCES OF INPUT DATA

Nearly all of the recent model year input for the Trends database is extracted from EPA's current vehicle compliance information system, VERIFY, into which automakers submit data required by congressional statute and EPA regulations. Prior to the beginning of each model year, automakers submit General Label information required to support the generation of the joint EPA/NHTSA Fuel Economy and Environment Labels that appear on all new personal vehicles. Automakers report pre-model year vehicle production projections for individual models to EPA in the General Label submissions; these projections are considered by EPA and automakers to be confidential business information. A few months after the end of each model year, automakers submit Final GHG/CAFE data, which EPA and NHTSA use to determine compliance with GHG emissions and CAFE standards. These end-of-the-year submissions include final production volumes. The production volume levels automakers provide in their Final CAFE reports may differ slightly from their Final GHG reports (less than 0.1%) because the EPA emissions certification regulations, including GHG regulations, require emission compliance in the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa and the Commonwealth of the Northern Mariana Islands, whereas the CAFE program requires data from the 50 states, the District of Columbia and Puerto Rico only. To maintain consistency with previous versions of this report, the Trends database continues to use the production volumes for CAFE reporting. Both the General Label and Final GHG/CAFE data submissions contain a broad amount of data associated with CO<sub>2</sub> emissions and fuel economy, vehicle and engine technology, and vehicle performance metrics. The Trends database extracts only a portion of the data from the VERIFY database.

Through MY 2016, all Trends data is considered final since it is based on the Final GHG/CAFE compliance data. For MY 2017, all Trends data is preliminary since it is based on confidential pre-model year production projections. Final MY 2017 values will be published in next year's report. See Section 10.G below for a historical comparison of preliminary and final values.

While nearly the entire Trends database comes from formal automaker submissions, it also contains a small amount of data from external sources. For example, label fuel economy data for Sections 7 and 8 are from [www.fueleconomy.gov](http://www.fueleconomy.gov). Also, we rely on published data from external sources for certain parameters of pre-MY 2011 vehicles, which are not universally

---

available through automaker submissions: (1) engines with variable valve timing (VVT); (2) engines with cylinder deactivation; and (3) vehicle footprint, which is the product of wheelbase times average track width and upon which CO<sub>2</sub> emissions and CAFE standards are based. Beginning with MY 2011, automaker submissions have included data for VVT and cylinder deactivation. EPA projects footprint data for the preliminary MY 2017 fleet based on footprint values for existing models from previous years and footprint values for new vehicle designs available through public sources. Finally, vehicle 0-to-60 acceleration values are not provided by automakers, but are either calculated from other Trends data, as discussed in Section 3, or taken from external sources.

## B. HARMONIC AVERAGING OF FUEL ECONOMY VALUES

Averaging multiple fuel economy values must be done harmonically in order to obtain a correct mathematical result. Since fuel economy is expressed in miles per gallon (mpg), one critical assumption with any harmonic averaging of multiple fuel economy values is whether the distance term (miles, in the numerator of mpg) is fixed or variable. This report makes the assumption that the distance term in all mpg values is fixed, i.e., that for purposes of calculating a harmonically averaged fuel economy value, it is assumed that the distance term (representing miles travelled) is equivalent across various vehicle fuel economies. This assumption is the standard practice with harmonic averaging of multiple fuel economy values (including, for example, in calculations for CAFE standards compliance), and simplifies the calculations involved.

Mathematically, when assuming a fixed distance term as discussed above, harmonic averaging of multiple fuel economy values can be defined as the inverse of the average of the reciprocals of the individual fuel economy values. It is best illustrated by a simple example.

Consider a round trip of 600 miles. For the first 300-mile leg, the driver is alone with no other passengers or cargo, and, aided by a tailwind, uses 10 gallons of gasoline, for a fuel economy of 30 mpg. On the return 300-mile trip, with several passengers, some luggage, and a headwind, the driver uses 15 gallons of gasoline, for a fuel economy of 20 mpg. Many people will assume that the average fuel economy for the entire 600-mile trip is 25 mpg, the arithmetic (or simple) average of 30 mpg and 20 mpg. But, since the driver consumed  $10 + 15 = 25$  gallons of fuel during the trip, the actual fuel economy is 600 miles divided by 25 gallons, or 24 mpg.

Why is the actual 24 mpg less than the simple average of 25 mpg? Because the driver used more gallons while (s)he was getting 20 mpg than when (s)he was getting 30 mpg.

This same principle is often demonstrated in elementary school mathematics when an airplane makes a round trip, with a speed of 400 mph one way and 500 mph the other way. The average speed of 444 mph is less than 450 mph because the airplane spent more time going 400 mph than it did going 500 mph.

---

As in both of the examples above, a harmonic average will typically yield a result that is slightly lower than the arithmetic average.

The following equation illustrates the use of harmonic averaging to obtain the correct mathematical result for the fuel economy example above:

$$\text{Average mpg} = \frac{2}{\left(\frac{1}{30} + \frac{1}{20}\right)} = 24 \text{ mpg}$$

The above example was for a single vehicle with two different fuel economies over two legs of a single round trip. But, the same mathematical principle holds for averaging the fuel economies of any number of vehicles. For example, the average fuel economy for a set of 10 vehicles, with three 30 mpg vehicles, four 25 mpg vehicles, and three 20 mpg vehicles would be (note that, in order to maintain the concept of averaging, the total number of vehicles in the numerator of the equation must equal the sum of the individual numerators in the denominator of the equation):

$$\text{Average mpg} = \frac{10}{\left(\frac{3}{30} + \frac{4}{25} + \frac{3}{20}\right)} = 24.4 \text{ mpg}$$

Note that arithmetic averaging, not harmonic averaging, provides the correct mathematical result for averaging fuel consumption values (in gallons per mile, the inverse of fuel economy) and CO<sub>2</sub> emissions (in grams per mile). In the first, round trip, example above, the first leg had a fuel consumption rate of 10 gallons over 300 miles, or 0.03333 gallons per mile. The second leg had a fuel consumption of 15 gallons over 300 miles, or 0.05 gallons per mile. Arithmetically averaging the two fuel consumption values, i.e., adding them up and dividing by two, yields 0.04167 gallons per mile, and the inverse of this is the correct fuel economy average of 24 mpg. Arithmetic averaging also works for CO<sub>2</sub> emissions values, i.e., the average of 200 g/mi and 400 g/mi is 300 g/mi CO<sub>2</sub> emissions.

In summary, fuel economy values must be harmonically averaged to maintain mathematical integrity, while fuel consumption values (in gallons per mile) and CO<sub>2</sub> emissions values (in grams per mile) can be arithmetically averaged.

## C. FUEL ECONOMY METRICS USED IN THIS REPORT

In 1975, EPA tested vehicles using two tests, one based on city driving and one based on highway driving. The fuel economy values resulting from this “2-cycle” test procedure were used both to determine compliance with the Corporate Average Fuel Economy (CAFE) requirements and to inform consumers of their expected fuel economy. Today, these two tests are still used as the basis for determining compliance with EPA and DOT regulatory programs and also serve as an important metric to compare long term technology trends using a methodology that has remained largely unchanged over the course of this report. In this

---

report, these values are occasionally shown and referenced as *unadjusted, laboratory* fuel economy values.

EPA recognized that changing technology and driving habits led to real world fuel economy results that over time were diverging from the unadjusted fuel economy values. To address this issue, EPA began to require that manufactures use an alternative calculation methodology to create *label* fuel economy values for every new vehicle. The separate label methodology was introduced in MY 1985, and was updated in MY 2008 and again in MY 2017 based on updated data. These label fuel economy values are required to be posted on all new vehicles and are the values that consumers are most familiar with. Label fuel economy values are only used in this report when discussing individual vehicles.

The fuel economy values used most often in this report are defined as *adjusted* fuel economy. These values are based on label fuel economy values, however, the modifications to the label fuel economy methodology have been applied over time based on the authors' technical judgement in order to provide accurate real world performance for vehicles at the given time they were produced. The resulting adjusted fuel economy values used in this report are EPA's best estimate of real world tailpipe CO<sub>2</sub> emissions and are the best data for researchers to evaluate new vehicle CO<sub>2</sub> and fuel economy performance.

### **Unadjusted Fuel Economy and GHG Values**

In 1975 the U.S. Congress passed the Energy Policy and Conservation Act, creating the first CAFE requirements. Testing requirements for CAFE, by law, were based on two dynamometer based test cycles developed by EPA in the early 1970s. The city (FTP) and highway (HWFET) tests, or 2-cycle methodology, have remained the basis of compliance with CAFE since its inception in 1975. For consistency with CAFE, more recent EPA greenhouse gas standards also use the 2-cycle methodology as the basis for compliance with regulatory requirements.

The 2-cycle testing methodology has remained largely unchanged<sup>17</sup> since the early 1970s. Today, unadjusted fuel economy and GHG values can be used for a useful comparison of technology change over time based on a constant test metric, but generally unadjusted fuel economy and GHG values are only relevant in a regulatory context.

### **Label Fuel Economy and GHG Values**

EPA has required manufacturers to provide vehicle fuel economy to consumers since 1977. Prior to MY 1985, the label (or real world) fuel economy was the same unadjusted fuel

---

<sup>17</sup> There were some relatively minor test procedure changes made in the late 1970s that, in the aggregate, made the city and highway tests slightly more demanding, i.e., the unadjusted fuel economy values for a given car after these test procedure changes were made are slightly lower relative to prior to the changes. EPA has long provided CAFE "test procedure adjustments" (TPAs) for passenger cars in recognition of the fact that the original CAFE standards were based on the EPA test procedures in place in 1975 (there are no TPAs for light trucks). The resulting impacts on the long-term unadjusted fuel economy trends are very small. As shown in Table 9.2, the TPAs for cars vary, and are typically in the range of 0.2-0.5 mpg for cars, or 0.1-0.3 mpg when the car TPAs are averaged over the combined car/truck fleet.

---

economy value determined for compliance with CAFE. Beginning in MY 1985, the label methodology became separate from the unadjusted methodology, and the label calculation approach has changed two additional times since. The methodology was significantly changed in MY 2008 with the introduction of 5-cycle testing, and subsequently updated again in MY 2017 with a small update to the 5-cycle methodology.

*MY 1985: Introduction of the Label Fuel Economy Calculations*

In an April 1984 rulemaking (EPA 1984), EPA established the first label calculations separate from the unadjusted fuel economy results. The rulemaking required that manufacturers apply universal (i.e., same for all vehicles) fuel economy label adjustment factors of 0.9 for city fuel economy and 0.78 for highway fuel economy. These adjustment factors were applied to the unadjusted test values for vehicles produced in model year 1985 or later.

*MY 2008: Introduction of the 5-cycle Label Methodology*

In December of 2006, EPA established a major change to the calculation methodology for on road fuel economy by introducing the 5-cycle methodology (EPA 2006, 77872). In addition to the city and highway tests required for unadjusted fuel economy calculations (EPA Federal Test Procedure and Highway Fuel Economy Test), the 5-cycle methodology introduces tests for high speeds (US06), air-conditioning (SC03), and a cold temperature test. It also indirectly accounts for a number of other factors that are not reflected in EPA laboratory test data (e.g. changing fuel composition, wind, road conditions) through the use of a 9.5% universal downward adjustment factor.

Under the 2006 5-cycle methodology, manufactures can either perform all 5 tests on each vehicle, or alternatively if certain conditions are met they can use an analytical approach based on 2-cycle testing. If manufacturers are required to perform all five tests, the results are weighted according to composite 5-cycle equations (EPA 2006, 77883-77886). In order to use the analytical “derived 5-cycle” method, manufacturers are required to evaluate whether the fuel economy estimates for certification vehicles using the full 5-cycle test methodology are comparable to results from the derived 5-cycle method. If the results are comparable, manufacturers can use the derived 5-cycle method for all vehicle models represented by the certification vehicle. If the full 5-cycle method yields significantly lower fuel economy estimates than the derived 5-cycle method, then the manufacturer must use the full 5-cycle method for all models represented by the certification vehicle. In recent years approximately 85% of all vehicle label fuel economy has been generated using the derived 5-cycle approach.

For vehicles that were eligible to use the 2006 derived 5-cycle method, the following equations were used to convert unadjusted, laboratory fuel economy values for city and highway to label city and highway fuel economy values. These equations were based on the relationship between 2-cycle and 5-cycle fuel economy data for the industry as a whole.

$$\text{Label CITY} = \frac{1}{\left(0.003259 + \frac{1.1805}{\text{UNADJ CITY}}\right)}$$

$$\text{Label HWY} = \frac{1}{\left(0.001376 + \frac{1.3466}{\text{UNADJ HWY}}\right)}$$

Finally, manufacturers have the option of voluntarily using lower fuel economy label estimates than those resulting from the full 5-cycle or derived 5-cycle approaches discussed above.

The change from the universal adjustment factors to the 5-cycle method lowered label fuel economy values, particularly for high fuel economy vehicles. In the 2006 rulemaking, EPA projected an overall average fleetwide adjustment of 11% lower for city fuel economy and 8% lower for highway fuel economy, beyond that in the MY 1985 label adjustment methodology.

#### *MY 2017: Update to the 5-cycle Label Methodology*

In 2015, EPA released an update that modified the coefficients used to calculate derived 5-cycle fuel economy from 2-cycle test data.<sup>18</sup> This update was required under existing regulations that state EPA “will periodically update the slopes and intercepts through guidance and will determine the model year that the new coefficients must take effect.”<sup>19</sup> The update ensures that the label values are based on the newest and best data and science available. It also improves the accuracy of EPA’s label estimates by using data that better reflects the available technologies and composition of the fleet. This update does not make changes based on driving behavior, ambient climate conditions, or other factors that are accounted for in the EPA methodology. The updated calculations are required for fuel economy label calculations for all MY 2017 and later vehicles.

The impact of the MY 2017 5-cycle update is far smaller than the change created by the introduction of 5-cycle testing in MY 2008. The combined fuel economy value shown on new vehicle labels (which is rounded to a whole number) is expected to remain the same for 85% of MY 2017 vehicles using the updated 5-cycle method. The vehicles that will be impacted are mostly high fuel economy vehicles, and their fuel economy will change by 1-2 mpg.

For MY 2017 and later vehicles that can use the derived 5-cycle method, the following equations are used to convert unadjusted, laboratory fuel economy values for city and highway to label fuel economy values.

<sup>18</sup> See [http://iaspub.epa.gov/otaqpub/display\\_file.jsp?docid=35113&flag=1](http://iaspub.epa.gov/otaqpub/display_file.jsp?docid=35113&flag=1).

<sup>19</sup> See 40 CFR 600.210-12(a)(2)(iv).

$$\text{Label CITY} = \frac{1}{\left(0.004091 + \frac{1.1601}{\text{UNADJ CITY}}\right)}$$

$$\text{Label HWY} = \frac{1}{\left(0.003191 + \frac{1.2945}{\text{UNADJ HWY}}\right)}$$

This report only uses label values when discussing individual vehicles (mostly in sections 7 and 8). In order to present a meaningful comparison, older vehicle label fuel economy values have been recalculated using the newer methodology. This approach was also taken on [www.fueleconomy.gov](http://www.fueleconomy.gov).

### Adjusted Fuel Economy and GHG Values

The **adjusted** fuel economy and CO<sub>2</sub> values used throughout this report are closely related to the label fuel economy values. However, the MY 1985, 2008 and 2017 label methodology changes have been applied, partially or in full, to the appropriate model years in order to provide accurate real world performance for vehicles at the given time they were produced. Second, the weighting of city and highway driving has been changed in recent years to consistent with the underlying data analysis used in the 5-cycle methodology.

#### *MY 1975 - 1985: Universal Multipliers*

The adjusted fuel economy values from MY 1975-1985 in this report were calculated from unadjusted fuel economy values using the 0.9 city and 0.78 highway multiplication factors that were required beginning on the MY 1985 label. The authors believe that these correction factors were appropriate for new vehicles from MY 1975 through 1985. The combined adjusted fuel economy value is based on a 55% city/45% highway weighting factor, consistent with the unadjusted and label fuel economy calculations.

#### *MY 1986 - 2010: Applying the 2006 5-cycle methodology and 43% City and 57% Highway Weighting*

For MY 1986 - 2004, the authors calculated adjusted fuel economy values by assuming the changes in technology and driver behavior that led to lower real world fuel economy, as outlined in the 2006 rulemaking discussed above, occurred in a gradual, linear manner over 20 years. We did not attempt to perform a year-by-year analysis to determine the extent to which the many relevant factors (including higher highway speed limits, more aggressive driving, increasing vehicle horsepower-to-weight ratios, suburbanization, congestion, greater use of air conditioning, gasoline composition, et al.) that have affected real world fuel economy since 1985 have changed over time.

Over the same timeframe, EPA phased in a change in the city and highway weightings used to determine a single combined fuel economy or CO<sub>2</sub> value. EPA's analysis of real world driving activity underlying the 5-cycle fuel economy methodology assumed a "speed cutpoint" of 45 miles per hour to differentiate between (and "bin" the amount of) city and highway driving

---

(EPA 2006, 77904). Based on this speed cutpoint, the correct weighting for correlating the new city and highway fuel economy values with real world driving activity data from on-road vehicle studies, on a miles driven basis, is 43% city and 57% highway, and therefore this weighting is necessary in order to maintain the integrity of projections of fleetwide fuel economy performance based on Trends data. The 55% city and 45% highway weighting is still used for both Fuel Economy and Environment Labels and the CAFE and GHG emissions compliance programs, as well as the unadjusted, laboratory values provided in this report. The authors used the same gradual, linear approach to phase in the change in city and highway weightings along with the phase-in of the 2006 5-cycle methodology.

From MY 2005 to MY 2010, the full 2006 5-cycle methodology, and the 43% city and 57% highway weightings, were used to determine the adjusted fuel economy values for this report. This required using the derived 5-cycle equations, and the 43% city and 57% highway weightings, to recalculate adjusted fuel economy values for MY 2005 to MY 2007, since those years were prior to 2008 when the 2006 5-cycle methodology was first required. MY 2008 to MY 2010 adjusted fuel economy values were the same as the label fuel economy values, except for the city and highway weightings.

#### *MY 2011 - 2017: Implementing the MY 2017 5-cycle updates*

The updated 5-cycle calculations introduced for MY 2017 labels were based on test data from MY 2011 to MY 2016 vehicles. Therefore, the authors chose to apply the update 5-cycle methodology to all model years MY 2011 to MY 2017. This required recalculating the adjusted fuel economy of vehicles from MY 2011 to 2016 using the new derived 5-cycle equations. Vehicles that conducted full 5-cycle testing or voluntarily lowered fuel economy or GHG values were unchanged. The 43% city and 57% highway weightings were maintained for all vehicles in MY 2011 to 2017. The change due to the 5-cycle update were relatively small (0.1 to 0.2 mpg overall) and did not noticeably alter the general data trends, therefore the authors determined that a phase in period was not required for this update.

One consequence of changing the adjusted fuel economy methodology is that the ratio of the adjusted to unadjusted fuel economy values have been changing over time. As shown in Table 10.2, the adjusted to unadjusted fuel economy ratio was around 85% for MY 1975-1985 data, largely due to the constant 0.9 city and 0.78 correction factors. As the 2006 5-cycle methodology and updated city and highway weighting factors were phased in, the ratio slowly dropped to about 80%. The ratio of adjusted to unadjusted fuel economy fell further with the introduction of the 2017 5-cycle updates, and is projected to be 77.2% in MY 2017.

#### **Example of Multiple Fuel Economy and GHG Values**

The multiple ways of measuring fuel economy and GHG emissions can understandably lead to confusion. As an illustration to help the reader understand the various fuel economy values that can be associated with an individual vehicle, Table 10.1 shows three different fuel economy metrics for the MY 2017 Toyota Prius Eco. Unadjusted, laboratory city and highway

fuel economy values are direct fuel economy measurements from the formal EPA 2-cycle tests, and are harmonically averaged with a 55% city and 45% highway weighting to generate a combined value. The unadjusted city fuel economy of the Prius Eco is 84 mpg, the highway fuel economy is 78 mpg, and the combined value is 81 mpg.

Using the 2017 5-cycle methodology, the Toyota Prius Eco has a label value of 56 mpg city and 58 mpg highway. On the vehicle label, these values are harmonically averaged using a 45% city and 55% highway weighting to determine a combined value of 53 mpg. The adjusted fuel economy for the Prius Eco, which is the set of values used in calculations for this report, has the same city and highway fuel economy, but the 43% city and 57% highway weighting leads to a combined value of 55 mpg, which is one mpg less than the values found on the label.

**Table 10.1**  
**Fuel Economy Metrics for the MY 2017 Toyota Prius Eco**

Fuel Economy Metric	Fuel Economy Value (MPG)			Purpose	City/Highway Weighting	Test Basis
	Comb	City	Hwy			
Unadjusted	81	84	78	Basis for manufacturer compliance with standards	55%/45%	2-cycle
Label	56	58	53	Consumer information to compare individual vehicles	55%/45%	5-cycle
Adjusted	55	58	53	Best estimate of real world performance	43%/57%	5-cycle

### PHEV Fuel Economy Calculations

As described in Section 7, PHEV fuel economy values take into consideration the percentage of miles that are projected to be driven in charge depleting versus charge sustaining modes of operation by using a utility factor to calculate city and highway mpge values, which can then be used to produce combined mpge values. However, the utility factors that are used for fleetwide calculations are somewhat different than those that are used to create label values for individual vehicles. For label values in Sections 7 and 8, multi-day individual utility factors (MDIUF) are used to incorporate “a driver’s day to day variation into the utility calculation.” (SAE J2841, page 3). For Trends fleetwide calculations, fleet utility factors (FUF) are applied to “calculate the expected fuel and electric consumption of an entire fleet of vehicles.” (SAE J2841, page 2). Because Trends weights adjusted city and highway values using a 43% city/57% highway weighting, FUFs created for a 43/57 ratio are used for the adjusted mpge values in this report.

**Table 10.2***Unadjusted, Laboratory and Adjusted Fuel Economy (MPG) for MY 1975–2017, Car and Truck*

<b>Model Year</b>	<b>Unadjusted City (MPG)</b>	<b>Unadjusted Highway (MPG)</b>	<b>Unadjusted Combined (MPG)</b>	<b>Adjusted City (MPG)</b>	<b>Adjusted Highway (MPG)</b>	<b>Adjusted Combined (MPG)</b>	<b>Ratio of Adjusted Combined to Unadjusted Combined</b>
1975	13.4	18.7	15.3	12.0	14.6	13.1	85.2%
1976	14.6	20.2	16.7	13.2	15.7	14.2	85.1%
1977	15.6	21.3	17.7	14.0	16.6	15.1	85.1%
1978	16.3	22.5	18.6	14.7	17.5	15.8	85.1%
1979	16.5	22.3	18.7	14.9	17.4	15.9	85.1%
1980	19.6	27.5	22.5	17.6	21.5	19.2	85.2%
1981	20.9	29.5	24.1	18.8	23.0	20.5	85.2%
1982	21.3	30.7	24.7	19.2	23.9	21.1	85.2%
1983	21.2	30.6	24.6	19.0	23.9	21.0	85.3%
1984	21.2	30.8	24.6	19.1	24.0	21.0	85.3%
1985	21.5	31.3	25.0	19.3	24.4	21.3	85.3%
1986	22.1	32.2	25.7	19.8	25.0	21.8	85.0%
1987	22.2	32.6	25.9	19.8	25.3	22.0	84.7%
1988	22.1	32.7	25.9	19.6	25.2	21.9	84.4%
1989	21.7	32.3	25.4	19.1	24.8	21.4	84.2%
1990	21.4	32.2	25.2	18.7	24.6	21.2	83.9%
1991	21.6	32.5	25.4	18.8	24.7	21.3	83.6%
1992	21.0	32.1	24.9	18.2	24.4	20.8	83.4%
1993	21.2	32.4	25.1	18.2	24.4	20.9	83.1%
1994	20.8	31.6	24.6	17.8	23.8	20.4	82.9%
1995	20.8	32.1	24.7	17.7	24.1	20.5	82.7%
1996	20.8	32.2	24.8	17.6	24.0	20.4	82.4%
1997	20.6	31.8	24.5	17.4	23.6	20.2	82.2%
1998	20.6	31.9	24.5	17.2	23.6	20.1	81.9%
1999	20.3	31.2	24.1	16.9	23.0	19.7	81.7%
2000	20.5	31.4	24.3	16.9	23.0	19.8	81.3%
2001	20.5	31.1	24.2	16.8	22.8	19.6	81.0%
2002	20.4	30.9	24.1	16.6	22.5	19.5	80.7%
2003	20.6	31.3	24.3	16.7	22.7	19.6	80.4%
2004	20.2	31.0	24.0	16.3	22.4	19.3	80.2%
2005	21.0	32.1	24.8	16.8	23.1	19.9	79.8%
2006	21.2	32.6	25.2	17.0	23.4	20.1	79.8%
2007	21.8	33.4	25.8	17.4	24.0	20.6	79.6%
2008	22.1	34.0	26.3	17.7	24.4	21.0	79.5%
2009	23.8	36.4	28.2	18.9	26.0	22.4	79.1%
2010	24.1	36.6	28.4	19.1	26.2	22.6	79.0%
2011	23.7	36.5	28.1	18.8	25.9	22.3	78.8%
2012	25.2	38.7	29.9	19.9	27.3	23.6	78.4%
2013	25.9	39.7	30.7	20.5	28.0	24.2	78.2%
2014	25.9	39.6	30.7	20.4	27.9	24.1	78.0%
2015	26.6	40.5	31.4	20.9	28.5	24.6	77.8%
2016	26.7	40.6	31.6	21.0	28.5	24.7	77.8%
2017 (prelim)	27.4	41.3	32.3	21.5	28.9	25.2	77.2%

---

## D. VEHICLE TAILPIPE CO<sub>2</sub> EMISSIONS DATA

CO<sub>2</sub> emissions data were added to the entire historical Trends database beginning with the 2009 report. CO<sub>2</sub> emissions values in this report are generally calculated from corresponding fuel economy values using the fuel-specific CO<sub>2</sub> emissions per gallon factors described below. Accordingly, the adjusted and unadjusted, laboratory CO<sub>2</sub> emissions values in this report reflect the methodological approaches underlying the adjusted and unadjusted, laboratory fuel economy values that were discussed in detail in the previous section.

While CO<sub>2</sub> emissions data is included in several key summary tables and figures in the report, there are many other tables and figures that present fuel economy values but not CO<sub>2</sub> emissions values. This section provides a simple method that a reader can use to estimate CO<sub>2</sub> emissions values from any fuel economy value in the report.

If a fuel economy value is given for a single gasoline vehicle, or a 100% gasoline vehicle fleet, one can calculate the corresponding CO<sub>2</sub> emissions value by simply dividing 8887 (which is a typical value for the grams of CO<sub>2</sub> per gallon of gasoline test fuel, assuming all the carbon is converted to CO<sub>2</sub>) by the fuel economy value in miles per gallon. For example, 8887 divided by a gasoline vehicle fuel economy of 30 mpg would yield an equivalent CO<sub>2</sub> emissions value of 296 grams per mile. This is the methodology used to generate the CO<sub>2</sub> emissions values for all of the gasoline vehicles in the Trends database.

Since gasoline vehicle production has accounted for 99+% of all light-duty vehicle production for most of the model years since 1975, this simple approach yields accurate results for most model years.

Diesel fuel has 14.5% higher carbon content per gallon than gasoline. To calculate a CO<sub>2</sub> equivalent value for a diesel vehicle, one should divide 10,180 by the diesel vehicle fuel economy value. Accordingly, a 30 mpg diesel vehicle would have a CO<sub>2</sub> equivalent value of 339 grams per mile. This is the methodology used to generate the CO<sub>2</sub> emissions values for the relatively small number of diesel vehicles in the Trends database.

For electric vehicles, the tailpipe CO<sub>2</sub> emissions are 0 grams per mile (see Section 7 for a discussion of upstream emissions). For CNG vehicles, we recommend using an emission factor of 7030 grams per gallon of gasoline equivalent to approximate CO<sub>2</sub> emissions. For PHEVs, the process of calculating CO<sub>2</sub> grams per mile is more complex, and this report uses a parallel methodology described in Section 10.C for PHEV fuel economy values, calculating the carbon-related exhaust emissions from test data and then converting the carbon content to CO<sub>2</sub>.

To make the most accurate conversions of industry-wide fuel economy values to CO<sub>2</sub> emissions values, readers should divide model year-specific industry-wide values for grams of CO<sub>2</sub> per gallon in Table 10.3 by industry-wide fuel economy values in miles per gallon. Two sets of model year-specific industry wide CO<sub>2</sub> per gallon values are provided, with the final column providing a value representing that model year fleet including alternative fuel vehicles,

---

and the next-to-last column providing a value representing that model year fleet excluding alternative fuel vehicles (i.e., just gasoline and diesel vehicles).

Readers must make judgment calls about how to best convert fuel economy values that do not represent industry-wide values (e.g., just cars or vehicles with 5-speed automatic transmissions). Options include the two model year-specific CO<sub>2</sub> emissions per gallon weightings in Table 10.3 (with and without alternative fuel vehicles) or the gasoline value of 8887 (implicitly assuming no diesels or alternative fuel vehicles in that database component). Or a user can generate a customized grams of CO<sub>2</sub> emissions per gallon value based on the make-up of the vehicles in question.

Finally, it is important to note that the unadjusted, laboratory tailpipe CO<sub>2</sub> emissions values included in a few tables in this report are very similar to, but not exactly equal to, the 2-cycle tailpipe CO<sub>2</sub> emissions values provided in the annual EPA GHG Manufacturer Performance Report [www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer](http://www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer). The two most important reasons for slight differences in car and truck CO<sub>2</sub> emissions data is 1) the values in this Trends report are calculated from generic fuel-specific emissions factors discussed above, while the values in the GHG Performance report use formal compliance data based on actual carbon content of the test fuel used at the time of the compliance test, and 2) some manufacturers may choose to use an optional compliance approach which adds nitrous oxide and methane emissions to their CO<sub>2</sub> (more accurately CREE, see next section) values while the Trends data does not reflect nitrous oxide and methane emissions for any automakers. In addition, there is another factor that can lead to differences in combined car-truck values only: Trends report data are not weighted for any differences in lifetime vehicle miles traveled (VMT) between cars and trucks, while the GHG Performance report assumes slightly higher lifetime VMT for trucks than cars as required by compliance regulations. In general, when there are slight differences between the Trends unadjusted CO<sub>2</sub> data and GHG Performance 2-cycle CO<sub>2</sub> data, the latter are typically slightly higher than the former.

**Table 10.3****Factors for Converting Industry-Wide Fuel Economy Values from this Report to Carbon Dioxide Emissions Values**

Model Year	Gasoline Production Share	Diesel Production Share	AFV Production Share	Weighted CO <sub>2</sub> per Gallon (grams) Without AFVs	Weighted CO <sub>2</sub> per Gallon (grams) With AFVs
1975	99.8%	0.2%	-	8888	8888
1976	99.8%	0.2%	-	8889	8889
1977	99.6%	0.4%	-	8890	8890
1978	99.1%	0.9%	-	8895	8895
1979	98.0%	2.0%	-	8906	8906
1980	95.7%	4.3%	-	8930	8930
1981	94.1%	5.9%	-	8948	8948
1982	94.4%	5.6%	-	8948	8948
1983	97.3%	2.7%	-	8916	8916
1984	98.2%	1.8%	-	8905	8905
1985	99.1%	0.9%	-	8897	8897
1986	99.6%	0.4%	-	8891	8891
1987	99.7%	0.3%	-	8890	8890
1988	99.9%	0.1%	-	8888	8888
1989	99.9%	0.1%	-	8888	8888
1990	99.9%	0.1%	-	8888	8888
1991	99.9%	0.1%	-	8888	8888
1992	99.9%	0.1%	-	8888	8888
1993	100.0%	-	-	8887	8887
1994	100.0%	0.0%	-	8887	8887
1995	100.0%	0.0%	-	8887	8887
1996	99.9%	0.1%	-	8888	8888
1997	99.9%	0.1%	-	8888	8888
1998	99.9%	0.1%	-	8888	8888
1999	99.9%	0.1%	-	8888	8888
2000	99.9%	0.1%	-	8888	8888
2001	99.9%	0.1%	-	8888	8888
2002	99.8%	0.2%	-	8888	8888
2003	99.8%	0.2%	-	8888	8888
2004	99.9%	0.1%	-	8888	8888
2005	99.7%	0.3%	-	8889	8889
2006	99.6%	0.4%	-	8890	8890
2007	99.9%	0.1%	-	8888	8888
2008	99.9%	0.1%	-	8889	8889
2009	99.5%	0.5%	-	8892	8892
2010	99.3%	0.7%	0.0%	8893	8893
2011	99.1%	0.8%	0.1%	8895	8893
2012	98.7%	0.9%	0.4%	8896	8894
2013	98.4%	0.9%	0.7%	8896	8889
2014	98.3%	1.0%	0.7%	8897	8891
2015	98.3%	0.9%	0.7%	8898	8888
2016	98.7%	0.5%	0.8%	8893	8882
2017 (prelim)	97.8%	0.3%	1.9%	8891	8869

---

## E. VEHICLE-RELATED GHG EMISSIONS SOURCES OTHER THAN TAILPIPE CO<sub>2</sub> EMISSIONS

The CO<sub>2</sub> emissions data in this report reflect the sum of the vehicle tailpipe emissions of CO<sub>2</sub>, carbon monoxide, and hydrocarbons, with the latter two converted to equivalent CO<sub>2</sub> levels on a mass basis. While carbon monoxide and hydrocarbon emissions add, on average, less than one percent to overall CO<sub>2</sub> tailpipe emissions values, these compounds are included in the tailpipe CO<sub>2</sub> emissions data because they are converted to CO<sub>2</sub> relatively quickly in the atmosphere, and to maintain consistency with greenhouse gas (GHG) emissions standards compliance. EPA regulations refer to this sum as “carbon related exhaust emissions” or CREE, but we use the term CO<sub>2</sub> emissions in this report for simplicity.

It is important to emphasize that tailpipe CO<sub>2</sub> or CREE emissions do not represent the entire GHG burden associated with a personal vehicle, and there are at least six other vehicle-related GHG sources. While this report cannot provide authoritative data for each of these other vehicle-related GHG sources, they will be briefly identified and discussed below for context, with an emphasis on the approximate magnitude of each source relative to the magnitude of the tailpipe CO<sub>2</sub> emissions that are documented in this report.

### **Tailpipe emissions of nitrous oxide (N<sub>2</sub>O)**

Nitrous oxide is a greenhouse gas and a constituent in the exhaust from internal combustion engines. It is emitted from gasoline and diesel vehicles during specific catalytic converter temperature conditions conducive to its formation. EPA does not currently require N<sub>2</sub>O emissions measurement as a part of the formal EPA vehicle certification process (it will begin to be required in the MY 2017-2019 timeframe), so we only have limited test data at this time. Based on this limited data, EPA estimates typical N<sub>2</sub>O emissions from late model gasoline cars to be on the order of 0.005 g/mi (EPA and DOT 2010, 25422). With a global warming potential of 298, this yields a CO<sub>2</sub>-equivalent value of approximately 1.5 g/mi or about 0.4% of the 359 g/mi adjusted fleetwide CO<sub>2</sub> emissions value for MY 2016. Under the National Program regulations for MY 2012-2025, EPA has established an N<sub>2</sub>O per-vehicle emissions cap of 0.010 g/mi, which is not intended to reduce N<sub>2</sub>O emissions, but rather to ensure that there are no increases in the future (EPA and DOT 2010, 25421).

### **Tailpipe emissions of methane (CH<sub>4</sub>)**

Methane is a greenhouse gas and also a constituent in internal combustion engine exhaust. As the simplest hydrocarbon compound (one carbon atom and four hydrogen atoms), it is one of the large number of hydrocarbon compounds formed during the imperfect combustion of hydrocarbon-based fuels such as gasoline and diesel (and the most prominent hydrocarbon compound in compressed natural gas vehicle exhaust). EPA requires that CH<sub>4</sub> emissions be measured during the formal EPA vehicle certification program. Typical methane emissions from late model gasoline cars are about 0.015 g/mi (EPA and DOT 2010, 25423). With a

---

global warming potential of 25, this yields a CO<sub>2</sub>-equivalent value of approximately 0.4 g/mi, or about 0.1% of the 359 g/mi adjusted fleetwide CO<sub>2</sub> emissions value for MY 2016. Under the National Program regulations for MY 2012-2025, EPA has established a CH<sub>4</sub> per-vehicle emissions cap of 0.03 g/mi, which is not intended to reduce CH<sub>4</sub> emissions, but rather to ensure that there are no increases in the future (EPA and DOT 2010, 25421 and EPA and DOT 2012, 62770).

### **Vehicle GHG emissions associated with air conditioner refrigerants**

Nearly all new personal vehicles in the U.S. are equipped with air conditioners. Until relatively recently, all automotive air conditioners used the refrigerant HFC-134a, which is a very strong greenhouse gas with a global warming potency of 1,430. Small amounts of refrigerant leakage can occur during routine operation, during maintenance and servicing, and during ultimate disposal. Based on the combination of relatively small mass leakage with the extremely high global warming potency, EPA estimates typical HFC-134a CO<sub>2</sub>-equivalent values of 13.8 g/mi for cars and 17.2 g/mi for light trucks, or about 4% of the 359 g/mi adjusted fleetwide CO<sub>2</sub> emissions value for MY 2016 (EPA and DOT 2012, 62805). There are no standards under the MY 2012-2025 National Program for the control of air conditioner refrigerant leakage emissions, but automakers can earn credits for reducing leakage emissions that can be used to help achieve compliance with the tailpipe CO<sub>2</sub> emissions standards. The GHG Manufacturer Performance Report for MY 2016 showed that automakers generated, on average, about 6 g/mi CO<sub>2</sub>-equivalent credit due to reduced air conditioner refrigerant leakage in MY 2016 (EPA 2017). Some automakers are beginning to use a new air conditioner refrigerant, HFO-1234yf, which has a much lower global warming potency of 4.

### **GHG emissions associated with fuel production and distribution**

Motor vehicle fuel production and distribution (often referred to as “upstream” emissions) can produce significant GHG emissions. The relative relationship between vehicle tailpipe CO<sub>2</sub> emissions and vehicle fuel-related production/distribution GHG emissions can vary greatly. For example, for typical gasoline today, a rule-of-thumb is that gasoline production/distribution (all steps including oil production, oil transport, refining, and gasoline transport to the service station) yields about 25% of the GHG emissions associated with vehicle tailpipe CO<sub>2</sub> emissions. Based on this rule-of-thumb, gasoline production/distribution-related GHG emissions associated with the 359 g/mi adjusted fleetwide CO<sub>2</sub> vehicle tailpipe emissions value for MY 2016 would be about 90 g/mi, for a total adjusted fleetwide MY 2016 CO<sub>2</sub> tailpipe plus gasoline production/distribution GHG emissions value of about 449 g/mi. Other fuels currently used in personal vehicles, such as diesel from crude oil, ethanol from corn, and compressed natural gas, can also have significant fuel production/distribution GHG emissions. However, like gasoline, these GHG emissions are typically much smaller than those from the vehicle tailpipe.

Some fuels have very different vehicle tailpipe vs fuel production/distribution characteristics. For example, electric vehicles have zero tailpipe emissions, and so all GHG emissions

---

associated with electric vehicle operation are associated with the generation and distribution of electricity. The same goes for hydrogen. On the other hand, carbon-based fuels produced from renewable feedstocks could have similar vehicle tailpipe emissions (note there is an accounting issue here, while Trends would assign tailpipe emissions to the vehicle, current IPCC rules do not count tailpipe emissions for renewable fuels), but “negative” fuel production/distribution-related GHG emissions if little or no fossil fuels are used in the production/distribution of the fuel and the “carbon uptake” associated with renewable fuels is accounted for at the production/distribution step.

There is an exhaustive literature on the relative vehicle versus fuel-related GHG emissions for various fuel/feedstock combinations, and the reader should consult the literature for detailed analyses.

#### **GHG emissions associated with vehicle manufacturing and assembly**

Some studies estimate that the GHG emissions associated with vehicle and component manufacturing and assembly for conventional gasoline vehicles are on the order of 10-15% of total life-cycle vehicle GHG emissions (where vehicle tailpipe and fuel production/distribution accounts for nearly all of the remaining vehicle life cycle emissions).<sup>20</sup> Based on the approximate 449 g/mi adjusted fleetwide value calculated above for MY 2016 CO<sub>2</sub> tailpipe plus gasoline production/distribution GHG emissions, this would imply that typical vehicle and component manufacturing and assembly GHG emissions would be on the order of approximately 45-70 g/mi.

#### **GHG emissions associated with vehicle disposal**

The GHG emissions associated with vehicle disposal, or end-of-life, are typically not more than a few percent of total life-cycle vehicle emissions for a conventional gasoline vehicle. Based on the above approximations, this would imply that GHG emissions associated with vehicle disposal might be on the order of 10 g/mi or less.

## **F. OTHER DATABASE METHODOLOGY ISSUES**

### **Air Conditioner Efficiency and Off-Cycle Credits**

Under the EPA greenhouse gas emissions standards for MY 2012-2025, manufacturers have the option of earning air conditioner efficiency and off-cycle CO<sub>2</sub> emissions credits for the utilization of technologies that yield real world CO<sub>2</sub> emissions reductions, but which are not reflected on the 2-cycle compliance tests. It is expected that most, and maybe all, of the

---

<sup>20</sup> For example, see Samaras, C. and Meisterling, K. Life Cycle Assessment of Greenhouse Gas Emissions from Plug-in Hybrid Vehicles: Implications for Policy. *Environmental Science & Technology* 2008, 42 (9):3170–3176, or Notter, D. et al. Contribution of Li-Ion Batteries to the Environmental Impact of Electric Vehicles. *Environmental Science & Technology* 2010, 44 (17): 6550-6556.

---

technologies that earn air conditioner efficiency and off-cycle CO<sub>2</sub> emissions credits will also reduce real world fuel consumption.<sup>21</sup>

The adjusted CO<sub>2</sub> tailpipe emissions and fuel economy values in this report reflect air conditioner efficiency improvements for the fraction of vehicles that undergo full 5-cycle testing as that testing includes a cycle with maximum air conditioning operation at 95 degrees Fahrenheit (see Section 10.C). At this time, the adjusted values do not reflect air conditioner efficiency improvements for those vehicles that do not undergo full 5-cycle testing and which utilize the derived 5-cycle equations. In addition, the adjusted values likely do not reflect certain off-cycle credit technologies. This is primarily due to the fact that, at this time, some manufacturers submit credits data only on a fleetwide basis, rather than on a model by model basis which would be necessary to fully integrate credits data with the full Trends database.

MY 2015 credits data provided in the EPA GHG Manufacturer Performance Report, available at [www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer](http://www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer), show that total air conditioner efficiency credits (some of which are reflected in adjusted values as discussed above) were 4 g/mi and off-cycle credits were 3 g/mi. Accordingly, at most these credits could reduce adjusted MY 2016 CO<sub>2</sub> tailpipe emission values by about 7 g/mi, which would translate to an adjusted fuel economy increase of approximately 0.5 mpg. Again, most of these credits are not reflected in the Trends database.

EPA will continue to consider the question of whether, and if so how, to account for air conditioner efficiency and off-cycle CO<sub>2</sub> emissions credits in future reports.

### **Changes in Car-Truck Classification Definitions**

Car-truck definitions through the 2010 report were based EPA's engineering judgment. Until recently, EPA and NHTSA had slightly different regulatory definitions for car-truck classifications with respect to health-related emissions and fuel economy, respectively, and the Trends report followed a third approach, though in practice there was broad (though not universal) agreement among the three approaches.

Beginning with the 2011 report, Trends car-truck classifications followed current regulatory definitions used by both EPA and NHTSA for CO<sub>2</sub> emissions and fuel economy standards. See definitions for passenger automobiles (cars) and non-passenger automobiles (trucks) later in this section. These current definitions differ from those used in older versions of this report, and reflect a decision by NHTSA to reclassify many small, 2-wheel drive, sport utility vehicles (SUVs) from the truck category to the car category, beginning with MY 2011. When this re-classification was initiated in the 2011 report, the absolute truck share decreased by approximately 10%.

---

<sup>21</sup> Air conditioner efficiency and off-cycle credits are the two types of credits that could impact the adjusted CO<sub>2</sub> tailpipe emissions and fuel economy values provided in this report. Other regulatory credits (e.g., for dual fuel vehicles or for air conditioner refrigerant leakage) and incentives (e.g., for advanced technologies) would not impact adjusted CO<sub>2</sub> tailpipe emissions or fuel economy values.

---

The current car-truck definitions have been “propagated back” throughout the entire historical Trends database to maintain the integrity of long-term trends of car and truck production share. Since we did not have all of the requisite technical information on which to make retroactive car-truck classifications, we used engineering judgment to classify past models.

### **Inclusion of Medium-Duty Passenger Vehicles**

Beginning with the 2011 report, medium-duty passenger vehicles (MDPVs), those SUVs and passenger vans (but, not pickup trucks) with gross vehicle weight ratings between 8500 and 10,000 pounds, are included in the light-duty truck category. This coincided with new regulations by NHTSA to treat these vehicles as light-duty, rather than heavy-duty, vehicles beginning in MY 2011. This represents a minor change to the database, since the number of MDPVs is much smaller than it once was (e.g., only 6500 MDPVs were sold in MY 2012). It should be noted that this is one change to the database that has not been “propagated back” through the historic database, as we do not have MDPV data prior to MY 2011. Accordingly, this represents a small inflection point for the database for the overall car and truck fleet in MY 2011; the inclusion of MDPVs decreased average adjusted fuel economy by 0.01 mpg and increased average adjusted CO<sub>2</sub> emissions by 0.3 g/mi, compared to the fleet without MDPVs. The impacts on the truck fleet only were about twice as high, but still very small in absolute terms.

## **G. COMPARISON OF PRELIMINARY AND FINAL FLEETWIDE FUEL ECONOMY VALUES**

In recent years, the data for the last model year included in each report has been preliminary (i.e., based on projected vehicle production volumes provided by automakers prior to the beginning of the model year), while the data for all other model years has been final. This leads to the logical question, how accurate have the preliminary projections been?

Table 10.4 compares the preliminary and final fleetwide fuel economy values for recent years (note that the differences for CO<sub>2</sub> emissions data would be similar, on a percentage basis). Only unadjusted values are shown in the table. Due to the methodology changes over time to adjusted fuel economy values, a comparison to the predicted values would be difficult. However, the trend is likely very similar to that of the unadjusted fuel economy values.

It is important to note that there isn’t a perfect apples-to-apples comparison for MY 2011-2014, due to a number of small data issues, such as alternative fuel vehicle data. The preliminary values in Table 10.4 through MY 2014 did not integrate AFV data. The final values in Table 10.4 are the values reported elsewhere in this report and do include alternative fuel vehicle data. The differences due to this will be small, on the order of 0.1 mpg or less.

Table 10.4 shows that, since MY 2007, the final unadjusted fuel economy values have generally been close to the preliminary unadjusted fuel economy values. The major exception was MY 2009, when there was considerable market turmoil due to the economic recession and

the final value was 1.8 mpg higher than predicted. MY 2016 was also 0.9 mpg lower than predicted, likely due to the increasing percentage of SUVs purchased by consumers.

**Table 10.4**

**Comparison of Preliminary and Final Fuel Economy Values, Both Car and Truck**

Model Year	Unadjusted Fuel Economy (MPG)		
	Preliminary Value	Final Value	Final Minus Preliminary
2000	24.0	24.3	+0.3
2001	23.9	24.2	+0.3
2002	24.0	24.1	+0.1
2003	24.4	24.3	-0.1
2004	24.4	24.0	-0.4
2005	24.6	24.8	+0.2
2006	24.6	25.2	+0.6
2007	25.3	25.8	+0.5
2008	26.0	26.3	+0.3
2009	26.4	28.2	+1.8
2010	28.3	28.4	+0.1
2011	28.6	28.1	-0.5
2012	30.0	29.8	-0.2
2013	30.3	30.7	+0.4
2014	30.6	30.7	+0.1
2015	31.2	31.4	+0.2
2016	32.5	31.6	-0.9
2017 (prelim)	32.3	-	-

---

## H. DEFINITIONS AND ACRONYMS

Electric vehicle (EV) means a motor vehicle that is powered solely by an electric motor drawing current from a rechargeable energy storage system, such as from storage batteries or other portable electrical energy storage devices. For the Trends report, electric vehicles do not generally include fuel cell vehicles.

Flexible fuel vehicle (FFV) means any motor vehicle engineered and designed to be operated on a petroleum fuel and on a methanol or ethanol fuel, or any mixture of the petroleum fuel and methanol or ethanol. Methanol-fueled and ethanol-fueled vehicles that are only marginally functional when using gasoline (e.g., the engine has a drop in rated horsepower of more than 80 percent) are not flexible fuel vehicles.

Footprint means the product of average track width (rounded to the nearest tenth of an inch) and wheelbase (measured in inches and rounded to the nearest tenth of an inch), divided by 144 and then rounded to the nearest tenth of a square foot, where the average track width is the average of the front and rear track widths, where each is measured in inches and rounded to the nearest tenth of an inch.

Fuel cell vehicle (FCV) means an electric vehicle propelled solely by an electric motor where energy for the motor is supplied by an electrochemical cell that produces electricity via the non-combustion reaction of a consumable fuel, typically hydrogen.

Gasoline gallon equivalent means an amount of electricity or fuel with the energy equivalence of one gallon of gasoline. For purposes of the Trends report, one gallon of gasoline is equivalent to 33.705 kilowatt-hours of electricity or 121.5 standard cubic feet of natural gas.

Hybrid electric vehicle (HEV) means a motor vehicle which draws propulsion energy from onboard sources of stored energy that are both an internal combustion engine or heat engine using consumable fuel, and a rechargeable energy storage system such as a battery, capacitor, hydraulic accumulator, or flywheel, where recharge energy for the energy storage system comes solely from sources on board the vehicle.

Light Truck means an automobile that is not a car or a work truck and includes vehicles described in paragraphs (a) and (b) below:

- (a) An automobile designed to perform at least one of the following functions:
  - (1) Transport more than 10 persons;
  - (2) Provide temporary living quarters;
  - (3) Transport property on an open bed;
  - (4) Provide, as sold to the first retail purchaser, greater cargo-carrying than passenger-carrying volume, such as in a cargo van; if a vehicle is sold with a second-row seat, its cargo-carrying volume is determined with that seat installed, regardless of whether the manufacturer has described that seat as optional; or
  - (5) Permit expanded use of the automobile for cargo-carrying purposes or other nonpassenger-carrying purposes through:

- 
- (i) For non-passenger automobiles manufactured in model year 2008 and beyond, for vehicles equipped with at least 3 rows of designated seating positions as standard equipment, permit expanded use of the automobile for cargo-carrying purposes or other nonpassenger-carrying purposes through the removal or stowing of foldable or pivoting seats so as to create a flat, leveled cargo surface extending from the forwardmost point of installation of those seats to the rear of the automobile's interior.
- (b) An automobile capable of off-highway operation, as indicated by the fact that it:
- (1) (i) Has 4-wheel drive; or
  - (ii) Is rated at more than 6000 pounds gross vehicle weight; and
  - (2) Has at least four of the following characteristics calculated when the automobile is at curb weight, on a level surface, with the front wheels parallel to the automobile's longitudinal centerline, and the tires inflated to the manufacturer's recommended pressure—
    - (i) Approach angle of not less than 28 degrees.
    - (ii) Breakover angle of not less than 14 degrees.
    - (iii) Departure angle of not less than 20 degrees.
    - (iv) Running clearance of not less than 20 centimeters.
    - (v) Front and rear axle clearances of not less than 18 centimeters each.

*\*Please see Section 10.F for Changes in Car-Truck Classification Definitions over time.*

Minivan means a light truck which is designed primarily to carry no more than eight passengers, having an integral enclosure fully enclosing the driver, passenger, and load-carrying compartments, and rear seats readily removed, folded, stowed, or pivoted to facilitate cargo carrying. A minivan typically includes one or more sliding doors and a rear liftgate. Minivans typically have less total interior volume or overall height than full sized vans and are commonly advertised and marketed as “minivans.”

Mpg means miles per gallon.

Mpge means miles per gasoline gallon equivalent (see gasoline gallon equivalent above).

Pickup truck means a light truck which has a passenger compartment and an open cargo bed.

Plug-in hybrid electric vehicle (PHEV) means a hybrid electric vehicle that has the capability to charge the battery from an off-vehicle electric source, such that the off-vehicle source cannot be connected to the vehicle while the vehicle is in motion.

Special purpose vehicles means automobiles with GVWR less than or equal to 8,500 pounds and medium-duty passenger vehicles which possess special features and which the Administrator determines are more appropriately classified separately from typical automobiles.

*\*For purposes of the Trends report, we used engineering judgment to allocate the very small number of vehicles, labeled as special purpose vehicles at [www.fueleconomy.gov](http://www.fueleconomy.gov), to the three truck types: truck SUV, van/minivan, or truck*

---

Sport utility vehicle (SUV) means a light truck with an extended roof line to increase cargo or passenger capacity, cargo compartment open to the passenger compartment, and one or more rear seats readily removed or folded to facilitate cargo carrying. Generally, 2-wheel drive SUVs equal to or less than 6000 lbs GVWR are passenger cars for CAFE and GHG standards compliance, but continue to be labeled as SUVs.

Station wagon means cars with an extended roof line to increase cargo or passenger capacity, cargo compartment open to the passenger compartment, a tailgate, and one or more rear seats readily removed or folded to facilitate cargo carrying.

Track width –means the lateral distance between the centerlines of the base tires at ground, including the camber angle.

Van means any light truck having an integral enclosure fully enclosing the driver compartment and load carrying compartment. The distance from the leading edge of the windshield to the foremost body section of vans is typically shorter than that of pickup trucks and SUVs.

Wheelbase is the longitudinal distance between front and rear wheel centerlines.

## I. LINKS FOR MORE INFORMATION

This report, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2017* (EPA-420-R-18-001) is available on the EPA's Office of Transportation and Air Quality's (OTAQ) web site at: [www.epa.gov/fuel-economy-trends](http://www.epa.gov/fuel-economy-trends). The Executive Summary of this report (EPA-420-S-18-001) is available at the same web site.

A copy of the *Fuel Economy Guide* giving city and highway fuel economy data for individual models is available at: [www.fueleconomy.gov](http://www.fueleconomy.gov) or by calling the U.S. Department of Energy at (800) 423-1363.

The website [www.fueleconomy.gov](http://www.fueleconomy.gov) provides fuel economy and environmental information for vehicles from model year 1984 through the present. The site has many tools that allow users to search for vehicles and find information on vehicle fuel economy, fuel consumption, estimated annual fuel cost, and CO<sub>2</sub> emissions. The site also allows users to personalize fuel economy and fueling cost estimates based on personalized inputs for fuel cost, annual mileage, and percentage of city versus highway driving.

EPA's Green Vehicle Guide ([www.epa.gov/greenvehicles](http://www.epa.gov/greenvehicles)) is designed to help car buyers identify the cleanest, most fuel-efficient vehicle that meets their needs. The site includes information on SmartWay certified vehicles, how advanced technology vehicles work, and infographics and videos that provide tips on saving money and reducing emissions through smarter vehicle choices.

For detailed information about EPA's GHG emissions standards for motor vehicles, see: [www.epa.gov/regulations-emissions-vehicles-and-engines](http://www.epa.gov/regulations-emissions-vehicles-and-engines).

---

For information about automaker compliance with EPA's Greenhouse Gas Emissions standards, including a detailed Manufacturer Performance Report for the 2015 Model Year, see: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles>.

For detailed information about DOT's Corporate Average Fuel Economy (CAFE) program, including a program overview, related rulemaking activities, and summaries of the formal CAFE performance of individual manufacturers since 1978, see: [www.nhtsa.gov/Laws-&-Regulations/CAFE--Fuel-Economy](http://www.nhtsa.gov/Laws-&-Regulations/CAFE--Fuel-Economy).

For more information about the EPA/Department of Transportation (DOT) Fuel Economy and Environment Labels, see: [www.epa.gov/greenvehicles/learn-about-fuel-economy-label](http://www.epa.gov/greenvehicles/learn-about-fuel-economy-label).

## J. AUTHORS AND ACKNOWLEDGEMENTS

The authors of this year's Trends report are Aaron Hula, Amy Bunker, Andrea Maguire, and Jeff Alson, all of whom work for the EPA Office of Transportation and Air Quality's (OTAQ) Transportation and Climate Division, at the National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. Colleagues from OTAQ's Compliance Division, including Sara Zaremski, Linc Wehrly, Robert Peavyhouse, Karen Danzeisen, and Rob French provided critical access and expertise pertaining to the formal VERIFY data that comprise the Trends database. The authors also want to thank Gwen Dietrich and David Levin of OTAQ for greatly improving the design and layout of the report. CSRA International, under contract to OTAQ (contract number EP-C-16-012), provided key support for database maintenance, and table and figure generation. DOT/NHTSA staff reviewed the report and provided helpful comments. Of course, the EPA authors take full responsibility for the content and any errors.

The authors also want to acknowledge those OTAQ staff that played key roles in creating and maintaining the Trends database and report since its inception in the early 1970s. Karl Hellman, who conceived of and developed the initial Trends reports with Thomas Austin in the early 1970s, was the guiding force behind the Trends report for over 30 years. The late Dill Murrell made significant contributions from the late 1970s through the early 1990s, and Robert Heavenrich was a lead author from the early 1980s through 2006.

# References

---

- Abt Associates 2017. The emissions & generation resource integrated database technical support document for eGRID 2014, prepared for the U.S. Environmental Protection Agency, February 2017.
- Amann, Charles A. 1989. The automotive engine - a future perspective. *SAE*. Paper 891666.
- Austin and Hellman 1973. Passenger Car Fuel Economy - Trends and Influencing Factors. *SAE*. Paper 730790, September 1973.
- Austin and Hellman 1974. Fuel Economy of the 1975 Models. *SAE*. Paper 740970, October 1974.
- Austin and Service 1975. Passenger Car Fuel Economy Trends Through 1976. *SAE*. Paper 750957, October 1975.
- Argonne National Laboratory 2017. GREET 2016 Model. [greet.es.anl.gov](http://greet.es.anl.gov).
- Blanco, Sebastian. Honda Civic hybrid now available nationwide, CNG model in 37 states. 2014 AutoBlog Green. Feb. 4, 2014. [www.autoblog.com/2014/02/04/2014-honda-civic-hybrid-now-available-cng-model-in-37-states](http://www.autoblog.com/2014/02/04/2014-honda-civic-hybrid-now-available-cng-model-in-37-states). Accessed April 2014.
- Cheng, LeBaron, Murrell, and Loos 1982. Light-Duty Automotive Fuel Economy Trends Through 1982. *SAE*. Paper 820300, February 1982.
- DeCicco, J.M. 2010. A fuel efficiency horizon for U.S. automobiles. Technical Report, University of Michigan, School of Natural Resources and Environment. Report prepared for The Energy Foundation [deepblue.lib.umich.edu/bitstream/handle/2027.42/78178/DeCicco\\_AutoEfficiencyHorizon\\_Sept2010.pdf](http://deepblue.lib.umich.edu/bitstream/handle/2027.42/78178/DeCicco_AutoEfficiencyHorizon_Sept2010.pdf).
- (EPA) Environmental Protection Agency 1972. U.S. Environmental Protection Agency, Fuel Economy and Emission Control, November 1972.
- (EPA) Environmental Protection Agency 1984. Fuel economy of motor vehicles; Revisions to improve fuel economy labeling and the fuel economy Data base. *49 Federal Register*, 13832-13855, April 6, 1984.
- (EPA) Environmental Protection Agency 2006. Fuel economy labeling of motor Vehicles; Revisions to improve calculation of fuel economy estimates; Final rule. *71 Federal Register*, 77871-77969, December 27, 2006.
- (EPA) Environmental Protection Agency 2007. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2007. U.S. EPA420-S-07-001, Office of Transportation and Air Quality, September 2007.
- (EPA) Environmental Protection Agency 2008. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008. U.S. EPA420-R-08-015, Office of Transportation and Air Quality, September 2008.
- (EPA) Environmental Protection Agency 2009. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2009. U.S. EPA420-R-09-014, Office of Transportation and Air Quality, November 2009.
- (EPA) Environmental Protection Agency 2010a. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2010. U.S. EPA-420-R-10-023, Office of Transportation and Air Quality, November 2010.

- 
- (EPA) Environmental Protection Agency 2010b. Regulation of fuels and fuel additives: Changes to renewable fuel standard program; Final rule. *75 Federal Register*, 14669-15320, March 26, 2010.
- (EPA) Environmental Protection Agency 2012a. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2011. U.S. EPA-420-R-12-001, Office of Transportation and Air Quality, March 2012.
- (EPA) Environmental Protection Agency 2012b. Regulatory Impact Analysis: Final Rulemaking for 2017-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards. EPA-420-R-016, August 2012.
- (EPA) Environmental Protection Agency 2013a. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2012. U.S. EPA-420-R-13-001, Office of Transportation and Air Quality, March 2013.
- (EPA) Environmental Protection Agency 2013b. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2013. U.S. EPA-420-R-13-002, Office of Transportation and Air Quality, December 2013.
- (EPA) Environmental Protection Agency 2014. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2014. U.S. EPA-420-R-14-023a, Office of Transportation and Air Quality, October 2014.
- (EPA) Environmental Protection Agency 2015a. Greenhouse Gas Emission Standards for Light-Duty Vehicles—Manufacturer Performance Report for the 2013 Model Year, Office of Transportation and Air Quality, EPA-420-R-15-008a, March 2015
- (EPA) Environmental Protection Agency 2015b. Greenhouse Gas Emission Standards for Light-Duty Vehicles—Manufacturer Performance Report for the 2014 Model Year, Office of Transportation and Air Quality, EPA-420-R-15-026, December 2015
- (EPA) Environmental Protection Agency 2015c. Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 through 2015. U.S. EPA-420-R-15-016, Office of Transportation and Air Quality, December 2015.
- (EPA) Environmental Protection Agency 2016. Greenhouse Gas Emission Standards for Light-Duty Vehicles: Manufacturer Performance Report for the 2015 Model Year, Office of Transportation and Air Quality, EPA-420-R-16-014, November 2016.
- (EPA and DOT) Environmental Protection Agency and Department of Transportation 2010. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule. *75 Federal Register*, 25324-25728, May 7, 2010.
- (EPA and DOT) Environmental Protection Agency and Department of Transportation 2012. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards. *77 Federal Register*, 62624-63200, October 15, 2012.

- 
- Foster, Murrell and Loos 1981. Light-Duty Automotive Fuel Economy Trends through 1981. *SAE*. Paper 810386, February 1981.
- Heavenrich and Hellman 1996. Light-Duty Automotive Technology and Fuel Economy Trends through 1996. U.S. EPA/AA/TDSG/96-01, July 1996.
- Heavenrich and Hellman 1999. Light-Duty Automotive Technology and Fuel Economy Trends through 1999. U.S. EPA420-R-99-018, September 1999.
- Heavenrich and Hellman 2000. Light-Duty Automotive Technology and Fuel Economy Trends 1975 through 2000. U.S. EPA420-R-00-008, December 2000.
- Heavenrich and Hellman 2001. Light-Duty Automotive Technology and Fuel Economy Trends 1975 through 2001. U.S. EPA420-R-01-008, September 2001.
- Heavenrich and Hellman 2003. Light-Duty Automotive Technology and Fuel Economy Trends 1975 through 2003. U.S. EPA420-R-03-006, April 2003.
- Heavenrich and Hellman 2004. Light-Duty Automotive Technology and Fuel Economy Trends 1975 through 2004. U.S. EPA420-R-04-001, April 2004.
- Heavenrich and Murrell 1988. Light-Duty Automotive Trends Through 1988 U.S. EPA, EPA/AA/CTAB/88-07, June 1988.
- Heavenrich and Murrell 1990. Light-Duty Automotive Technology and Fuel Economy Trends through 1990. U.S. EPA, EPA/AA/CTAB/90-03, June 1990.
- Heavenrich, Cheng, and Murrell 1986. Light-Duty Automotive Trends through 1986. *SAE*. Paper 860366, February 1986.
- Heavenrich, Murrell, and Cheng 1987. Light-Duty Automotive Trends through 1987. *SAE*. Paper 871088, May 1987.
- Heavenrich, Murrell, and Hellman 1989. Light-Duty Automotive and Technology Trends through 1989. U.S. EPA, EPA/AA/CTAB/89-04, May 1989.
- Heavenrich, Murrell, and Hellman 1991. Light-Duty Automotive Technology and Fuel Economy Trends through 1991. U.S. EPA/AA/CTAB/91-02, May 1991.
- Heavenrich, Murrell, Cheng, and Loos 1984. Passenger Car Fuel Economy - Trends through 1984. *SAE*. Paper 840499, February 1984.
- Heavenrich, Murrell, Cheng, and Loos 1985. Light-Duty Automotive Fuel Economy - Trends through 1985. *SAE*. Paper 850550, March 1985.
- Heavenrich, Robert M. 2005. Light-Duty Automotive Technology and Fuel Economy Trends 1975 through 2005. U.S. EPA420-R-05-001, July 2005.

- 
- Heavenrich, Robert M. 2006. Light-Duty Automotive Technology and Fuel Economy Trends 1975 through 2006. U.S. EPA420-R-06-011, July 2006.
- Loos, Cheng, Murrell and Heavenrich, 1984. Light Truck Fuel Economy - Trends through 1984. SAE. Paper 841405, October 1984.
- MacKenzie, D., Heywood, J. 2012. Acceleration performance trends and the evolving relationship among power, weight, and acceleration in U.S. light-duty vehicles: A linear regression analysis. *Transportation Research Board*, Paper No. 12-1475, TRB 91st Annual Meeting, Washington, DC, January 2012.
- Malliaris, A.C., Hsia, H., and Gould, H. 1976. Concise description of auto fuel economy and performance in recent model years. SAE. Paper 760045.
- Murrell 1978. Light-Duty Automotive Fuel Economy Trends through 1978. SAE. Paper 780036, February 1978.
- Murrell 1979. Light-Duty Automotive Fuel Economy Trends through 1979. SAE. Paper 790225, February 1979.
- Murrell and Heavenrich 1990. Downward Trend in Passenger Car Fuel Economy - A View of Recent Data. U.S. EPA, EPA/AA/CTAB/90-01, January 1990.
- Murrell, Foster and Bristor 1980. Light-Duty Automotive Fuel Economy Trends through 1980. SAE. Paper 800853, June 1980.
- Murrell, Hellman, and Heavenrich 1993. Light-Duty Automotive Technology and Fuel Economy Trends through 1993. U.S. EPA/AA/TDG/93-01, May 1993.
- Murrell, Loos, Heavenrich, and Cheng 1983. Light-Duty Automobile Fuel Economy Trends through 1983. SAE. Paper 830544, February 1983.
- Murrell, Pace, Service, and Yeager 1976. Light-Duty Automotive Fuel Economy Trends through 1977. SAE. Paper 760795, October 1976.
- Notter, D. et al. 2010. Contribution of Li-Ion Batteries to the Environmental Impact of Electric Vehicles. *Environmental Science & Technology*. 44 (17): 6550-6556, August 2010.
- Plotkin, S., Stephens, T., McManus, W. 2013. Vehicle Technology Deployment Pathways: An Examination of Timing and Investment Constraints. *Transportation Energy Futures Report Series*. Prepared for the U.S. Department of Energy by Argonne National Laboratory. DOE/GO-102013-3708, March 2013.
- SAE 2010. Utility factor definitions for plug-in hybrid electric vehicles using travel survey data. SAE. J2841, September 2010.
- Samaras, C. and Meisterling, K. 2008. Life Cycle Assessment of Greenhouse Gas Emissions from Plug-in Hybrid Vehicles: Implications for Policy. *Environmental Science & Technology*. 42 (9): 3170–3176, April 2008.
- Santini, Danilo J. and Anderson, John. 1993. Determinates of multiple measures of acceleration. SAE, Paper 931805.

---

Shuldiner, Herb 2013. Honda forecasts steady sales of pioneering CNG Civic. *Wards Auto*. March 19, 2013. [wardsauto.com/sales-amp-marketing/honda-forecasts-steady-sales-pioneering-cng-civic](http://wardsauto.com/sales-amp-marketing/honda-forecasts-steady-sales-pioneering-cng-civic). Accessed December 2013.

Wards Automotive, 1996 – 2008 Annual Databooks.

Young. 1991. Regression analysis of acceleration performance of light-duty vehicles. *DOT HS. 807 763*, September 1991.

Zoepf, S. and Heywood, J. 2013. Characterizations of Deployment Rates in Automotive Technology. National Academy of Sciences Meeting, March 2013.

# Appendices

**Appendix A:** Vehicles with Lowest and Highest Unadjusted, Laboratory Fuel Economy by Model Year

**Appendix B:** Production-weighted Percent Distribution of Adjusted Fuel Economy (MPG)

**Appendix C:** Percent of 1975 to 2016 Production by Fuel Economy Brand

**Appendix D:** Fuel Economy Data Stratified by Vehicle Type\*

**Appendix E:** Fuel Economy Data Stratified by Vehicle Type and Weight Class

**Appendix F:** Fuel Economy Data Stratified by Vehicle Type and Drive Type\*

**Appendix G:** Fuel Economy Data Stratified by Vehicle Type and Transmission

**Appendix H:** Fuel Economy Data Stratified by Vehicle Type and Cylinder Count

**Appendix I:** Fuel Economy Data Stratified by Vehicle Type, Engine Type and Valves Per Cylinder

**Appendix J:** Unadjusted, Laboratory Fuel Economy (MPG) by Manufacturer, Vehicle Type and Inertia Weight

**Appendix K:** Fuel Economy Data Stratified by Manufacturer and Vehicle Type\*

## NOTES:

\* Historic vehicle size classifications are retained in selected appendices for MY 1975-2011, though they are no longer discussed in the body of the report. See table below for size thresholds by historic vehicle type:

	<b>Car Interior Volume (cubic feet)</b>	<b>Wagon Interior Volume (cubic feet)</b>	<b>Car SUV Wheelbase (inches)</b>	<b>Truck SUV Wheelbase (inches)</b>	<b>Pickup Wheelbase (inches)</b>	<b>Van/Minivan Wheelbase (inches)</b>
<b>Small</b>	<=109	<=129	<100	<100	<105	<109
<b>Midsized</b>	110-119	130-159	100-110	100-110	105-115	109-124
<b>Large</b>	>=120	>=160	>110	>110	>115	>124

Appendix A: Vehicles with Lowest and Highest Unadjusted, Laboratory Fuel Economy by Model Year

Rank	Car or Truck	Model Year	Manufacturer	Model Name	Vehicle Type	Inertia Weight	Drive	Transmission	Gears	Fuel Delivery	HP	CID	Fuel Economy (MPG)		
													City	Hwy	Comb
Low	Car	1975	GM	TORONADO	Car	5500	Front	Automatic		Carb	175	455	8.5	12.1	9.8
Low	Car	1976	Jaguar Land Rover	JENSEN	Car	4500	Rear	Automatic	3	Carb	250	440	8.6	12.8	10.1
Low	Car	1977	BMW	ROLLS ROYCE/	Car	5500	Rear	Automatic		Carb	170	412	8.7	11.4	9.7
Low	Car	1978	Fiat-Chrysler	MONACO	Car	5000	Rear	Automatic	3	Carb	240	440	8.3	11.2	9.4
Low	Car	1979	Aston Martin	ASTON MARTIN V8	Car	4500	Rear	Manual	5	Carb	60	326	7.6	12.4	9.2
Low	Car	1980	Aston Martin	79 ASTON MARTIN	Car	4500	Rear	Manual	5	Carb	275	326	7.6	12.4	9.2
Low	Car	1981	Peugeot	604	Car	3500	Rear	Automatic	3	Carb	132	174	3.5	7.7	5.0
Low	Car	1982	Fiat-Chrysler	QUATTROPORTE	Car	5000	Rear	Automatic with Lockup	3	Carb	288	301	8.5	12.6	9.9
Low	Car	1983	Fiat-Chrysler	QUATTROPORTE	Car	5000	Rear	Automatic with Lockup	3	Carb	288	301	8.5	12.6	9.9
Low	Car	1984	Fiat-Chrysler	QUATTROPORTE	Car	5000	Rear	Automatic with Lockup	3	Carb	288	301	8.5	12.6	9.9
Low	Car	1985	Fiat-Chrysler	QUATTROPORTE	Car	5000	Rear	Automatic with Lockup	3	Carb	288	301	8.5	12.6	9.9
Low	Car	1986	VW	COUNTACH	Car	3500	Rear	Manual	5	Port	420	315	6.8	13.4	8.7
Low	Car	1987	VW	COUNTACH	Car	3500	Rear	Manual	5	Port	420	315	6.8	13.4	8.7
Low	Car	1988	VW	COUNTACH	Car	3500	Rear	Manual	5	Port	420	315	6.8	13.4	8.7
Low	Car	1989	VW	COUNTACH	Car	3500	Rear	Manual	5	TBI	420	315	6.8	13.4	8.7
Low	Car	1990	Aston Martin	LAG	Car	5000	Rear	Automatic with Lockup	3	Port	240	326	9.3	13.9	10.9
Low	Car	1991	Vector	VECTOR W8	Car	4000	Rear	Automatic	3	Port	450	365	8.2	13.7	10.0
Low	Car	1992	Vector	VECTOR W8	Car	4000	Rear	Automatic	3	Port	450	365	8.2	13.7	10.0
Low	Car	1993	Vector	VECTOR W8	Car	4000	Rear	Automatic	3	Port	450	365	8.2	13.7	10.0
Low	Car	1994	VW	DB132/DIABLO	Car	4000	4wd	Manual	5	Port	492	348	10.4	18.1	12.8
Low	Car	1995	Fiat-Chrysler	FERRARI F50	Car	3000	Rear	Manual	6	Port	510	287	8.4	14.1	10.3
Low	Car	1996	VW	AVTECH SC_-_M12	Car	4000	Rear	Manual	5	Port	492	348	9.9	16.2	12.0
Low	Car	1997	VW	DB132-144 - DIABLO	Car	4000	4wd	Manual	5	Port	492	348	10.2	18.1	12.7
Low	Car	1998	Ferrari	FERRARI 550_MARANELLO	Car	4000	Rear	Manual	6	Port	475	334	10.1	18.9	12.8
Low	Car	1999	Fiat-Chrysler	FERRARI 550_MARANELLO	Car	4000	Rear	Manual	6	Port	475	334	10.0	18.0	12.5
Low	Car	2000	Fiat-Chrysler	FERRARI 550_MARANELLO	Car	4000	Rear	Manual	6	Port	475	334	9.4	16.7	11.7
Low	Car	2001	Fiat-Chrysler	FERRARI 550_MARANELLO-BARCHE	Car	4000	Rear	Manual	6	Port	475	334	9.4	16.7	11.7
Low	Car	2002	VW	L-147 MURCIELAGO	Car	4000	4wd	Manual	6	Port	580	378	10.1	16.3	12.2
Low	Car	2003	Fiat-Chrysler	ENZO FERRARI	Car	3500	Rear	Automatic with Lockup	6	Port	646	366	8.4	15.8	10.7
Low	Car	2004	VW	L-147-148 MURCIELAGO	Car	4000	4wd	Manual	6	Port	580	378	10.1	17.1	12.4
Low	Car	2005	VW	L-147-148 MURCIELAGO	Car	4000	4wd	Manual	6	Port	580	378	10.1	17.1	12.4
Low	Car	2006	VW	VEYRON	Car	4500	4wd	Automatic with Lockup	6	Port	1001	488	9.4	18.9	12.1
Low	Car	2007	VW	L-147-148 MURCIELAGO	Car	4000	4wd	Manual	6	Port	631	396	10.1	17.5	12.5
Low	Car	2008	VW	VEYRON	Car	4500	4wd	Automatic with Lockup	6	Port	1001	488	9.5	17.8	12.0
Low	Car	2009	VW	MURCIELAGO ROADSTER	Car	4000	4wd	Manual	6	Port	631	396	10.1	17.5	12.5
Low	Car	2010	VW	Veyron	Car	4500	4wd	Automatic	7	Port	1001	488	9.5	17.8	12.0
Low	Car	2011	Ferrari	Ferrari 612 SCAGLIETTI	Car	4500	Rear	Automatic	6	Port	532	348	11.5	21.8	14.6
Low	Car	2012	VW	Veyron	Car	4500	4wd	Automatic	7	Port	1200	488	10.0	17.9	12.5
Low	Car	2013	VW	Veyron	Car	4500	4wd	Automatic with Lockup	7	Port	1200	488	10.0	17.9	12.5
Low	Car	2014	VW	Veyron	Car	4500	4wd	Automatic with Lockup	7	Port	1200	488	10.0	17.9	12.5
Low	Car	2015	VW	Aventador Roadster	Car	4000	4wd	Automatic with Lockup	7	Port	700	396.5	11.5	21.2	14.5
Low	Car	2016	VW	Aventador Roadster	Car	4000	4wd	Automatic with Lockup	7	Port	700	396.5	12.0	23.0	15.3
Low	Car	2017	VW	Aventador Coupe LP740-4	Car	4000	4wd	Automatic with Lockup	7	Port	740	396.5	11.9	21.8	14.9
Low	Car	2017	VW	Aventador Roadster LP740-4	Car	4000	4wd	Automatic with Lockup	7	Port	740	396.5	11.9	21.8	14.9

Appendix A: Vehicles with Lowest and Highest Unadjusted, Laboratory Fuel Economy by Model Year

Rank	Car or Truck	Model Year	Manufacturer	Model Name	Vehicle Type	Inertia Weight	Drive	Transmission	Gears	Fuel Delivery	HP	CID	Fuel Economy (MPG)		
													City	Hwy	Comb
High	Car	1975	Honda	CIVIC CVCC	Car	2000	Front	Manual	5	Carb	52	90	28.2	42.3	33.2
High	Car	1976	Honda	CIVIC CVCC	Car	2000	Front	Manual	3	Carb	60	91	31.6	42.8	35.8
High	Car	1977	Honda	CIVIC CVCC	Car	2000	Front	Manual		Carb	60	91	39.7	51.6	44.3
High	Car	1978	VW	RABBIT	Car	2250	Front	Manual	4	Diesel	48	90	39.1	52.2	44.1
High	Car	1979	VW	RABBIT	Car	2250	Front	Manual	5	Diesel	48	90	40.8	54.6	46.0
High	Car	1980	VW	RABBIT	Car	2250	Front	Manual	5	Diesel	48	90	41.9	56.5	47.4
High	Car	1981	VW	RABBIT	Car	2250	Front	Manual	4	Diesel	52	97	42.1	58.2	48.1
High	Car	1982	VW	RABBIT	Car	2250	Front	Manual	4	Diesel	52	97	45.4	57.8	50.2
High	Car	1983	Nissan	NISSAN SENTRA	Car	2250	Front	Manual	4	Diesel	55	103	48.2	61.3	53.4
High	Car	1984	Honda	CIVIC COUPE	Car	2000	Front	Manual	5	Carb	60	82	50.8	65.7	56.5
High	Car	1985	GM	SPRINT	Car	1750	Front	Manual	5	Carb	48	61	52.7	67.5	58.5
High	Car	1985	GM	FIREFLY	Car	1750	Front	Manual	5	Carb	48	61	52.7	67.5	58.5
High	Car	1985	Suzuki	SA310	Car	1750	Front	Manual	5	Carb	48	61	52.7	67.5	58.5
High	Car	1986	GM	SPRINT ER	Car	1750	Front	Manual	5	Carb	46	61	61.5	76.4	67.4
High	Car	1987	GM	SPRINT ER	Car	1750	Front	Manual	5	Carb	46	61	59.7	74.5	65.6
High	Car	1988	GM	SPRINT METRO	Car	1750	Front	Manual	5	Carb	46	61	59.7	74.5	65.6
High	Car	1989	Honda	CIVIC CRX	Car	2000	Front	Manual	5	Port	62	91	55.2	70.6	61.2
High	Car	1990	GM	METRO XFI	Car	1750	Front	Manual	5	TBI	49	61	59.1	74.8	65.3
High	Car	1991	GM	METRO XFI	Car	1750	Front	Manual	5	TBI	55	61	59.1	74.7	65.3
High	Car	1992	GM	METRO XFI	Car	1750	Front	Manual	5	TBI	55	61	59.1	74.8	65.3
High	Car	1993	GM	METRO XFI	Car	1750	Front	Manual	5	TBI	55	61	59.1	74.8	65.3
High	Car	1994	GM	METRO XFI	Car	1750	Front	Manual	5	TBI	55	61	60.0	74.7	65.8
High	Car	1995	Honda	CIVIC HB VX	Car	2250	Front	Manual	5	Port	91	91	51.7	72.0	59.2
High	Car	1996	Suzuki	SWIFT	Car	2000	Front	Manual	5	TBI	55	61	49.5	63.1	54.8
High	Car	1997	GM	METRO	Car	2000	Front	Manual	5	TBI	55	61	48.9	63.2	54.4
High	Car	1998	GM	METRO	Car	2000	Front	Manual	5	TBI	55	60	47.5	63.5	53.6
High	Car	1999	VW	NEW JETTA	Car	3000	Front	Manual	5	Diesel	90	116	46.3	62.8	52.5
High	Car	1999	VW	NEW BEETLE	Car	3000	Front	Manual	5	Diesel	90	116	46.3	62.8	52.5
High	Car	1999	VW	NEW GOLF	Car	3000	Front	Manual	5	Diesel	90	116	46.3	62.8	52.5
High	Car	2000	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	67	61	68.3	89.4	76.4
High	Car	2001	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	67	61	67.7	88.1	75.6
High	Car	2002	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	67	61	67.7	87.2	75.3
High	Car	2003	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	67	61	67.4	87.2	75.1
High	Car	2004	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	67	61	67.1	84.1	73.8
High	Car	2005	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	73	61	67.7	84.4	74.3
High	Car	2006	Honda	INSIGHT	Car	2000	Front	Manual	5	Port	73	61	67.0	84.2	73.8
High	Car	2007	Toyota	PRIUS	Car	3000	Front	CVT	1	Port	76	91	66.6	64.8	65.8
High	Car	2008	Toyota	PRIUS	Car	3000	Front	CVT	1	Port	76	91	66.6	64.8	65.8
High	Car	2009	Toyota	PRIUS	Car	3000	Front	CVT	1	Port	76	91	66.6	64.8	65.8
High	Car	2010	Honda	FCX	Car	4000	Front	Automatic with Lockup	1	Port	130		84.9	86.8	85.7
High	Car	2011	BMW	1 Series Active E	Car	4000	Rear	Automatic	1	Electric	168		152.5	137.7	145.5
High	Car	2012	Mitsubishi	i-MiEV	Car	2750	Rear	Automatic with Lockup	1	Electric	66		180.5	141.0	160.3
High	Car	2013	Toyota	iQ EV	Car	2750	Front	CVT	1	Electric	63		197.6	149.7	172.7
High	Car	2014	BMW	i3 BEV	Car	3000	Rear	Automatic	1	Electric	168		196.4	159.1	177.7

Appendix A: Vehicles with Lowest and Highest Unadjusted, Laboratory Fuel Economy by Model Year

Rank	Car or Truck	Model Year	Manufacturer	Model Name	Vehicle Type	Inertia Weight	Drive	Transmission	Gears	Fuel Delivery	HP	CID	Fuel Economy (MPG)		
													City	Hwy	Comb
High	Car	2015	BMW	I3 BEV	Car	3000	Rear	Automatic	1	Electric	168		196.4	159.1	177.7
High	Car	2016	BMW	I3 REX	Car	3500	Rear	Automatic	1	Port	38	36.6l	372.2	144.8	218.1
High	Car	2017	Hyundai	Ioniq Electric	Car	3500	Front	Automatic	1	Electric	118		224.8	182.7	203.7
Low	Truck	1975	Ford	FORD F-250	Pickup	5000	Rear	Automatic		Carb	150	360	8.4	10.0	9.0
Low	Truck	1976	GM	CHEV P20 STEP	Van	6500	Rear	Automatic		Carb	245	454	8.1	10.9	9.2
Low	Truck	1977	Toyota	LAND CRUISER WAG	Truck SUV	4500	Rear	Manual		Carb	125	258	8.2	11.4	9.4
Low	Truck	1978	GM	CHEV C20 SUBN	Truck SUV	5500	Rear	Automatic		Carb	185	454	8.9	10.4	9.5
Low	Truck	1978	GM	GMC C2500 SUBN	Truck SUV	5500	Rear	Automatic		Carb	185	454	8.9	10.4	9.5
Low	Truck	1979	Ford	PICKUP	Pickup	5500	Rear	Automatic	3	Carb	270	460	9.0	9.9	9.4
Low	Truck	1980	GM	CAB CHAS.	Pickup	6000	Rear	Automatic with Lockup	3	Carb	155	350	9.0	11.3	9.9
Low	Truck	1981	Fiat-Chrysler	B250 VAN CONVERS	Van	5500	Rear	Automatic	3	Carb	170	360	9.9	12.9	11.1
Low	Truck	1982	GM	G30 SPRTVN 2WD	Van	6000	Rear	Automatic with Lockup	3	Carb	165	350	10.6	13.9	11.9
Low	Truck	1982	GM	G30 SPRTVN 2WD	Van	5500	Rear	Automatic with Lockup	3	Carb	165	350	10.6	13.9	11.9
Low	Truck	1982	GM	G35 SPRTVN 2WD	Van	6000	Rear	Automatic with Lockup	3	Carb	165	350	10.6	13.9	11.9
Low	Truck	1982	GM	G35 SPRTVN 2WD	Van	5500	Rear	Automatic with Lockup	3	Carb	165	350	10.6	13.9	11.9
Low	Truck	1983	Ford	E250 ECONOLINE 2	Van	5500	Rear	Automatic	3	Carb	143	351	10.9	13.9	12.1
Low	Truck	1984	Fiat-Chrysler	B350 WAGON 2WD	Van	5500	Rear	Automatic	3	Carb	175	360	9.7	13.7	11.2
Low	Truck	1985	Ford	E250 ECONOLINE 2	Van	5500	Rear	Automatic	3	Carb	154	351	10.6	12.3	11.3
Low	Truck	1986	Fiat-Chrysler	B350 WAGON 2WD	Van	5500	Rear	Automatic	3	Carb	170	360	10.9	14.3	12.2
Low	Truck	1987	Fiat-Chrysler	AW150 RAMCHARGER	Truck SUV	5000	4wd	Automatic	3	Carb	175	360	10.3	14.4	11.8
Low	Truck	1988	Fiat-Chrysler	W100/W150 PICKUP	Pickup	5000	4wd	Automatic	3	Carb	175	360	10.4	13.7	11.7
Low	Truck	1988	Fiat-Chrysler	W250 PICKUP 4WD	Pickup	5000	4wd	Automatic	3	Carb	175	360	10.4	13.7	11.7
Low	Truck	1989	Fiat-Chrysler	B350 WAGON 2WD	Van	5500	Rear	Automatic	3	TBI	145	360	11.0	14.1	12.2
Low	Truck	1990	GM	C1500 P/U 2WD	Pickup	4500	Rear	Automatic	3	TBI	230	454	10.6	14.1	11.9
Low	Truck	1991	Fiat-Chrysler	W250 PICKUP 4WD	Pickup	5500	4wd	Manual	3	TBI	190	360	10.4	16.1	12.4
Low	Truck	1992	Fiat-Chrysler	W250 PICKUP 4WD	Pickup	5000	4wd	Manual	4	TBI	203	360	10.3	16.7	12.4
Low	Truck	1992	Fiat-Chrysler	W250 PICKUP 4WD	Pickup	5500	4wd	Manual	4	TBI	203	360	10.3	16.7	12.4
Low	Truck	1993	GM	C1500 P/U 2WD	Pickup	4500	Rear	Automatic with Lockup	4	TBI	255	454	10.6	15.8	12.5
Low	Truck	1994	Fiat-Chrysler	B150/B250 WAGON	Van	5500	Rear	Automatic with Lockup	4	Port	230	360	12.7	18.2	14.7
Low	Truck	1995	Fiat-Chrysler	B3500 WAGON 2WD	Van	5500	Rear	Automatic with Lockup	4	Port	230	360	12.5	18.7	14.7
Low	Truck	1996	Fiat-Chrysler	RAM 1500_PICKUP_4WD	Pickup	5500	4wd	Automatic with Lockup	4	Port	230	360	12.2	19.5	14.7
Low	Truck	1996	Fiat-Chrysler	RAM 2500_PICKUP_4WD	Pickup	5500	4wd	Automatic with Lockup	4	Port	230	360	12.2	19.5	14.7
Low	Truck	1997	Fiat-Chrysler	B3500 WAGON_2WD	Van	5500	Rear	Automatic with Lockup	4	Port	230	360	12.1	18.8	14.4
Low	Truck	1997	Fiat-Chrysler	B3500 WAGON_2WD	Van	6000	Rear	Automatic with Lockup	4	Port	230	360	12.1	18.8	14.4
Low	Truck	1998	Fiat-Chrysler	RAM 1500_PICKUP_4WD	Pickup	6000	4wd	Automatic with Lockup	4	Port	235	360	12.8	20.8	15.5
Low	Truck	1999	Fiat-Chrysler	DURANGO 4WD	Truck SUV	5000	4wd	Automatic with Lockup	4	Port	245	360	13.0	20.8	15.7
Low	Truck	1999	Fiat-Chrysler	RAM 1500_PICKUP_4WD	Pickup	5000	4wd	Automatic with Lockup	4	Port	245	360	13.0	20.8	15.7
Low	Truck	2000	Fiat-Chrysler	RAM 1500_PICKUP_4WD	Pickup	6000	4wd	Automatic with Lockup	4	Port	230	318	12.8	20.4	15.4
Low	Truck	2001	GM	K1500 SIERRA_4WD	Pickup	5500	4wd	Automatic with Lockup	4	Port	300	364	12.4	18.0	14.4
Low	Truck	2002	Fiat-Chrysler	RAM 1500_PICKUP_4WD	Pickup	5500	4wd	Automatic with Lockup	4	Port	245	360	12.7	19.7	15.1
Low	Truck	2003	GM	G1500-2500 CHEVY_VAN_2WD	Van	6000	Rear	Automatic with Lockup	4	Port	300	364	10.7	18.0	13.1
Low	Truck	2004	GM	G1500-2500 SAVANA 2WD CARGO	Van	6000	Rear	Automatic with Lockup	4	Port	300	412	10.2	17.1	12.5
Low	Truck	2004	GM	G1500-2500 CHEVY VAN 2WD	Van	6000	Rear	Automatic with Lockup	4	Port	300	412	10.2	17.1	12.5
Low	Truck	2005	Fiat-Chrysler	RAM 1500 PICKUP 2WD	Pickup	6000	Rear	Automatic with Lockup	4	Port	500	505	10.0	15.7	12.0

Appendix A: Vehicles with Lowest and Highest Unadjusted, Laboratory Fuel Economy by Model Year

Rank	Car or Truck	Model Year	Manufacturer	Model Name	Vehicle Type	Inertia Weight	Drive	Transmission	Gears	Fuel Delivery	HP	CID	Fuel Economy (MPG)		
													City	Hwy	Comb
Low	Truck	2006	Fiat-Chrysler	RAM 1500 PICKUP 2WD	Pickup	6000	Rear	Automatic with Lockup	4	Port	500	505	10.0	15.7	12.0
Low	Truck	2007	Ford	STAGE3 F150 SUPERCREW 4WD	Pickup	6500	4wd	Automatic with Lockup	4	Port	445	330	12.9	19.1	15.1
Low	Truck	2008	Mercedes	G55 AMG	Truck SUV	6000	4wd	Automatic with Lockup	5	Port	493	332	13.2	18.5	15.2
Low	Truck	2009	Mercedes	ML63 AMG	Truck SUV	5500	4wd	Automatic with Lockup	7	Port	503	379	12.8	19.8	15.2
Low	Truck	2010	Mercedes	ML 63 AMG	Truck SUV	5500	4wd	Automatic with Lockup	7	Port	503	384	12.8	19.7	15.2
Low	Truck	2011	Ford	E150 Van Propane	Van	6000	Rear	Automatic with Lockup	4	Port	255	330	7.9	9.2	8.4
Low	Truck	2011	Ford	E150 Wagon Propane	Van	6000	Rear	Automatic with Lockup	4	Port	255	330	7.9	9.2	8.4
Low	Truck	2011	Ford	E250 Van Propane	Van	5500	Rear	Automatic with Lockup	4	Port	255	330	7.9	9.2	8.4
Low	Truck	2011	Ford	E250 Van Propane	Van	6000	Rear	Automatic with Lockup	4	Port	255	330	7.9	9.2	8.4
Low	Truck	2011	Ford	E350 Van Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	330	7.9	9.2	8.4
Low	Truck	2011	Ford	E350 Wagon Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	330	7.9	9.2	8.4
Low	Truck	2012	Ford	E150 Van Propane	Van	6000	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2012	Ford	E150 Wagon Propane	Van	6000	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2012	Ford	E250 Van Propane	Van	5500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2012	Ford	E250 Van Propane	Van	6000	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2012	Ford	E350 Van Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2012	Ford	E350 Wagon Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2013	Ford	E150 Wagon Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2013	Ford	E350 Wagon Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2014	Ford	E150 Wagon Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2014	Ford	E350 Wagon Propane	Van	6500	Rear	Automatic with Lockup	4	Port	255	329.5	10.9	12.7	11.6
Low	Truck	2015	GM	G3500 EXPRESS 2WD PASS MDPV	Van	7000	Rear	Automatic with Lockup	6	Port	324	366.1	12.6	20.6	15.3
Low	Truck	2015	GM	G3500 SAVANA 2WD PASS MDPV	Van	7000	Rear	Automatic with Lockup	6	Port	324	366.1	12.6	20.6	15.3
Low	Truck	2016	Mercedes	AMG G65	Truck SUV	6000	4wd	Automatic with Lockup	7	Port	621	364.9	13.0	18.6	15.0
Low	Truck	2017	Mercedes	G 550 4x4	Truck SUV	7000	4wd	Automatic with Lockup	7	GDI	416	243	12.9	16.3	14.2
High	Truck	1975	Nissan	PICKUP	Pickup	2750	Rear	Manual		Carb	107	119	20.4	31.7	24.3
High	Truck	1976	Ford	COURIER PICKUP	Pickup	3000	Rear	Manual		Carb	65	109	23.5	33.3	27.0
High	Truck	1977	Ford	COURIER CAB CHAS	Pickup	3000	Rear	Manual		Carb	67	110	27.8	39.8	32.2
High	Truck	1977	Ford	COURIER PICKUP	Pickup	3000	Rear	Manual		Carb	67	110	27.8	39.8	32.2
High	Truck	1977	Mazda	MAZDA B1800 PICK	Pickup	3000	Rear	Manual		Carb	67	110	27.8	39.8	32.2
High	Truck	1978	Ford	COURIER PICKUP	Pickup	3000	Rear	Manual		Carb	67	110	29.2	38.4	32.7
High	Truck	1978	Mazda	B1800 PICKUP	Pickup	3000	Rear	Manual		Carb	67	110	29.2	38.4	32.7
High	Truck	1978	Ford	COURIER CAB CHAS	Pickup	3000	Rear	Manual		Carb	67	110	29.2	38.4	32.7
High	Truck	1979	Ford	COURIER PICKUP	Pickup	3000	Rear	Manual	5	Carb	72	120	26.7	36.8	30.5
High	Truck	1979	Mazda	B2000 PICKUP	Pickup	3000	Rear	Manual	5	Carb	72	120	26.7	36.8	30.5
High	Truck	1980	VW	2WD	Pickup	2250	Front	Manual	5	Diesel	48	90	39.9	53.3	45.0
High	Truck	1981	VW	P/U 2WD	Pickup	2250	Front	Manual	5	Diesel	52	97	37.2	50.8	42.3
High	Truck	1982	VW	P/U 2WD	Pickup	2250	Front	Manual	4	Diesel	52	97	40.6	48.0	43.6
High	Truck	1983	VW	P/U 2WD	Pickup	2250	Front	Manual	4	Diesel	52	97	42.0	49.6	45.1
High	Truck	1984	GM	P'UP P/U 2WD	Pickup	2750	Rear	Manual	4	Diesel	62	137	38.4	49.1	42.6
High	Truck	1985	GM	P'UP P/U 2WD	Pickup	2750	Rear	Manual	4	Diesel	62	137	38.4	49.1	42.6
High	Truck	1986	GM	P'UP 2WD	Pickup	2750	Rear	Manual	4	Diesel	62	137	38.4	49.1	42.6
High	Truck	1987	GM	P'UP-2WD	Pickup	3000	Rear	Manual	4	Diesel	60	137	38.4	49.8	42.8
High	Truck	1988	Suzuki	SAMURAI	Truck SUV	2250	4wd	Manual	5	Carb	64	81	30.6	37.2	33.2

Appendix A: Vehicles with Lowest and Highest Unadjusted, Laboratory Fuel Economy by Model Year

Rank	Car or Truck	Model Year	Manufacturer	Model Name	Vehicle Type	Inertia Weight	Drive	Transmission	Gears	Fuel Delivery	HP	CID	Fuel Economy (MPG)		
													City	Hwy	Comb
High	Truck	1989	Suzuki	SIDEKICK	Truck SUV	2250	4wd	Manual	5	Carb	64	79	31.0	36.9	33.4
High	Truck	1990	Suzuki	SAMURAI	Truck SUV	2500	4wd	Manual	5	TBI	66	79	31.2	36.8	33.5
High	Truck	1991	Suzuki	SAMURAI	Truck SUV	2500	4wd	Manual	5	TBI	66	79	31.3	36.7	33.5
High	Truck	1992	Suzuki	SAMURAI	Truck SUV	2500	4wd	Manual	5	TBI	66	79	31.2	36.8	33.5
High	Truck	1993	Suzuki	SAMURAI	Truck SUV	2500	4wd	Manual	5	TBI	66	79	31.2	36.8	33.5
High	Truck	1994	Suzuki	SAMURAI	Truck SUV	2500	4wd	Manual	5	TBI	66	79	31.2	36.8	33.5
High	Truck	1995	Suzuki	SAMURAI	Truck SUV	2500	4wd	Manual	5	TBI	66	79	31.3	36.8	33.6
High	Truck	1996	GM	S10 PICKUP_2WD	Pickup	3000	Rear	Manual	5	Port	118	134	26.6	39.8	31.3
High	Truck	1996	GM	SONOMA 2WD	Pickup	3000	Rear	Manual	5	Port	118	134	26.6	39.8	31.3
High	Truck	1997	GM	S10 PICKUP_2WD	Pickup	3000	Rear	Manual	5	Port	118	134	26.6	39.8	31.3
High	Truck	1997	GM	SONOMA 2WD	Pickup	3000	Rear	Manual	5	Port	118	134	26.6	39.8	31.3
High	Truck	1998	Suzuki	X-90 4WD	Truck SUV	2750	4wd	Manual	5	Port	95	97	27.6	35.9	30.8
High	Truck	1999	GM	TRACKER 4X4_CONVERTIBLE	Truck SUV	3000	4wd	Manual	5	Port	97	97	28.1	35.8	31.1
High	Truck	2000	GM	TRACKER CONVERTIBLE_4X4	Truck SUV	3000	4wd	Manual	5	Port	97	97	27.9	35.0	30.7
High	Truck	2000	Suzuki	VITARA CONVERTIBLE_4WD	Truck SUV	3000	4wd	Manual	5	Port	97	97	27.9	35.0	30.7
High	Truck	2001	Mazda	B2300 2WD	Pickup	3500	Rear	Manual	5	Port	138	140	26.7	35.0	29.9
High	Truck	2001	Ford	RANGER PICKUP_2WD	Pickup	3500	Rear	Manual	5	Port	138	140	26.7	35.0	29.9
High	Truck	2002	GM	TRACKER 4WD_HARDTOP	Truck SUV	3500	4wd	Automatic with Lockup	4	Port	141	118	28.6	39.5	32.7
High	Truck	2002	Suzuki	VITARA 4-DOOR_4WD	Truck SUV	3500	4wd	Automatic with Lockup	4	Port	141	118	28.6	39.5	32.7
High	Truck	2003	Ford	RANGER PICKUP_2WD	Pickup	3500	Rear	Manual	5	Port	140	140	26.7	36.5	30.4
High	Truck	2003	Mazda	B2300 2WD	Pickup	3500	Rear	Manual	5	Port	140	140	26.7	36.5	30.4
High	Truck	2004	Ford	RANGER PICKUP 2WD	Pickup	3500	Rear	Manual	5	Port	140	140	26.2	37.1	30.2
High	Truck	2004	Mazda	B2300 2WD	Pickup	3500	Rear	Manual	5	Port	140	140	26.2	37.1	30.2
High	Truck	2005	Ford	ESCAPE HEV 4WD	Truck SUV	4000	4wd	CVT	1	Port	135	140	36.5	36.7	36.6
High	Truck	2006	Ford	MARINER HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	135	140	36.5	36.7	36.6
High	Truck	2006	Mazda	TRIBUTE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	135	140	36.5	36.7	36.6
High	Truck	2006	Ford	ESCAPE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	135	140	36.5	36.7	36.6
High	Truck	2007	Ford	ESCAPE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	133	140	35.8	37.3	36.5
High	Truck	2007	Ford	MARINER HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	133	140	35.8	37.3	36.5
High	Truck	2008	Ford	ESCAPE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	133	140	38.3	37.7	38
High	Truck	2008	Ford	MARINER HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	133	140	38.3	37.7	38
High	Truck	2008	Mazda	TRIBUTE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	133	140	38.3	37.7	38
High	Truck	2009	GM	VUE HYBRID	Truck SUV	4500	Front	CVT	1	GDI	262	218	34.5	41.7	37.4
High	Truck	2010	Mazda	TRIBUTE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	155	153	40.1	38.3	39.3
High	Truck	2011	Ford	ESCAPE HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	155	153	39.8	38.1	39
High	Truck	2011	Ford	MARINER HYBRID 4WD	Truck SUV	4000	4wd	CVT	1	Port	155	153	39.8	38.1	39
High	Truck	2012	Ford	ESCAPE HYBRID AWD	Truck SUV	4000	4wd	CVT	1	Port	155	152.6	39.8	38.1	39
High	Truck	2013	Toyota	RX 450h AWD	Truck SUV	5000	4wd	CVT	1	Port	245	210.9	38.5	38.6	38.6
High	Truck	2014	Subaru	XV CROSSTREK AWD	Truck SUV	3500	4wd	CVT	1	Port	148	122	37.9	46.4	41.3
High	Truck	2015	Toyota	NX 300h AWD	Truck SUV	4500	4wd	CVT	1	Port	112	152.2	43.7	42.4	43.1
High	Truck	2016	BMW	X5 xDrive40e	Truck SUV	5500	4wd	Automatic with Lockup	8	GDI	240	122	50.9	63.6	55.9
High	Truck	2017	Fiat-Chrysler	Pacifica Hybrid	Van	5000	Front	CVT	1	Port	220	219.7	98.4	63.2	78.7

Appendix B: Production-Weighted Percent Distribution of Adjusted Fuel Economy (MPG)

Car or Truck	Model Year	Percentile Level													Actual Average
		0%	1%	5%	10%	20%	25%	50%	75%	80%	90%	95%	99%	100%	
Car	1975	8.4	9.0	9.8	10.1	11.0	11.2	13.1	16.7	17.9	20.9	23.3	27.4	28.3	13.5
Car	1976	8.6	10.2	11.2	11.7	12.3	12.7	14.6	17.3	18.9	22.9	24.5	28.2	30.5	14.9
Car	1977	8.3	10.5	11.6	12.4	13.6	14.0	15.0	17.3	18.9	24.3	28.0	33.8	37.6	15.6
Car	1978	8.0	11.3	12.6	13.2	14.2	14.9	16.9	19.8	21.3	25.0	28.2	32.7	37.5	16.9
Car	1979	7.9	12.0	13.1	13.7	14.6	15.1	16.9	20.4	21.9	24.9	26.5	31.0	39.1	17.2
Car	1980	7.9	13.9	14.8	15.9	17.2	17.6	19.8	23.1	24.0	26.6	29.1	36.1	40.3	20.0
Car	1981	4.0	14.6	15.8	17.0	18.3	18.6	21.6	25.3	26.1	28.6	31.6	37.9	40.9	21.4
Car	1982	8.5	15.4	16.6	17.0	18.2	19.1	23.4	26.0	27.2	29.6	32.6	38.9	42.7	22.2
Car	1983	8.5	16.3	16.5	17.0	17.8	18.4	22.3	26.7	28.0	31.2	33.4	36.6	45.3	22.1
Car	1984	8.5	16.6	17.0	17.3	18.1	19.3	22.9	26.5	27.3	29.9	32.8	38.2	48.0	22.4
Car	1985	8.5	17.6	17.8	18.4	19.5	19.9	22.8	26.7	27.7	29.9	33.6	39.0	49.6	23.0
Car	1986	7.5	18.0	18.8	19.5	20.3	20.6	24.5	26.6	27.6	30.1	33.7	39.3	56.8	23.7
Car	1987	7.5	18.2	18.6	19.2	20.6	21.2	23.9	27.1	27.6	30.1	31.3	38.1	54.8	23.8
Car	1988	7.5	18.1	19.2	19.4	21.2	22.4	24.1	27.2	27.7	30.5	32.4	37.9	54.4	24.1
Car	1989	7.5	18.0	19.3	19.6	20.7	21.7	23.2	26.3	27.2	29.1	31.0	37.7	50.6	23.6
Car	1990	9.2	17.5	19.0	19.3	21.3	21.5	23.1	26.0	26.4	28.3	30.9	34.6	53.4	23.3
Car	1991	8.5	17.1	18.8	19.5	20.3	21.1	22.8	26.1	26.3	29.2	31.2	36.7	53.0	23.3
Car	1992	8.5	16.4	18.3	19.5	20.6	20.8	22.4	25.4	25.9	28.5	31.2	39.1	52.6	22.9
Car	1993	8.5	15.1	18.2	19.2	20.3	21.3	22.7	25.7	26.9	28.4	31.1	35.8	52.2	23.0
Car	1994	10.9	17.1	18.8	19.6	20.1	20.9	22.7	25.6	26.3	28.5	30.6	35.8	52.2	23.0
Car	1995	8.7	16.8	18.9	19.4	21.0	21.7	22.7	26.0	27.1	29.0	31.4	33.8	47.3	23.3
Car	1996	10.1	16.7	19.3	19.5	20.9	21.3	22.6	25.7	26.1	29.1	30.5	33.9	43.3	23.1
Car	1997	10.7	16.9	19.3	19.4	20.7	21.1	23.0	25.3	26.4	28.8	29.8	33.2	42.8	23.2
Car	1998	10.8	17.0	18.6	19.4	21.0	21.3	22.7	25.3	26.1	28.7	29.8	31.5	42.0	23.0
Car	1999	10.5	17.1	18.7	19.4	21.0	21.2	22.3	24.5	25.2	27.8	29.2	30.9	41.0	22.7
Car	2000	9.9	17.1	17.7	19.5	21.0	21.3	22.1	24.3	25.0	27.2	28.5	31.0	57.4	22.5
Car	2001	9.8	16.9	18.3	19.4	20.7	20.8	22.3	25.1	25.6	27.8	30.9	31.9	56.3	22.6
Car	2002	10.1	16.5	18.8	19.7	20.7	21.3	22.5	25.0	25.3	27.3	29.4	31.7	55.6	22.8
Car	2003	9.0	17.1	19.1	19.7	20.8	21.2	23.0	25.1	25.6	28.1	29.4	32.4	55.0	23.0
Car	2004	10.3	17.4	18.5	19.1	20.6	21.0	22.9	25.4	25.8	28.0	29.6	35.3	53.5	22.9
Car	2005	10.3	17.2	18.6	19.4	20.3	21.1	23.3	25.7	25.8	29.1	29.8	41.8	53.3	23.1
Car	2006	10.3	16.9	18.6	19.1	20.4	21.1	23.0	25.5	25.8	28.8	30.9	42.9	53.0	23.0
Car	2007	10.4	17.2	18.7	19.6	20.7	21.2	23.6	25.9	27.5	30.2	31.3	42.9	46.2	23.7
Car	2008	10.1	17.1	18.6	19.8	20.9	21.4	23.6	26.6	27.9	30.3	31.3	42.9	46.2	23.9
Car	2009	10.4	17.2	19.6	20.6	21.8	22.6	25.4	28.1	29.1	30.9	31.0	42.9	46.2	25.0
Car	2010	10.1	18.1	20.1	20.7	22.0	22.7	25.9	29.0	30.2	30.8	35.3	42.9	60.2	25.7
Car	2011	12.4	18.4	20.0	21.2	22.4	23.0	26.3	27.6	28.8	30.4	33.0	41.5	100.6	25.4
Car	2012	11.2	18.8	20.5	21.9	23.4	24.1	27.3	30.3	31.6	32.7	36.2	47.4	109.0	26.9
Car	2013	11.2	19.1	21.4	22.4	24.1	25.1	27.8	31.6	32.3	33.2	38.2	47.7	117.0	27.7
Car	2014	11.2	19.0	21.2	22.4	24.0	24.9	28.4	31.2	31.9	33.9	37.1	47.7	121.3	27.6
Car	2015	12.7	19.1	21.2	22.7	24.6	25.7	28.8	31.9	32.2	33.6	37.1	57.6	121.3	28.2
Car	2016	12.9	18.9	21.5	23.4	25.2	26.0	29.0	32.2	32.6	34.7	36.3	86.9	144.3	28.5
Car	2017	12.6	19.0	22.1	23.4	25.3	25.9	29.2	32.5	33.0	35.2	50.0	109.5	132.6	29.1

Appendix B: Production-Weighted Percent Distribution of Adjusted Fuel Economy (MPG)

Car or Truck	Model Year	Percentile Level													Actual Average
		0%	1%	5%	10%	20%	25%	50%	75%	80%	90%	95%	99%	100%	
Truck	1975	7.6	7.9	8.9	9.2	9.6	9.8	11.7	13.3	15.4	17.8	19.0	19.2	20.8	11.6
Truck	1976	7.8	9.0	9.7	10.0	10.4	10.5	11.9	14.1	15.6	17.2	19.7	21.6	23.0	12.2
Truck	1977	8.0	8.8	10.3	10.9	11.5	11.6	12.5	15.5	15.8	19.6	21.7	25.6	27.4	13.3
Truck	1978	8.0	9.5	10.4	10.6	11.0	11.1	12.2	15.7	16.3	19.3	22.5	24.6	27.8	12.9
Truck	1979	7.9	8.0	9.2	9.6	10.3	10.7	12.1	15.5	16.1	19.4	20.7	25.3	25.9	12.5
Truck	1980	8.4	10.7	11.4	12.1	13.2	13.4	16.1	19.2	20.3	22.2	23.1	25.8	38.3	15.8
Truck	1981	9.4	11.4	12.5	13.3	14.8	15.2	16.1	20.3	21.6	25.0	26.6	31.2	36.0	17.1
Truck	1982	10.1	11.1	12.1	13.3	14.8	15.2	17.1	20.9	22.8	24.3	26.4	30.6	37.0	17.4
Truck	1983	10.3	11.0	12.0	13.4	14.9	15.4	18.2	22.0	22.8	25.2	26.5	30.0	38.2	17.7
Truck	1984	9.5	11.0	12.0	13.2	14.7	15.1	18.3	20.7	21.5	24.3	25.9	29.2	36.1	17.4
Truck	1985	9.6	11.4	12.4	13.6	14.0	14.7	18.5	21.0	21.8	24.0	25.2	28.4	36.1	17.5
Truck	1986	10.4	11.8	13.5	14.4	15.1	15.6	18.6	21.8	22.9	24.2	25.7	27.8	36.0	18.2
Truck	1987	10.0	11.6	13.7	14.2	15.1	15.8	18.7	21.5	22.8	23.7	25.9	27.6	36.0	18.3
Truck	1988	9.8	12.2	13.8	14.2	15.3	15.6	18.5	20.2	21.5	23.3	25.0	27.8	27.8	17.8
Truck	1989	10.2	11.6	13.7	14.4	15.2	15.5	18.5	20.0	20.4	22.6	24.2	24.8	27.7	17.6
Truck	1990	10.0	11.7	13.6	14.0	14.9	15.5	17.6	19.2	20.8	22.3	24.1	24.3	27.6	17.4
Truck	1991	10.4	12.5	13.8	14.4	15.6	16.1	18.2	19.8	20.5	23.0	24.0	24.8	27.5	17.8
Truck	1992	10.4	12.5	14.0	14.3	15.2	15.7	17.6	19.6	20.2	21.8	23.3	24.7	27.3	17.3
Truck	1993	10.5	12.9	13.9	14.1	15.4	15.9	17.8	19.4	19.9	21.8	23.7	24.6	27.2	17.5
Truck	1994	12.2	13.0	13.8	14.1	14.9	15.3	17.4	19.6	19.6	22.3	23.4	23.9	27.0	17.2
Truck	1995	12.2	12.8	13.7	13.9	14.9	15.1	16.9	19.0	19.3	21.5	23.5	24.1	26.9	17.0
Truck	1996	12.2	12.3	13.8	14.4	14.8	15.2	17.4	19.4	19.6	21.5	22.7	24.3	25.6	17.2
Truck	1997	12.0	13.1	13.7	14.5	15.0	15.3	16.8	18.6	19.0	20.0	22.0	24.2	25.5	16.8
Truck	1998	12.9	13.1	13.6	14.2	14.7	15.1	17.2	19.2	19.8	21.5	22.5	23.9	25.1	17.1
Truck	1999	13.0	13.0	13.6	13.9	14.7	15.0	16.8	18.6	19.3	20.3	21.7	23.9	24.7	16.6
Truck	2000	12.6	13.1	13.8	14.5	15.3	15.3	16.8	18.7	19.5	20.1	21.6	22.6	24.8	16.8
Truck	2001	11.8	11.8	13.4	14.1	14.9	15.1	16.3	18.7	19.1	19.9	21.1	22.5	23.6	16.5
Truck	2002	12.4	12.6	13.8	14.4	15.0	15.1	16.2	18.2	18.9	19.8	20.9	22.6	25.8	16.5
Truck	2003	10.9	13.0	13.8	14.1	14.8	15.2	16.3	18.8	19.4	20.8	21.7	22.5	23.9	16.7
Truck	2004	10.4	13.5	13.8	14.3	14.8	15.0	16.3	18.0	18.9	20.2	20.8	22.2	23.8	16.5
Truck	2005	9.8	13.2	14.2	14.5	14.9	15.3	16.7	18.8	19.1	20.6	21.4	22.2	27.0	16.9
Truck	2006	9.8	14.0	14.2	14.7	15.3	15.4	17.1	19.1	19.7	20.8	22.1	25.4	27.0	17.2
Truck	2007	12.2	14.0	14.6	15.0	15.7	15.9	17.1	19.2	19.5	20.8	22.4	23.6	27.1	17.4
Truck	2008	12.2	14.3	14.8	15.0	16.1	16.3	17.6	19.7	20.0	22.1	22.7	24.9	27.9	17.8
Truck	2009	12.4	14.8	15.3	15.7	16.6	16.7	18.9	20.4	20.9	22.6	23.4	25.0	28.3	18.5
Truck	2010	12.2	14.6	15.3	15.8	16.5	17.2	18.9	20.9	21.3	23.3	23.9	24.8	28.7	18.8
Truck	2011	6.7	14.6	15.4	16.2	17.3	17.6	19.1	21.1	22.0	23.7	24.1	24.4	28.2	19.1
Truck	2012	9.1	14.7	15.4	16.1	17.4	17.7	19.4	21.3	22.1	23.6	24.8	25.4	29.1	19.3
Truck	2013	9.1	14.7	15.5	16.6	17.7	17.7	19.6	22.1	23.3	25.0	25.8	28.0	28.5	19.8
Truck	2014	9.1	14.9	16.1	16.9	17.9	18.3	20.2	23.0	24.1	25.8	26.7	28.4	30.6	20.3
Truck	2015	12.7	15.3	17.4	17.8	18.8	19.1	20.7	23.7	24.3	27.6	28.4	28.7	31.5	21.1
Truck	2016	11.9	15.1	17.3	17.9	18.6	18.9	21.1	23.7	24.9	27.6	28.1	29.3	42.6	21.2
Truck	2017	10.8	15.0	17.2	17.6	18.4	18.8	21.2	23.7	24.3	27.5	28.8	30.1	48.5	21.2

MPG Variable	Car or Truck	Model Year	0 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 to 105	105 to 110	110 to 115	115 to 120	120 to 125	125 to 130	130 to 135	135 to 140	140 to 145	145 to 150	150 to 155	155 to 160	160 to 165	165 to 170	170 to 175	175 to 180	180 to 185	185 to 190	190 to 195	195 to 200	N/A				
AdjCity	Car	1975	19.2%	52.1%	20.7%	7.8%	0.2%																																								
AdjCity	Car	1976	3.2%	61.1%	22.2%	11.0%	2.5%																																								
AdjCity	Car	1977	4.6%	60.1%	20.0%	8.2%	5.4%	1.2%	0.5%																																						
AdjCity	Car	1978	0.8%	45.2%	34.1%	11.1%	7.0%	1.5%	0.3%																																						
AdjCity	Car	1979	0.2%	43.8%	36.0%	15.6%	3.5%	0.4%	0.4%																																						
AdjCity	Car	1980	0.0%	17.1%	43.8%	28.8%	8.1%	1.1%	1.1%																																						
AdjCity	Car	1981	0.0%	9.8%	44.3%	29.2%	12.1%	3.5%	1.0%																																						
AdjCity	Car	1982	0.0%	9.2%	36.1%	36.8%	12.7%	3.5%	1.3%	0.3%																																					
AdjCity	Car	1983	0.0%	13.6%	37.1%	24.3%	18.1%	5.8%	0.9%	0.1%																																					
AdjCity	Car	1984	0.0%	8.5%	38.6%	31.5%	15.1%	5.0%	0.9%	0.2%	0.1%																																				
AdjCity	Car	1985	0.0%	0.4%	47.7%	31.8%	13.7%	5.1%	0.8%	0.1%	0.4%																																				
AdjCity	Car	1986	0.0%	0.4%	43.5%	35.7%	15.0%	3.3%	1.2%	0.5%	0.0%	0.3%																																			
AdjCity	Car	1987	0.0%	0.7%	40.5%	35.7%	20.0%	1.7%	0.9%	0.3%	0.2%																																				
AdjCity	Car	1988	0.0%	0.6%	40.2%	37.4%	17.5%	2.2%	1.8%	0.2%	0.1%	0.1%																																			
AdjCity	Car	1989	0.0%	0.5%	46.1%	35.2%	15.4%	1.2%	1.1%	0.1%	0.3%	0.1%																																			
AdjCity	Car	1990	0.0%	0.6%	47.5%	37.7%	11.3%	2.4%	0.2%	0.2%	0.1%	0.0%																																			
AdjCity	Car	1991	0.0%	0.8%	49.3%	36.7%	10.2%	2.1%	0.2%	0.6%	0.1%	0.0%																																			
AdjCity	Car	1992	0.0%	3.5%	54.1%	31.3%	7.8%	2.3%	0.4%	0.6%	0.1%																																				
AdjCity	Car	1993	0.0%	5.0%	47.2%	35.6%	9.7%	1.6%	0.2%	0.5%	0.1%																																				
AdjCity	Car	1994	0.0%	1.0%	53.1%	35.9%	7.6%	1.5%	0.2%	0.5%	0.1%																																				
AdjCity	Car	1995	0.0%	1.1%	54.9%	32.2%	9.8%	1.5%	0.3%	0.3%																																					
AdjCity	Car	1996	0.0%	1.6%	55.5%	31.1%	10.1%	1.2%	0.1%	0.3%																																					
AdjCity	Car	1997	0.0%	1.5%	51.3%	37.3%	8.5%	1.2%	0.2%																																						
AdjCity	Car	1998	0.0%	2.3%	51.6%	34.5%	11.0%	0.3%	0.3%																																						
AdjCity	Car	1999	0.0%	1.2%	60.8%	29.8%	7.8%	0.1%	0.2%																																						
AdjCity	Car	2000	0.0%	2.9%	59.6%	32.1%	4.9%	0.3%	0.2%				0.1%																																		
AdjCity	Car	2001	0.0%	3.2%	60.9%	26.9%	8.3%	0.3%	0.1%	0.2%	0.0%	0.0%																																			
AdjCity	Car	2002	0.0%	2.0%	59.6%	31.0%	7.0%	0.0%	0.2%	0.3%	0.0%	0.0%																																			
AdjCity	Car	2003	0.0%	1.9%	56.7%	32.3%	8.2%	0.1%	0.4%	0.4%	0.0%																																				
AdjCity	Car	2004	0.0%	3.3%	57.3%	30.7%	7.6%	0.2%	0.3%		0.6%																																				
AdjCity	Car	2005	0.0%	3.3%	54.5%	31.4%	9.0%	0.2%	0.3%		1.4%																																				
AdjCity	Car	2006	0.0%	3.3%	57.0%	28.6%	9.5%	0.3%		0.4%	1.0%																																				
AdjCity	Car	2007	0.0%	3.1%	48.2%	35.4%	10.2%	0.8%	0.1%	0.4%	1.8%																																				
AdjCity	Car	2008	0.0%	4.4%	48.1%	34.1%	9.9%	0.9%	0.1%	0.4%	2.1%																																				
AdjCity	Car	2009	0.0%	2.4%	34.6%	41.6%	18.4%	1.2%	0.2%	0.3%	1.3%																																				
AdjCity	Car	2010	0.0%	1.0%	30.4%	43.7%	19.3%	0.4%	0.3%	1.2%			3.6%	0.0%																																	
AdjCity	Car	2011	0.0%	1.2%	32.5%	48.5%	14.2%	0.9%	0.2%	0.4%	1.9%	0.0%	0.0%			0.1%					0.0%			0.1%																							
AdjCity	Car	2012	0.0%	0.9%	23.6%	43.7%	25.5%	1.7%	0.6%	1.5%	1.4%	0.5%		0.4%			0.0%		0.0%				0.1%	0.0%																							
AdjCity	Car	2013	0.0%	0.7%	20.1%	39.5%	31.5%	2.3%	0.7%	2.0%	1.5%	0.5%		0.3%	0.0%	0.1%	0.0%																														
AdjCity	Car	2014	0.0%	0.6%	20.4%	41.0%	29.8%	2.9%	0.9%	1.7%	1.2%	0.4%	0.0%	0.3%	0.3%		0.0%	0.0%	0.2%	0.0%																											
AdjCity	Car	2015	0.0%	0.7%	15.8%	40.0%	34.4%	3.7%	0.9%	1.3%	1.7%	0.4%	0.2%	0.1%			0.0%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%																								
AdjCity	Car	2016		1.0%	11.4%	39.7%	37.1%	6.8%	0.4%	1.0%	0.1%	1.1%	0.1%	0.0%	0.2%			0.0%	0.1%	0.2%	0.1%	0.2%	0.0%																								
AdjCity	Car	2017	0.0%	0.9%	10.8%	37.4%	36.6%	6.6%	0.6%	1.4%	0.7%	2.0%	0.3%	0.2%	0.2%	0.0%			0.0%	0.1%	0.7%	0.5%	0.1%				0.1%	0.4%	0.3%	0.2%	0.0%														0.1%		



































2017 FE Trends Report  
Appendix D: Fuel Economy Data Stratified by Vehicle Type

Car or Truck	Vehicle Type	Model Year	Prod (000)	Fuel Economy (MPG)				Weight (lb)	Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG (Lab 55/45)	Cu-Ft-MPG (Lab 55/45)	Cu-Ft-Ton-MPG (Lab 55/45)	Drivetrain			Transmission					Fuel Metering				Vehicle Size										
				Frac	Lab 55/45	Adj City	Adj Hwy			Adj Comb	CID							HP	Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel	Multi-Valve	VVT	Hybrid	Small	Midsize	Large			
Car	Car	1975	8237	0.806	15.8	12.3	15.2	13.5	4058	288	134		0.515	0.0331	32.3			6.5%	93.5%	19.6%	80.1%	0.3%				94.6%	5.1%		0.2%					55.4%	23.3%	21.3%				
Car	Car	1976	9722	0.788	17.5	13.7	16.6	14.9	4059	287	136		0.502	0.0324	35.5			5.8%	94.2%	17.1%	82.9%					96.6%	3.2%		0.3%					55.4%	25.2%	19.4%				
Car	Car	1977	11300	0.800	18.3	14.4	17.4	15.6	3944	110.4	279	133		0.516	0.0335	36.4	2091	4021	6.8%	93.2%	16.8%	83.2%				95.3%	4.2%		0.5%					51.9%	24.5%	23.5%				
Car	Car	1978	11175	0.773	19.9	15.5	19.1	16.9	3588	109.0	251	124	13.7	0.538	0.0342	35.9	2240	3926	5.6%	90.4%	19.8%	73.1%	7.1%			94.0%	5.1%		0.9%					44.7%	34.4%	21.0%				
Car	Car	1979	10794	0.778	20.3	15.9	19.2	17.2	3485	108.9	238	119	14.5	0.545	0.0338	35.4	2258	3878	11.9%	0.3%	87.8%	21.1%	69.7%	8.8%		93.2%	4.7%		2.1%					43.7%	34.2%	22.1%				
Car	Car	1980	9443	0.835	23.5	18.3	22.6	20.0	3101	104.2	188	100	15.5	0.583	0.0322	36.6	2507	3841	29.7%	0.9%	69.4%	30.9%	51.6%	16.8%		88.7%	6.2%	0.7%	4.4%					54.4%	34.4%	11.3%				
Car	Car	1981	8733	0.827	25.1	19.6	24.2	21.4	3076	106.5	182	99	15.6	0.594	0.0320	38.9	2744	4161	37.0%	0.7%	62.2%	29.9%	36.2%	33.3%		0.6%	85.3%	6.1%	2.6%	5.9%					51.5%	36.4%	12.2%			
Car	Car	1982	7819	0.803	26.0	20.1	25.5	22.2	3054	106.1	175	99	16.6	0.609	0.0320	40.1	2836	4273	45.6%	0.8%	53.6%	29.2%	18.9%	51.4%		0.5%	78.4%	7.2%	9.8%	4.7%					56.5%	31.0%	12.5%			
Car	Car	1983	8002	0.777	25.9	19.9	25.5	22.1	3112	108.7	182	104	14.8	0.615	0.0330	40.7	2904	4426	47.3%	3.1%	49.6%	26.1%	16.8%	56.7%		0.5%	69.6%	9.5%	18.9%	2.1%					53.1%	31.8%	15.1%			
Car	Car	1984	10675	0.761	26.3	20.2	26.0	22.4	3099	107.5	179	106	14.5	0.637	0.0339	41.1	2910	4425	53.7%	1.0%	45.3%	24.1%	17.5%	58.3%		0.0%	58.9%	15.0%	24.4%	1.7%					57.4%	29.4%	13.2%			
Car	Car	1985	10791	0.746	27.0	20.7	26.8	23.0	3093	108.2	177	111	13.9	0.671	0.0355	42.0	2992	4551	61.6%	2.1%	36.3%	22.8%	18.5%	58.7%		45.6%	21.4%	32.0%	0.9%					55.7%	28.9%	15.4%				
Car	Car	1986	11015	0.717	27.9	21.2	27.6	23.7	3041	107.3	167	111	13.2	0.701	0.0360	42.6	3057	4585	71.1%	1.1%	27.9%	24.8%	17.2%	58.0%		34.5%	36.7%	28.4%	0.3%	4.8%					59.5%	27.9%	12.6%			
Car	Car	1987	10721	0.722	28.1	21.2	27.7	23.8	3051	106.6	162	112	13.3	0.722	0.0365	42.8	3051	4569	77.0%	1.1%	21.9%	24.9%	15.6%	59.5%		26.8%	42.5%	30.5%	0.3%	14.7%					63.5%	24.3%	12.2%			
Car	Car	1988	10756	0.702	28.6	21.4	28.2	24.1	3047	107.0	160	116	13.3	0.759	0.0375	43.7	3119	4693	81.7%	0.8%	17.5%	24.3%	9.6%	66.1%		16.3%	53.7%	30.0%	0.0%	19.9%					64.8%	22.3%	12.8%			
Car	Car	1989	10018	0.693	28.1	20.9	27.9	23.7	3099	107.7	163	121	12.5	0.783	0.0387	43.8	3080	4723	82.5%	1.0%	16.5%	21.0%	9.6%	69.3%	0.1%	9.7%	62.4%	27.8%	0.0%	24.4%					58.3%	28.2%	13.5%			
Car	Car	1990	8810	0.698	27.8	20.5	27.5	23.3	3176	107.1	163	120	11.4	0.829	0.0401	44.2	3014	4746	84.6%	1.0%	14.4%	19.6%	7.4%	72.9%	0.0%	1.4%	77.5%	21.1%	0.0%	33.0%	0.6%					58.6%	28.7%	12.8%		
Car	Car	1991	8524	0.678	28.0	20.5	27.6	23.4	3154	106.8	163	132	11.3	0.851	0.0413	44.3	3040	4746	83.2%	1.4%	15.4%	20.5%	5.9%	75.6%	0.0%	0.0%	78.0%	21.9%	0.1%	34.1%	2.4%					61.5%	26.2%	12.3%		
Car	Car	1992	8108	0.666	27.6	20.0	27.5	23.1	3240	108.4	170	141	10.7	0.868	0.0428	44.9	3040	4877	80.8%	1.1%	18.1%	17.4%	6.2%	76.4%	0.0%	0.0%	89.5%	10.4%	0.1%	35.0%	4.6%					56.5%	27.8%	15.6%		
Car	Car	1993	8456	0.640	28.2	20.3	27.9	23.5	3207	108.4	166	138	10.1	0.865	0.0425	45.4	3107	4929	85.1%	1.2%	13.7%	17.8%	5.2%	77.0%	0.0%		91.6%	8.4%	0.1%	36.7%	4.8%					57.2%	29.5%	13.3%		
Car	Car	1994	8415	0.596	28.0	20.0	27.7	23.3	3250	108.2	168	143	9.9	0.884	0.0432	45.7	3086	4955	84.4%	0.4%	15.1%	16.7%	4.0%	79.3%			94.9%	5.1%	0.0%	41.0%	8.0%					58.5%	26.1%	15.4%		
Car	Car	1995	9396	0.620	28.3	20.0	28.1	23.4	3263	108.7	167	152	9.8	0.945	0.0460	46.4	3130	5045	82.0%	1.2%	16.9%	16.3%	1.8%	81.9%			98.8%	1.2%	0.1%	52.2%	9.8%					57.3%	28.6%	14.0%		
Car	Car	1996	7890	0.600	28.3	19.8	28.0	23.3	3282	109.0	165	154	10.1	0.958	0.0464	46.5	3125	5080	86.5%	1.5%	11.9%	14.9%	1.6%	83.6%	0.0%		98.8%	1.1%	0.1%	57.3%	11.7%					54.3%	32.0%	13.6%		
Car	Car	1997	8334	0.576	28.4	19.8	28.0	23.4	3274	108.7	164	156	10.0	0.974	0.0469	46.7	3127	5076	86.5%	1.7%	11.7%	13.5%	0.6%	85.8%	0.1%		99.1%	0.8%	0.1%	58.6%	11.3%					55.1%	30.6%	14.3%		
Car	Car	1998	7971	0.551	28.5	19.7	28.0	23.4	3306	108.6	164	159	10.2	0.993	0.0475	47.3	3138	5145	87.0%	2.3%	10.7%	12.3%	0.4%	87.3%	0.1%		99.7%	0.1%	0.2%	61.4%	18.4%					49.4%	39.1%	11.4%		
Car	Car	1999	8376	0.551	28.2	19.4	27.5	23.0	3365	109.1	166	164	10.1	1.009	0.0481	47.5	3106	5191	87.2%	2.2%	10.6%	10.9%	0.6%	88.4%	0.0%		99.7%	0.1%	0.2%	64.7%	17.1%					47.7%	39.7%	12.6%		
Car	Car	2000	9125	0.551	28.2	19.3	27.3	22.9	3369	109.6	165	168	9.5	1.032	0.0492	47.6	3121	5224	84.9%	2.1%	13.0%	11.2%	1.1%	87.7%	0.0%		99.7%	0.1%	0.2%	65.1%	23.4%	0.1%					47.5%	34.3%	18.2%	
Car	Car	2001	8405	0.539	28.4	19.4	27.3	23.0	3380	109.3	165	168	9.3	1.042	0.0492	48.4	3159	5292	84.1%	3.2%	12.6%	11.4%	0.9%	87.5%	0.2%		99.7%	0.3%	0.3%	67.3%	28.3%	0.2%					50.8%	32.3%	16.8%	
Car	Car	2002	8301	0.515	28.6	19.4	27.2	23.1	3391	110.0	166	173	9.3	1.066	0.0504	48.9	3200	5382	84.9%	3.8%	11.2%	11.2%	0.2%	88.2%	0.4%		99.6%	0.4%	0.4%	69.9%	33.9%	0.3%					48.6%	36.3%	15.1%	
Car	Car	2003	7921	0.502	29.0	19.5	27.5	23.3	3417	109.6	165	176	9.1	1.087	0.0510	49.9	3237	5481	82.0%	3.5%	14.5%	11.2%		87.9%	0.9%		99.6%	0.4%	0.4%	73.8%	41.3%	0.6%					50.6%	35.5%	15.9%	
Car	Car	2004	7537	0.480	28.9	19.3	27.4	23.1	3462	110.4	168	183	9.0	1.106	0.0521	50.5	3261	5587	80.8%	5.4%	13.7%	10.2%	0.3%	88.2%	1.4%		99.7%	0.3%	0.3%	77.3%	44.2%	0.9%					47.4%	35.6%	17.0%	
Car	Car	2005	8027	0.505	29.5	19.6	27.6	23.5	3463	111.4	166	182	8.9	1.115	0.0518	51.8	3384	5790	79.8%	5.8%	14.5%	9.3%	0.1%	88.0%	2.6%		99.6%	0.4%	0.4%	78.2%	51.6%	2.1%					44.2%	38.9%	16.9%	
Car	Car	2006	7993	0.529	29.2	19.4	27.4	23.3	3534	111.5	172	194	8.7	1.146	0.0540	52.4	3351	5855	75.8%	5.8%	18.5%	9.4%	0.1%	88.1%	2.4%		99.4%	0.6%	0.6%	80.8%	60.6%	1.5%					46.2%	32.9%	20.9%	
Car	Car	2007	8082	0.529	30.3	20.1	28.3	24.1	3507	110.2	165	189	8.8	1.157	0.0531	54.2	3468	5994	80.5%	5.7%	12.8%	8.5%	0.0%	81.1%	10.4%											44.6%	40.0%	15.4%		
Car	Car	2008	7319	0.527	30.5	20.2	28.5	24.3	3527	109.9	165	193	8.8	1.178	0.0536	54.9	3490	6056	77.7%	7.3%	15.0%	8.0%	0.3%	80.2%	11.5%		3.2%	96.8%	0.1%	1%	87.8%	9.5%	3.4%					44.6%	35.8%	19.5%
Car	Car	2009	5636	0.605	32.1	21.3	29.6	25.3	3464	110.0	155	184	8.9	1.190	0.0520	56.5	3645	6228	82.6%	6.7%	10.7%	6.8%	0.4%	82.0%	10.8%		4.5%	94.8%	0.7%	92.0%	79.7%	3.0%					47.6%	35.4%	17.0%	
Car	Car	2010	6061	0.545	32.2	22.0	30.5	26.2	3474	110.5	156	187	8.8	1.197	0.0527	59.8	3864	6632	81.6%	5.9%	12.5%	5.7%	1.9%	77.6%	14.8%		6.6%	92.4%	1.0%	92.9%	90.5%	6.2%					48.8%	37.4%	13.7%	
Car	Car	2011	5743	0.478	32.9	21.6	30.3	25.8	3559	111.1	159	199	8.5	1.252	0.0547	60.3	3824	6717	7																					

























Vehicle Type	Weight Class	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain					Transmission					Fuel Metering					Multi-Valve	VVT	Hybrid										
					Lab 55/45	Adj City	Adj Hwy	Adj Comb		CID	HP							Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel															
Car	3000	1975	828	0.081	21.4	16.6	20.9	18.3	147	99		0.674	0.0329	27.8			3.5%		96.5%	48.5%	51.4%	0.1%			82.9%	17.1%																			
Car	3000	1976	884	0.072	23.5	18.1	23.1	20.1	147	95		0.657	0.0317	30.4			2.5%		97.5%	50.4%	49.6%				90.2%	9.8%																			
Car	3000	1977	584	0.041	23.2	18.1	22.3	19.8	87.6	146	104	0.715	0.0347	30.1	1771	2656	3.6%		96.4%	51.3%	48.7%				77.6%	22.4%																			
Car	3000	1978	903	0.062	22.5	17.7	21.3	19.2	97.3	164	102	0.637	0.0339	29.1	1885	2828	4.4%		95.6%	35.2%	64.8%				82.0%	18.0%																			
Car	3000	1979	1286	0.093	22.1	17.2	21.3	18.9	96.3	162	100	0.634	0.0333	28.6	1834	2751	2.6%		97.4%	39.7%	60.3%				85.8%	14.1%										0.1%									
Car	3000	1980	2026	0.179	23.6	18.3	23.0	20.1	100.9	164	100	0.624	0.0334	30.3	2040	3060	32.0%		68.0%	30.9%	68.1%	1.0%			92.0%	7.5%										0.5%									
Car	3000	1981	1626	0.154	24.4	19.0	23.4	20.8	103.8	165	101	0.619	0.0335	31.4	2168	3252	45.4%		54.6%	21.6%	77.7%	0.7%			87.8%	11.9%										0.4%									
Car	3000	1982	1554	0.160	25.7	19.7	23.4	21.9	104.2	163	103	0.640	0.0343	33.3	2319	3479	53.2%		46.8%	17.0%	17.9%	65.1%			53.8%	18.6%										26.9%	0.7%								
Car	3000	1983	1515	0.147	25.8	19.8	25.6	22.0	105.4	161	105	0.658	0.0349	33.4	2346	3520	63.0%		37.0%	17.2%	20.1%	62.7%			50.1%	22.7%											26.5%	0.7%							
Car	3000	1984	1994	0.142	26.4	20.2	26.2	22.5	104.9	157	107	0.689	0.0357	34.1	2381	3571	73.9%	0.2%	25.9%	16.2%	25.6%	58.2%			42.1%	27.6%												29.6%	0.8%						
Car	3000	1985	2037	0.141	27.1	20.7	26.9	23.1	106.7	154	110	0.727	0.0366	35.0	2489	3734	77.9%	0.5%	21.6%	14.4%	32.1%	53.5%			27.4%	37.5%												34.7%	0.4%						
Car	3000	1986	2830	0.184	27.5	21.0	27.1	23.4	106.6	151	108	0.723	0.0359	35.3	2513	3770	82.2%	1.0%	16.8%	15.1%	28.5%	56.4%			15.0%	35.7%												49.0%	0.2%	2.3%					
Car	3000	1987	2743	0.185	27.9	21.2	27.4	23.6	106.3	147	111	0.767	0.0371	35.8	2539	3809	84.1%	1.9%	14.0%	15.7%	20.8%	63.5%			0.9%	49.6%												49.5%	0.0%	10.6%					
Car	3000	1988	3146	0.206	28.4	21.4	27.8	24.0	105.3	145	114	0.822	0.0380	36.3	2547	3821	90.6%	1.2%	8.3%	17.2%	16.1%	66.8%				69.9%													30.1%	0.0%	22.6%				
Car	3000	1989	3402	0.235	28.4	21.2	27.7	23.9	105.2	146	118	0.815	0.0393	36.0	2525	3788	91.3%	1.4%	7.3%	16.4%	12.1%	71.5%			2.6%	73.4%													24.0%	33.6%					
Car	3000	1990	2857	0.226	28.6	21.3	27.3	23.9	103.9	142	122	0.867	0.0405	36.0	2497	3746	95.0%	0.7%	4.3%	20.8%	10.4%	68.8%			0.1%	74.9%													25.0%	46.7%					
Car	3000	1991	2714	0.216	28.1	20.8	27.3	23.5	104.0	145	124	0.868	0.0414	35.5	2458	3687	93.3%	1.5%	5.1%	18.4%	9.2%	72.4%				75.7%													24.3%	41.8%					
Car	3000	1992	1918	0.158	28.4	20.8	27.6	23.7	102.7	146	127	0.885	0.0423	35.6	2438	3657	94.2%	0.7%	5.1%	20.3%	13.3%	66.3%				87.2%													12.8%	36.5%	0.2%				
Car	3000	1993	2021	0.153	28.7	20.8	27.8	23.8	102.6	147	125	0.864	0.0417	35.9	2455	3683	94.6%	0.9%	4.5%	19.7%	11.3%	68.9%				86.8%													13.2%	38.2%	0.2%				
Car	3000	1994	2033	0.144	29.1	21.0	28.0	24.0	102.9	143	124	0.881	0.0413	36.2	2481	3721	99.1%	0.3%	0.6%	16.5%	7.9%	75.6%				89.5%													10.5%	37.2%	0.7%				
Car	3000	1995	1933	0.128	29.7	21.2	28.8	24.5	105.6	139	136	0.9	0.988	0.0452	36.9	2546	3819	95.4%	2.6%	2.0%	22.1%				77.9%														1.4%	65.5%	9.9%				
Car	3000	1996	1796	0.137	29.9	21.1	29.2	24.6	103.1	137	133	0.84	0.980	0.0444	37.0	2544	3817	96.7%	1.8%	1.5%	20.7%				79.3%															1.0%	61.9%	12.4%			
Car	3000	1997	1765	0.122	30.0	21.0	29.0	24.5	102.5	136	134	0.83	0.993	0.0447	36.9	2521	3781	95.5%	2.3%	2.2%	19.8%	0.1%			80.1%														0.1%	69.1%	7.6%				
Car	3000	1998	1153	0.080	30.1	21.0	28.8	24.5	101.1	132	131	0.88	0.997	0.0436	37.0	2494	3741	94.6%	2.7%	2.7%	24.2%	0.3%			75.5%															1.0%	57.4%	21.0%			
Car	3000	1999	924	0.061	30.1	20.9	28.4	24.4	99.9	128	128	0.9	1.001	0.0426	36.8	2455	3682	94.4%	2.5%	3.1%	26.9%	1.2%			72.0%															1.0%	49.9%	24.9%			
Car	3000	2000	1470	0.089	30.6	21.3	28.6	24.7	102.0	126	127	0.6	1.007	0.0423	37.3	2544	3816	95.7%	1.2%	3.1%	21.2%	1.7%			77.1%															1.4%	48.2%	17.3%			
Car	3000	2001	1255	0.080	31.6	21.8	29.1	25.3	102.5	125	129	0.4	1.031	0.0429	38.3	2628	3942	95.9%	0.7%	3.4%	22.8%	1.1%			74.8%														1.3%	98.6%	1.4%	56.5%	26.4%	1.3%	
Car	3000	2002	1587	0.099	31.4	21.6	28.9	25.1	104.2	124	132	0.3	1.064	0.0440	38.0	2642	3963	98.1%	0.2%	1.7%	19.2%	0.4%			79.0%															1.1%	64.4%	27.7%	1.4%		
Car	3000	2003	1776	0.113	32.8	22.4	29.8	26.0	104.4	121	133	0.1	1.098	0.0443	39.5	2747	4121	97.0%	1.4%	1.7%	19.4%				77.9%															1.0%	85.6%	40.1%	2.6%		
Car	3000	2004	1576	0.100	33.5	22.5	30.4	26.4	105.5	123	136	9.9	1.103	0.0452	40.3	2842	4263	97.6%	1.2%	1.2%	15.2%				79.8%															0.6%	92.7%	46.5%	4.5%		
Car	3000	2005	1738	0.109	34.2	23.0	30.6	26.8	106.1	121	135	9.8	1.110	0.0449	41.3	2935	4402	98.0%	0.8%	1.2%	15.9%				75.7%														0.3%	91.9%	62.6%	8.5%			
Car	3000	2006	1673	0.111	34.9	23.3	31.4	27.3	103.4	120	139	9.7	1.156	0.0462	42.1	2913	4369	97.2%	1.2%	1.6%	17.0%				75.8%														0.1%	94.7%	71.7%	7.1%			
Car	3000	2007	1780	0.116	36.4	24.3	32.4	28.4	104.5	120	137	9.7	1.143	0.0457	43.9	3081	4622	97.3%	0.8%	1.9%	14.3%				68.2%															1.2%	98.8%	55.9%	10.7%		
Car	3000	2008	1660	0.119	37.5	25.1	33.2	29.2	104.2	118	135	9.8	1.145	0.0450	45.2	3156	4733	98.0%	0.9%	1.1%	12.0%				66.9%														1.3%	98.7%	98.1%	63.8%	12.3%		
Car	3000	2009	1565	0.168	38.4	25.7	33.9	29.8	104.2	115	135	9.8	1.171	0.0450	45.4	3161	4742	99.0%	0.7%	0.3%	9.8%				77.4%														0.9%	99.1%		98.8%	79.4%	6.5%	
Car	3000	2010	1809	0.163	38.2	25.5	33.8	29.6	105.4	116	138	9.8	1.196	0.0462	44.7	3136	4704	100.0%	0.0%		6.3%				83.2%														1.1%	98.9%		97.2%	90.3%	2.8%	
Car	3000	2011	1085	0.090	38.6	25.6	33.3	29.5	106.8	114	139	9.7	1.227	0.0463	44.4	3152	4729	99.9%	0.1%	0.0%					76.3%															3.1%	96.9%		97.0%	89.0%	2.8%
Car	3000	2012	1875	0.139	40.2	26.5	35.0	30.8	106.6	114	145	9.3	1.275	0.0483	46.4	3295	4942	99.2%	0.8%	0.0%	8.0%				79.8%															27.4%	72.6%		97.6%	98.0%	1.3%
Car	3000	2013	2113	0.139	40.3	26.7	35.2	31.0	107.1	112	146	9.3	1.309	0.0487	46.9	3343	5014	97.2%	0.8%	2.1%	8.1%	4.5%			77.4%															21.3%	78.6%		97.7%	98.6%	1.0%
Car	3000	2014	1833	0.118	41.3	27.1	35.6	31.4	108.7																																				

Vehicle Type	Weight Class	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain					Transmission					Fuel Metering					Multi-Valve	VVT	Hybrid	
					Lab 55/45	Adj City	Adj Hwy	Adj Comb		CID	HP							Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel						
Car	3500	1975	1029	0.101	18.2	14.3	17.1	15.5	227	102		0.463	0.0292	27.6				100.0%	19.3%	80.7%						91.6%		6.5%		1.9%						
Car	3500	1976	934	0.076	19.4	15.5	18.0	16.5	251	100		0.447	0.0286	29.2				100.0%	17.2%	82.8%						92.9%		5.7%		1.4%						
Car	3500	1977	724	0.051	20.2	16.1	18.8	17.2	102.4	232	104	0.458	0.0297	30.5	1789	3132		100.0%	16.2%	83.8%						91.1%		6.1%		2.7%						
Car	3500	1978	2992	0.207	20.2	15.8	19.2	17.2	111.1	257	120	0.468	0.0342	30.2	1919	3358		100.0%	4.7%	88.9%	6.4%					98.1%		1.4%		0.5%						
Car	3500	1979	2684	0.193	20.2	16.0	18.8	17.2	112.3	252	120	0.477	0.0342	30.1	1934	3385		100.0%	4.0%	79.1%	16.9%					97.9%		1.3%		0.8%						
Car	3500	1980	2148	0.190	20.7	16.3	19.8	17.7	111.3	244	115	0.477	0.0329	31.1	1980	3465	0.2%	0.4%	99.4%	3.1%	59.0%	37.9%				96.2%		2.2%		1.7%						
Car	3500	1981	1829	0.173	22.2	17.3	21.4	18.9	113.3	234	113	0.487	0.0322	33.3	2160	3780		0.5%	99.5%	3.4%	12.2%	84.4%				94.5%		3.0%		2.5%						
Car	3500	1982	1421	0.146	22.4	17.3	21.8	19.1	112.0	237	118	0.505	0.0338	33.8	2170	3798	0.5%	0.6%	98.9%	6.9%	4.7%	88.4%				85.6%		5.1%		4.4%	4.9%					
Car	3500	1983	1669	0.162	22.8	17.5	22.6	19.5	111.8	238	122	0.524	0.0348	34.3	2199	3848	0.9%	0.8%	98.2%	8.7%	7.9%	83.4%				83.0%		9.1%		5.3%	2.6%					
Car	3500	1984	2220	0.158	22.9	17.5	22.8	19.5	109.6	236	127	0.556	0.0363	34.5	2167	3792	8.2%	0.2%	91.6%	7.7%	3.5%	88.9%				63.0%		23.5%		12.1%	1.4%					
Car	3500	1985	2461	0.170	23.4	17.7	23.7	20.0	111.9	228	133	0.603	0.0379	35.1	2246	3930	35.2%	0.0%	64.8%	8.3%	2.9%	88.8%				29.5%		37.6%		32.3%	0.7%					
Car	3500	1986	2760	0.180	24.4	18.2	25.1	20.8	113.5	225	141	0.654	0.0404	36.5	2377	4160	49.2%	0.5%	50.4%	8.6%	2.9%	88.5%				19.9%		59.4%		20.7%	0.1%	1.1%				
Car	3500	1987	2521	0.170	24.6	18.0	25.7	20.9	114.0	217	147	0.703	0.0421	36.7	2399	4199	64.1%	0.4%	35.5%	8.8%	3.4%	87.8%				7.4%		77.1%		15.0%	0.4%	3.1%				
Car	3500	1988	2693	0.176	25.4	18.5	26.5	21.5	113.5	212	151	0.732	0.0431	37.9	2464	4312	72.8%	0.2%	27.0%	7.9%	2.4%	89.7%				0.3%		88.2%		11.4%		6.1%				
Car	3500	1989	2688	0.186	25.1	18.2	26.2	21.3	114.2	207	151	0.751	0.0431	37.4	2444	4278	80.6%	0.2%	19.2%	6.8%	5.0%	88.2%						87.8%		12.2%	0.0%	7.7%				
Car	3500	1990	2704	0.214	25.5	18.3	26.4	21.5	113.0	194	150	0.795	0.0430	37.7	2443	4275	84.5%	1.9%	13.6%	6.3%	4.1%	89.6%						97.2%		2.8%	0.0%	12.6%				
Car	3500	1991	2137	0.170	25.4	18.2	26.0	21.3	111.2	195	156	0.822	0.0446	37.4	2386	4176	79.7%	2.7%	17.6%	7.4%	4.4%	88.3%						96.0%		3.9%	0.1%	16.4%	0.1%			
Car	3500	1992	2822	0.232	25.6	18.2	26.2	21.5	113.6	192	155	0.829	0.0442	37.6	2447	4283	78.6%	1.7%	19.7%	5.2%	2.5%	92.2%						98.0%		1.9%	0.1%	24.0%	2.4%			
Car	3500	1993	2848	0.216	26.0	18.5	26.5	21.7	114.2	194	156	0.825	0.0447	38.2	2495	4365	87.5%	1.6%	10.8%	4.6%	1.7%	93.7%						99.6%		0.4%		24.4%	2.6%			
Car	3500	1994	2770	0.196	26.1	18.4	26.5	21.7	111.7	191	156	0.837	0.0445	38.2	2438	4266	84.8%	0.9%	14.2%	7.4%	1.0%	91.5%						100.0%			26.2%	9.0%				
Car	3500	1995	3628	0.240	26.4	18.5	26.9	22.0	111.9	188	166	0.9	0.906	0.0473	38.5	2466	4315	79.4%	1.4%	19.2%	7.1%	1.0%	91.8%						100.0%			37.4%	10.5%			
Car	3500	1996	3154	0.240	26.5	18.5	26.6	22.0	111.5	181	164	0.98	0.925	0.0470	38.5	2455	4297	89.0%	2.5%	8.6%	7.5%	0.8%	91.8%						99.8%		0.2%	47.0%	12.3%			
Car	3500	1997	3196	0.221	26.7	18.5	26.8	22.1	112.4	181	170	0.9	0.957	0.0486	38.7	2488	4353	88.8%	2.9%	8.3%	6.2%	0.0%	93.8%						99.9%		0.1%	48.7%	12.5%			
Car	3500	1998	3995	0.276	27.1	18.6	27.0	22.3	111.5	178	170	0.9	0.969	0.0485	39.2	2494	4365	88.0%	2.7%	9.3%	5.7%	0.0%	94.2%						100.0%			55.1%	17.8%			
Car	3500	1999	4610	0.303	27.2	18.6	26.8	22.3	110.8	174	170	0.9	0.993	0.0486	39.1	2476	4333	90.0%	2.6%	7.4%	5.9%	0.4%	93.7%						100.0%			63.4%	16.5%			
Car	3500	2000	4665	0.282	27.1	18.5	26.7	22.2	111.5	175	174	0.9	1.013	0.0498	38.9	2479	4339	88.4%	2.5%	9.1%	6.4%	0.6%	93.0%						100.0%			65.7%	22.5%			
Car	3500	2001	4313	0.276	27.2	18.5	26.5	22.1	110.6	174	177	0.9	1.029	0.0505	38.9	2461	4307	88.8%	1.9%	9.3%	7.1%	0.5%	92.4%						99.9%		0.1%	64.8%	21.4%			
Car	3500	2002	4294	0.266	27.7	18.7	26.6	22.4	112.5	176	183	0.9	1.063	0.0524	39.4	2533	4433	88.3%	2.6%	9.1%	7.7%	0.2%	92.0%	0.1%				99.7%		0.3%	67.8%	33.6%				
Car	3500	2003	4119	0.261	28.0	18.7	26.9	22.6	111.1	175	185	0.8	1.076	0.0528	39.7	2529	4426	87.1%	1.7%	11.2%	8.5%		91.3%	0.2%				99.7%		0.3%	66.6%	40.7%				
Car	3500	2004	3561	0.227	28.1	18.7	26.9	22.6	110.4	176	188	0.7	1.097	0.0538	39.8	2516	4404	84.1%	2.6%	13.3%	8.6%	0.5%	90.7%	0.2%				99.6%		0.4%	66.6%	37.6%				
Car	3500	2005	3265	0.205	28.9	19.2	27.3	23.1	111.8	170	188	0.8	1.111	0.0528	40.7	2608	4563	85.9%	4.4%	9.7%	7.2%	0.3%	92.4%	0.1%				99.4%		0.6%	70.6%	47.3%	0.6%			
Car	3500	2006	3024	0.200	29.2	19.3	27.4	23.2	111.4	167	188	0.7	1.144	0.0537	41.0	2618	4581	85.4%	4.1%	10.5%	8.8%	0.2%	91.0%						98.6%		1.4%	78.5%	57.4%			
Car	3500	2007	3016	0.197	29.9	19.9	28.0	23.8	110.3	160	184	0.9	1.163	0.0525	42.0	2657	4651	86.7%	3.7%	9.5%	8.1%		79.7%	12.2%			0.2%	99.8%			87.1%	67.8%	0.2%			
Car	3500	2008	2458	0.177	30.6	20.3	28.4	24.3	110.8	155	184	0.9	1.195	0.0525	42.8	2720	4760	86.7%	6.1%	7.2%	7.8%		75.7%	16.5%			2.5%	97.5%			93.9%	63.3%	0.3%			
Car	3500	2009	2191	0.235	31.7	21.0	29.5	25.1	113.2	149	177	0.9	1.193	0.0507	44.2	2865	5013	89.4%	5.6%	5.0%	5.6%	0.2%	80.7%	13.6%			3.0%	95.3%			1.7%	98.1%	78.4%	0.5%		
Car	3500	2010	2345	0.211	34.6	22.9	31.6	27.2	113.6	147	173	0.9	1.172	0.0495	49.8	3248	5685	92.1%	3.6%	4.3%	4.7%	4.2%	66.9%	24.2%			3.2%	94.3%		2.6%	98.1%	94.9%	10.9%			
Car	3500	2011	2546	0.212	34.9	22.8	32.0	27.3	113.2	144	179	0.7	1.248	0.0510	49.1	3185	5575	89.8%	5.2%	5.4%	4.9%	0.7%	77.0%	17.5%			16.8%	80.7%		2.2%	99.2%	96.5%	6.4%			
Car	3500	2012	3348	0.249	36.0	23.7	32.7	28.1	113.9	142	175	0.8	1.249	0.0500	50.6	3301	5777	92.6%	4.2%	3.1%	3.9%	2.5%	73.4%	20.1%			16.9%	80.2%		2.6%	99.3%	96.4%	7.5%			
Car	3500	2013	3446	0.227	37.5	24.6	33.8	29.1	112.8	139	182	0.5	1.327	0.0520	53.0	3427	5998	89.8%	4.7%	5.5%	4.3%	1.5%	63.6%	30.6%			38.8%	57.3%		3.1%	98.8%	95.6%	7.1%			
Car	3500	2014	3174	0.205	37.9	24.8	33.9	29.3	112.6	137	180	0.6	1.343	0.0514	52.7	3405	5959	89.2%	4.7%	6.1%	3.9%	1.0%	67.4%	27.8%			41.2%	55.3%		3.1%	98.5%	96.3%	6.0%			
Car	3500	2015	3459	0.207	39.2	25.4	35.1	30.2	113.8	139	181	0.5	1.330	0.0517	54.9			89.5%	6.2%	4.3%	3.4%	1.1%	64.4%	31.1%			47.1%	50.4%		1.5%	98.2%	97.2%	6.5%			
Car	3500	2016	2856	0.176	38.9	25.2	35.0	30.0	113.1	137	184	0.4	1.380	0.0526	54.4			87.5%	6.6%	5.9%	3.8%	2.9%	65.7%	27.6%			53.8%	45.3%								































































































2017 FE Trends Report  
Appendix E: Fuel Economy Data Stratified by Vehicle Type and Weight Class

Vehicle Type	Weight Class	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain			Transmission					Fuel Metering				Multi-Valve	VVT	Hybrid								
					Lab 55/45	Adj City	Adj Hwy	Adj Comb		CID	HP							Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI				Diesel							
Pickup	4000	1975	733	0.072	14.1	11.0	13.6	12.0		330	143		0.433	0.0358	24.6				0.7%	99.3%	33.1%	66.9%					100.0%													
Pickup	4000	1976	907	0.073	15.3	12.2	14.3	13.1		327	135		0.412	0.0338	26.8				1.0%	99.0%	33.8%	66.2%					100.0%													
Pickup	4000	1977	855	0.061	16.7	13.4	15.3	14.2		322	144		0.445	0.0359	28.9				1.2%	98.8%	30.6%	69.4%					100.0%													
Pickup	4000	1978	951	0.066	16.1	13.0	14.4	13.6		318	144	13.1	0.453	0.0361	28.0				1.1%	98.9%	30.5%	69.5%					99.3%										0.7%			
Pickup	4000	1979	606	0.044	15.9	12.9	14.4	13.5		306	142	14.0	0.465	0.0356	27.4				6.3%	93.7%	33.8%	61.5%	4.8%				100.0%													
Pickup	4000	1980	439	0.039	18.7	14.9	17.4	15.9		283	127	15.2	0.451	0.0317	32.1				5.6%	94.4%	51.5%	31.1%	17.4%				100.0%													
Pickup	4000	1981	587	0.056	19.2	15.2	17.9	16.3		286	128	15.0	0.451	0.0320	33.0				7.3%	92.7%	44.3%	20.5%	35.1%				100.0%													
Pickup	4000	1982	397	0.041	18.7	14.9	17.4	15.9		292	130	16.1	0.446	0.0325	32.2				9.4%	90.6%	32.9%	38.7%	28.4%				100.0%													
Pickup	4000	1983	332	0.032	18.5	14.7	17.4	15.8		291	130	14.7	0.446	0.0324	32.0				4.8%	95.2%	27.0%	23.6%	49.0%	0.4%			99.8%										0.2%			
Pickup	4000	1984	406	0.029	18.5	14.6	17.4	15.7		287	127	14.8	0.442	0.0317	32.0				6.3%	93.7%	34.2%	25.9%	39.9%				100.0%													
Pickup	4000	1985	385	0.027	18.5	14.8	17.2	15.8		292	140	13.8	0.479	0.0349	31.9				7.8%	92.2%	26.7%	41.3%	32.0%				86.2%													
Pickup	4000	1986	465	0.030	19.2	15.2	17.7	16.3		276	134	13.4	0.505	0.0336	32.8				13.5%	86.5%	36.8%	29.7%	33.5%				61.0%													
Pickup	4000	1987	271	0.018	19.1	15.1	17.6	16.2		273	141	13.2	0.530	0.0353	32.5			0.1%	17.6%	82.3%	40.2%	24.2%	35.5%				33.5%													
Pickup	4000	1988	370	0.024	19.7	15.2	18.7	16.6		282	154	12.4	0.555	0.0385	33.4			0.0%	18.0%	81.9%	43.2%	16.7%	40.1%				0.0%													
Pickup	4000	1989	369	0.026	20.1	15.3	19.3	17.0		269	159	11.8	0.607	0.0397	34.2				37.0%	63.0%	39.8%	5.4%	54.8%																	
Pickup	4000	1990	342	0.027	20.2	15.1	19.4	16.9		271	162	10.9	0.612	0.0405	34.1				27.6%	72.4%	36.9%	5.3%	57.8%																	
Pickup	4000	1991	353	0.028	20.4	15.2	19.6	17.1		262	159	11.1	0.623	0.0397	34.3				40.0%	60.0%	42.4%	0.0%	57.6%																	
Pickup	4000	1992	332	0.027	20.4	15.1	19.7	17.1		250	154	11.1	0.628	0.0386	34.3				32.0%	68.0%	37.3%		62.7%																	
Pickup	4000	1993	313	0.024	20.5	15.2	19.5	17.1		236	155	10.4	0.669	0.0388	34.3				42.3%	57.7%	38.0%		62.0%																	
Pickup	4000	1994	536	0.038	20.9	15.4	19.8	17.3		241	169	9.9	0.715	0.0423	34.9				43.7%	56.3%	38.4%		61.6%																	
Pickup	4000	1995	292	0.019	20.9	15.4	19.5	17.3		230	164	10.3	0.727	0.0411	34.7				53.8%	46.2%	38.4%		61.6%																	
Pickup	4000	1996	286	0.022	21.6	15.7	20.3	17.8		239	173	10.3	0.734	0.0432	35.7				44.0%	56.0%	31.7%		68.3%																	
Pickup	4000	1997	425	0.029	21.5	15.5	20.2	17.6		246	185	9.8	0.756	0.0461	35.3				26.0%	74.0%	31.3%		68.7%																	
Pickup	4000	1998	437	0.030	21.3	15.3	19.9	17.4		236	178	10.4	0.766	0.0446	34.9				42.1%	57.9%	35.5%		64.5%																	
Pickup	4000	1999	420	0.028	20.7	14.9	19.1	16.9		231	173	10.7	0.755	0.0431	33.8				52.4%	47.6%	26.1%		73.9%																	
Pickup	4000	2000	481	0.029	20.8	14.9	19.1	16.9		222	171	10.3	0.779	0.0429	33.9				45.0%	55.0%	21.0%		79.0%																	
Pickup	4000	2001	437	0.028	20.7	14.8	18.8	16.7		226	184	9.6	0.819	0.0460	33.6				43.1%	56.9%	16.7%		83.3%																	
Pickup	4000	2002	386	0.024	20.9	15.0	18.6	16.8		220	183	9.8	0.836	0.0457	33.7				38.1%	61.9%	19.7%		80.3%																	
Pickup	4000	2003	396	0.025	21.4	15.2	19.2	17.2		213	178	10.0	0.844	0.0445	34.5				36.3%	63.7%	15.4%		84.6%																	
Pickup	4000	2004	380	0.024	21.8	15.2	19.6	17.4		208	189	9.6	0.910	0.0473	35.0				41.3%	58.7%	16.3%		83.7%																	
Pickup	4000	2005	293	0.018	23.1	15.9	20.9	18.4		211	206	9.0	0.978	0.0516	37.1				35.2%	64.8%	17.1%		82.9%																	
Pickup	4000	2006	282	0.019	23.4	16.1	21.1	18.7		209	202	9.2	0.970	0.0505	37.5				29.8%	70.2%	17.1%		82.9%																	
Pickup	4000	2007	209	0.014	22.8	15.7	20.6	18.2		212	199	9.4	0.941	0.0498	36.6				27.6%	72.4%	14.2%		85.8%																	
Pickup	4000	2008	186	0.013	23.2	16.0	20.8	18.5		213	199	9.5	0.938	0.0498	37.1				31.3%	68.7%	13.9%		86.1%																	
Pickup	4000	2009	97	0.010	24.2	16.7	21.6	19.2		209	202	9.1	0.974	0.0506	38.7				25.5%	74.5%	22.1%		77.9%																	
Pickup	4000	2010	97	0.009	23.9	16.6	21.3	19.0		212	205	9.2	0.965	0.0512	38.3				24.1%	75.9%	16.2%		83.8%																	
Pickup	4000	2011	128	0.011	23.5	16.4	20.9	18.7		218	202	9.2	0.933	0.0505	37.7				35.7%	64.3%	11.2%		88.8%																	
Pickup	4000	2012	92	0.007	25.8	17.8	22.5	20.2		198	198	9.6	1.000	0.0495	40.5				18.7%	81.3%	10.2%		89.8%																	
Pickup	4000	2013	89	0.006	25.9	18.0	22.2	20.2		194	190	9.8	0.976	0.0474	40.4				14.5%	85.5%	10.1%		89.9%																	
Pickup	4000	2014	72	0.005	25.9	18.0	22.2	20.2		192	187	9.9	0.977	0.0468	40.4				14.5%	85.5%	9.3%		90.7%																	
Pickup	4000	2015	123	0.007	26.4	18.2	22.8	20.6		190	193	9.6	1.026	0.0483	41.3				7.6%	92.4%	7.1%		92.9%																	
Pickup	4000	2016	76	0.005	27.5	18.9	24.4	21.7		163	190	9.6	1.157	0.0475	45.5								94.0%																	
Pickup	4000	2017	-	0.003	27.5	19.0	24.0	21.6		161	182	9.7	1.126	0.0455	43.2								87.9%																	

Vehicle Type	Weight Class	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain					Transmission					Fuel Metering					Multi-Valve	VVT	Hybrid												
					Lab 55/45	Adj City	Adj Hwy	Adj Comb		CID	HP							Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel																	
Pickup	4500	1975	180	0.018	11.8	9.6	10.6	10.0	366	166		0.451	0.0369	22.6				55.4%	44.6%	51.3%	48.7%						100.0%																				
Pickup	4500	1976	375	0.030	12.6	10.3	11.3	10.7	365	161		0.439	0.0358	24.3				64.5%	35.5%	45.2%	54.8%						100.0%																				
Pickup	4500	1977	539	0.038	13.7	11.2	12.2	11.6	369	169		0.459	0.0377	26.3				58.2%	41.8%	31.0%	69.0%						100.0%																				
Pickup	4500	1978	578	0.040	13.6	11.2	12.1	11.5	361	163	12.9	0.453	0.0363	26.3				68.5%	31.5%	31.7%	68.3%						96.5%											3.5%									
Pickup	4500	1979	631	0.045	14.2	11.8	12.7	12.2	320	146	14.7	0.459	0.0323	27.9				16.4%	83.6%	25.6%	74.4%						99.7%											0.3%									
Pickup	4500	1980	247	0.022	15.7	12.6	14.3	13.3	323	147	14.9	0.456	0.0326	30.3				30.9%	69.1%	32.0%	23.5%	44.4%					97.4%											2.6%									
Pickup	4500	1981	210	0.020	16.8	13.4	15.5	14.3	314	147	14.9	0.472	0.0327	32.6				25.2%	74.8%	18.6%	21.1%	60.3%					98.2%											1.8%									
Pickup	4500	1982	193	0.020	17.1	13.7	15.7	14.5	311	156	15.2	0.504	0.0347	33.2				20.0%	80.0%	15.7%	20.1%	64.1%					99.2%											0.8%									
Pickup	4500	1983	247	0.024	17.0	13.5	15.8	14.5	310	151	14.2	0.488	0.0335	33.0				34.0%	66.0%	21.4%	21.6%	55.4%	1.7%				99.1%											0.9%									
Pickup	4500	1984	385	0.027	16.8	13.4	15.6	14.3	310	150	14.2	0.483	0.0333	32.6				34.6%	65.4%	18.6%	23.0%	58.4%					99.6%											0.4%									
Pickup	4500	1985	428	0.030	16.8	13.4	15.5	14.3	310	159	13.5	0.513	0.0354	32.4				33.6%	66.4%	16.9%	18.2%	64.9%					92.0%											8.0%	0.0%								
Pickup	4500	1986	439	0.029	17.4	13.8	16.1	14.8	307	155	13.1	0.503	0.0344	33.5				36.8%	63.2%	19.9%	13.9%	66.3%					77.7%											22.3%	0.0%								
Pickup	4500	1987	353	0.024	17.2	13.5	16.0	14.6	316	168	12.6	0.531	0.0374	33.0				35.5%	64.5%	21.6%	32.7%	45.7%					12.7%											41.5%	45.8%	0.1%							
Pickup	4500	1988	596	0.039	17.8	13.7	16.9	15.0	322	174	12.3	0.539	0.0387	33.9				38.3%	61.7%	20.3%	18.0%	61.7%					0.5%												35.5%	63.9%	0.1%						
Pickup	4500	1989	641	0.044	17.8	13.6	16.9	15.0	320	174	11.8	0.542	0.0388	33.9				37.7%	62.3%	32.4%	9.4%	58.1%																	45.1%	54.7%	0.1%						
Pickup	4500	1990	507	0.040	18.0	13.6	17.2	15.1	318	172	11.2	0.536	0.0381	34.3				34.2%	65.8%	25.5%	8.0%	66.5%																		51.7%	48.2%	0.1%					
Pickup	4500	1991	435	0.035	18.1	13.5	17.5	15.2	315	176	11.1	0.555	0.0390	34.5				28.6%	71.4%	23.7%	1.0%	75.3%																		48.0%	51.9%	0.1%					
Pickup	4500	1992	513	0.042	18.4	13.6	17.8	15.4	310	171	11.0	0.550	0.0380	34.8				21.1%	78.9%	27.9%	0.1%	72.0%																			59.3%	40.6%	0.1%				
Pickup	4500	1993	614	0.046	19.0	13.9	18.4	15.8	306	177	10.1	0.579	0.0394	35.8			0.0%	16.9%	83.1%	19.5%		80.5%																		55.4%	44.6%						
Pickup	4500	1994	684	0.048	18.7	13.7	18.0	15.6	311	186	9.8	0.600	0.0414	35.2				14.5%	85.5%	17.3%		82.7%																			59.9%	40.1%					
Pickup	4500	1995	744	0.049	18.6	13.5	17.8	15.4	308	182	10.1	0.593	0.0404	34.8				18.4%	81.6%	26.6%		73.4%																			58.9%	41.1%		0.7%			
Pickup	4500	1996	543	0.041	18.9	13.7	17.9	15.6	305	201	10.0	0.660	0.0447	35.3				11.9%	88.1%	19.0%		81.0%																				100.0%		1.4%			
Pickup	4500	1997	611	0.042	19.8	14.2	18.8	16.3	283	212	9.6	0.753	0.0472	36.8				16.3%	83.7%	12.5%		87.5%																				100.0%		1.2%			
Pickup	4500	1998	585	0.040	19.8	14.2	18.8	16.3	289	217	9.8	0.752	0.0481	36.8				9.6%	90.4%	11.4%		88.6%																				100.0%		0.6%			
Pickup	4500	1999	624	0.041	19.9	14.2	18.6	16.2	287	224	9.6	0.780	0.0497	36.7				18.1%	81.9%	9.4%		90.6%																				100.0%					
Pickup	4500	2000	766	0.046	20.0	14.3	18.6	16.3	281	224	9.2	0.798	0.0498	36.8				17.7%	82.3%	10.3%		89.7%																				100.0%		7.3%			
Pickup	4500	2001	518	0.033	20.0	14.1	18.4	16.2	264	210	9.4	0.796	0.0468	36.6				16.0%	84.0%	11.0%		89.0%																				100.0%		9.1%			
Pickup	4500	2002	556	0.034	19.8	14.0	18.2	16.0	262	213	9.5	0.811	0.0473	36.1				27.1%	72.9%	8.7%		91.3%																				100.0%		15.4%			
Pickup	4500	2003	511	0.032	20.2	14.2	18.5	16.3	261	212	9.4	0.814	0.0472	36.8				27.6%	72.4%	12.5%		87.5%																				100.0%		12.2%			
Pickup	4500	2004	350	0.022	20.5	14.3	18.8	16.5	257	215	9.4	0.841	0.0478	37.2				31.9%	68.1%	10.9%		89.1%																				100.0%		9.1%	6.0%		
Pickup	4500	2005	374	0.024	20.8	14.3	19.2	16.7	247	227	9.0	0.924	0.0505	37.7				35.7%	64.3%	7.6%		92.4%																				100.0%		38.1%	38.1%		
Pickup	4500	2006	368	0.024	21.3	14.6	19.5	17.1	240	233	8.9	0.980	0.0518	38.4				48.2%	51.8%	7.0%		93.0%																				100.0%		61.1%	61.1%		
Pickup	4500	2007	252	0.017	21.4	14.7	19.5	17.1	237	233	9.0	0.993	0.0517	38.5				52.3%	47.7%	7.3%		92.7%																				100.0%		56.2%	47.4%		
Pickup	4500	2008	201	0.014	21.5	14.8	19.7	17.3	234	230	9.1	0.990	0.0511	38.9				57.6%	42.4%	9.1%		90.9%																				100.0%		59.4%	50.9%		
Pickup	4500	2009	105	0.011	22.1	15.2	20.1	17.7	238	239	8.7	1.008	0.0531	39.8				77.2%	22.8%	5.8%		94.2%																				100.0%		84.1%	39.3%		
Pickup	4500	2010	121	0.011	22.0	15.1	20.1	17.6	239	242	8.7	1.016	0.0538	39.6				76.0%	24.0%	4.4%		95.6%																				100.0%		85.5%	86.8%		
Pickup	4500	2011	151	0.013	21.9	15.1	20.0	17.6	240	240	8.8	1.003	0.0532	39.6				72.3%	27.7%	4.3%		95.7%																				100.0%		79.3%	80.5%		
Pickup	4500	2012	157	0.012	22.3	15.4	20.3	17.8	243	247	8.6	1.020	0.0549	40.2				71.2%	28.8%	4.7%		95.3%																				100.0%		92.2%	93.5%		
Pickup	4500	2013	130	0.009	22.9	15.8	20.8	18.3	244	240	8.7	0.987	0.0533	41.3				70.3%	29.7%	5.3%		94.7%																				100.0%		90.9%	90.9%		
Pickup	4500	2014	130	0.008	23.5	16.1	21.4	18.7	244	252	8.4	1.031	0.0559	42.3				63.8%	36.2%	3.7%		96.3%																				11.7%	88.3%		88.3%	100.0%	
Pickup	4500	2015	264	0.016	24.5	16.7	22.3	19.5	229	267	8.1	1.188	0.0594	44.1				62.0%	38.0%	2.9%		97.1%																					35.0%	65.0%		97.3%	100.0%
Pickup	4500	2016	456	0.028	25.7	17.6	23.3	20.4	216	281																																					



Vehicle Type	Weight Class	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain					Transmission					Fuel Metering					Multi-Valve	VVT	Hybrid								
					Lab 55/45	Adj City	Adj Hwy	Adj Comb		CID	HP							Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel													
Pickup	5500	1975	53	0.005	10.0	8.3	8.7	8.5	374	171		0.452	0.0310	23.4				84.9%	15.1%	1.1%	98.9%						100.0%																
Pickup	5500	1976	102	0.008	11.4	9.3	10.2	9.7	385	171		0.443	0.0311	26.8				87.1%	12.9%	2.9%	97.1%						100.0%																
Pickup	5500	1977	91	0.006	11.8	9.7	10.4	10.0	396	183		0.458	0.0333	27.8				76.0%	24.0%	1.0%	99.0%						100.0%																
Pickup	5500	1978	120	0.008	12.1	10.0	10.8	10.3	377	172	14.6	0.457	0.0312	28.4				91.0%	9.0%	0.4%	99.6%						100.0%											0.0%					
Pickup	5500	1979	83	0.006	11.3	9.5	9.8	9.6	401	192	13.7	0.473	0.0348	26.8				3.9%	96.1%	40.8%	59.2%						99.9%											0.1%					
Pickup	5500	1980	14	0.001	13.3	10.7	12.2	11.3	353	165	15.3	0.467	0.0299	31.3				84.0%	16.0%	44.1%	15.1%	40.9%					100.0%																
Pickup	5500	1981	2	0.000	13.3	10.5	12.4	11.3	351	143	16.5	0.407	0.0260	31.1				44.3%	55.7%	62.0%	38.0%						100.0%																
Pickup	5500	1982	17	0.002	22.4	17.5	21.3	19.1	350	130	18.8	0.371	0.0236	52.4				100.0%																				100.0%					
Pickup	5500	1983	10	0.001	22.1	17.3	21.2	18.9	379	130	17.2	0.343	0.0236	51.9				100.0%																				100.0%					
Pickup	5500	1984	8	0.001	21.9	17.3	20.5	18.6	379	130	17.1	0.343	0.0236	51.2				97.0%	3.0%	13.1%																		100.0%					
Pickup	5500	1985	5	0.000	21.1	16.5	20.2	18.0	379	130	16.8	0.343	0.0236	49.5				83.2%	16.8%	11.9%																		100.0%					
Pickup	5500	1986	3	0.000	21.1	16.4	20.1	17.9	379	130	16.1	0.343	0.0236	49.3				84.4%	15.6%	14.5%																		100.0%					
Pickup	5500	1987	1	0.000	21.1	16.3	20.1	17.9	379	130	16.3	0.343	0.0236	49.1				80.0%	20.0%	7.7%																	100.0%						
Pickup	5500	1988	1	0.000	16.9	13.4	15.2	14.2	363	178	13.7	0.495	0.0324	40.7				97.8%	2.2%	62.7%																	54.9%	45.1%					
Pickup	5500	1989	1	0.000	19.2	14.8	17.9	16.1	370	153	14.8	0.417	0.0278	45.4				100.0%			36.0%																31.7%	68.3%					
Pickup	5500	1990	1	0.000	18.6	14.3	17.2	15.6	370	159	13.4	0.434	0.0289	44.1				94.8%	5.2%	41.0%																	59.0%	32.0%	68.0%				
Pickup	5500	1991	3	0.000	17.5	13.2	16.7	14.7	364	176	12.8	0.489	0.0321	41.7				97.5%	2.5%	8.7%																	52.2%	47.8%					
Pickup	5500	1992	9	0.001	16.3	12.2	15.6	13.7	353	200	11.2	0.570	0.0364	38.1				99.6%	0.4%	30.4%	0.4%															0.7%	86.5%	12.8%					
Pickup	5500	1993	9	0.001	17.0	12.6	16.3	14.2	352	199	10.7	0.569	0.0363	39.4				99.9%	0.1%	13.3%																	16.0%	84.0%					
Pickup	5500	1994	21	0.001	16.9	12.5	15.9	14.1	364	205	10.3	0.568	0.0373	39.0				95.5%	4.5%	14.9%																	47.8%	52.2%					
Pickup	5500	1995	29	0.002	15.9	11.6	15.2	13.2	358	215	10.3	0.605	0.0392	36.5				96.8%	3.2%	9.4%																	79.9%	20.1%					
Pickup	5500	1996	65	0.005	15.3	11.0	15.0	12.8	345	225	10.5	0.655	0.0410	35.3				99.1%	0.9%	3.9%																	96.2%	3.8%					
Pickup	5500	1997	275	0.019	17.0	12.1	16.6	14.1	347	240	10.0	0.693	0.0437	38.9				99.8%	0.2%	0.7%																	99.8%	0.2%					
Pickup	5500	1998	112	0.008	16.4	11.7	16.0	13.6	330	226	10.7	0.684	0.0410	37.5				94.7%	5.3%	3.9%																	96.1%	0.3%					
Pickup	5500	1999	130	0.009	16.3	11.5	15.9	13.5	344	242	10.2	0.705	0.0441	37.1				93.1%	6.9%	3.5%																	96.5%	100.0%					
Pickup	5500	2000	71	0.004	16.3	11.3	15.9	13.4	347	245	9.7	0.706	0.0445	37.0				86.5%	13.5%	2.3%																	97.7%	100.0%					
Pickup	5500	2001	258	0.017	16.3	11.5	15.5	13.4	340	251	9.4	0.740	0.0456	36.9				97.9%	2.1%	1.8%																	98.2%	100.0%					
Pickup	5500	2002	279	0.017	17.0	11.9	16.0	13.9	322	255	9.5	0.795	0.0464	38.4				73.7%	26.3%	1.1%																	98.9%	100.0%					
Pickup	5500	2003	270	0.017	17.2	12.1	15.9	13.9	319	264	9.1	0.827	0.0479	38.4				65.7%	34.3%	0.9%																	99.1%	100.0%					
Pickup	5500	2004	538	0.034	17.9	12.5	16.5	14.5	316	287	8.8	0.901	0.0521	40.0				43.4%	56.6%	0.8%																	99.2%	100.0%					
Pickup	5500	2005	549	0.035	18.3	12.6	16.8	14.7	319	292	8.6	0.913	0.0531	40.6				60.5%	39.5%	0.5%																	99.5%	100.0%					
Pickup	5500	2006	570	0.038	18.7	13.0	17.3	15.1	313	283	8.8	0.902	0.0515	41.6				56.6%	43.4%	0.3%																	99.7%	100.0%					
Pickup	5500	2007	688	0.045	19.5	13.5	18.0	15.7	317	297	8.6	0.934	0.0541	43.3				48.5%	51.5%	0.2%																99.8%	100.0%						
Pickup	5500	2008	707	0.051	20.1	13.7	18.6	16.2	319	311	8.5	0.974	0.0566	44.9				46.9%	53.1%	0.2%																	99.8%	100.0%					
Pickup	5500	2009	461	0.050	20.4	13.9	19.2	16.5	317	309	8.1	0.974	0.0561	45.4				46.1%	53.9%																		100.0%	100.0%					
Pickup	5500	2010	532	0.048	20.8	14.1	19.7	16.8	315	313	8.0	0.994	0.0569	46.4				44.3%	55.7%																		100.0%	100.0%					
Pickup	5500	2011	697	0.058	21.1	14.4	20.1	17.1	311	328	7.8	1.064	0.0596	47.3				55.4%	44.6%																		3.9%	96.1%	21.6%	94.6%			
Pickup	5500	2012	623	0.046	21.0	14.3	20.0	17.0	316	338	7.6	1.081	0.0615	47.1				57.1%	42.9%																		4.2%	95.8%	22.3%	96.8%			
Pickup	5500	2013	693	0.046	21.5	14.6	20.4	17.4	311	342	7.5	1.117	0.0622	48.0				52.4%	47.6%																		5.9%	94.1%	29.6%	98.6%			
Pickup	5500	2014	858	0.055	23.0	15.6	21.6	18.6	310	342	7.4	1.116	0.0622	51.2				55.8%	44.2%																		63.4%	36.6%	23.5%	99.9%			
Pickup	5500	2015	724	0.043	23.2	15.7	21.8	18.7	323	344	7.4	1.066	0.0625	51.5				72.6%	27.4%																			70.6%	29.2%	0.2%	5.8%	99.8%	
Pickup	5500	2016	526	0.032	22.8	15.4	21.4	18.3	319	346	7.2	1.101	0.0630	50.6				69.2%	30.8%																			48.9%	50.9%	0.2%	14.9%	99.2%	0.1%
Pickup	5500	2017	-	0.036	22.9	15.4	21.6	18.4	322	357	7.1	1.115	0.0649	50.8				58.6%	41.4%																			51.1%	48.8%	0.2%	11.9%	99.3%	0.1%







2017 FE Trends Report  
Appendix F: Fuel Economy Data Stratified by Vehicle Type and Drive Type

Vehicle Type	Drive Type	Model Year	Prod (000)	Fuel Economy (MPG)					Weight (lb)	Vol (Cu-Ft)	Engine			0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Transmission					Fuel Metering					Multi-Valve	VVT	Hybrid	Vehicle Size						
				Lab	Adj	Adj	Adj	Comb			CID	HP	0-60 Time							Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel				Small	Midsize	Large				
Car	Rear Wheel Drive	1975	7698	0.935	15.4	12.0	14.8	13.2	4146			2982	140		0.502	0.0333	27.5			16.5%	83.4%	0.1%			95.5%	4.3%						53.2%	24.4%	22.4%					
Car	Rear Wheel Drive	1976	9161	0.942	17.2	13.5	16.3	14.6	4133			2941	136		0.491	0.0325	30.3			14.5%	85.5%				97.5%	2.2%					53.5%	26.2%	20.3%						
Car	Rear Wheel Drive	1977	10536	0.932	17.9	14.1	17.0	15.3	4034	111.6		2892	137		0.504	0.0336	31.0	1744	3464	13.0%	87.0%				97.5%	2.2%					49.2%	25.9%	24.9%						
Car	Rear Wheel Drive	1978	10100	0.904	19.4	15.1	18.6	16.5	3604	110.6		2644	129	13.6	0.522	0.0345	30.6	1865	3399	14.9%	77.7%	7.4%			97.1%	2.3%					39.5%	37.6%	23.0%						
Car	Rear Wheel Drive	1979	9474	0.878	19.6	15.4	18.6	16.7	3604	110.8		2527	124	14.3	0.527	0.0342	30.2	1882	3366	15.9%	75.0%	9.2%			95.6%	2.7%					37.6%	37.2%	25.2%						
Car	Rear Wheel Drive	1980	6554	0.694	22.3	17.4	21.4	19.0	3296	105.9		2095	107	15.3	0.554	0.0323	31.5	2043	3359	24.4%	52.2%	23.4%			91.4%	4.9%	0.3%	1.5%			48.0%	35.7%	16.2%						
Car	Rear Wheel Drive	1981	5436	0.622	23.5	18.3	22.6	20.0	3333	108.6		2111	107	15.4	0.548	0.0320	33.5	2203	3670	20.3%	26.5%	53.3%			83.9%	6.6%	3.1%	6.3%			41.0%	39.4%	19.6%						
Car	Rear Wheel Drive	1982	4188	0.536	23.3	18.0	22.8	19.9	3384	109.0		2162	112	16.1	0.553	0.0330	33.9	2217	3762	19.5%	12.5%	68.0%			78.0%	9.2%	6.4%	6.4%			43.6%	33.1%	23.4%						
Car	Rear Wheel Drive	1983	3973	0.496	22.5	17.2	22.4	19.2	3547	113.6		2359	123	14.0	0.549	0.0346	34.3	2200	3916	14.3%	9.3%	76.4%			69.5%	13.5%	14.1%	2.9%			35.7%	33.9%	30.4%						
Car	Rear Wheel Drive	1984	4831	0.453	23.1	17.6	23.1	19.7	3514	110.1		2339	125	13.7	0.569	0.0356	34.9	2190	3857	16.1%	6.2%	77.7%			54.6%	22.8%	20.8%	1.8%			42.7%	28.0%	29.2%						
Car	Rear Wheel Drive	1985	3918	0.363	23.5	17.9	23.6	20.1	3576	110.6		2397	135	12.9	0.600	0.0378	36.0	2226	4010	15.1%	7.9%	77.0%			44.5%	22.9%	31.3%	1.3%			40.8%	29.2%	30.0%						
Car	Rear Wheel Drive	1986	3068	0.279	23.8	18.0	24.0	20.3	3547	107.7		2392	139	12.0	0.625	0.0393	36.0	2191	3919	17.0%	8.5%	74.4%			38.8%	26.0%	14.9%	0.3%	2.5%			50.6%	27.2%	22.1%					
Car	Rear Wheel Drive	1987	2347	0.219	23.5	17.6	23.9	20.0	3608	107.7		2415	147	11.8	0.660	0.0409	36.2	2163	3936	18.3%	8.7%	73.0%			30.2%	28.9%	9.8%	1.0%	4.0%			52.0%	24.0%	24.1%					
Car	Rear Wheel Drive	1988	1879	0.175	23.5	17.4	23.9	19.9	3689	110.8		2485	157	11.6	0.675	0.0428	36.9	2221	4141	16.1%	7.8%	76.2%			15.8%	28.8%	5.3%	0.0%	4.5%			51.1%	16.2%	32.7%					
Car	Rear Wheel Drive	1989	1654	0.165	23.6	17.4	24.0	20.0	3708	111.7		2429	153	11.4	0.675	0.0415	37.1	2241	4199	14.9%	9.1%	75.9%			5.9%	33.3%	10.7%	0.0%	10.8%			43.4%	23.1%	33.5%					
Car	Rear Wheel Drive	1990	1268	0.144	23.6	17.3	23.7	19.9	3724	108.5		2349	159	10.5	0.732	0.0429	37.1	2160	4080	17.5%	9.2%	73.4%			2.6%	90.5%	6.8%	0.2%	22.1%	4.2%			111.1%	29.8%	29.1%				
Car	Rear Wheel Drive	1991	1310	0.154	24.0	17.4	24.3	20.2	3726	109.3		2403	177	9.9	0.783	0.0475	37.7	2208	4177	15.7%	8.9%	75.4%				79.5%	20.1%	0.5%	22.4%	5.6%			44.0%	22.4%	33.7%				
Car	Rear Wheel Drive	1992	1467	0.181	24.6	17.8	24.6	20.6	3760	113.6		2278	179	9.8	0.834	0.0475	38.7	2346	4452	10.6%	6.4%	83.1%				85.7%	14.0%	0.3%	35.5%	10.2%			31.3%	31.8%	36.9%				
Car	Rear Wheel Drive	1993	1162	0.137	24.3	17.3	24.5	20.3	3814	113.1		242.6	189	8.9	0.817	0.0497	38.7	2298	4430	11.4%	6.8%	81.8%				89.4%	10.6%			24.8%	11.3%			34.4%	30.5%	35.1%			
Car	Rear Wheel Drive	1994	1274	0.151	24.0	17.0	24.3	20.0	3841	111.3		252.2	198	8.5	0.819	0.0516	38.5	2333	4330	12.6%	5.4%	82.0%				99.9%		0.1%	26.2%	10.3%			42.1%	25.8%	32.1%				
Car	Rear Wheel Drive	1995	1585	0.169	24.6	17.3	24.8	20.5	3784	109.0		230.5	194	9.0	0.884	0.0510	38.8	2239	4259	12.9%	6.6%	80.5%				99.6%		0.4%	41.7%	10.2%			42.1%	33.2%	24.3%				
Car	Rear Wheel Drive	1996	943	0.119	24.3	16.9	24.7	20.2	3862	110.5		256.7	207	8.8	0.828	0.0535	39.0	2226	4350	14.9%	5.6%	79.6%				99.7%		0.3%	26.1%	13.2%			42.3%	20.3%	37.4%				
Car	Rear Wheel Drive	1997	977	0.117	24.3	16.8	24.5	20.1	3827	109.6		244.6	210	8.7	0.882	0.0547	38.6	2204	4256	13.9%	0.2%	85.9%				99.7%		0.3%	38.2%	24.7%			43.4%	22.9%	33.8%				
Car	Rear Wheel Drive	1998	855	0.107	24.5	16.9	24.4	20.2	3771	104.0		242.2	218	8.6	0.924	0.0577	38.3	2107	4003	15.7%	0.2%	84.0%				99.6%		0.4%	42.8%	27.5%			57.1%	15.4%	27.5%				
Car	Rear Wheel Drive	1999	887	0.106	24.5	16.8	24.3	20.1	3798	105.7		241.7	226	8.3	0.969	0.0596	38.3	2129	4079	16.0%	0.7%	83.3%				99.5%		0.5%	44.0%	25.8%			52.1%	15.1%	32.8%				
Car	Rear Wheel Drive	2000	1185	0.130	25.0	17.1	24.5	20.4	3699	103.5		229.2	228	8.0	1.020	0.0610	37.8	2128	3954	18.3%	2.4%	79.3%				99.6%	0.4%			50.9%	29.0%			56.3%	16.9%	26.8%			
Car	Rear Wheel Drive	2001	1062	0.126	24.8	16.9	24.3	20.3	3716	101.4		228.0	226	7.8	1.031	0.0609	37.7	2065	3867	16.8%	0.4%	82.7%				100.0%				58.3%	38.7%			58.9%	13.8%	27.3%			
Car	Rear Wheel Drive	2002	933	0.112	24.5	16.8	23.8	19.9	3783	98.6		233.7	237	7.7	1.049	0.0628	37.7	1964	3732	18.3%	0.5%	81.2%				100.0%				61.3%	36.5%			67.1%	15.1%	17.8%			
Car	Rear Wheel Drive	2003	1151	0.145	24.5	16.5	23.7	19.9	3872	100.8		230.3	245	7.6	1.095	0.0636	38.5	2006	3944	15.5%		84.5%				100.0%				67.7%	39.0%			58.5%	16.7%	24.8%			
Car	Rear Wheel Drive	2004	1035	0.137	24.3	16.2	23.8	19.7	3863	100.6		231.0	246	7.5	1.101	0.0641	38.2	1991	3897	17.2%	0.2%	82.6%				100.0%				62.9%	46.9%			57.3%	18.0%	24.8%			
Car	Rear Wheel Drive	2005	1163	0.145	24.4	16.2	23.5	19.7	3955	104.7		236.1	258	7.4	1.142	0.0654	39.0	2068	4147	13.1%	0.3%	86.6%				99.4%		0.6%	67.6%	43.2%			47.7%	22.9%	29.3%				
Car	Rear Wheel Drive	2006	1475	0.185	24.8	16.4	23.9	20.0	3950	107.1		235.3	265	7.3	1.155	0.0671	39.7	2156	4302	12.5%	0.3%	87.2%				99.6%		0.4%	74.1%	53.8%			46.6%	17.8%	35.6%				
Car	Rear Wheel Drive	2007	1113	0.138	24.7	16.3	24.0	19.9	3952	102.1		237.7	275	7.1	1.193	0.0697	39.6	2044	4085	14.1%	0.1%	85.8%				99.4%		0.2%	75.1%	55.3%	0.3%		51.2%	21.4%	27.4%				
Car	Rear Wheel Drive	2008	1095	0.150	25.2	16.7	24.4	20.3	3957	103.1		230.0	273	7.3	1.217	0.0687	40.4	2105	4209	11.8%	2.2%	86.0%				99.6%		5.7%	94.0%			0.3%	79.0%	54.5%	0.1%		48.5%	20.0%	31.5%
Car	Rear Wheel Drive	2009	603	0.107	25.5	16.8	24.7	20.6	3954	102.3		234.4	282	7.0	1.234	0.0710	40.9	2120	4224	10.1%	3.2%	86.7%				99.7%		12.7%	86.9%			0.4%	77.9%	65.9%	0.1%		54.2%	15.9%	29.9%
Car	Rear Wheel Drive	2010	755	0.125	25.7	16.9	25.1	20.8	4004	105.4		243.8	292	6.9	1.221	0.0729	41.8	2202	4429	13.0%	1.1%	85.8%	0.0%				99.6%		18.5%	81.2%			0.2%	73.1%	61.6%	0.2%		58.8%	

































































































































































































































































Appendix I: Fuel Economy Data Stratified by Vehicle Type, Engine Type, and Valves Per Cylinder

Vehicle Type	Engine Type and Valves	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Weight (lb)	Vol (Cu-Ft)	Engine CID	HP	0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain			Transmission					
					Lab 55/45	Adj City	Adj Hwy	Adj Comb											Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	
Car	Cath. Fixed Valve Timing, Two-Valve	1986	3625	0.402	29.7	22.8	29.0	25.2	2879	105.9	163	96	14.1	0.650	0.0328	36.5	2754	3877	65.1%	2.1%	32.8%	33.0%	16.7%	50.3%			
Car	Cath. Fixed Valve Timing, Two-Valve	1987	2039	0.229	29.1	22.2	28.2	24.7	2929	106.8	168	99	14.4	0.656	0.0330	36.2	2718	3885	61.7%	3.5%	34.8%	30.9%	15.4%	53.6%			
Car	Cath. Fixed Valve Timing, Two-Valve	1988	861	0.092	31.0	23.6	29.7	26.1	2907	107.6	163	92	15.1	0.655	0.0310	37.8	2935	4103	64.9%	0.6%	34.4%	37.9%	8.7%	53.4%			
Car	Cath. Fixed Valve Timing, Two-Valve	1989	422	0.049	32.2	24.4	30.5	27.0	2840	106.0	139	84	15.2	0.686	0.0292	38.0	2932	4074	76.6%	0.2%	23.2%	45.7%	9.5%	44.9%			
Car	Cath. Fixed Valve Timing, Two-Valve	1990	33	0.014	22.8	16.5	23.2	19.2	4500	149.1	305	140	12.2	0.459	0.0311	43.2	2863	6442			100.0%				100.0%		
Car	Cath. Fixed Valve Timing, Two-Valve	1991	1	0.005	33.9	26.3	30.0	28.0	2045	86.4	72	57	15.3	0.786	0.0277	28.6	2422	2474	100.0%			100.0%					
Car	Cath. Fixed Valve Timing, Two-Valve	1992																									
Car	Cath. Fixed Valve Timing, Two-Valve	1993																									
Car	Cath. Fixed Valve Timing, Two-Valve	1994																									
Car	Cath. Fixed Valve Timing, Two-Valve	1995																									
Car	Cath. Fixed Valve Timing, Two-Valve	1996																									
Car	Cath. Fixed Valve Timing, Two-Valve	1997																									
Car	Cath. Fixed Valve Timing, Two-Valve	1998																									
Car	Cath. Fixed Valve Timing, Two-Valve	1999																									
Car	Cath. Fixed Valve Timing, Two-Valve	2000																									
Car	Cath. Fixed Valve Timing, Two-Valve	2001																									
Car	Cath. Fixed Valve Timing, Two-Valve	2002																									
Car	Cath. Fixed Valve Timing, Two-Valve	2003																									
Car	Cath. Fixed Valve Timing, Two-Valve	2004																									
Car	Cath. Fixed Valve Timing, Two-Valve	2005																									
Car	Cath. Fixed Valve Timing, Two-Valve	2006																									
Car	Cath. Fixed Valve Timing, Two-Valve	2007																									
Car	Cath. Fixed Valve Timing, Two-Valve	2008																									
Car	Cath. Fixed Valve Timing, Two-Valve	2009																									
Car	Cath. Fixed Valve Timing, Two-Valve	2010																									
Car	Cath. Fixed Valve Timing, Two-Valve	2011																									
Car	Cath. Fixed Valve Timing, Two-Valve	2012																									
Car	Cath. Fixed Valve Timing, Two-Valve	2013																									
Car	Cath. Fixed Valve Timing, Two-Valve	2014																									
Car	Cath. Fixed Valve Timing, Two-Valve	2015																									
Car	Cath. Fixed Valve Timing, Two-Valve	2016																									
Car	Cath. Fixed Valve Timing, Two-Valve	2017																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1986	180	0.012	32.3	24.8	31.3	27.4	2707	100.9	118	98	12.7	0.835	0.0364	37.3	2782	3776	100.0%				55.4%			44.6%	
Car	Cath. Fixed Valve Timing, Multi-Valve	1987	832	0.056	34.9	27.4	32.3	29.4	2491	93.5	98	76	15.5	0.766	0.0302	36.9	2766	3445	99.3%	0.7%			52.9%			47.1%	
Car	Cath. Fixed Valve Timing, Multi-Valve	1988	885	0.058	34.0	26.5	31.4	28.6	2549	96.0	100	84	14.7	0.834	0.0327	36.6	2762	3514	98.5%	1.5%			49.6%	0.1%		50.3%	
Car	Cath. Fixed Valve Timing, Multi-Valve	1989	552	0.038	34.0	26.2	31.4	28.4	2598	95.5	102	90	13.6	0.885	0.0346	37.0	2732	3538	100.0%				37.9%			59.8%	2.3%
Car	Cath. Fixed Valve Timing, Multi-Valve	1990	89	0.007	36.2	28.0	32.6	30.1	2399	90.0	90	79	13.3	0.878	0.0331	36.1	2727	3253	100.0%				55.6%			44.4%	
Car	Cath. Fixed Valve Timing, Multi-Valve	1991	3	0.000	41.0	31.9	35.8	33.7	2088	88.6	73	66	13.5	0.904	0.0317	35.2	2990	3116	100.0%				100.0%				
Car	Cath. Fixed Valve Timing, Multi-Valve	1992	1	0.000	41.0	31.6	35.7	33.5	2087	88.6	73	66	13.2	0.904	0.0317	35.0	2973	3098	100.0%				100.0%				
Car	Cath. Fixed Valve Timing, Multi-Valve	1993																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1994																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1995																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1996																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1997																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1998																									
Car	Cath. Fixed Valve Timing, Multi-Valve	1999																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2000																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2001																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2002																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2003																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2004																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2005																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2006																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2007																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2008																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2009																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2010																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2011																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2012																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2013																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2014																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2015																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2016																									
Car	Cath. Fixed Valve Timing, Multi-Valve	2017																									
Car	TBI, Fixed Valve Timing, Two-Valve	1986	3132	0.257	28.5	21.7	27.9	24.2	2999	108.8	158	98	14.3	0.637	0.0326	36.3	2650	3955	85.4%		14.6%	10.0%	23.8%		66.2%		
Car	TBI, Fixed Valve Timing, Two-Valve	1987	3274	0.314	29.3	22.2	28.7	24.8	2920	107.4	148	97	14.3	0.671	0.0330	36.3	2683	3901	92.7%	0.2%	7.0%	14.9%	26.0%		59.1%		
Car	TBI, Fixed Valve Timing, Two-Valve	1988	3027	0.330	30.7	23.2	29.7	25.9	2840	107.0	141	97	14.4	0.709	0.0339	36.9	2796	3946	95.4%	1.3%	3.3%	19.9%	11.0%		69.1%		
Car	TBI, Fixed Valve Timing, Two-Valve	1989	2345	0.308	29.7	22.1	29.2	25.0	2954	107.9	157	105	13.5	0.699	0.0351	37.1	2738	4000	91.6%	0.8%	7.6%	14.3%	10.5%		75.2%		
Car	TBI, Fixed Valve Timing, Two-Valve	1990	1477	0.240	30.5	22.6	29.8	25.5	2925	105.5	145	101	12.9	0.717	0.0344	37.4	2726	3951	93.1%	1.0%	5.8%	14.0%	9.6%		76.4%		
Car	TBI, Fixed Valve Timing, Two-Valve	1991	1446	0.254	29.5	21.5	29.2	24.7	3032	106.8	164	109	12.7	0.698	0.0352	37.4	2671	4012	80.8%	1.0%	18.2%	15.3%	3.2%		81.5%		
Car	TBI, Fixed Valve Timing, Two-Valve	1992	688	0.165	29.5	21.6	28.6	24.6	3099	109.6	180	112	12.5	0.682	0.0349	38.0	2772	4202	70.1%		29.9%	19.5%	8.4%		72.1%		
Car	TBI, Fixed Valve Timing, Two-Valve	1993	579	0.136	30.6	22.3	29.4	25.4	3037	110.0	166	105	11.9	0.690	0.0336	38.5	2866	4259	77.7%	1.1%	21.2%	24					



**2017 FE Trends Report**  
**Appendix I: Fuel Economy Data Stratified by Vehicle Type, Engine Type, and Valves Per Cylinder**

Vehicle Type	Engine Type and Valves	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Weight (lb)	Vol (Cu-Ft)	Engine CID	HP	0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain			Transmission			
					Lab 55/45	Adj City	Adj Hwy	Adj Comb											Front	4WD	Rear	Manual	Automatic	Lockup	CVT
Car	Port, Fixed Valve Timing, Multi-Valve	1990	2384	0.189	28.9	21.7	27.6	24.2	3004	98.7	126	132	10.8	1.045	0.0435	36.4	2409	3605	87.9%	2.6%	9.5%	33.7%	1.6%	64.5%	0.1%
Car	Port, Fixed Valve Timing, Multi-Valve	1991	2277	0.181	29.2	21.8	27.6	24.3	2975	98.9	126	131	10.8	1.045	0.0437	36.2	2436	3595	85.9%	4.4%	9.7%	36.4%	1.4%	62.0%	0.2%
Car	Port, Fixed Valve Timing, Multi-Valve	1992	2315	0.190	29.3	21.6	28.1	24.4	3047	101.4	128	134	10.6	1.050	0.0436	37.2	2511	3785	81.4%	2.4%	16.2%	32.3%	0.6%	67.1%	0.0%
Car	Port, Fixed Valve Timing, Multi-Valve	1993	2567	0.194	29.3	21.4	28.2	24.3	3084	103.1	134	138	9.9	1.031	0.0442	37.6	2553	3884	90.6%	3.3%	6.1%	28.2%	2.0%	69.8%	0.0%
Car	Port, Fixed Valve Timing, Multi-Valve	1994	2775	0.219	29.0	20.9	27.9	24.0	3127	104.2	140	144	9.7	1.032	0.0451	37.5	2534	3913	92.5%	0.2%	7.3%	24.6%	2.8%	72.6%	
Car	Port, Fixed Valve Timing, Multi-Valve	1995	3981	0.295	29.4	20.9	28.5	24.2	3129	104.9	140	147	9.9	1.058	0.0463	38.0	2574	3986	84.8%	2.6%	12.6%	20.9%	2.5%	76.6%	
Car	Port, Fixed Valve Timing, Multi-Valve	1996	3602	0.324	28.9	20.4	28.2	23.8	3191	107.4	145	151	10.1	1.046	0.0467	38.0	2581	4084	93.8%	2.8%	3.5%	16.2%	2.0%	81.9%	
Car	Port, Fixed Valve Timing, Multi-Valve	1997	3947	0.331	29.0	20.3	28.3	23.8	3193	107.4	145	152	10.1	1.052	0.0469	38.1	2571	4080	93.3%	3.2%	3.4%	14.4%		85.6%	
Car	Port, Fixed Valve Timing, Multi-Valve	1998	3428	0.308	29.5	20.5	28.5	24.1	3239	107.9	144	153	10.4	1.068	0.0466	39.0	2623	4216	91.9%	4.2%	3.8%	12.3%	0.7%	87.0%	
Car	Port, Fixed Valve Timing, Multi-Valve	1999	3983	0.326	28.8	19.9	27.9	23.5	3342	108.9	150	162	10.2	1.087	0.0479	39.3	2579	4286	92.5%	3.6%	3.9%	9.9%	1.1%	89.0%	
Car	Port, Fixed Valve Timing, Multi-Valve	2000	3812	0.298	28.3	19.4	27.2	23.0	3367	109.7	152	165	9.7	1.091	0.0484	38.6	2535	4247	89.4%	3.8%	6.8%	8.9%	2.5%	88.6%	
Car	Port, Fixed Valve Timing, Multi-Valve	2001	3309	0.296	27.9	19.0	26.8	22.6	3435	109.8	155	168	9.4	1.090	0.0483	38.9	2499	4279	88.1%	5.5%	6.3%	11.3%	1.6%	87.2%	
Car	Port, Fixed Valve Timing, Multi-Valve	2002	2993	0.280	27.5	18.7	26.1	22.2	3438	110.3	158	176	9.3	1.131	0.0506	38.1	2463	4211	84.9%	7.4%	7.7%	11.8%	0.5%	87.3%	0.4%
Car	Port, Fixed Valve Timing, Multi-Valve	2003	2604	0.251	28.2	19.1	26.5	22.6	3416	107.5	156	173	9.2	1.126	0.0500	38.7	2457	4168	80.6%	6.7%	12.6%	14.1%		84.7%	1.2%
Car	Port, Fixed Valve Timing, Multi-Valve	2004	2515	0.239	28.2	18.9	26.7	22.6	3458	110.7	158	179	9.1	1.146	0.0512	39.1	2523	4343	83.8%	9.6%	6.6%	10.8%	0.7%	87.1%	1.4%
Car	Port, Fixed Valve Timing, Multi-Valve	2005	2231	0.204	28.2	18.8	26.5	22.5	3507	112.2	160	182	9.0	1.151	0.0514	39.5	2542	4452	75.2%	12.3%	12.4%	9.2%	0.3%	87.6%	2.8%
Car	Port, Fixed Valve Timing, Multi-Valve	2006	1803	0.179	27.9	18.6	26.1	22.2	3574	115.5	166	191	8.8	1.165	0.0529	39.8	2580	4614	73.6%	9.7%	16.7%	8.9%	0.1%	87.4%	3.7%
Car	Port, Fixed Valve Timing, Multi-Valve	2007	2123	0.200	29.2	19.4	27.4	23.3	3484	112.1	161	187	8.9	1.171	0.0527	40.7	2647	4572	79.9%	9.9%	10.2%	9.3%		89.4%	1.3%
Car	Port, Fixed Valve Timing, Multi-Valve	2008	2100	0.221	29.8	19.8	27.9	23.7	3471	111.7	159	185	9.1	1.164	0.0524	41.3	2688	4622	74.9%	12.2%	12.9%	6.8%		91.5%	1.7%
Car	Port, Fixed Valve Timing, Multi-Valve	2009	887	0.156	30.7	20.3	28.3	24.1	3402	110.2	154	179	9.0	1.161	0.0519	41.3	2708	4550	76.2%	11.9%	11.8%	5.9%		94.1%	
Car	Port, Fixed Valve Timing, Multi-Valve	2010	377	0.078	30.1	20.0	28.1	23.9	3518	112.6	169	194	8.9	1.152	0.0542	42.3	2754	4763	58.5%	1.5%	40.0%	3.9%		96.1%	
Car	Port, Fixed Valve Timing, Multi-Valve	2011	170	0.022	31.8	21.0	29.4	25.1	3391	111.5	166	200	8.7	1.196	0.0572	42.8	2852	4767	74.6%	3.5%	21.8%	7.5%		85.9%	6.5%
Car	Port, Fixed Valve Timing, Multi-Valve	2012	23	0.004	32.5	22.1	28.2	25.2	3340	109.2	131	160	9.6	1.203	0.0472	42.2	2783	4616	62.2%	34.0%	3.9%	11.3%		31.9%	56.9%
Car	Port, Fixed Valve Timing, Multi-Valve	2013	11	0.005	27.4	18.4	25.3	21.8	3706	39.6	218	348	8.0	1.412	0.0899	40.5	759	1517	58.7%		41.3%	41.3%		58.7%	
Car	Port, Fixed Valve Timing, Multi-Valve	2014	17	0.005	27.0	17.7	26.3	21.7	4000	114.4	254	393	5.8	1.487	0.0982	43.7	2523	5045	70.9%		29.1%	29.1%		70.9%	
Car	Port, Fixed Valve Timing, Multi-Valve	2015	15	0.010	28.3	18.7	26.9	22.6	4101	122.0	214	287	6.8	1.344	0.0702	46.3	2759	5649	79.8%	20.2%	0.0%			100.0%	
Car	Port, Fixed Valve Timing, Multi-Valve	2016																							
Car	Port, Fixed Valve Timing, Multi-Valve	2017	-	0.008	28.4	17.9	26.7	22.0	4098	122.0	214	287	6.8	1.344	0.0702	45.1	2688	5499	80.3%	19.7%				100.0%	
Car	Port, Variable Valve Timing, Two-Valve	1986																							
Car	Port, Variable Valve Timing, Two-Valve	1987																							
Car	Port, Variable Valve Timing, Two-Valve	1988																							
Car	Port, Variable Valve Timing, Two-Valve	1989																							
Car	Port, Variable Valve Timing, Two-Valve	1990																							
Car	Port, Variable Valve Timing, Two-Valve	1991																							
Car	Port, Variable Valve Timing, Two-Valve	1992	5	0.000	18.2	13.3	18.0	15.3	4500	50.0	303	322	7.2	1.063	0.0716	34.4	765	1721			100.0%		100.0%		
Car	Port, Variable Valve Timing, Two-Valve	1993	0	0.000	17.9	12.9	18.1	15.1	4500	82.3	329	345	5.7	1.049	0.0863	30.2	1242	2485	100.0%		51.5%			48.5%	
Car	Port, Variable Valve Timing, Two-Valve	1994	0	0.000	16.6	11.0	19.8	14.2	4500	90.8	340	377	5.4	1.109	0.0838	32.0	1290	2903	100.0%		100.0%				
Car	Port, Variable Valve Timing, Two-Valve	1995	8	0.001	22.2	15.5	23.0	18.6	3581	57.7	229	275	6.2	1.209	0.0768	33.2	1061	1931	100.0%		79.7%	13.1%	7.2%		
Car	Port, Variable Valve Timing, Two-Valve	1996	8	0.001	21.0	14.6	21.5	17.5	3646	68.2	236	296	6.3	1.276	0.0816	32.2	1194	2226		34.9%	65.1%	75.8%	9.6%	14.6%	
Car	Port, Variable Valve Timing, Two-Valve	1997	7	0.000	21.3	14.7	21.8	17.7	3597	65.1	231	292	6.3	1.282	0.0816	32.0	1152	2105		29.3%	70.7%	78.1%	12.2%	9.7%	
Car	Port, Variable Valve Timing, Two-Valve	1998	4	0.000	21.4	14.8	21.6	17.7	3806	78.3	253	286	6.7	1.152	0.0754	33.7	1362	2677		11.7%	88.3%	59.3%	10.1%	30.6%	
Car	Port, Variable Valve Timing, Two-Valve	1999	3	0.000	22.0	15.0	22.7	18.3	4153	118.0	266	304	7.2	1.149	0.0735	38.0	2169	4477		84.7%	15.3%			100.0%	
Car	Port, Variable Valve Timing, Two-Valve	2000																							
Car	Port, Variable Valve Timing, Two-Valve	2001	38	0.002	25.6	17.4	24.9	20.8	3455	101.8	173	177	8.6	1.023	0.0512	36.0	2124	3660	98.1%		1.9%	46.2%		53.8%	
Car	Port, Variable Valve Timing, Two-Valve	2002																							
Car	Port, Variable Valve Timing, Two-Valve	2003	33	0.002	26.3	19.8	24.4	21.8	3000	101.5	82	85	12.3	1.037	0.0283	62.6	4240	6360	100.0%			19.1%		80.9%	
Car	Port, Variable Valve Timing, Two-Valve	2004	23	0.001	26.2	19.3	23.2	21.8	3000	101.5	82	85	11.9	1.037	0.0283	62.1	4203	6305	100.0%			20.0%		80.0%	
Car	Port, Variable Valve Timing, Two-Valve	2005	98	0.006	40.2	27.5	33.7	30.7	3000	112.5	102	118	10.1	1.146	0.0394	47.5	3519	5279	100.0%			11.1%		66.4%	22.6%
Car	Port, Variable Valve Timing, Two-Valve	2006	190	0.017	30.8	20.5	28.4	24.4	3506	113.4	183	197	8.8	1.113	0.0551	44.6	2949	5041	93.8%	2.7%	3.6%	6.1%		77.5%	16.4%
Car	Port, Variable Valve Timing, Two-Valve	2007	545	0.057	29.4	19.2	28.3	23.5	3786	116.2	205	200	8.8	0.995	0.0525	45.1	2830	5232	100.0%			0.6%		93.4%	6.0%
Car	Port, Variable Valve Timing, Two-Valve	2008	438	0.048	29.0	18.8	28.6	23.3	3908	116.7	207	207	8.7	1.017	0.0527	46.3	2789	5396	98.6%		1.4%			92.7%	7.3%
Car	Port, Variable Valve Timing, Two-Valve	2009	327	0.047	28.1	18.2	27.7	22.6	3988	117.5	225	227	8.3	1.019	0.0564	45.9	2731	5383	89.5%	0.2%	10.3%	2.7%		91.4%	5.8%
Car	Port, Variable Valve Timing, Two-Valve	2010	296	0.068	30.0	19.5	29.2	24.1	3880	115.9	227	233	8.2	1.044	0.0587	48.2	2933	5556	77.2%	0.7%	22.1%	2.5%		80.1%	17.4%
Car	Port, Variable Valve Timing, Two-Valve	2011	255	0.096	28.4	18.5	27.6	22.7	4016	121.2	230	228	8.4	0.994	0.0559	46.2	2810	5585	85.7%	1.9%	12.5%	1.7%		92.6%	5.7%
Car	Port, Variable Valve Timing, Two-Valve	2012	70	0.061	27.9	18.2	27.1	22.4	4047	110.9	287	304	7.1	1.088	0.0719	48.0	2768	5295	25.9%	5.9%	68.2%	6.6%		67.5%	25.9%
Car	Port, Variable Valve Timing, Two-Valve	20																							

Vehicle Type	Engine Type and Valves	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Weight (lb)	Vol (Cu-Ft)	Engine CID	HP	0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain			Transmission			
					Lab 55/45	Adj City	Adj Hwy	Adj Comb											Front	4WD	Rear	Manual	Automatic	Lockup	CVT
Car	Port. Variable Valve Timing, Multi-Valve	2008	4089	0.519	32.2	21.4	29.6	25.4	3446	108.1	152	187	8.9	1.211	0.0529	44.5	2845	4831	81.7%	5.4%	12.9%	9.0%	0.6%	71.8%	18.5%
Car	Port. Variable Valve Timing, Multi-Valve	2009	4004	0.635	33.4	22.2	30.5	26.3	3391	109.9	145	174	9.0	1.192	0.0504	45.0	2951	4956	88.5%	4.4%	7.1%	6.5%	0.4%	78.5%	14.6%
Car	Port. Variable Valve Timing, Multi-Valve	2010	4789	0.687	34.4	22.9	31.2	27.0	3390	110.5	145	174	9.0	1.190	0.0506	47.0	3094	5213	89.4%	5.1%	5.4%	4.6%	0.1%	77.8%	17.5%
Car	Port. Variable Valve Timing, Multi-Valve	2011	4178	0.679	33.9	22.4	30.7	26.5	3462	110.5	150	183	8.8	1.219	0.0520	46.6	3008	5162	84.1%	6.9%	9.0%	4.9%	0.6%	78.9%	15.7%
Car	Port. Variable Valve Timing, Multi-Valve	2012	5219	0.677	36.1	23.8	32.4	28.0	3399	110.8	143	175	8.9	1.219	0.0506	48.5	3189	5388	89.7%	4.5%	5.8%	4.8%	0.9%	74.2%	20.1%
Car	Port. Variable Valve Timing, Multi-Valve	2013	4949	0.605	37.7	24.9	33.5	29.2	3372	109.8	139	175	8.8	1.260	0.0511	50.3	3306	5552	87.1%	5.4%	7.4%	5.5%	1.6%	68.2%	24.7%
Car	Port. Variable Valve Timing, Multi-Valve	2014	4142	0.545	38.3	25.1	33.7	29.4	3398	110.8	140	176	8.8	1.253	0.0506	50.9	3358	5663	86.1%	5.2%	8.7%	4.3%	0.6%	52.4%	42.6%
Car	Port. Variable Valve Timing, Multi-Valve	2015	4229	0.533	39.3	25.7	34.6	30.1	3374	111.6	140	174	8.8	1.233	0.0505	51.8			85.2%	7.4%	7.3%	3.8%	0.9%	45.9%	49.5%
Car	Port. Variable Valve Timing, Multi-Valve	2016	3417	0.478	38.9	25.3	34.5	29.9	3388	112.9	143	179	8.7	1.244	0.0518	51.5			84.7%	7.3%	8.0%	2.8%	1.9%	46.6%	48.7%
Car	Port. Variable Valve Timing, Multi-Valve	2017	-	0.444	40.2	26.3	35.0	30.6	3375	113.4	143	174	8.8	1.202	0.0506	53.2			86.6%	6.7%	6.8%	3.4%	0.8%	40.4%	55.4%
Car	GDI, Fixed Valve Timing, Multi-Valve	1986																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1987																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1988																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1989																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1990																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1991																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1992																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1993																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1994																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1995																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1996																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1997																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1998																							
Car	GDI, Fixed Valve Timing, Multi-Valve	1999																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2000																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2001																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2002																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2003																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2004																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2005																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2006																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2007	4	0.000	30.6	20.2	28.8	24.3	3000	77.2	98	168	7.9	1.714	0.0560	36.5	1879	2819	100.0%			47.9%		52.1%	
Car	GDI, Fixed Valve Timing, Multi-Valve	2008	110	0.008	30.3	20.1	28.4	24.1	3756	104.3	122	202	8.0	1.650	0.0539	45.3	2515	4716	74.7%	25.3%		14.0%		74.3%	11.8%
Car	GDI, Fixed Valve Timing, Multi-Valve	2009	95	0.010	30.7	20.6	28.1	24.3	3749	103.6	121	204	7.8	1.687	0.0547	45.6	2518	4713	66.1%	33.9%		10.2%		83.3%	6.6%
Car	GDI, Fixed Valve Timing, Multi-Valve	2010																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2011																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2012																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2013																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2014																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2015																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2016																							
Car	GDI, Fixed Valve Timing, Multi-Valve	2017																							
Car	GDI, Variable Valve Timing, Multi-Valve	1986																							
Car	GDI, Variable Valve Timing, Multi-Valve	1987																							
Car	GDI, Variable Valve Timing, Multi-Valve	1988																							
Car	GDI, Variable Valve Timing, Multi-Valve	1989																							
Car	GDI, Variable Valve Timing, Multi-Valve	1990																							
Car	GDI, Variable Valve Timing, Multi-Valve	1991																							
Car	GDI, Variable Valve Timing, Multi-Valve	1992																							
Car	GDI, Variable Valve Timing, Multi-Valve	1993																							
Car	GDI, Variable Valve Timing, Multi-Valve	1994																							
Car	GDI, Variable Valve Timing, Multi-Valve	1995																							
Car	GDI, Variable Valve Timing, Multi-Valve	1996																							
Car	GDI, Variable Valve Timing, Multi-Valve	1997																							
Car	GDI, Variable Valve Timing, Multi-Valve	1998																							
Car	GDI, Variable Valve Timing, Multi-Valve	1999																							
Car	GDI, Variable Valve Timing, Multi-Valve	2000																							
Car	GDI, Variable Valve Timing, Multi-Valve	2001																							
Car	GDI, Variable Valve Timing, Multi-Valve	2002																							
Car	GDI, Variable Valve Timing, Multi-Valve	2003																							
Car	GDI, Variable Valve Timing, Multi-Valve	2004																							
Car	GDI, Variable Valve Timing, Multi-Valve	2005																							
Car	GDI, Variable Valve Timing, Multi-Valve	2006																							
Car	GDI, Variable Valve Timing, Multi-Valve	2007	22	0.001	34.4	23.1	30.7	26.9	3108	75.0	103	193	7.4	1.860	0.0618	42.0	2068	3164	78.4%		21.6%	59.3%		40.7%	
Car	GDI, Variable Valve Timing, Multi-Valve	2008	123	0.015	26.4	17.5	25.3	21.2	3872	105.9	201	275	6.9	1.420	0.0704	41.3	2268	4374	25.5%	23.8%	50.7%	18.9%		79.0%	2.1%
Car	GDI, Variable Valve Timing, Multi-Valve	2009	159	0.032	26.8	17.7	25.7	21.5	3970	101.0	187	284	6.7	1.549	0.0718	42.9	2192	4348	12.8%	39.0%	48.3%	18.7%	2.5%	78.6%	0.3%
Car	GDI, Variable Valve Timing, Multi-Valve	2010	400	0.083	28.1	18.5	27.2	22.6	3945	106.8	175	261	7.2	1.523	0.0659	44.8	2431	4782	38.4%	26.6%	35.0%	11.0%	15.3%	71.2%	2.4%
Car	GDI, Variable Valve Timing, Multi-Valve	2011	942	0.154	30.8	20.0	29.3	24.4	3830	111.7	167	248	7.3	1.511	0.0643	47.0	2777	5261	58.3%	19.0%	22.7%	5.8%	1.0%	87.9%	5.4%
Car	GDI, Variable Valve Timing, Multi-Valve	2012	1875	0.225	33.5	21.8	31.3	26.4	3560	110.6	154	223	7.7	1.464	0.0614	47.1	2979	5215	71.8%	11.1%	17.1%	6.1%	4.5%	86.9%	2.4%
Car	GDI, Variable Valve Timing, Multi-Valve	2013	2906	0.305	34.1	22.3	31.7	26.8	3586	111.4	149	222	7.7	1.500	0.0608	48.3	3037	5383	74.3%	11.5%	14.2%	4.7%	4.0%	80.5%	10.8%
Car	GDI, Variable Valve Timing, Multi-Valve	2014	3081	0.327	34.4	22.5	31.8	27.0	3591	111.8	148	220	7.8	1.495	0.0601	48.6	3066	5441	73.2%	12.4%	14.3%	4.0%	6.0%	79.4%	10.6%
Car	GDI, Variable Valve Timing, Multi-Valve	2015	3297	0.356	35.2	22.9	32.3	27.5	3597	111.9	144	218	7.8	1.525	0.0595	49.7			71.8%	14.1%	14.1%	4.7%	4.3%	78.9%	12.0%
Car	GDI, Variable Valve Timing, Multi-Valve	2016	3468	0.427	36.9	24.0	33.4	28.6	3500	111.2	132	204	8.0	1.564	0.0574	50.4			75.7%	13.5%	10.8%	4.9%	7.0%	74.7%	13.5%
Car	GDI, Variable Valve Timing, Multi-Valve	2017	-	0.452	37.3	2																			



Vehicle Type	Engine Type and Valves	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Weight (lb)	Vol (Cu-Ft)	Engine CID	HP	0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain			Transmission				
					Lab 55/45	Adj City	Adj Hwy	Adj Comb											Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other
Car	Alternative Fuel	2012	55	0.004	87.5	63.8	60.2	61.7	3768	110.3	97	154	9.0	1.470	0.0395	127.9	7587	14181	87.5%	5.4%	7.1%	9.9%	31.0%	59.1%		
Car	Alternative Fuel	2013	105	0.007	102.7	91.7	73.2	80.2	3866	112.9	102	175	8.6	1.577	0.0440	172.8	10092	19513	82.2%	16.9%	0.8%	17.8%	29.6%	52.6%		
Car	Alternative Fuel	2014	105	0.007	99.5	76.1	60.7	66.5	3838	109.3	98	185	8.1	1.909	0.0469	141.2	8077	15514	70.8%	2.8%	26.3%	30.6%	18.1%	51.3%		
Car	Alternative Fuel	2015	124	0.007	113.7	86.7	70.7	76.8	3839	109.7	99	195	8.0	2.168	0.0483	167.4	9660	18612	68.8%	18.0%	13.3%	32.6%	40.1%	27.3%		
Car	Alternative Fuel	2016	105	0.008	124.4	96.4	82.9	88.2	4045	110.9	105	191	7.4	1.251	0.0446	191.6	10560	21468	64.9%	20.7%	14.4%	39.3%	31.1%	29.5%		
Car	Alternative Fuel	2017	-	0.019	120.7	92.4	71.6	79.3	3903	110.5	102	153	7.7	1.141	0.0384	171.9	9789	19172	73.7%	7.3%	19.0%	37.8%	22.0%	40.3%		
Car SUV	Carb. Fixed Valve Timing, Two-Valve	1999																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2000																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2001																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2002																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2003																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2004																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2005																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2006																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2007																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2008																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2009																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2010																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2011																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2012																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2013																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2014																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2015																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2016																								
Car SUV	Carb. Fixed Valve Timing, Two-Valve	2017																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	1999																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2000																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2001																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2002																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2003																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2004																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2005																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2006																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2007																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2008																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2009																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2010																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2011																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2012																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2013																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2014																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2015																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2016																								
Car SUV	TBI, Fixed Valve Timing, Two-Valve	2017																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	1999	301	0.565	21.9	15.5	20.6	17.9	3921		243	169	10.5	0.703	0.0432	35.1	2229	4368			100.0%	5.4%		94.6%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2000	407	0.550	21.3	15.0	19.9	17.3	3939		239	176	9.9	0.745	0.0446	34.1	2108	4148			100.0%	4.0%		96.0%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2001	423	0.506	22.3	15.8	20.6	18.1	3860		220	183	9.5	0.852	0.0474	35.1	2234	4316	12.2%			87.8%	4.3%	95.7%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2002	179	0.465	22.8	15.8	21.5	18.5	3916		223	188	9.5	0.861	0.0479	36.6	2401	4704	39.7%			60.3%	3.6%	96.4%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2003	183	0.441	22.5	15.7	20.6	18.1	3919		217	190	9.4	0.885	0.0483	35.6	2232	4375	19.7%			80.3%	3.5%	96.5%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2004	156	0.374	23.3	15.8	22.0	18.8	4000		214	191	9.5	0.895	0.0477	37.8	2508	5016	38.0%			62.0%	2.1%	97.9%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2005	264	0.336	24.4	16.4	22.9	19.6	4000		207	188	9.4	0.908	0.0471	39.3	2866	5732	46.1%	39.6%		14.3%	0.2%	99.8%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2006	68	0.264	23.8	16.0	22.5	19.2	4000		219	205	9.1	0.934	0.0512	38.5	2670	5340	52.4%			47.6%	1.5%	98.5%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2007	159	0.225	24.6	16.5	23.1	19.7	4000		209	191	9.5	0.915	0.0478	39.5	2887	5774	64.8%	20.9%	14.3%	1.7%		98.3%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2008	96	0.188	25.4	17.0	24.0	20.4	4000		204	185	9.7	0.907	0.0463	40.8	3062	6123	67.5%	32.5%				100.0%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2009	36	0.115	25.4	17.0	23.9	20.4	4000		204	185	9.4	0.907	0.0463	40.8	3060	6119	68.3%	31.7%				100.0%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2010																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	2011																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	2012	25	0.019	23.5	16.0	21.8	18.9	4000		226	210	9.0	0.930	0.0525	37.7					100.0%			100.0%		
Car SUV	Port. Fixed Valve Timing, Two-Valve	2013																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	2014																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	2015																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	2016																								
Car SUV	Port. Fixed Valve Timing, Two-Valve	2017																								
Car SUV	Port. Fixed Valve Timing, Multi-Valve	1999	165	0.326	24.3	17.7	21.6	19.6	3645		156	164	10.8	1.056	0.0446	35.9	2305	4182	31.9%			68.1%	15.2%		84.8%	
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2000	179	0.298	23.7	17.2	21.0	19.1	3691		154	161	10.5	1.052	0.0434	35.3	2222	4090	26.6%			73.4%	10.6%		89.4%	
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2001	246	0.296	24.1	17.0	22.1	19.5	3697		161	173	9.9	1.074	0.0469	36.2	2405	4441	60.9%			39.1%	9.7%		90.3%	
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2002	314	0.280	23.4	16.4	21.4	18.8	3774		174	177	9.9	1.021	0.0471	35.8	2320	4370	48.9%			51.1%	11.2%		88.6%	0.2%
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2003	279	0.251	25.5	17.5	23.5	20.4	3666		166	172	9.8	1.036	0.0472	37.6	2582	4724	84.5%			15.5%	11.4%		79.5%	9.1%
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2004	240	0.239	25.0	17.1	23.1	20.0	3793		177	181	9.6	1.026	0.0479	38.1	2528	4786	84.7%			15.3%	13.1%		81.9%	4.9%
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2005	327	0.204	26.2	18.0	23.4	20.7	3680		163	174	9.7	1.076	0.0475	38.2	2614	4803	97.3%			2.7%	7.8%		90.9%	1.3%
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2006	432	0.179	25.8	17.6	23.4	20.5	3813		175	176	9.8	1.015	0.0462	39.2	2759	5265	82.8%	11.8%		5.4%	4.1%		94.0%	1.9%
Car SUV	Port. Fixed Valve Timing, Multi-Valve	2007	329	0.200	25.7	17.5	23.4	20.4	4035		184	210	9.3	1.128	0.0513	41.3	2740	5528	94.3%			5.7%	2.7%		95.1%	2.2









Appendix I: Fuel Economy Data Stratified by Vehicle Type, Engine Type, and Valves Per Cylinder

Vehicle Type	Engine Type and Valves	Model Year	Prod (000)	Frac	Fuel Economy (MPG)				Weight (lb)	Vol (Cu-Ft)	Engine		0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu-Ft-MPG	Cu-Ft-Ton-MPG	Drivetrain			Transmission				
					Lab 55/45	Adj City	Adj Hwy	Adj Comb			CID	HP							Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2004	601	0.239	21.0	14.6	19.1	16.8	4458	223	218	9.4	1.005	0.0493	37.4				82.6%	17.4%	3.6%		95.4%	0.9%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2005	459	0.204	22.6	15.6	20.3	18.0	4221	193	202	9.6	1.057	0.0478	38.1				83.8%	16.2%	4.5%		93.7%	1.8%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2006	305	0.179	23.9	16.5	21.5	19.0	4042	183	189	9.8	1.040	0.0467	38.7				88.3%	11.7%	6.0%		89.9%	4.1%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2007	385	0.200	23.0	15.8	21.0	18.4	4444	207	240	8.9	1.157	0.0534	40.9			0.4%	95.1%	4.5%	2.0%		96.1%	1.9%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2008	427	0.221	23.7	16.4	21.4	18.9	4365	206	230	9.1	1.114	0.0521	41.4			1.7%	88.9%	9.4%	1.0%		95.5%	3.5%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2009	266	0.156	25.5	17.2	23.6	20.4	4094	184	214	9.0	1.163	0.0520	41.6			18.2%	80.2%	1.7%	3.5%		96.1%	0.4%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2010	104	0.078	21.8	14.6	20.9	17.6	5120	255	260	8.6	1.036	0.0509	44.8			41.9%	35.0%	23.1%			100.0%			
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2011	20	0.022	21.6	15.0	19.7	17.3	4466	243	253	8.6	1.033	0.0564	38.8				80.2%	19.8%				100.0%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2012																								
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2013	28	0.005	25.9	17.4	24.1	20.7	5000	214	285	8.0	1.334	0.0570	51.7			71.6%	28.4%					100.0%		
Truck SUV	Pot, Fixed Valve Timing, Multi-Valve	2014	50	0.005	27.5	18.5	25.2	21.8	5122	205	273	8.1	1.334	0.0536	56.4			52.4%	42.4%	5.1%				100.0%		

**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

**Note on Data in Appendix J:**

The Department of Justice, on behalf of EPA, alleged violations of the Clean Air Act by Fiat Chrysler Automobiles based on the sale of certain 2014 through 2016 model year vehicles equipped with devices that defeat the vehicles' emission control systems. In addition, the Department of Justice and EPA have reached a settlement with Volkswagen over the use of defeat devices for certain 2009 through 2016 model year vehicles. In this report, EPA uses the CO<sub>2</sub> emissions and fuel economy data from the initial certification of these vehicles. Should the investigation and corrective actions yield different CO<sub>2</sub> and fuel economy data, any relevant changes will be used in future reports. For more information on actions to resolve these alleged violations, see [www.epa.gov/vw](http://www.epa.gov/vw) and [www.epa.gov/fca](http://www.epa.gov/fca).

The data in this appendix from the manufacturers and years affected by these actions is in grey text and italicized.

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Car	Car	1975				21.6	25.8	22.4	19.4	16.6	15.0	13.9	12.5						15.1
GM	Car	Car	1976			29.4	26.8	26.9	23.4	20.4	17.9	16.3	14.8	13.5						16.6
GM	Car	Car	1977			31.4	26.6	28.6	25.6	20.7	18.0	17.0	14.8	13.3						17.7
GM	Car	Car	1978			30.7	27.7		26.5	20.3	18.1	16.3	15.3	12.4						19.0
GM	Car	Car	1979			33.5	28.7		26.1	20.3	17.7	16.8	18.9	11.2						19.1
GM	Car	Car	1980			29.9	27.4	26.1	23.9	20.9	19.1	19.1	13.2							21.9
GM	Car	Car	1981			31.6	29.4	27.3	25.2	22.4	20.9	20.5	12.3							23.2
GM	Car	Car	1982			34.3	32.4	28.8	27.2	22.5	20.8	21.0	11.8							24.2
GM	Car	Car	1983			34.7	33.0	30.0	26.5	22.6	20.4	19.8	11.8							23.5
GM	Car	Car	1984			35.6	33.7	30.9	26.6	22.5	20.7	20.2	11.8							24.4
GM	Car	Car	1985	57.4		40.8	33.9	30.9	27.4	23.4	22.4	21.0								25.5
GM	Car	Car	1986	56.6		40.5	34.8	30.3	27.8	24.4	23.0	22.0								27.0
GM	Car	Car	1987	57.0	46.1	39.6	34.4	31.6	28.6	24.6	22.5	22.3								27.2
GM	Car	Car	1988	51.5	45.7	40.0	34.9	32.1	28.7	25.8	22.9	22.9								28.1
GM	Car	Car	1989	59.5	48.1	40.4	33.9	31.9	28.3	25.2	23.1	22.4								27.4
GM	Car	Car	1990	65.3	52.2		35.4	32.0	28.5	25.8	22.6	21.3								27.3
GM	Car	Car	1991	65.3	48.9		36.3	31.5	27.8	25.4	23.1	22.4								27.2
GM	Car	Car	1992	65.3	47.8		34.6	31.7	27.8	25.1	22.8	22.7								26.7
GM	Car	Car	1993	65.3	50.5		35.5	31.5	28.1	25.8	22.8	22.5	17.6	17.6						27.3
GM	Car	Car	1994	65.8	49.1		35.3	32.2	29.2	25.7	23.1	22.9	18.3							27.5
GM	Car	Car	1995		54.5	39.5	36.4	33.1	29.8	25.9	23.3	22.8	18.6							27.3
GM	Car	Car	1996				37.2	33.3	30.4	26.3	24.2	23.2	18.2							27.9
GM	Car	Car	1997		54.4	37.9	37.0	33.1	30.4	26.6	24.1		19.5							28.2
GM	Car	Car	1998		53.6	38.6	37.3	33.6	30.1	26.4	24.0		17.2							27.6
GM	Car	Car	1999		50.3	38.1	36.9	34.5	30.4	26.5	24.2			19.3						27.4
GM	Car	Car	2000		50.8	37.8	37.0	35.2	30.4	26.9	25.1		18.3							27.6
GM	Car	Car	2001			37.3	36.7	35.3	31.0	27.5	25.3			18.3						28.1
GM	Car	Car	2002				36.7	35.0	30.5	27.9	25.5			18.2						28.5
GM	Car	Car	2003						32.3	28.2	25.6			18.6						28.6
GM	Car	Car	2004					34.5	32.6	28.4	25.4		20.0	19.3						29.1
GM	Car	Car	2005					34.3	32.9	29.0	25.6	20.4		20.1	19.0					29.0
GM	Car	Car	2006					32.9	32.7	29.2	25.9	22.4				17.9				28.6
GM	Car	Car	2007					34.4	32.7	29.3	26.4	22.5	19.9		18.4					28.8
GM	Car	Car	2008					34.6	34.0	29.2	26.7	23.1	18.4		18.4	18.0				28.6
GM	Car	Car	2009					35.5	35.1	31.9	26.8	22.8		17.6	17.4					30.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Car	Car	2010					36.0	36.0	32.2	27.0	25.5			18.3					29.8
GM	Car	Car	2011					36.3	44.2	33.5	27.8	24.8	21.8		18.5					30.0
GM	Car	Car	2012						39.1	35.4	28.9	24.5								32.4
GM	Car	Car	2013				43.3		38.8	35.4	30.2	23.9		21.7	21.7					32.9
GM	Car	Car	2014				45.6		39.1	36.7	30.2	24.1		23.1	21.7					34.0
GM	Car	Car	2015				45.6		39.8	37.6	30.0	24.1		23.1	20.7					34.2
GM	Car	Car	2016				47.3		43.5	36.8	30.7	26.1		21.7	21.9					35.1
GM	Car	Car	2017				45.6		44.9	36.8	34.4	26.2		21.7	21.7					37.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
GM	Car	Car SUV	1975								15.6									15.6
GM	Car	Car SUV	1976							14.3	17.3									16.9
GM	Car	Car SUV	1977								18.0									18.0
GM	Car	Car SUV	1978								17.6									17.6
GM	Car	Car SUV	1979																	
GM	Car	Car SUV	1980																	
GM	Car	Car SUV	1981																	
GM	Car	Car SUV	1982						25.8	16.6	19.3									22.0
GM	Car	Car SUV	1983							25.1										25.1
GM	Car	Car SUV	1984						28.3	23.5										23.6
GM	Car	Car SUV	1985							23.5										23.5
GM	Car	Car SUV	1986							22.2										22.2
GM	Car	Car SUV	1987							23.0										23.0
GM	Car	Car SUV	1988							23.1										23.1
GM	Car	Car SUV	1989							23.0										23.0
GM	Car	Car SUV	1990							22.7										22.7
GM	Car	Car SUV	1991				30.1			23.3	21.1									22.7
GM	Car	Car SUV	1992				29.3			22.6	20.6									22.5
GM	Car	Car SUV	1993				29.2			22.9	22.4									23.6
GM	Car	Car SUV	1994				28.9	28.7		22.3	21.5									22.7
GM	Car	Car SUV	1995				29.6				21.7									22.8
GM	Car	Car SUV	1996					28.3	28.2		22.0									22.8
GM	Car	Car SUV	1997				27.9		28.5		21.6									22.0
GM	Car	Car SUV	1998				28.5		27.7	25.9	21.8									22.5
GM	Car	Car SUV	1999					31.0	28.6	25.2	21.5									22.3
GM	Car	Car SUV	2000					31.1	28.6		21.7									22.1
GM	Car	Car SUV	2001					31.0	28.6	26.3	22.9									24.0
GM	Car	Car SUV	2002						31.9	27.9	23.3									24.1
GM	Car	Car SUV	2003						28.4	27.4	23.8									25.9
GM	Car	Car SUV	2004							28.8	25.0	20.6								24.7
GM	Car	Car SUV	2005							28.9	25.0	21.9	19.1							24.8
GM	Car	Car SUV	2006							29.6	24.9	21.8	20.7							25.1
GM	Car	Car SUV	2007							30.7	25.1	21.5	20.6							25.4
GM	Car	Car SUV	2008								25.9	21.5	20.9							25.3
GM	Car	Car SUV	2009								26.5	22.7	19.2							25.8
GM	Car	Car SUV	2010								31.8	25.2	23.0							29.4
GM	Car	Car SUV	2011							32.5	30.9	25.6	23.0							29.8
GM	Car	Car SUV	2012								30.9	24.5								29.0
GM	Car	Car SUV	2013								36.9	33.4	24.4							31.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Car	Car SUV	2014							36.9	33.6	24.6	22.9							31.3
GM	Car	Car SUV	2015							37.3	33.4	25.0								31.7
GM	Car	Car SUV	2016							37.6	33.2	24.2	24.1							31.7
GM	Car	Car SUV	2017							38.4	33.1	27.3								32.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
GM	Car	All	1975				21.6	25.8	22.4	19.4	16.6	15.0	13.9	12.5						15.1
GM	Car	All	1976			29.4	26.8	26.9	23.4	20.4	17.9	16.3	14.8	13.5						16.6
GM	Car	All	1977			31.4	26.6	28.6	25.6	20.7	18.0	17.0	14.8	13.3						17.7
GM	Car	All	1978			30.7	27.7		26.5	20.3	18.1	16.3	15.3	12.4						19.0
GM	Car	All	1979			33.5	28.7		26.1	20.3	17.7	16.8	18.9	11.2						19.1
GM	Car	All	1980			29.9	27.4	26.1	23.9	20.9	19.1	19.1	13.2							21.9
GM	Car	All	1981			31.6	29.4	27.3	25.2	22.4	20.9	20.5	12.3							23.2
GM	Car	All	1982			34.3	32.4	28.8	27.2	22.5	20.8	21.0	11.8							24.2
GM	Car	All	1983			34.7	33.0	30.0	26.5	22.7	20.4	19.8	11.8							23.5
GM	Car	All	1984			35.6	33.7	30.9	26.6	22.6	20.7	20.2	11.8							24.4
GM	Car	All	1985	57.4		40.8	33.9	30.9	27.4	23.4	22.4	21.0								25.5
GM	Car	All	1986	56.6		40.5	34.8	30.3	27.8	24.4	23.0	22.0								27.0
GM	Car	All	1987	57.0	46.1	39.6	34.4	31.6	28.6	24.5	22.5	22.3								27.2
GM	Car	All	1988	51.5	45.7	40.0	34.9	32.1	28.7	25.7	22.9	22.9								28.1
GM	Car	All	1989	59.5	48.1	40.4	33.9	31.9	28.3	25.1	23.1	22.4								27.4
GM	Car	All	1990	65.3	52.2		35.4	32.0	28.5	25.7	22.6	21.3								27.2
GM	Car	All	1991	65.3	48.9		35.7	31.5	27.8	25.3	23.0	22.4								27.0
GM	Car	All	1992	65.3	47.8		33.7	31.7	27.8	25.1	22.6	22.7								26.6
GM	Car	All	1993	65.3	50.5		34.5	31.5	28.1	25.8	22.7	22.5	17.6	17.6						27.2
GM	Car	All	1994	65.8	49.1		34.1	32.2	29.2	25.6	22.8	22.9	18.3							27.3
GM	Car	All	1995		54.5	39.5	35.4	33.1	29.8	25.9	23.0	22.8	18.6							27.2
GM	Car	All	1996				37.2	33.0	30.4	26.3	23.6	23.2	18.2							27.6
GM	Car	All	1997		54.4	37.9	36.7	33.1	30.4	26.6	23.6		19.5							27.9
GM	Car	All	1998		53.6	38.6	36.7	33.6	30.1	26.4	23.5		17.2							27.3
GM	Car	All	1999		50.3	38.1	36.9	34.5	30.4	26.5	23.5			19.3						27.2
GM	Car	All	2000		50.8	37.8	37.0	35.2	30.4	26.9	24.3		18.3							27.2
GM	Car	All	2001			37.3	36.7	35.3	30.8	27.5	24.7				18.3					27.7
GM	Car	All	2002				36.7	35.0	30.5	27.9	24.9				18.2					28.2
GM	Car	All	2003						32.2	28.2	25.3				18.6					28.4
GM	Car	All	2004					34.5	32.6	28.4	25.3	20.6		20.0	19.3					28.7
GM	Car	All	2005					34.3	32.9	29.0	25.4	21.5	19.1	20.1	19.0					28.3
GM	Car	All	2006					32.9	32.7	29.3	25.6	22.1	20.7			17.9				28.0
GM	Car	All	2007					34.4	32.7	29.4	26.2	22.0	20.6		18.4					28.4
GM	Car	All	2008					34.6	34.0	29.2	26.5	22.7	20.8		18.4	18.0				28.1
GM	Car	All	2009					35.5	35.1	31.9	26.8	22.8	19.2		17.6	17.4				29.7
GM	Car	All	2010					36.0	36.0	32.2	28.2	25.3	23.0		18.3					29.7
GM	Car	All	2011					36.3	44.2	33.4	28.8	25.2	22.5		18.5					29.9
GM	Car	All	2012						39.1	35.4	29.8	24.5								31.3
GM	Car	All	2013				43.3		38.8	35.5	31.4	24.2		21.7	21.7					32.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Car	All	2014				45.6		39.1	36.7	31.3	24.5	22.9	23.1	21.7					33.3
GM	Car	All	2015				45.6		39.8	37.6	31.4	24.9		23.1	20.7					33.3
GM	Car	All	2016				47.3		43.5	37.0	31.6	24.5	24.1	21.7	21.9					34.1
GM	Car	All	2017				45.6		44.9	37.2	34.0	27.1		21.7	21.7					36.2

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Truck	Van	1975								15.3	12.4	12.7		11.1	10.6				14.4
GM	Truck	Van	1976								15.1	12.6	12.6	11.1	11.9	11.5				14.0
GM	Truck	Van	1977								16.6	13.4	13.3		13.0	12.3				15.0
GM	Truck	Van	1978								16.4	12.8	12.4		12.5	11.7				14.1
GM	Truck	Van	1979								18.6	14.5	13.3	12.8						14.7
GM	Truck	Van	1980								18.5	16.0	14.3							16.7
GM	Truck	Van	1981								19.3	17.7	15.8							18.0
GM	Truck	Van	1982								19.6	17.7	16.0	11.9	11.9					17.9
GM	Truck	Van	1983								19.7	18.5	19.7	20.1						18.9
GM	Truck	Van	1984								20.0	18.1	17.3	17.3						18.2
GM	Truck	Van	1985								23.9	21.8	16.7	16.8	13.9	21.3				18.7
GM	Truck	Van	1986								26.4	21.4	17.3	17.0	13.9	23.1				19.4
GM	Truck	Van	1987								24.7	21.7	17.4	17.4	17.0	22.9				19.8
GM	Truck	Van	1988								25.5	21.9	17.9	18.1	17.3	21.7				20.2
GM	Truck	Van	1989								24.4	22.2	17.9	17.6	17.5	21.3				20.2
GM	Truck	Van	1990								23.5	22.6	19.2	18.3	17.3	21.5				20.7
GM	Truck	Van	1991								23.7	22.9	19.5	17.4	17.2	20.4				20.8
GM	Truck	Van	1992								23.7	22.5	19.8	19.2	16.7	20.1				20.8
GM	Truck	Van	1993								23.7	22.5	20.0	19.1	16.9	21.3				20.7
GM	Truck	Van	1994								23.7	22.7	20.0	19.1	17.2	20.6				21.0
GM	Truck	Van	1995								23.7	22.8	19.5	18.5	17.7	20.4				20.6
GM	Truck	Van	1996								28.1	23.8	21.1	18.7	17.6	17.3				21.5
GM	Truck	Van	1997								24.9	23.8	21.2	19.2	18.4					21.9
GM	Truck	Van	1998								27.0	23.8	21.4	18.6	18.0					22.2
GM	Truck	Van	1999								26.9	24.2	20.9	18.4	17.9					22.0
GM	Truck	Van	2000								24.4	20.9	18.5	17.4						22.1
GM	Truck	Van	2001								25.3	21.1	18.4	17.8						22.9
GM	Truck	Van	2002								25.2	20.5	17.8	18.1						22.3
GM	Truck	Van	2003								25.4	21.8	19.0	19.0	18.5					23.2
GM	Truck	Van	2004								25.2	20.9	19.4	19.0	19.2					23.1
GM	Truck	Van	2005								24.4	23.2	20.1	19.5	18.6					22.6
GM	Truck	Van	2006									24.4	20.5	19.4	18.8					22.9
GM	Truck	Van	2007									24.1	20.4	19.2	18.1					22.6
GM	Truck	Van	2008									24.0	21.0	19.3	17.6					22.8
GM	Truck	Van	2009										21.5	17.8	17.7					20.0
GM	Truck	Van	2010										21.7	18.6	18.4					20.1
GM	Truck	Van	2011										21.7	18.6	18.1	16.1	15.5			19.7
GM	Truck	Van	2012										21.7	18.5	18.3	16.5	15.1	14.5		20.1
GM	Truck	Van	2013										21.7	18.6	18.4	16.5	15.2			20.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Truck	Van	2014										20.0	18.5	18.3	16.4	15.3			19.1
GM	Truck	Van	2015													16.5	15.4			16.2
GM	Truck	Van	2016													16.0	15.5			15.8
GM	Truck	Van	2017							34.9						15.9	15.5			33.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
GM	Truck	Truck SUV	1975									14.0	11.2	10.2	10.3					11.7
GM	Truck	Truck SUV	1976									14.8	12.7	11.4	11.9					13.0
GM	Truck	Truck SUV	1977									15.9	12.9	11.5	11.9					14.6
GM	Truck	Truck SUV	1978									15.1	12.6	11.6	11.4					14.0
GM	Truck	Truck SUV	1979									12.3	11.7	10.6						11.3
GM	Truck	Truck SUV	1980									16.4	14.6	13.8	13.4					14.5
GM	Truck	Truck SUV	1981									17.2	16.4	14.1						16.2
GM	Truck	Truck SUV	1982									18.9	17.1	21.2	21.2					19.2
GM	Truck	Truck SUV	1983							23.6	22.0		17.0	20.2	20.8					20.2
GM	Truck	Truck SUV	1984							23.0	22.1		17.1	17.9	21.0					20.0
GM	Truck	Truck SUV	1985							23.2	22.0		17.0	16.1	21.4					20.1
GM	Truck	Truck SUV	1986							22.5	20.3		17.1	15.7	22.1					19.4
GM	Truck	Truck SUV	1987							21.7	20.7		16.6	16.8	20.9					19.3
GM	Truck	Truck SUV	1988								21.2		16.5	16.5	18.3					19.4
GM	Truck	Truck SUV	1989				31.3			20.6	21.5		16.8	17.5	15.8					20.0
GM	Truck	Truck SUV	1990				31.3	28.7		20.6	20.6		16.6	17.3	16.0					19.6
GM	Truck	Truck SUV	1991					28.9		20.6	21.1		16.5	17.2	15.7	20.2				20.5
GM	Truck	Truck SUV	1992					28.9		20.6	20.2	18.9	16.1	16.3	14.9					19.2
GM	Truck	Truck SUV	1993					29.0			21.5	20.3	16.9	16.8	15.8					19.4
GM	Truck	Truck SUV	1994					28.7			20.3	21.0	16.9	16.8	16.1					19.4
GM	Truck	Truck SUV	1995				29.0	28.4			20.1	21.3	17.7	16.9	15.7					19.4
GM	Truck	Truck SUV	1996					28.2	28.1		21.9	21.0	18.4	17.4	16.8					19.8
GM	Truck	Truck SUV	1997					28.1	27.9		21.4	21.0	19.1	17.8	16.7					19.4
GM	Truck	Truck SUV	1998					28.4	27.7		21.3	21.2	18.1	17.4	16.8					20.3
GM	Truck	Truck SUV	1999						28.5	27.7	21.1	20.5	18.0	17.8						19.8
GM	Truck	Truck SUV	2000						28.1	27.6	19.7	20.8	17.2	18.2	16.8					19.5
GM	Truck	Truck SUV	2001						27.7	22.4	22.7	20.1		18.4	17.0					18.8
GM	Truck	Truck SUV	2002						27.8	25.9	21.9	20.6	19.5	18.7	18.0					19.4
GM	Truck	Truck SUV	2003						27.9	25.3	23.4	20.8	19.6	18.9	17.7					19.1
GM	Truck	Truck SUV	2004							25.0	24.7	21.6	20.3	19.1	17.7					19.4
GM	Truck	Truck SUV	2005							27.5	24.7	21.9	20.0	19.1	18.5					19.5
GM	Truck	Truck SUV	2006								24.4	21.4	20.3	19.4	18.2					20.2
GM	Truck	Truck SUV	2007								30.1	24.5	19.7	20.9		20.1				20.4
GM	Truck	Truck SUV	2008								32.5	24.8	21.8	21.9		20.0				21.2
GM	Truck	Truck SUV	2009								32.4	24.8	22.8	23.4	21.8	20.2				22.4
GM	Truck	Truck SUV	2010								32.5	24.3		24.4	22.7	21.7				23.3
GM	Truck	Truck SUV	2011								32.5			24.3	22.9	21.7	18.6	15.4		22.7
GM	Truck	Truck SUV	2012											24.4		21.7	18.7	15.4		23.2
GM	Truck	Truck SUV	2013								33.8	30.8		24.6	23.6	21.7	18.6	15.4		23.7



Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
GM	Truck	Truck SUV	2014							33.8	30.8		24.6	23.5	21.8	18.4			24.8
GM	Truck	Truck SUV	2015							35.7	30.8	27.6	24.5		23.2	22.3			24.9
GM	Truck	Truck SUV	2016							35.6	30.8	29.8	22.3	24.2	22.9	22.6			24.3
GM	Truck	Truck SUV	2017							35.9	31.0	27.5	22.3		23.1	22.2			25.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Truck	Pickup	1975					22.3		15.0	15.1	11.3	11.0	10.5						14.3
GM	Truck	Pickup	1976					25.0		15.8	15.8	12.5	11.9	11.8						14.6
GM	Truck	Pickup	1977					25.1	24.3	16.5	16.5	13.4	13.1	11.8						15.2
GM	Truck	Pickup	1978					27.0	25.0	18.1	15.3	13.5	12.7	12.0	12.7	11.8				14.7
GM	Truck	Pickup	1979					27.4	23.4	19.8	17.9	15.0	13.7	12.1	10.9					15.2
GM	Truck	Pickup	1980					27.7	24.6	19.9	18.7	16.7	16.8	13.5	9.9	12.0				18.5
GM	Truck	Pickup	1981					28.5	30.0	21.4	19.3	18.0	18.2							20.0
GM	Truck	Pickup	1982					29.9	26.0	21.0	19.6	18.4	20.6	22.4						21.9
GM	Truck	Pickup	1983					32.3	26.7	24.0	19.6	18.2	19.1	22.1						21.3
GM	Truck	Pickup	1984					31.1	25.5	23.3	19.9	18.0	18.0	21.9						20.7
GM	Truck	Pickup	1985					31.0	26.1	23.1	20.5	17.3	17.1	21.1	19.6					20.4
GM	Truck	Pickup	1986					30.2	26.7	22.0	20.5	17.8	17.0	21.1						20.8
GM	Truck	Pickup	1987					30.0	26.6	22.1	20.5	17.7	16.5	21.1						21.3
GM	Truck	Pickup	1988						28.3	22.8	20.2	17.9	17.0	16.9	19.6					20.4
GM	Truck	Pickup	1989						27.9	22.7	20.8	17.8	16.8	19.2	21.2					20.5
GM	Truck	Pickup	1990						27.4	22.4	20.3	17.6	17.0	18.6	20.5					19.2
GM	Truck	Pickup	1991						26.9	23.5	20.9	18.2	16.6	17.6	19.5					21.4
GM	Truck	Pickup	1992						26.2	23.3	21.3	18.5	16.8	16.4						20.3
GM	Truck	Pickup	1993						25.4	23.6	21.6	19.2	17.1	17.1						20.2
GM	Truck	Pickup	1994						28.1	25.2	21.4	18.5	17.0	17.4	18.1					20.0
GM	Truck	Pickup	1995						27.2	26.5	21.4	18.5	16.9	17.5	18.1					20.2
GM	Truck	Pickup	1996						31.3	28.3	22.5	19.9	18.1	18.1	18.7					21.3
GM	Truck	Pickup	1997						31.3	27.6	22.2	20.5	18.8	17.6	18.7					20.5
GM	Truck	Pickup	1998							27.8	21.8	20.0	17.8	17.4	19.0					21.1
GM	Truck	Pickup	1999							27.1	21.1	20.4	18.7	16.9	16.9					19.8
GM	Truck	Pickup	2000							25.5	20.9	20.5	18.9	16.4						20.8
GM	Truck	Pickup	2001							24.8	20.8	20.8	19.4	16.3						20.4
GM	Truck	Pickup	2002							22.4	22.2	19.8	18.9	17.9	17.9					19.1
GM	Truck	Pickup	2003							25.3	22.5	20.2	19.0	17.4	18.1					20.1
GM	Truck	Pickup	2004							24.7	24.2	20.8	19.5	18.5	18.8					20.0
GM	Truck	Pickup	2005							25.2	24.0	21.1	19.8	19.4	18.5					20.4
GM	Truck	Pickup	2006							25.0	24.2	21.4	20.3	19.3	18.6					20.7
GM	Truck	Pickup	2007							22.5	22.1	21.1	20.3	19.9	20.4					20.3
GM	Truck	Pickup	2008							24.5	23.7	21.7	20.7	20.6	20.0					20.9
GM	Truck	Pickup	2009							25.8	24.7	22.5	20.9	20.5	19.7					20.8
GM	Truck	Pickup	2010							26.7	25.3	22.3	21.0	21.4	19.1					21.5
GM	Truck	Pickup	2011							26.6	25.5	22.0	21.1	21.4	19.8					21.4
GM	Truck	Pickup	2012							26.8	25.5	22.5	21.3	21.5	19.5					21.8
GM	Truck	Pickup	2013									21.3	21.1	21.6	19.4					21.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Truck	Pickup	2014									26.2	25.2	23.8	22.3					23.9
GM	Truck	Pickup	2015								29.3	26.3	25.3	23.9	22.8					24.3
GM	Truck	Pickup	2016								29.2	26.3	25.7	23.9	22.6					24.4
GM	Truck	Pickup	2017								28.8	25.6	25.1	23.8	22.4					23.7

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Truck	All	1975					22.3		15.0	15.2	11.9	11.2	10.5	10.9	10.6				14.1
GM	Truck	All	1976					25.0		15.8	15.6	12.7	12.3	11.7	11.9	11.5				14.3
GM	Truck	All	1977					25.1	24.3	16.5	16.5	13.9	13.1	11.7	12.4	12.3				15.1
GM	Truck	All	1978					27.0	25.0	18.1	15.5	13.6	12.6	12.0	11.8	11.7				14.5
GM	Truck	All	1979					27.4	23.4	19.8	18.0	14.9	13.1	11.4	10.9					14.5
GM	Truck	All	1980					27.7	24.6	19.9	18.6	16.5	16.1	13.6	12.9	12.0				17.9
GM	Truck	All	1981					28.5	30.0	21.4	19.3	17.9	17.2	14.1						19.4
GM	Truck	All	1982					29.9	26.0	21.0	19.6	18.2	19.3	21.7	21.1					21.0
GM	Truck	All	1983					32.3	26.7	24.0	20.4	18.3	18.5	20.7	20.8					20.6
GM	Truck	All	1984					31.1	25.5	23.3	21.0	18.0	17.5	18.7	21.0					20.1
GM	Truck	All	1985					31.0	26.1	23.2	21.6	17.1	17.0	16.7	21.4					20.0
GM	Truck	All	1986					30.2	26.7	22.5	20.8	17.6	17.1	16.1	22.2					20.1
GM	Truck	All	1987					30.0	26.6	22.1	21.2	17.6	16.7	16.9	21.2					20.4
GM	Truck	All	1988							28.3	22.8	21.2	17.9	17.0	16.6	18.7				20.2
GM	Truck	All	1989							31.3		27.9	22.7	21.5	17.8	16.8	17.6	15.8		20.3
GM	Truck	All	1990					31.3	28.7	27.4	22.3	21.2	18.3	17.0	17.4	16.0				19.7
GM	Truck	All	1991					28.9	26.9	23.5	21.4	18.8	16.6	17.2	15.8	20.2				21.1
GM	Truck	All	1992					28.9	26.2	23.3	21.3	19.1	17.1	16.3	14.9					20.2
GM	Truck	All	1993					29.0	25.4	23.6	21.9	19.6	17.3	16.8	15.8					20.1
GM	Truck	All	1994					28.7	28.1	25.2	21.7	19.6	17.2	16.9	16.2					20.1
GM	Truck	All	1995					29.0	28.4	27.2	26.5	21.6	19.6	17.1	16.9	15.8				20.0
GM	Truck	All	1996						28.2	28.2	28.3	22.8	20.6	18.2	17.5	16.8				20.7
GM	Truck	All	1997					28.1	28.1	27.5	23.0	20.9	18.9	17.7	16.7					20.4
GM	Truck	All	1998					28.4	27.7	27.8	22.8	20.8	18.0	17.4	18.0					21.1
GM	Truck	All	1999						28.5	27.2	23.1	20.5	18.5	17.6	16.9					20.2
GM	Truck	All	2000						28.1	25.6	23.4	20.7	18.8	18.1	16.8					20.6
GM	Truck	All	2001						27.7	24.1	23.7	20.4	19.3	18.3	17.0					20.0
GM	Truck	All	2002						27.8	24.6	24.1	20.4	18.9	18.6	18.0					19.6
GM	Truck	All	2003						27.9	25.3	24.6	20.7	19.2	18.7	17.8					20.0
GM	Truck	All	2004							24.9	24.8	21.2	19.8	18.9	17.9					19.9
GM	Truck	All	2005							25.3	24.2	22.0	19.9	19.2	18.5					20.2
GM	Truck	All	2006							25.0	24.2	22.3	20.3	19.3	18.3					20.7
GM	Truck	All	2007								23.1	22.8	21.6	20.6	19.9	20.1				20.5
GM	Truck	All	2008								26.8	23.9	22.6	21.6	20.5	20.0				21.2
GM	Truck	All	2009								28.3	24.7	22.6	22.8	20.6	20.0				21.4
GM	Truck	All	2010								28.5	25.2	22.3	23.8	21.5	21.1				22.3
GM	Truck	All	2011								28.1	25.5	22.0	23.7	21.4	21.4	18.6	15.4		22.0
GM	Truck	All	2012								26.8	25.5	22.5	23.9	21.4	21.5	18.6	15.3	14.5	22.4
GM	Truck	All	2013								33.8	30.8	21.3	23.6	21.7	21.5	18.6	15.4		22.6



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	Truck	All	2014							33.8	30.8	26.2	24.5	23.8	21.9	18.3	15.3			24.1
GM	Truck	All	2015							35.7	30.6	26.3	24.6	23.9	23.2	22.1	15.4			24.6
GM	Truck	All	2016							35.6	30.3	26.5	23.0	24.0	22.8	22.5	15.5			24.4
GM	Truck	All	2017							35.6	30.6	26.7	23.0	23.8	22.6	22.1	15.5			24.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
GM	All	All	1975				21.6	23.3	22.4	18.0	15.9	14.7	13.4	12.4	10.9	10.6			14.9
GM	All	All	1976			29.4	26.8	25.3	23.4	18.9	17.0	15.8	14.2	13.3	11.9	11.5			16.1
GM	All	All	1977			31.4	26.6	25.2	25.5	19.8	17.6	16.5	14.0	12.3	12.4	12.3			17.2
GM	All	All	1978			30.7	27.7	27.0	26.2	20.3	17.4	15.2	13.0	12.2	11.8	11.7			17.8
GM	All	All	1979			33.5	28.7	27.4	25.2	20.3	17.7	16.0	13.3	11.4	10.9				18.0
GM	All	All	1980			29.9	27.4	26.3	23.9	20.9	19.0	18.1	16.0	13.6	12.9	12.0			21.3
GM	All	All	1981			31.6	29.4	27.5	25.4	22.4	20.5	19.4	17.1	14.1					22.6
GM	All	All	1982			34.3	32.4	28.9	27.0	22.4	20.6	19.3	19.2	21.1					23.5
GM	All	All	1983			34.7	33.0	30.1	26.6	22.8	20.4	18.9	18.5	20.7	20.8				22.9
GM	All	All	1984			35.6	33.7	30.9	26.5	22.6	20.8	18.7	17.5	18.7	21.0				23.5
GM	All	All	1985	57.4		40.8	33.9	30.9	27.2	23.4	22.2	17.8	17.0	16.7	21.4				24.0
GM	All	All	1986	56.6		40.5	34.8	30.3	27.7	24.2	21.8	18.4	17.1	16.1	22.2				25.1
GM	All	All	1987	57.0	46.1	39.6	34.4	31.5	28.3	24.3	21.8	18.4	16.7	16.9	21.2				25.3
GM	All	All	1988	51.5	45.7	40.0	34.9	32.1	28.6	25.4	21.6	18.6	17.0	16.6	18.7				25.2
GM	All	All	1989	59.5	48.1	40.4	33.2	31.9	28.2	24.9	21.7	18.4	16.8	17.6	15.8				24.8
GM	All	All	1990	65.3	52.2		34.6	31.9	28.4	25.5	21.7	18.6	17.0	17.4	16.0				24.5
GM	All	All	1991	65.3	48.9		35.7	31.4	27.6	25.0	22.2	19.2	16.6	17.2	15.8	20.2			24.8
GM	All	All	1992	65.3	47.8		33.7	31.5	27.5	24.9	21.9	19.7	17.1	16.3	14.9				24.2
GM	All	All	1993	65.3	50.5		34.5	31.4	27.6	25.6	22.3	19.9	17.3	16.9	15.9				24.3
GM	All	All	1994	65.8	49.1		34.1	32.0	29.2	25.6	22.2	19.9	17.2	16.9	16.2				24.1
GM	All	All	1995		54.5	39.5	35.4	32.5	29.8	26.0	22.4	19.8	17.1	17.0	15.8				23.9
GM	All	All	1996				37.2	32.6	30.4	26.6	23.4	20.8	18.2	17.5	16.8				24.7
GM	All	All	1997		54.4	37.9	36.7	32.9	30.4	26.7	23.3	20.9	18.9	17.7	16.7				24.4
GM	All	All	1998		53.6	38.6	36.7	33.4	30.1	26.6	23.2	20.8	18.0	17.4	18.0				24.5
GM	All	All	1999		50.3	38.1	36.9	34.5	30.3	26.5	23.3	20.5	18.5	17.6	16.9				23.7
GM	All	All	2000		50.8	37.8	37.0	35.2	30.3	26.7	24.0	20.7	18.8	18.1	16.8				23.8
GM	All	All	2001			37.3	36.7	35.3	30.7	27.1	24.3	20.4	19.3	18.3	17.0				23.8
GM	All	All	2002				36.7	35.0	30.5	27.8	24.7	20.4	18.9	18.6	18.0				23.2
GM	All	All	2003						32.2	27.7	25.1	20.7	19.2	18.7	17.8				23.1
GM	All	All	2004					34.5	32.6	28.2	25.1	21.2	19.8	18.9	17.9				23.4
GM	All	All	2005					34.3	32.9	28.8	25.2	22.0	19.9	19.2	18.5				23.8
GM	All	All	2006					32.9	32.7	29.0	25.5	22.3	20.3	19.3	18.3	17.9			24.4
GM	All	All	2007					34.4	32.7	29.0	25.8	21.6	20.6	19.9	20.1				23.8
GM	All	All	2008					34.6	34.0	29.1	26.3	22.6	21.6	20.5	20.0	18.0			24.4
GM	All	All	2009					35.5	35.1	31.7	26.7	22.7	22.7	20.6	20.0	17.4			25.6
GM	All	All	2010					36.0	36.0	32.0	28.1	24.7	23.7	21.5	21.0				26.5
GM	All	All	2011					36.3	44.2	33.2	28.8	24.7	23.7	21.4	21.4	18.6	15.4		25.8
GM	All	All	2012						39.1	35.1	29.6	24.1	23.9	21.4	21.5	18.6	15.3	14.5	27.2
GM	All	All	2013				43.3		38.8	35.5	31.3	23.9	23.6	21.7	21.5	18.6	15.4		27.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
GM	All	All	2014				45.6		39.1	36.6	31.3	24.7	24.5	23.8	21.9	18.3	15.3			28.6
GM	All	All	2015				45.6		39.8	37.4	31.3	25.5	24.6	23.9	23.1	22.1	15.4			28.0
GM	All	All	2016				47.3		43.5	36.8	31.3	25.7	23.0	24.0	22.8	22.5	15.5			28.2
GM	All	All	2017				45.6		44.9	37.0	33.3	26.8	23.0	23.8	22.6	22.1	15.5			29.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Toyota	Car	Car	1975				24.2	20.8	21.1										22.0
Toyota	Car	Car	1976				26.6		23.3										25.0
Toyota	Car	Car	1977			41.0	30.1	25.6	24.5										28.7
Toyota	Car	Car	1978			39.0	28.9	24.5	21.4										26.8
Toyota	Car	Car	1979			31.7	26.6		20.8										24.0
Toyota	Car	Car	1980		37.0	34.1	29.0	26.6	23.1										27.4
Toyota	Car	Car	1981		44.0	36.6	29.9		27.4										30.9
Toyota	Car	Car	1982		43.8	35.3	30.0	28.4	26.8	24.3									30.4
Toyota	Car	Car	1983		47.4	38.0	34.6	33.1	29.0	24.6									32.6
Toyota	Car	Car	1984		47.2	38.4	35.9	33.2	29.2	24.4									32.9
Toyota	Car	Car	1985			39.6	35.1	34.1	30.4	24.1									32.8
Toyota	Car	Car	1986			38.6	35.0	33.2	31.2	23.6	23.2								32.3
Toyota	Car	Car	1987			41.3	35.4	32.9	33.0	23.6	23.1								32.9
Toyota	Car	Car	1988			38.5	34.7	33.1	32.0	24.6	23.3								32.7
Toyota	Car	Car	1989			37.7	34.7	33.3	31.8	24.5	23.0								31.8
Toyota	Car	Car	1990			38.3	34.7	32.3	31.3	24.4	23.4								30.4
Toyota	Car	Car	1991			36.2	33.0	32.7	31.0	24.6	23.2								30.6
Toyota	Car	Car	1992			37.1	33.4	32.4	29.3	26.2	23.0								28.9
Toyota	Car	Car	1993			37.1	33.3	33.4	29.0	26.6	23.1								29.0
Toyota	Car	Car	1994			38.3	32.5	33.2	29.9	26.5	23.4								29.1
Toyota	Car	Car	1995			40.1	39.1	34.3	29.1	27.5	24.1								30.0
Toyota	Car	Car	1996			40.0	38.4	34.1	28.8	27.1	25.0								29.5
Toyota	Car	Car	1997			40.8	36.4	33.3	28.4	28.1	24.7								29.8
Toyota	Car	Car	1998			40.3	37.5	36.6	28.5	28.7	24.4								30.2
Toyota	Car	Car	1999			40.3	37.2	36.5	28.6	28.7	24.8								30.4
Toyota	Car	Car	2000			43.1	38.4	36.1	30.1	28.6	24.5								30.5
Toyota	Car	Car	2001			43.5	39.7	38.1	48.9	28.6	24.0								31.3
Toyota	Car	Car	2002			43.4	39.5	37.9	53.6	29.3	24.0								30.7
Toyota	Car	Car	2003			45.1	40.8	38.0	37.1	29.5	24.0								32.4
Toyota	Car	Car	2004			45.1	40.8	38.1	44.5	30.0	26.8	24.1							32.7
Toyota	Car	Car	2005			45.1	41.1	39.2	42.6	31.2	27.8	23.7							34.7
Toyota	Car	Car	2006				41.6	38.9	39.9	31.4	28.5	24.5							34.5
Toyota	Car	Car	2007				42.4	39.3	45.8	31.9	30.6	25.6							34.9
Toyota	Car	Car	2008				42.1	39.3	47.9	32.4	30.0	24.7		26.9					36.0
Toyota	Car	Car	2009				42.0		41.7	32.6	32.2	25.0	23.7	26.9					36.3
Toyota	Car	Car	2010				42.0		38.9	44.0	31.3	24.8	23.7	26.9					39.4
Toyota	Car	Car	2011				42.0		39.0	38.2	30.7	25.1	23.7	26.9					36.6
Toyota	Car	Car	2012			52.3	43.1	70.8	39.0	42.1	34.8	24.7	23.7	26.9					41.1
Toyota	Car	Car	2013			52.3	43.8	70.9	38.2	45.1	35.2	26.1	23.6	26.9					41.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Car	Car	2014			52.3	43.8	70.8	42.8	41.1	35.1	24.9	23.5	26.9						40.7
Toyota	Car	Car	2015			52.3	43.8	70.8	42.8	43.5	33.4	25.0	23.6	26.9						41.2
Toyota	Car	Car	2016				43.8	55.8	43.2	41.4	33.6	24.6	23.6	26.9						40.8
Toyota	Car	Car	2017				43.8	54.7	43.9	45.4	34.3	24.7	23.6							42.7

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Toyota	Car	Car SUV	1975								12.0									12.0
Toyota	Car	Car SUV	1976								10.7									10.7
Toyota	Car	Car SUV	1977								13.7									13.7
Toyota	Car	Car SUV	1978								13.0									13.0
Toyota	Car	Car SUV	1979								13.8									13.8
Toyota	Car	Car SUV	1980																	
Toyota	Car	Car SUV	1981																	
Toyota	Car	Car SUV	1982																	
Toyota	Car	Car SUV	1983																	
Toyota	Car	Car SUV	1984																	
Toyota	Car	Car SUV	1985																	
Toyota	Car	Car SUV	1986																	
Toyota	Car	Car SUV	1987																	
Toyota	Car	Car SUV	1988																	
Toyota	Car	Car SUV	1989																	
Toyota	Car	Car SUV	1990								20.9									20.9
Toyota	Car	Car SUV	1991								21.4									21.4
Toyota	Car	Car SUV	1992								17.1									17.1
Toyota	Car	Car SUV	1993								18.2									18.2
Toyota	Car	Car SUV	1994																	
Toyota	Car	Car SUV	1995								21.4									21.4
Toyota	Car	Car SUV	1996					30.8	30.6	23.5	22.2									25.9
Toyota	Car	Car SUV	1997					29.8	28.0	24.6										27.9
Toyota	Car	Car SUV	1998						30.3		23.3									29.8
Toyota	Car	Car SUV	1999					30.9	30.5		24.5									27.5
Toyota	Car	Car SUV	2000						30.5		24.2									26.4
Toyota	Car	Car SUV	2001						30.4		23.9									27.1
Toyota	Car	Car SUV	2002						30.3		23.9									27.7
Toyota	Car	Car SUV	2003						30.3		23.9									28.4
Toyota	Car	Car SUV	2004						30.9		25.2									27.2
Toyota	Car	Car SUV	2005						30.9		25.2									27.8
Toyota	Car	Car SUV	2006							30.9	26.4									29.0
Toyota	Car	Car SUV	2007							30.5	25.8									27.8
Toyota	Car	Car SUV	2008							30.9	26.1									28.2
Toyota	Car	Car SUV	2009							31.8	27.9									29.2
Toyota	Car	Car SUV	2010							31.8	29.7	26.9	40.4							29.6
Toyota	Car	Car SUV	2011							31.8	29.8	26.8	40.3							30.0
Toyota	Car	Car SUV	2012							31.8	30.1	26.9	40.4							30.1
Toyota	Car	Car SUV	2013							34.9	30.1	26.9	40.4							31.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Car	Car SUV	2014							34.9	31.3	26.9	40.4							32.6
Toyota	Car	Car SUV	2015							34.9	32.6	27.1	40.3							31.8
Toyota	Car	Car SUV	2016							34.9	32.9	29.8	41.7							33.2
Toyota	Car	Car SUV	2017							34.9	32.7	29.8								33.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Car	All	1975				24.2	20.8	21.1		12.0									21.6
Toyota	Car	All	1976				26.6		23.3		10.7									24.3
Toyota	Car	All	1977			41.0	30.1	25.6	24.5		13.7									27.8
Toyota	Car	All	1978			39.0	28.9	24.5	21.4		13.0									26.1
Toyota	Car	All	1979			31.7	26.6		20.8		13.8									23.8
Toyota	Car	All	1980		37.0	34.1	29.0	26.6	23.1											27.4
Toyota	Car	All	1981		44.0	36.6	29.9		27.4											30.9
Toyota	Car	All	1982		43.8	35.3	30.0	28.4	26.8	24.3										30.4
Toyota	Car	All	1983		47.4	38.0	34.6	33.1	29.0	24.6										32.6
Toyota	Car	All	1984		47.2	38.4	35.9	33.2	29.2	24.4										32.9
Toyota	Car	All	1985			39.6	35.1	34.1	30.4	24.1										32.8
Toyota	Car	All	1986			38.6	35.0	33.2	31.2	23.6	23.2									32.3
Toyota	Car	All	1987			41.3	35.4	32.9	33.0	23.6	23.1									32.9
Toyota	Car	All	1988			38.5	34.7	33.1	32.0	24.6	23.3									32.7
Toyota	Car	All	1989			37.7	34.7	33.3	31.8	24.5	23.0									31.8
Toyota	Car	All	1990			38.3	34.7	32.3	31.3	24.4	23.1									30.3
Toyota	Car	All	1991			36.2	33.0	32.7	31.0	24.6	23.0									30.5
Toyota	Car	All	1992			37.1	33.4	32.4	29.3	26.2	22.7									28.8
Toyota	Car	All	1993			37.1	33.3	33.4	29.0	26.6	22.7									28.8
Toyota	Car	All	1994			38.3	32.5	33.2	29.9	26.5	23.4									29.1
Toyota	Car	All	1995			40.1	39.1	34.3	29.1	27.5	22.9									29.5
Toyota	Car	All	1996			40.0	38.4	34.0	30.2	26.9	24.5									29.3
Toyota	Car	All	1997			40.8	36.4	33.2	28.0	28.1	24.7									29.5
Toyota	Car	All	1998			40.3	37.5	36.6	30.2	28.7	24.3									30.2
Toyota	Car	All	1999			40.3	37.2	36.5	30.3	28.7	24.7									30.2
Toyota	Car	All	2000			43.1	38.4	36.1	30.4	28.6	24.4									30.3
Toyota	Car	All	2001			43.5	39.7	38.1	34.6	28.6	24.0									30.9
Toyota	Car	All	2002			43.4	39.5	37.9	35.3	29.3	24.0									30.4
Toyota	Car	All	2003			45.1	40.8	38.0	34.9	29.5	24.0									32.2
Toyota	Car	All	2004			45.1	40.8	38.1	39.8	30.0	26.3	24.1								32.1
Toyota	Car	All	2005			45.1	41.1	39.2	40.5	31.2	27.3	23.7								34.2
Toyota	Car	All	2006				41.6	38.9	39.9	31.3	28.3	24.5								34.1
Toyota	Car	All	2007				42.4	39.3	45.8	31.7	30.0	25.6								34.3
Toyota	Car	All	2008				42.1	39.3	47.9	32.1	29.3	24.7	26.9							35.2
Toyota	Car	All	2009				42.0		41.7	32.5	30.9	25.0	23.7	26.9						35.6
Toyota	Car	All	2010				42.0		38.9	42.5	31.0	26.6	30.2	26.9						38.1
Toyota	Car	All	2011				42.0		39.0	37.6	30.6	26.5	27.8	26.9						35.9
Toyota	Car	All	2012			52.3	43.1	70.8	39.0	41.2	34.1	26.5	28.1	26.9						40.1
Toyota	Car	All	2013			52.3	43.8	70.9	38.2	43.4	34.5	26.8	30.3	26.9						39.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Car	All	2014			52.3	43.8	70.8	42.8	40.4	34.8	26.5	26.2	26.9						39.9
Toyota	Car	All	2015			52.3	43.8	70.8	42.8	41.7	33.2	26.9	31.8	26.9						39.2
Toyota	Car	All	2016				43.8	55.8	43.2	40.2	33.4	29.0	26.4	26.9						39.5
Toyota	Car	All	2017				43.8	54.7	43.9	43.9	33.7	28.9	23.6							40.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Toyota	Truck	Van	1975							20.5										20.5
Toyota	Truck	Van	1976																	
Toyota	Truck	Van	1977																	
Toyota	Truck	Van	1978																	
Toyota	Truck	Van	1979																	
Toyota	Truck	Van	1980																	
Toyota	Truck	Van	1981																	
Toyota	Truck	Van	1982																	
Toyota	Truck	Van	1983																	
Toyota	Truck	Van	1984						27.0	27.0										27.0
Toyota	Truck	Van	1985						26.6	26.7										26.6
Toyota	Truck	Van	1986						26.7	26.3										26.3
Toyota	Truck	Van	1987						26.0	25.1	24.3									25.5
Toyota	Truck	Van	1988						26.6	26.0	23.9									25.8
Toyota	Truck	Van	1989						26.8	26.1	23.7									25.9
Toyota	Truck	Van	1990																	
Toyota	Truck	Van	1991								22.9									22.9
Toyota	Truck	Van	1992								22.3									22.3
Toyota	Truck	Van	1993								21.9									21.9
Toyota	Truck	Van	1994								22.0	21.6								22.0
Toyota	Truck	Van	1995								22.7	22.1								22.6
Toyota	Truck	Van	1996								22.6	21.4								22.4
Toyota	Truck	Van	1997								22.6	21.4								22.3
Toyota	Truck	Van	1998								24.2									24.2
Toyota	Truck	Van	1999								24.1									24.1
Toyota	Truck	Van	2000								24.1									24.1
Toyota	Truck	Van	2001								24.7									24.7
Toyota	Truck	Van	2002								24.7									24.7
Toyota	Truck	Van	2003								24.7									24.7
Toyota	Truck	Van	2004								25.7	25.4								25.4
Toyota	Truck	Van	2005									24.7								24.7
Toyota	Truck	Van	2006									24.8								24.8
Toyota	Truck	Van	2007									26.1								26.1
Toyota	Truck	Van	2008									26.1								26.1
Toyota	Truck	Van	2009									26.1								26.1
Toyota	Truck	Van	2010									26.1								26.1
Toyota	Truck	Van	2011									26.6	23.4							26.3
Toyota	Truck	Van	2012									27.0	24.3							26.6
Toyota	Truck	Van	2013									26.9	24.3							26.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Truck	Van	2014									26.9	24.3							26.5
Toyota	Truck	Van	2015									26.8	24.3							26.4
Toyota	Truck	Van	2016									26.8	24.3							26.3
Toyota	Truck	Van	2017									28.9	27.5							28.2

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Toyota	Truck	Truck SUV	1975																	
Toyota	Truck	Truck SUV	1976									11.6								11.6
Toyota	Truck	Truck SUV	1977									12.7								12.7
Toyota	Truck	Truck SUV	1978									11.5								11.5
Toyota	Truck	Truck SUV	1979									13.3								13.3
Toyota	Truck	Truck SUV	1980								13.8	13.3								13.8
Toyota	Truck	Truck SUV	1981								14.5	14.1								14.3
Toyota	Truck	Truck SUV	1982								14.5	14.1								14.2
Toyota	Truck	Truck SUV	1983								14.5	14.1								14.1
Toyota	Truck	Truck SUV	1984							22.1		13.5								17.3
Toyota	Truck	Truck SUV	1985							25.3		13.5								21.1
Toyota	Truck	Truck SUV	1986							25.7	24.4	13.7								23.3
Toyota	Truck	Truck SUV	1987							25.2	23.5	13.7								22.7
Toyota	Truck	Truck SUV	1988							25.6	21.1	15.4								20.3
Toyota	Truck	Truck SUV	1989								21.3	15.4								19.7
Toyota	Truck	Truck SUV	1990								20.4	18.7								19.4
Toyota	Truck	Truck SUV	1991								21.2	19.1	14.9							18.2
Toyota	Truck	Truck SUV	1992								22.7	17.5	14.5							17.0
Toyota	Truck	Truck SUV	1993								22.8	17.5	15.6							17.2
Toyota	Truck	Truck SUV	1994								18.7	17.6	15.6							17.4
Toyota	Truck	Truck SUV	1995								23.4	17.5	16.7							17.5
Toyota	Truck	Truck SUV	1996						28.4		20.9		16.7							21.4
Toyota	Truck	Truck SUV	1997							22.9	20.8		16.7							20.7
Toyota	Truck	Truck SUV	1998						28.1	26.7	21.1			17.4	17.1					22.1
Toyota	Truck	Truck SUV	1999						28.3	27.8	22.4	20.9			17.1					22.0
Toyota	Truck	Truck SUV	2000						28.1	28.1	22.4	20.9			17.1					21.7
Toyota	Truck	Truck SUV	2001							28.3	23.3	20.5		17.6	16.5					21.7
Toyota	Truck	Truck SUV	2002							28.5	23.3	20.5		18.1	16.5					21.7
Toyota	Truck	Truck SUV	2003							28.6	23.9	20.6	19.3	18.2	17.0					21.7
Toyota	Truck	Truck SUV	2004							28.3	24.8	22.8	19.2	18.0	17.0					22.2
Toyota	Truck	Truck SUV	2005							28.3	26.0	22.9	19.6	19.0	17.0					22.8
Toyota	Truck	Truck SUV	2006								27.5	25.5	19.6	19.0	17.3					24.4
Toyota	Truck	Truck SUV	2007								28.0	23.9	19.6	19.1	17.3					24.2
Toyota	Truck	Truck SUV	2008								28.8	24.8	24.6		19.7	18.8				24.7
Toyota	Truck	Truck SUV	2009								29.8	25.0	26.5		19.1	18.3				26.5
Toyota	Truck	Truck SUV	2010								30.0	25.7	28.9	22.0	19.9	18.4				26.6
Toyota	Truck	Truck SUV	2011								30.2	25.5	26.2	22.0	19.7	18.5				26.4
Toyota	Truck	Truck SUV	2012								30.3	25.2	27.0	22.0	19.5	18.4				26.5
Toyota	Truck	Truck SUV	2013								32.2	25.3	27.6	22.0	19.0	18.3				26.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Truck	Truck SUV	2014								32.6	26.2	24.8	21.9	19.0	18.3				26.8
Toyota	Truck	Truck SUV	2015								32.6	26.6	25.6	21.9	18.9	18.3				27.7
Toyota	Truck	Truck SUV	2016								34.6	27.0	24.9	21.9	19.0	18.6				27.5
Toyota	Truck	Truck SUV	2017								35.1	29.0	26.3	21.3	19.0	18.7				28.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Truck	Pickup	1975					21.3												21.3
Toyota	Truck	Pickup	1976					22.3	20.9	20.5										22.1
Toyota	Truck	Pickup	1977					27.4		22.0										27.2
Toyota	Truck	Pickup	1978					24.9	25.0	19.8										24.6
Toyota	Truck	Pickup	1979					19.7	19.1											19.5
Toyota	Truck	Pickup	1980					22.7	20.2	16.9										21.5
Toyota	Truck	Pickup	1981					27.0	26.6	19.4										26.5
Toyota	Truck	Pickup	1982					26.6	26.6	22.8										25.6
Toyota	Truck	Pickup	1983					27.6	25.6	22.8										25.5
Toyota	Truck	Pickup	1984					26.2	26.2	23.2										25.1
Toyota	Truck	Pickup	1985					31.0	27.2	24.2										27.0
Toyota	Truck	Pickup	1986					29.9	27.0	24.5	17.8									26.4
Toyota	Truck	Pickup	1987					29.8	27.7	24.3	17.9									26.6
Toyota	Truck	Pickup	1988					26.9	26.1	24.6	17.8									25.1
Toyota	Truck	Pickup	1989					26.5	27.5	23.6	20.3		13.5							23.5
Toyota	Truck	Pickup	1990					26.0	28.2	23.4	19.7		13.4							23.1
Toyota	Truck	Pickup	1991						27.5	23.9	19.8		13.1							23.8
Toyota	Truck	Pickup	1992					28.2	27.7	23.9	18.7		13.1							23.7
Toyota	Truck	Pickup	1993						28.4	23.1	18.9		13.0							23.8
Toyota	Truck	Pickup	1994						28.0	23.4	19.9									24.3
Toyota	Truck	Pickup	1995						27.4	23.4	20.6	19.8								23.3
Toyota	Truck	Pickup	1996						27.1	23.4	21.0	19.8								23.6
Toyota	Truck	Pickup	1997							24.2	20.6	19.0								20.4
Toyota	Truck	Pickup	1998						27.2	22.8	20.7	19.3								23.7
Toyota	Truck	Pickup	1999						27.2	22.5	21.4									23.2
Toyota	Truck	Pickup	2000						26.7	22.4	21.4	19.2	18.1							20.8
Toyota	Truck	Pickup	2001						27.1	23.5	21.6	19.1	18.0							21.2
Toyota	Truck	Pickup	2002						27.7	25.7	21.3	19.1	18.0							20.9
Toyota	Truck	Pickup	2003						27.7	26.6	21.3	19.5	18.2							21.0
Toyota	Truck	Pickup	2004						27.6	26.6	21.2	19.9	18.3	17.7						20.6
Toyota	Truck	Pickup	2005							27.0	23.4	21.7	19.5	18.7						21.6
Toyota	Truck	Pickup	2006							27.1	23.6	21.8	19.6	18.7						21.7
Toyota	Truck	Pickup	2007							28.5	23.8	22.0	21.2	20.1	18.7					21.3
Toyota	Truck	Pickup	2008							28.4	23.9	22.2	21.3	19.9	18.5					21.1
Toyota	Truck	Pickup	2009							28.9	25.0	22.5	21.3	19.9	18.9					23.5
Toyota	Truck	Pickup	2010							28.4	24.9	22.4	21.4	21.1	19.1					21.6
Toyota	Truck	Pickup	2011							28.7	25.3	22.5	22.8	21.1	19.0					21.9
Toyota	Truck	Pickup	2012							28.5	25.9	23.0	22.8	21.0	19.1					22.1
Toyota	Truck	Pickup	2013							29.3	26.0	23.1	22.4	21.1	19.1					22.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Truck	Pickup	2014							29.3	26.1	23.1	22.4	20.7	19.0					21.7
Toyota	Truck	Pickup	2015								26.1	23.0		20.7	18.7					22.2
Toyota	Truck	Pickup	2016								27.7	26.3		20.8	18.9					22.9
Toyota	Truck	Pickup	2017								27.7	26.3		20.7	19.0					23.2

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Toyota	Truck	All	1975					21.3		20.5										21.3
Toyota	Truck	All	1976					22.3	20.9	20.5		11.6								21.5
Toyota	Truck	All	1977					27.4		22.0		12.7								26.8
Toyota	Truck	All	1978					24.9	25.0	19.8		11.5								23.8
Toyota	Truck	All	1979					19.7	19.1			13.3								19.5
Toyota	Truck	All	1980					22.7	20.2	16.9	13.8	13.3								21.4
Toyota	Truck	All	1981					27.0	26.6	19.4	14.5	14.1								26.2
Toyota	Truck	All	1982					26.6	26.6	22.8	14.5	14.1								25.2
Toyota	Truck	All	1983					27.6	25.6	22.8	14.5	14.1								25.0
Toyota	Truck	All	1984					26.2	26.4	24.2		13.5								24.9
Toyota	Truck	All	1985					31.0	27.0	24.8		13.5								26.5
Toyota	Truck	All	1986					29.9	27.0	24.9	22.0	13.7								26.1
Toyota	Truck	All	1987					29.8	27.0	24.5	21.1	13.7								25.9
Toyota	Truck	All	1988					26.9	26.1	24.7	20.1	15.4								24.4
Toyota	Truck	All	1989					26.5	27.5	23.9	20.7	15.4	13.5							23.2
Toyota	Truck	All	1990					26.0	28.2	23.4	20.0	18.7	13.4							21.9
Toyota	Truck	All	1991						27.5	23.9	21.8	19.1	14.3							22.4
Toyota	Truck	All	1992					28.2	27.7	23.9	20.6	17.5	14.0							22.0
Toyota	Truck	All	1993						28.4	23.1	20.2	17.5	14.7							22.3
Toyota	Truck	All	1994						28.0	23.4	20.0	17.6	15.6							22.0
Toyota	Truck	All	1995						27.4	23.4	21.1	17.9	16.7							21.2
Toyota	Truck	All	1996						27.4	23.4	21.0	20.0	16.7							22.8
Toyota	Truck	All	1997							23.0	20.8	19.4	16.7							20.7
Toyota	Truck	All	1998						27.2	24.5	21.9	19.3		17.4	17.1					23.1
Toyota	Truck	All	1999						27.2	24.3	22.6	20.9			17.1					22.6
Toyota	Truck	All	2000						26.7	24.1	22.8	19.7	18.1		17.1					21.7
Toyota	Truck	All	2001						27.1	25.6	23.1	19.8	18.0	17.6	16.5					21.8
Toyota	Truck	All	2002						27.7	27.3	22.9	19.7	18.0	18.1	16.5					21.7
Toyota	Truck	All	2003						27.7	27.8	23.0	20.1	18.6	18.2	17.0					21.6
Toyota	Truck	All	2004						27.6	27.7	22.8	23.9	18.7	17.9	17.0					22.4
Toyota	Truck	All	2005							27.9	24.4	23.4	19.5	18.9	17.0					22.7
Toyota	Truck	All	2006							27.1	25.3	24.7	19.6	18.8	17.3					23.4
Toyota	Truck	All	2007							28.5	26.1	24.2	20.2	19.7	18.7					23.2
Toyota	Truck	All	2008							28.4	26.2	24.9	23.9	19.9	18.7	18.8				23.5
Toyota	Truck	All	2009							28.9	27.8	24.7	25.5	19.9	18.9	18.3				25.4
Toyota	Truck	All	2010							28.4	28.3	25.1	28.1	21.3	19.2	18.4				24.7
Toyota	Truck	All	2011							28.7	28.5	25.5	25.2	21.4	19.1	18.5				24.9
Toyota	Truck	All	2012							28.5	28.8	25.3	26.1	21.3	19.1	18.4				24.9
Toyota	Truck	All	2013							29.3	30.0	25.2	26.5	21.4	19.1	18.3				25.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	Truck	All	2014							29.3	30.2	25.7	24.6	21.2	19.0	18.3				24.7
Toyota	Truck	All	2015								30.5	25.9	25.3	21.3	18.8	18.3				25.9
Toyota	Truck	All	2016								34.0	26.7	24.8	21.4	18.9	18.6				25.9
Toyota	Truck	All	2017								34.3	27.7	26.5	20.9	19.0	18.7				26.7

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Toyota	All	All	1975				24.2	20.9	21.1	20.5	12.0								21.6
Toyota	All	All	1976				26.6	22.3	23.3	20.5	10.7	11.6							24.0
Toyota	All	All	1977			41.0	30.1	26.5	24.5	22.0	13.7	12.7							27.7
Toyota	All	All	1978			39.0	28.9	24.6	22.4	19.8	13.0	11.5							25.7
Toyota	All	All	1979			31.7	26.6	19.7	20.6		13.8	13.3							22.9
Toyota	All	All	1980		37.0	34.1	29.0	23.0	22.5	16.9	13.8	13.3							25.9
Toyota	All	All	1981		44.0	36.6	29.9	27.0	27.2	19.4	14.5	14.1							29.9
Toyota	All	All	1982		43.8	35.3	30.0	27.6	26.8	23.4	14.5	14.1							29.1
Toyota	All	All	1983		47.4	38.0	34.6	29.9	27.9	23.8	14.5	14.1							30.5
Toyota	All	All	1984		47.2	38.4	35.9	29.4	27.8	24.3		13.5							29.7
Toyota	All	All	1985			39.6	35.1	32.6	28.3	24.6		13.5							30.0
Toyota	All	All	1986			38.6	35.0	31.8	29.3	24.6	22.2	13.7							29.4
Toyota	All	All	1987			41.3	35.4	30.7	31.7	24.4	22.3	13.7							30.0
Toyota	All	All	1988			38.5	34.7	29.2	30.9	24.7	21.1	15.4							29.6
Toyota	All	All	1989			37.7	34.7	30.8	30.9	24.2	21.2	15.4	13.5						28.9
Toyota	All	All	1990			38.3	34.7	31.3	30.8	24.0	21.4	18.7	13.4						27.8
Toyota	All	All	1991			36.2	33.0	32.7	30.1	24.3	22.1	19.1	14.3						27.5
Toyota	All	All	1992			37.1	33.4	32.0	28.4	25.9	21.7	17.5	14.0						26.8
Toyota	All	All	1993			37.1	33.3	33.4	28.5	25.9	21.6	17.5	14.7						26.7
Toyota	All	All	1994			38.3	32.5	33.2	28.2	26.0	21.4	17.6	15.6						26.4
Toyota	All	All	1995			40.1	39.1	34.3	27.6	27.0	22.0	17.9	16.7						27.0
Toyota	All	All	1996			40.0	38.4	34.0	27.9	26.5	21.9	20.0	16.7						27.4
Toyota	All	All	1997			40.8	36.4	33.2	28.0	27.5	21.3	19.4	16.7						27.1
Toyota	All	All	1998			40.3	37.5	36.6	28.0	27.9	22.4	19.3		17.4	17.1				27.4
Toyota	All	All	1999			40.3	37.2	36.5	28.3	28.1	22.9	20.9			17.1				27.1
Toyota	All	All	2000			43.1	38.4	36.1	28.2	28.1	23.0	19.7	18.1		17.1				26.2
Toyota	All	All	2001			43.5	39.7	38.1	32.1	28.0	23.3	19.8	18.0	17.6	16.5				26.5
Toyota	All	All	2002			43.4	39.5	37.9	33.3	29.1	23.1	19.7	18.0	18.1	16.5				26.0
Toyota	All	All	2003			45.1	40.8	38.0	33.7	29.3	23.1	20.1	18.6	18.2	17.0				27.1
Toyota	All	All	2004			45.1	40.8	38.1	37.6	29.7	24.2	23.9	18.7	17.9	17.0				26.6
Toyota	All	All	2005			45.1	41.1	39.2	40.5	30.8	25.8	23.5	19.5	18.9	17.0				28.8
Toyota	All	All	2006				41.6	38.9	39.9	30.9	26.8	24.7	19.6	18.8	17.3				28.4
Toyota	All	All	2007				42.4	39.3	45.8	31.6	28.7	24.3	20.2	19.7	18.7				29.6
Toyota	All	All	2008				42.1	39.3	47.9	31.8	28.2	24.9	23.9	20.1	18.7	18.8			29.0
Toyota	All	All	2009				42.0		41.7	32.4	29.7	24.7	25.2	20.1	18.9	18.3			32.4
Toyota	All	All	2010				42.0		38.9	42.1	29.7	25.4	28.4	21.3	19.2	18.4			32.4
Toyota	All	All	2011				42.0		39.0	37.5	29.6	25.6	25.4	21.4	19.1	18.5			30.6
Toyota	All	All	2012			52.3	43.1	70.8	39.0	41.0	30.9	25.4	26.3	21.3	19.1	18.4			32.9
Toyota	All	All	2013			52.3	43.8	70.9	38.2	43.0	32.1	25.4	26.8	21.5	19.1	18.3			32.3

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Toyota	All	All	2014			52.3	43.8	70.8	42.8	40.1	32.6	25.7	24.6	21.2	19.0	18.3				32.8
Toyota	All	All	2015			52.3	43.8	70.8	42.8	41.7	31.8	26.1	25.6	21.4	18.8	18.3				32.2
Toyota	All	All	2016				43.8	55.8	43.2	40.2	33.6	26.9	24.9	21.4	18.9	18.6				32.2
Toyota	All	All	2017				43.8	54.7	43.9	43.9	33.9	27.8	26.5	20.9	19.0	18.7				33.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Car	Car	1975					27.8	22.4	16.5	13.5	12.9	11.4	11.3						13.9
Ford	Car	Car	1976					27.8	25.6	18.6	17.1	15.2	14.7	13.3						16.6
Ford	Car	Car	1977					27.6	23.8	19.2	18.3	16.3	14.3	12.7						16.5
Ford	Car	Car	1978		37.3			26.1	22.3	19.6	18.3	16.7	14.7	13.5						18.6
Ford	Car	Car	1979		32.1			25.2	22.1	19.4	17.9	16.1	13.9							19.2
Ford	Car	Car	1980		29.8			25.7	23.7	20.1	18.9	18.1								22.5
Ford	Car	Car	1981		39.0	33.2	29.2	25.4	22.9	20.3	18.8	17.2								23.4
Ford	Car	Car	1982			34.5	31.2		22.4	20.8	19.8									24.5
Ford	Car	Car	1983			33.2	30.7		22.6	22.5	19.8									23.9
Ford	Car	Car	1984			38.5	32.6	29.2	25.6	23.3	20.0									25.3
Ford	Car	Car	1985			39.3	33.7	30.9	28.0	23.2	20.7	10.4								25.9
Ford	Car	Car	1986			32.5	33.9	31.1	27.9	24.6	22.0	10.4								26.7
Ford	Car	Car	1987				34.8	30.6	27.4	24.9	21.8	10.9								26.6
Ford	Car	Car	1988		45.7		34.2	31.9	27.5	25.5	22.6	10.9	10.9							27.0
Ford	Car	Car	1989		41.4		34.0	31.6	27.9	25.8	23.5	10.9								27.0
Ford	Car	Car	1990		44.4	37.8	34.6	32.0	27.7	25.8	23.5									26.3
Ford	Car	Car	1991		43.8	37.7	38.7	33.2	25.8	26.1	23.8	15.4								27.3
Ford	Car	Car	1992		44.7	37.7	39.4	33.2	27.4	26.4	24.3	17.1								26.8
Ford	Car	Car	1993		44.9	37.6	38.8	33.5	28.3	26.2	24.2	15.1								27.9
Ford	Car	Car	1994			41.1	38.6	34.7	28.3	26.2	23.8				13.9					27.2
Ford	Car	Car	1995			41.1	36.8	34.6	30.9	26.4	23.4				13.9					27.7
Ford	Car	Car	1996			39.8	37.4	34.1	29.3	26.0	23.6									26.3
Ford	Car	Car	1997			42.5	34.2	34.4	30.2	25.7	23.5	19.0								27.0
Ford	Car	Car	1998					33.8	30.8	26.0	23.2									27.5
Ford	Car	Car	1999					34.1	31.0	26.4	23.5									27.2
Ford	Car	Car	2000					33.5	32.4	26.2	23.6	21.8								27.2
Ford	Car	Car	2001					33.6	33.5	25.5	23.7	22.7								26.8
Ford	Car	Car	2002					33.6	32.3	26.4	23.5	22.4								27.1
Ford	Car	Car	2003					33.1	32.3	26.2	23.8	23.5								26.7
Ford	Car	Car	2004					35.9	31.6	26.0	24.1	23.1								25.7
Ford	Car	Car	2005						33.0	26.5	25.5	24.0								27.2
Ford	Car	Car	2006						33.7	27.3	25.1	23.0								26.9
Ford	Car	Car	2007						35.3	27.1	24.9	22.9				19.1				27.7
Ford	Car	Car	2008					37.3	35.9	29.0	25.8	22.3								28.1
Ford	Car	Car	2009						37.6	29.2	25.7	24.3								30.0
Ford	Car	Car	2010						37.3	31.3	28.9	24.8								31.1
Ford	Car	Car	2011					43.8	37.6	34.0	28.8	24.6				19.1				32.1
Ford	Car	Car	2012					44.2	41.6	33.6	28.9	25.5								35.3
Ford	Car	Car	2013					44.2	41.3	34.3	35.7	27.0								36.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Car	Car	2014					41.4	40.6	34.2	33.8	26.3								36.2
Ford	Car	Car	2015					41.4	42.5	35.9	32.9	26.2								35.4
Ford	Car	Car	2016					42.0	41.8	35.8	33.8	25.3								36.1
Ford	Car	Car	2017					42.3	40.6	36.0	34.0	26.6	25.1							34.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Ford	Car	Car SUV	1975																	
Ford	Car	Car SUV	1976																	
Ford	Car	Car SUV	1977																	
Ford	Car	Car SUV	1978																	
Ford	Car	Car SUV	1979																	
Ford	Car	Car SUV	1980																	
Ford	Car	Car SUV	1981																	
Ford	Car	Car SUV	1982																	
Ford	Car	Car SUV	1983																	
Ford	Car	Car SUV	1984																	
Ford	Car	Car SUV	1985																	
Ford	Car	Car SUV	1986							23.5										23.5
Ford	Car	Car SUV	1987							23.3										23.3
Ford	Car	Car SUV	1988							23.0										23.0
Ford	Car	Car SUV	1989							23.1										23.1
Ford	Car	Car SUV	1990							23.2										23.2
Ford	Car	Car SUV	1991								21.2									21.2
Ford	Car	Car SUV	1992								21.2									21.2
Ford	Car	Car SUV	1993								21.6									21.6
Ford	Car	Car SUV	1994								21.1									21.1
Ford	Car	Car SUV	1995								22.5									22.5
Ford	Car	Car SUV	1996								22.3									22.3
Ford	Car	Car SUV	1997								21.4									21.4
Ford	Car	Car SUV	1998								21.2									21.2
Ford	Car	Car SUV	1999								21.7									21.7
Ford	Car	Car SUV	2000								21.0									21.0
Ford	Car	Car SUV	2001								24.7	21.2								22.3
Ford	Car	Car SUV	2002								25.0	20.7								23.6
Ford	Car	Car SUV	2003								25.1	21.0								24.1
Ford	Car	Car SUV	2004								25.1									25.1
Ford	Car	Car SUV	2005								26.3	39.2								26.6
Ford	Car	Car SUV	2006								26.5	39.1								27.3
Ford	Car	Car SUV	2007								26.6	40.6	24.3							25.7
Ford	Car	Car SUV	2008								27.4	43.4	24.6							27.0
Ford	Car	Car SUV	2009								28.9	44.2	24.6							28.6
Ford	Car	Car SUV	2010								29.7	44.1	25.9							28.3
Ford	Car	Car SUV	2011								29.5	30.0	28.0							29.0
Ford	Car	Car SUV	2012								29.6	33.6	28.5							29.6
Ford	Car	Car SUV	2013								34.1	32.7	28.3							30.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Ford	Car	Car SUV	2014							31.9	32.2	28.3							31.0
Ford	Car	Car SUV	2015							34.4	32.3	28.4							31.6
Ford	Car	Car SUV	2016							35.2	32.4	28.1							31.8
Ford	Car	Car SUV	2017								33.5	28.5							32.7

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Car	All	1975					27.8	22.4	16.5	13.5	12.9	11.4	11.3						13.9
Ford	Car	All	1976					27.8	25.6	18.6	17.1	15.2	14.7	13.3						16.6
Ford	Car	All	1977					27.6	23.8	19.2	18.3	16.3	14.3	12.7						16.5
Ford	Car	All	1978		37.3			26.1	22.3	19.6	18.3	16.7	14.7	13.5						18.6
Ford	Car	All	1979		32.1			25.2	22.1	19.4	17.9	16.1	13.9							19.2
Ford	Car	All	1980		29.8			25.7	23.7	20.1	18.9	18.1								22.5
Ford	Car	All	1981		39.0	33.2	29.2	25.4	22.9	20.3	18.8	17.2								23.4
Ford	Car	All	1982			34.5	31.2		22.4	20.8	19.8									24.5
Ford	Car	All	1983			33.2	30.7		22.6	22.5	19.8									23.9
Ford	Car	All	1984			38.5	32.6	29.2	25.6	23.3	20.0									25.3
Ford	Car	All	1985			39.3	33.7	30.9	28.0	23.2	20.7	10.4								25.9
Ford	Car	All	1986			32.5	33.9	31.1	27.9	24.6	22.0	10.4								26.7
Ford	Car	All	1987				34.8	30.6	27.4	24.8	21.8	10.9								26.5
Ford	Car	All	1988		45.7		34.2	31.9	27.5	25.3	22.6	10.9	10.9							26.9
Ford	Car	All	1989		41.4		34.0	31.6	27.9	25.6	23.5	10.9								27.0
Ford	Car	All	1990		44.4	37.8	34.6	32.0	27.7	25.7	23.5									26.3
Ford	Car	All	1991		43.8	37.7	38.7	33.2	25.8	26.1	23.3	15.4								27.0
Ford	Car	All	1992		44.7	37.7	39.4	33.2	27.4	26.4	23.7	17.1								26.4
Ford	Car	All	1993		44.9	37.6	38.8	33.5	28.3	26.2	23.7	15.1								27.5
Ford	Car	All	1994			41.1	38.6	34.7	28.3	26.2	23.3				13.9					26.8
Ford	Car	All	1995			41.1	36.8	34.6	30.9	26.4	23.3				13.9					27.7
Ford	Car	All	1996			39.8	37.4	34.1	29.3	26.0	23.5									26.2
Ford	Car	All	1997			42.5	34.2	34.4	30.2	25.7	23.4	19.0								26.9
Ford	Car	All	1998					33.8	30.8	26.0	22.5									26.7
Ford	Car	All	1999					34.1	31.0	26.4	22.9									26.6
Ford	Car	All	2000					33.5	32.4	26.2	22.9	21.8								26.5
Ford	Car	All	2001					33.6	33.5	25.4	22.9	22.7								26.1
Ford	Car	All	2002					33.6	32.3	26.2	23.2	22.4								26.8
Ford	Car	All	2003					33.1	32.3	26.0	23.2	23.5								26.5
Ford	Car	All	2004					35.9	31.6	25.9	24.1	23.1								25.7
Ford	Car	All	2005						33.0	26.4	25.7	24.0								27.2
Ford	Car	All	2006						33.7	27.1	25.4	23.0								26.9
Ford	Car	All	2007						35.3	27.0	25.3	23.6				19.1				27.4
Ford	Car	All	2008					37.3	35.9	28.3	26.7	23.3								27.8
Ford	Car	All	2009						37.6	29.1	27.4	24.4								29.6
Ford	Car	All	2010						37.3	30.8	29.2	25.4								30.4
Ford	Car	All	2011					43.8	37.6	32.0	28.9	26.4				19.1				31.2
Ford	Car	All	2012					44.2	41.6	32.2	29.2	27.8								34.1
Ford	Car	All	2013					44.2	41.3	34.2	34.6	28.0								34.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Car	All	2014					41.4	40.6	33.3	33.4	27.9								34.8
Ford	Car	All	2015					41.4	42.5	35.6	32.7	27.8								34.4
Ford	Car	All	2016					42.0	41.8	35.7	33.4	27.6								35.0
Ford	Car	All	2017					42.3	40.6	36.0	33.8	27.5	25.1							34.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Ford	Truck	Van	1975								13.0	11.5	11.1							12.6
Ford	Truck	Van	1976								13.4	13.5	11.4							13.4
Ford	Truck	Van	1977								16.0	14.0	11.7							15.5
Ford	Truck	Van	1978								15.4	13.8	11.9							15.0
Ford	Truck	Van	1979								15.6	12.4	11.1	11.0	10.6					12.1
Ford	Truck	Van	1980								19.7	17.1	14.6	12.4	10.9					16.2
Ford	Truck	Van	1981								19.9	16.9	14.6	13.4						16.8
Ford	Truck	Van	1982								19.3	16.1	14.8	13.4						16.2
Ford	Truck	Van	1983								18.8	16.2	15.0	12.1						16.3
Ford	Truck	Van	1984								18.8	15.7	14.8	12.1						16.6
Ford	Truck	Van	1985								18.9	15.5	15.0	12.3						16.2
Ford	Truck	Van	1986						29.0	23.3	21.4	18.3	16.0	12.8						19.7
Ford	Truck	Van	1987						30.9	23.3	21.9	17.8	15.8	13.6						19.6
Ford	Truck	Van	1988							22.5	21.8	18.4	16.7	13.6						19.4
Ford	Truck	Van	1989							22.7	22.0	17.8	16.5	13.6						19.8
Ford	Truck	Van	1990							22.9	21.4	17.9	16.3	14.2						19.3
Ford	Truck	Van	1991							23.1	21.7	18.0	16.6	15.0						19.8
Ford	Truck	Van	1992							23.9	21.7	19.8	17.3	16.0	14.8					19.7
Ford	Truck	Van	1993							23.7	22.5	20.0	17.3	16.0						20.8
Ford	Truck	Van	1994							23.7	22.2	20.1	17.4	16.1	15.5					19.9
Ford	Truck	Van	1995							23.4	22.8		17.5	16.2	16.0					21.7
Ford	Truck	Van	1996							23.5	22.9	20.2	17.1	15.8	16.1					21.4
Ford	Truck	Van	1997							22.3	22.4	19.4	19.0	17.2	16.6					20.7
Ford	Truck	Van	1998								23.3		19.3	17.4	16.6					22.4
Ford	Truck	Van	1999								22.8	22.2	18.1	17.4	16.2					21.0
Ford	Truck	Van	2000								22.8	22.4	18.5	18.0	16.3					21.6
Ford	Truck	Van	2001								22.0		19.6	17.4	16.0					18.0
Ford	Truck	Van	2002								22.3	22.9	19.1	17.8	17.1					21.9
Ford	Truck	Van	2003								23.6	23.2	19.1	17.3						22.2
Ford	Truck	Van	2004									22.1	19.4	19.3	16.9					21.5
Ford	Truck	Van	2005								26.5	23.6	19.3	19.0	16.9					23.5
Ford	Truck	Van	2006								26.5	23.1	19.1	19.0	16.9					22.6
Ford	Truck	Van	2007								26.5	23.3								24.6
Ford	Truck	Van	2008									24.0								24.0
Ford	Truck	Van	2009									24.4								24.4
Ford	Truck	Van	2010							30.3										30.3
Ford	Truck	Van	2011							30.1				15.9	17.3	13.8	13.5			27.7
Ford	Truck	Van	2012							30.5				14.4	17.3	15.1	13.2			28.5
Ford	Truck	Van	2013							30.5				17.1	17.2	13.7	13.3			28.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Truck	Van	2014							31.2	30.3	30.5	25.0	17.2	17.1	15.3	13.2			28.5
Ford	Truck	Van	2015							31.2	30.6	30.5	25.0		20.8					28.9
Ford	Truck	Van	2016							30.3	29.5		24.8		20.0		19.9			27.7
Ford	Truck	Van	2017							30.0	29.7		24.8		20.1					27.2

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500		
Ford	Truck	Truck SUV	1975										10.6							10.6		
Ford	Truck	Truck SUV	1976										13.7							13.7		
Ford	Truck	Truck SUV	1977										14.5							14.5		
Ford	Truck	Truck SUV	1978										13.2							13.2		
Ford	Truck	Truck SUV	1979										11.0							11.0		
Ford	Truck	Truck SUV	1980									14.8	13.1							14.0		
Ford	Truck	Truck SUV	1981									16.4	13.3							15.1		
Ford	Truck	Truck SUV	1982									15.8	13.2							14.8		
Ford	Truck	Truck SUV	1983									16.7	13.1							15.3		
Ford	Truck	Truck SUV	1984							21.2		16.9	14.0							18.3		
Ford	Truck	Truck SUV	1985							21.8		18.4	14.0							18.8		
Ford	Truck	Truck SUV	1986							22.2		18.0	16.0							19.8		
Ford	Truck	Truck SUV	1987							22.6		20.1	16.0							20.0		
Ford	Truck	Truck SUV	1988							21.9		19.5	16.2							19.6		
Ford	Truck	Truck SUV	1989								21.8	18.6	16.2							18.6		
Ford	Truck	Truck SUV	1990								23.5	21.9	19.8	16.0						18.0		
Ford	Truck	Truck SUV	1991									20.8	20.1	16.1						19.8		
Ford	Truck	Truck SUV	1992									21.3	19.9	16.2						19.6		
Ford	Truck	Truck SUV	1993									21.6	20.2	16.4						19.7		
Ford	Truck	Truck SUV	1994									20.6	20.1	17.0						19.7		
Ford	Truck	Truck SUV	1995									22.0	20.0	17.0						19.6		
Ford	Truck	Truck SUV	1996										19.9	16.5						19.6		
Ford	Truck	Truck SUV	1997									21.6	19.4	18.2	16.9					18.7		
Ford	Truck	Truck SUV	1998									20.7	19.5	18.2	16.8	16.0				18.2		
Ford	Truck	Truck SUV	1999									20.1	19.5	17.8	17.2	16.4				18.1		
Ford	Truck	Truck SUV	2000									20.4	19.6	19.4	17.3	16.2				18.4		
Ford	Truck	Truck SUV	2001									23.6	20.9			15.6				20.9		
Ford	Truck	Truck SUV	2002									23.8	20.3	19.6	19.3	17.3	15.9			19.6		
Ford	Truck	Truck SUV	2003									23.6	19.7	20.0	18.6	18.2	17.0			19.0		
Ford	Truck	Truck SUV	2004									23.6	21.7	20.2	18.6	19.3	16.9			19.2		
Ford	Truck	Truck SUV	2005									25.2	24.2	19.5	18.1		18.0			20.2		
Ford	Truck	Truck SUV	2006									26.5	25.4	20.2	19.4		17.9			20.2		
Ford	Truck	Truck SUV	2007									26.5	25.3	22.1	19.4		18.3			21.1		
Ford	Truck	Truck SUV	2008									28.4	26.1	22.9	19.8		18.5			22.5		
Ford	Truck	Truck SUV	2009										27.2	24.1	20.5		20.3			24.1		
Ford	Truck	Truck SUV	2010									29.5	27.5	25.0	20.5		19.7	18.4		23.1		
Ford	Truck	Truck SUV	2011									29.5	27.3	25.7	24.2		20.4	18.6		16.4	24.5	
Ford	Truck	Truck SUV	2012									29.5	26.4	26.4	24.4		20.3	18.6		16.4	24.8	
Ford	Truck	Truck SUV	2013										32.0	26.3	24.6		20.1	18.5	19.9		16.4	26.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Truck	Truck SUV	2014								31.9	26.2	24.7		20.8	18.6	19.9		16.4	26.2
Ford	Truck	Truck SUV	2015								31.2	26.7	24.5		22.1	21.2	19.9			26.2
Ford	Truck	Truck SUV	2016								31.7	26.4	24.3		22.1	21.1				26.1
Ford	Truck	Truck SUV	2017								31.0	26.3	24.3		22.6	21.2				26.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Ford	Truck	Pickup	1975						21.1	14.2	12.6	11.7	10.9	9.3						12.6
Ford	Truck	Pickup	1976						22.9	17.5	14.7	12.6	11.4	10.8						13.9
Ford	Truck	Pickup	1977						29.5	20.7	17.1	13.9	12.7	12.0						15.9
Ford	Truck	Pickup	1978						29.2	19.6	17.1	13.9	12.9	12.4	10.9					15.9
Ford	Truck	Pickup	1979						26.3	18.4	15.4	13.5	11.0	9.5						14.8
Ford	Truck	Pickup	1980						25.9	17.5	18.9	14.7	13.3	12.5						18.0
Ford	Truck	Pickup	1981					28.4	26.3	21.6	19.2	15.0	13.6	13.3						19.3
Ford	Truck	Pickup	1982					28.9	26.7	22.2	18.3	14.3	14.2							18.3
Ford	Truck	Pickup	1983					28.1	24.4	21.6	17.9	15.6	13.6							20.3
Ford	Truck	Pickup	1984					28.8	25.3	22.0	18.2	15.7	14.7							19.5
Ford	Truck	Pickup	1985					28.6	25.7	23.0	18.4	16.5	13.3							20.3
Ford	Truck	Pickup	1986					28.8	26.6	23.1	19.0	17.5	15.3							20.6
Ford	Truck	Pickup	1987					29.0	26.8	23.7	19.2	17.1	15.9							20.9
Ford	Truck	Pickup	1988						27.6	22.6	19.6	17.9	15.6							21.2
Ford	Truck	Pickup	1989						28.6	23.6	20.2	18.2	16.0							20.4
Ford	Truck	Pickup	1990						30.0	23.2	20.2	18.6	15.9							20.8
Ford	Truck	Pickup	1991						29.9	24.5	20.2	18.4	16.2							21.0
Ford	Truck	Pickup	1992						30.1	26.2	21.3	18.5	16.9							20.6
Ford	Truck	Pickup	1993						30.0	25.7	21.7	19.1	17.0							21.2
Ford	Truck	Pickup	1994							25.7	20.9	19.1	17.5							21.4
Ford	Truck	Pickup	1995							26.8	22.0	19.0	17.4	15.6						20.3
Ford	Truck	Pickup	1996							26.3	21.8	18.4	17.1							21.4
Ford	Truck	Pickup	1997							27.2	21.6	20.0	18.4	16.5						21.2
Ford	Truck	Pickup	1998							25.1	21.2	20.1	18.0	16.6						20.8
Ford	Truck	Pickup	1999							23.9	20.5	20.1	17.9	15.9						20.3
Ford	Truck	Pickup	2000							24.3	20.8	20.1	18.4	16.7						20.5
Ford	Truck	Pickup	2001							24.2	20.4	20.4	18.6	17.4						19.8
Ford	Truck	Pickup	2002							24.7	20.3	20.3	18.8	17.5	15.9					20.0
Ford	Truck	Pickup	2003							25.9	21.0	20.6	18.8	17.3	15.8					20.0
Ford	Truck	Pickup	2004							25.6	21.0	20.3	19.2	19.0	17.8					19.4
Ford	Truck	Pickup	2005							25.9	21.0	19.7	19.8	18.7	18.0	16.3				19.1
Ford	Truck	Pickup	2006							26.3	21.2		19.9	18.8	17.6	15.2				19.0
Ford	Truck	Pickup	2007							26.4	20.7		20.2	19.1	17.7	15.1				19.4
Ford	Truck	Pickup	2008							26.8	20.7	20.7	20.2	19.1	18.3	16.0				19.9
Ford	Truck	Pickup	2009							27.9	21.2		20.8	21.0	19.5					21.0
Ford	Truck	Pickup	2010							27.7	21.1		20.9	21.1	19.7					20.7
Ford	Truck	Pickup	2011							27.7	21.2		23.0	22.6	20.9	16.2				21.7
Ford	Truck	Pickup	2012										23.1	22.9	21.1	16.7				21.5
Ford	Truck	Pickup	2013										23.8	22.9	21.4	16.7				21.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Ford	Truck	Pickup	2014										23.8	22.8	21.3	16.7			21.7
Ford	Truck	Pickup	2015								26.3	26.4	23.5	20.8					23.7
Ford	Truck	Pickup	2016								26.7	26.3	23.5	22.2					23.9
Ford	Truck	Pickup	2017								27.1	26.7	24.3	22.9	20.9				24.5

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Truck	All	1975						21.1	14.2	12.8	11.7	10.9	9.3						12.5
Ford	Truck	All	1976						22.9	17.5	14.3	12.8	11.7	10.8						13.8
Ford	Truck	All	1977						29.5	20.7	16.8	13.9	13.1	12.0						15.8
Ford	Truck	All	1978						29.2	19.6	16.5	13.9	13.1	12.4	10.9					15.5
Ford	Truck	All	1979						26.3	18.4	15.4	13.1	11.0	9.7	10.6					14.0
Ford	Truck	All	1980						25.9	17.5	19.0	15.3	13.6	12.4	10.9					17.4
Ford	Truck	All	1981					28.4	26.3	21.6	19.3	15.9	13.9	13.3						18.6
Ford	Truck	All	1982					28.9	26.7	22.2	18.4	15.5	14.2	13.4						17.5
Ford	Truck	All	1983					28.1	24.4	21.6	18.0	16.0	14.1	12.1						19.1
Ford	Truck	All	1984					28.8	25.3	21.5	18.3	15.8	14.4	12.1						18.8
Ford	Truck	All	1985					28.6	25.7	22.2	18.5	16.2	14.3	12.3						19.3
Ford	Truck	All	1986					28.8	26.7	22.7	19.7	17.8	15.9	12.8						20.3
Ford	Truck	All	1987					29.0	26.8	23.2	20.6	17.3	15.9	13.6						20.4
Ford	Truck	All	1988						27.6	22.3	20.7	17.9	16.3	13.6						20.5
Ford	Truck	All	1989						28.6	23.4	21.6	18.1	16.2	13.6						20.0
Ford	Truck	All	1990						30.0	23.2	21.2	18.5	16.1	14.2						20.1
Ford	Truck	All	1991						29.9	24.4	21.1	19.2	16.3	15.0						20.4
Ford	Truck	All	1992						30.1	26.1	21.6	19.1	16.9	16.0	14.8					20.1
Ford	Truck	All	1993						30.0	25.6	22.3	19.5	17.0	16.0						20.8
Ford	Truck	All	1994							25.6	21.7	19.6	17.4	16.1	15.5					20.7
Ford	Truck	All	1995							26.6	22.7	19.4	17.4	16.2	16.0					20.6
Ford	Truck	All	1996							26.2	22.7	19.4	17.0	15.8	16.1					20.8
Ford	Truck	All	1997							27.0	22.0	19.7	18.5	16.9	16.6					20.2
Ford	Truck	All	1998							25.1	22.7	19.8	18.3	16.8	16.0					20.2
Ford	Truck	All	1999							23.9	21.0	20.4	17.9	17.1	16.4					19.7
Ford	Truck	All	2000							24.3	21.0	20.6	18.6	17.3	16.2					19.9
Ford	Truck	All	2001							24.0	20.5	20.8	18.8	17.4	15.8					19.8
Ford	Truck	All	2002							24.3	20.6	20.2	18.9	17.5	15.9					20.0
Ford	Truck	All	2003							24.7	21.1	20.9	18.8	17.7	17.0					19.8
Ford	Truck	All	2004							24.5	21.0	20.6	18.9	19.1	17.5					19.5
Ford	Truck	All	2005							25.7	23.6	21.0	19.1	18.7	18.0	16.3				20.0
Ford	Truck	All	2006							26.4	24.2	21.8	19.6	18.8	17.7	15.2				19.8
Ford	Truck	All	2007							26.4	23.8	22.3	19.9	19.1	17.8	15.1				20.2
Ford	Truck	All	2008							27.2	24.6	23.1	20.0	19.1	18.3	16.0				21.0
Ford	Truck	All	2009							27.9	25.7	24.2	20.7	21.0	19.6					22.1
Ford	Truck	All	2010							29.0	25.9	25.0	20.7	21.1	19.7	18.4				21.8
Ford	Truck	All	2011							28.6	24.7	25.7	23.8	22.5	20.8	17.7	13.5		16.4	22.9
Ford	Truck	All	2012							30.0	26.4	26.4	23.9	22.9	21.0	17.9	13.2		16.4	23.1
Ford	Truck	All	2013							30.5	32.0	26.3	24.4	22.8	21.3	17.7	19.6		16.4	23.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	Truck	All	2014							31.2	31.6	26.2	24.5	22.8	21.3	17.8	19.5		16.4	23.8
Ford	Truck	All	2015							31.2	31.0	26.7	23.7	20.8	21.7	21.2	19.9			25.2
Ford	Truck	All	2016							30.3	30.8	26.4	23.8	22.2	21.3	21.1	19.9			25.1
Ford	Truck	All	2017							30.0	30.7	26.4	24.3	22.9	21.4	21.2				25.5

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Ford	All	All	1975					27.8	22.2	16.5	13.1	12.3	11.3	11.1						13.5
Ford	All	All	1976					27.8	25.2	18.6	15.7	14.0	14.1	13.0						15.7
Ford	All	All	1977					27.6	25.2	19.2	17.5	15.4	14.1	12.6						16.3
Ford	All	All	1978		37.3			26.1	23.0	19.6	16.7	15.9	14.2	13.0	10.9					17.5
Ford	All	All	1979		32.1			25.2	22.4	19.4	16.5	15.0	12.2	9.7	10.6					17.3
Ford	All	All	1980		29.8			25.7	23.9	20.1	19.0	16.0	13.6	12.4	10.9					20.8
Ford	All	All	1981		39.0	33.2	29.2	27.2	23.1	20.5	19.1	16.0	13.9	13.3						21.6
Ford	All	All	1982			34.5	31.2	28.9	22.6	21.0	19.1	15.5	14.2	13.4						22.1
Ford	All	All	1983			33.2	30.7	28.1	23.2	22.5	19.0	16.0	14.1	12.1						21.9
Ford	All	All	1984			38.5	32.6	29.2	25.5	22.9	19.2	15.8	14.4	12.1						22.8
Ford	All	All	1985			39.3	33.7	30.6	26.7	23.0	19.9	16.2	14.3	12.3						23.4
Ford	All	All	1986			32.5	33.9	30.6	27.5	24.0	20.7	17.8	15.9	12.8						23.9
Ford	All	All	1987				34.8	30.4	27.2	24.4	21.3	17.3	15.9	13.6						24.0
Ford	All	All	1988		45.7		34.2	31.9	27.5	24.5	21.9	17.9	16.3	13.6						24.4
Ford	All	All	1989		41.4		34.0	31.6	28.0	25.2	22.8	18.1	16.2	13.6						24.2
Ford	All	All	1990		44.4	37.8	34.6	32.0	28.1	25.1	22.7	18.5	16.1	14.2						23.7
Ford	All	All	1991		43.8	37.7	38.7	33.2	26.5	25.6	22.6	19.2	16.3	15.0						24.2
Ford	All	All	1992		44.7	37.7	39.4	33.2	27.5	26.3	23.1	19.1	16.9	16.0	14.8					23.5
Ford	All	All	1993		44.9	37.6	38.8	33.5	28.5	26.1	23.1	19.5	17.0	16.0						24.5
Ford	All	All	1994			41.1	38.6	34.7	28.3	25.9	22.8	19.6	17.4	16.1	15.5					23.7
Ford	All	All	1995			41.1	36.8	34.6	30.9	26.5	23.0	19.4	17.4	16.2	16.0					24.0
Ford	All	All	1996			39.8	37.4	34.1	29.3	26.1	23.2	19.4	17.0	15.8	16.1					23.3
Ford	All	All	1997			42.5	34.2	34.4	30.2	26.1	22.8	19.7	18.5	16.9	16.6					22.8
Ford	All	All	1998					33.8	30.8	25.8	22.6	19.8	18.3	16.8	16.0					22.8
Ford	All	All	1999					34.1	31.0	25.8	22.2	20.4	17.9	17.1	16.4					22.6
Ford	All	All	2000					33.5	32.4	25.8	22.2	20.6	18.6	17.3	16.2					22.8
Ford	All	All	2001					33.6	33.5	25.1	22.1	20.8	18.8	17.4	15.8					22.4
Ford	All	All	2002					33.6	32.3	25.7	22.1	20.2	18.9	17.5	15.9					22.3
Ford	All	All	2003					33.1	32.3	25.7	21.8	21.5	18.8	17.7	17.0					22.1
Ford	All	All	2004					35.9	31.6	25.6	21.9	21.2	18.9	19.1	17.5					21.1
Ford	All	All	2005						33.0	26.3	24.6	21.8	19.1	18.7	18.0	16.3				22.6
Ford	All	All	2006						33.7	27.1	24.9	22.3	19.6	18.8	17.7	15.2				22.5
Ford	All	All	2007						35.3	27.0	24.7	23.0	19.9	19.1	17.8	18.7				23.5
Ford	All	All	2008					37.3	35.9	28.1	25.8	23.2	20.0	19.1	18.3	16.0				24.1
Ford	All	All	2009						37.6	28.9	26.5	24.3	20.7	21.0	19.6					25.8
Ford	All	All	2010						37.3	30.5	27.9	25.3	20.7	21.1	19.7	18.4				25.6
Ford	All	All	2011					43.8	37.6	31.2	27.1	26.1	23.8	22.5	20.8	17.7	13.5		16.4	26.4
Ford	All	All	2012					44.2	41.6	31.9	28.4	26.9	23.9	22.9	21.0	17.9	13.2		16.4	28.7
Ford	All	All	2013					44.2	41.3	33.6	34.0	27.1	24.4	22.8	21.3	17.7	19.6		16.4	28.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Ford	All	All	2014					41.4	40.6	33.3	32.9	26.8	24.5	22.8	21.3	17.8	19.5		16.4	28.7
Ford	All	All	2015					41.4	42.5	35.5	32.2	26.9	23.7	20.8	21.7	21.2	19.9			28.9
Ford	All	All	2016					42.0	41.8	35.5	32.6	26.6	23.8	22.2	21.3	21.1	19.9			28.9
Ford	All	All	2017					42.3	40.6	35.9	32.8	26.7	24.3	22.9	21.4	21.2				28.9

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	Car	Car	1975			26.6	23.4	22.6	20.8	19.5	16.6	12.9	13.7	12.6						15.8
Fiat-Chrysler	Car	Car	1976			24.6	26.1	24.2	21.7	19.5	17.9	14.1	13.6	12.3						16.8
Fiat-Chrysler	Car	Car	1977			29.6	28.4	22.1	21.6	20.4	17.4	14.6	13.3	12.1						16.7
Fiat-Chrysler	Car	Car	1978			28.1	28.2	24.5	24.6	20.0	17.6	15.4	13.5	11.0						19.1
Fiat-Chrysler	Car	Car	1979		37.6	32.6	28.0	24.7	22.9	20.2	17.9	16.4								21.0
Fiat-Chrysler	Car	Car	1980		38.8	31.3	27.5	25.1	23.1	20.1	17.4									22.7
Fiat-Chrysler	Car	Car	1981		41.7	34.0	29.6	26.7	23.4	21.1	18.5									26.1
Fiat-Chrysler	Car	Car	1982		41.7	36.2	32.4	28.8	26.0	22.2	19.8		10.0							26.9
Fiat-Chrysler	Car	Car	1983		42.7	36.0	34.6	30.2	25.2	22.6	19.3		10.0							28.4
Fiat-Chrysler	Car	Car	1984		44.8	36.2	31.4	28.9	26.4	22.3	19.7		10.0							28.5
Fiat-Chrysler	Car	Car	1985			37.5	31.4	29.8	26.3	24.0	21.4		10.0							28.1
Fiat-Chrysler	Car	Car	1986			39.3	31.7	29.8	27.1	23.0	21.4		10.0							28.5
Fiat-Chrysler	Car	Car	1987			38.8	30.2	29.3	26.5	23.1	21.5									27.7
Fiat-Chrysler	Car	Car	1988			39.7	32.7	30.3	27.8	25.0	21.4									28.5
Fiat-Chrysler	Car	Car	1989				36.5	30.7	28.5	24.7	21.2									28.0
Fiat-Chrysler	Car	Car	1990				35.3	31.6	28.7	25.4	24.0									27.3
Fiat-Chrysler	Car	Car	1991				37.0	32.0	28.6	25.2	23.8									27.4
Fiat-Chrysler	Car	Car	1992				36.8	32.6	28.8	25.4	23.6									27.7
Fiat-Chrysler	Car	Car	1993			42.5	37.0	32.3	29.0	25.7	23.6									27.9
Fiat-Chrysler	Car	Car	1994			41.8	35.8	31.9	28.3	25.0	23.5									26.2
Fiat-Chrysler	Car	Car	1995			41.8	37.4	31.9	29.0	26.1	23.8									28.1
Fiat-Chrysler	Car	Car	1996			41.7	33.9	31.1	30.1	26.1	24.0									27.2
Fiat-Chrysler	Car	Car	1997					31.2	29.8	26.1	24.0	12.8								27.1
Fiat-Chrysler	Car	Car	1998					31.8	31.6	26.6	24.5									28.3
Fiat-Chrysler	Car	Car	1999					31.1	27.9	27.2	24.5	13.4								26.9
Fiat-Chrysler	Car	Car	2000					32.5	30.6	26.5	25.0	13.5								27.6
Fiat-Chrysler	Car	Car	2001					34.6	31.9	27.1	24.4	13.5								27.6
Fiat-Chrysler	Car	Car	2002					36.1	31.5	26.4	24.5	13.6								26.9
Fiat-Chrysler	Car	Car	2003					37.1	32.9	26.8	25.0	13.5								28.4
Fiat-Chrysler	Car	Car	2004					37.1	32.5	28.0	25.3	22.2	21.8							27.4
Fiat-Chrysler	Car	Car	2005					33.3	32.1	27.9	25.4	22.7	21.8							26.5
Fiat-Chrysler	Car	Car	2006							27.9	25.6	22.3	21.7							25.4
Fiat-Chrysler	Car	Car	2007							30.3	25.1	22.2	21.6							27.1
Fiat-Chrysler	Car	Car	2008							30.6	26.2	22.0	21.6							27.8
Fiat-Chrysler	Car	Car	2009						35.3	30.8	26.3	22.6								27.5
Fiat-Chrysler	Car	Car	2010						33.6	31.6	26.1	22.9								27.8
Fiat-Chrysler	Car	Car	2011						35.7	31.6	28.1	22.7								28.3
Fiat-Chrysler	Car	Car	2012				44.8	39.9	35.7	31.3	28.8	23.2								30.0
Fiat-Chrysler	Car	Car	2013				46.2	40.3	165.0	33.3	28.8	23.8								30.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
<i>Fiat-Chrysler</i>	<i>Car</i>	<i>Car</i>	2014				46.6	40.2	165.0	32.9	28.7	24.3	23.1						29.3
<i>Fiat-Chrysler</i>	<i>Car</i>	<i>Car</i>	2015				46.6	39.9	82.7	35.8	29.8	24.3	23.1						32.2
<i>Fiat-Chrysler</i>	<i>Car</i>	<i>Car</i>	2016				46.6	39.2	125.8	35.4	29.8	24.3	23.7						30.0
Fiat-Chrysler	Car	Car	2017				46.6	39.8	135.3	34.9	30.4	24.2	23.7						28.6

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	Car	Car SUV	1975								14.5									14.5
Fiat-Chrysler	Car	Car SUV	1976								16.5									16.5
Fiat-Chrysler	Car	Car SUV	1977								16.4									16.4
Fiat-Chrysler	Car	Car SUV	1978								16.4									16.4
Fiat-Chrysler	Car	Car SUV	1979					20.8			16.0									20.3
Fiat-Chrysler	Car	Car SUV	1980								17.6									17.6
Fiat-Chrysler	Car	Car SUV	1981								17.3									17.3
Fiat-Chrysler	Car	Car SUV	1982				23.6													23.6
Fiat-Chrysler	Car	Car SUV	1983				23.2													23.2
Fiat-Chrysler	Car	Car SUV	1984				22.6				16.7									18.4
Fiat-Chrysler	Car	Car SUV	1985						23.4											23.4
Fiat-Chrysler	Car	Car SUV	1986						25.7	22.1										22.7
Fiat-Chrysler	Car	Car SUV	1987						26.4	20.4										21.1
Fiat-Chrysler	Car	Car SUV	1988						26.3	20.8										21.1
Fiat-Chrysler	Car	Car SUV	1989						24.9	20.7										20.9
Fiat-Chrysler	Car	Car SUV	1990						25.0	21.0										21.2
Fiat-Chrysler	Car	Car SUV	1991						23.3	20.6										20.6
Fiat-Chrysler	Car	Car SUV	1992						24.8	20.6										20.6
Fiat-Chrysler	Car	Car SUV	1993						25.2	20.1	19.0									19.3
Fiat-Chrysler	Car	Car SUV	1994						24.8	20.7	20.7									20.9
Fiat-Chrysler	Car	Car SUV	1995							20.1	18.9									19.5
Fiat-Chrysler	Car	Car SUV	1996						24.5	20.8	20.4									20.7
Fiat-Chrysler	Car	Car SUV	1997						24.3	21.0	20.2									20.4
Fiat-Chrysler	Car	Car SUV	1998							21.1	20.6									20.8
Fiat-Chrysler	Car	Car SUV	1999							21.6	21.6									21.6
Fiat-Chrysler	Car	Car SUV	2000							21.5	21.0									21.1
Fiat-Chrysler	Car	Car SUV	2001							20.9	21.1									21.1
Fiat-Chrysler	Car	Car SUV	2002								20.2									20.2
Fiat-Chrysler	Car	Car SUV	2003								22.0									22.0
Fiat-Chrysler	Car	Car SUV	2004								22.5									22.5
Fiat-Chrysler	Car	Car SUV	2005								22.1									22.1
Fiat-Chrysler	Car	Car SUV	2006								22.4									22.4
Fiat-Chrysler	Car	Car SUV	2007								23.1									23.1
Fiat-Chrysler	Car	Car SUV	2008																	
Fiat-Chrysler	Car	Car SUV	2009								27.3									27.3
Fiat-Chrysler	Car	Car SUV	2010								27.8									27.8
Fiat-Chrysler	Car	Car SUV	2011																	
Fiat-Chrysler	Car	Car SUV	2012							31.6	24.1	25.5								27.8
Fiat-Chrysler	Car	Car SUV	2013							31.8	27.8	25.6								29.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
<i>Fiat-Chrysler</i>	<i>Car</i>	<i>Car SUV</i>	<i>2014</i>							32.1	30.7	25.3							31.4
<i>Fiat-Chrysler</i>	<i>Car</i>	<i>Car SUV</i>	<i>2015</i>							32.6	31.9	25.3							32.3
<i>Fiat-Chrysler</i>	<i>Car</i>	<i>Car SUV</i>	<i>2016</i>						37.5	32.0	32.1								32.1
Fiat-Chrysler	Car	Car SUV	2017						37.5	32.3	31.0								31.7

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	Car	All	1975			26.6	23.4	22.6	20.8	19.5	16.5	12.9	13.7	12.6						15.8
Fiat-Chrysler	Car	All	1976			24.6	26.1	24.2	21.7	19.5	17.9	14.1	13.6	12.3						16.8
Fiat-Chrysler	Car	All	1977			29.6	28.4	22.1	21.6	20.4	17.3	14.6	13.3	12.1						16.7
Fiat-Chrysler	Car	All	1978			28.1	28.2	24.5	24.6	20.0	17.6	15.4	13.5	11.0						19.1
Fiat-Chrysler	Car	All	1979		37.6	32.6	28.0	24.1	22.9	20.2	17.9	16.4								21.0
Fiat-Chrysler	Car	All	1980		38.8	31.3	27.5	25.1	23.1	20.1	17.4									22.7
Fiat-Chrysler	Car	All	1981		41.7	34.0	29.6	26.7	23.4	21.1	18.5									26.1
Fiat-Chrysler	Car	All	1982		41.7	36.2	31.3	28.8	26.0	22.2	19.8		10.0							26.9
Fiat-Chrysler	Car	All	1983		42.7	36.0	33.2	30.2	25.2	22.6	19.3		10.0							28.3
Fiat-Chrysler	Car	All	1984		44.8	36.2	31.2	28.9	26.4	22.3	19.5		10.0							28.4
Fiat-Chrysler	Car	All	1985			37.5	31.4	29.8	26.2	24.0	21.4		10.0							28.1
Fiat-Chrysler	Car	All	1986			39.3	31.7	29.8	27.1	22.4	21.4		10.0							28.5
Fiat-Chrysler	Car	All	1987			38.8	30.2	29.3	26.5	22.0	21.5									27.6
Fiat-Chrysler	Car	All	1988			39.7	32.7	30.3	27.8	24.5	21.4									28.3
Fiat-Chrysler	Car	All	1989				36.5	30.7	28.5	24.5	21.2									27.9
Fiat-Chrysler	Car	All	1990				35.3	31.6	28.7	25.2	24.0									27.2
Fiat-Chrysler	Car	All	1991				37.0	32.0	28.6	25.0	23.8									27.3
Fiat-Chrysler	Car	All	1992				36.8	32.6	28.8	24.7	23.6									27.2
Fiat-Chrysler	Car	All	1993			42.5	37.0	32.3	28.9	24.8	19.2									25.1
Fiat-Chrysler	Car	All	1994			41.8	35.8	31.9	28.3	24.3	23.0									25.7
Fiat-Chrysler	Car	All	1995			41.8	37.4	31.9	29.0	25.4	22.4									27.3
Fiat-Chrysler	Car	All	1996			41.7	33.9	31.1	29.7	25.4	23.0									26.3
Fiat-Chrysler	Car	All	1997					31.2	29.8	25.8	22.8	12.8								26.3
Fiat-Chrysler	Car	All	1998					31.8	31.6	26.1	20.9									27.2
Fiat-Chrysler	Car	All	1999					31.1	27.9	26.8	23.8	13.4								26.3
Fiat-Chrysler	Car	All	2000					32.5	30.6	26.3	23.2	13.5								26.6
Fiat-Chrysler	Car	All	2001					34.6	31.9	26.7	22.9	13.5								26.8
Fiat-Chrysler	Car	All	2002					36.1	31.5	26.4	23.0	13.6								26.4
Fiat-Chrysler	Car	All	2003					37.1	32.9	26.8	22.8	13.5								27.2
Fiat-Chrysler	Car	All	2004					37.1	32.5	28.0	23.9	22.2	21.8							27.1
Fiat-Chrysler	Car	All	2005					33.3	32.1	27.9	24.7	22.7	21.8							26.3
Fiat-Chrysler	Car	All	2006							27.9	25.2	22.3	21.7							25.3
Fiat-Chrysler	Car	All	2007							30.3	24.8	22.2	21.6							26.9
Fiat-Chrysler	Car	All	2008							30.6	26.2	22.0	21.6							27.8
Fiat-Chrysler	Car	All	2009						35.3	30.8	26.5	22.6								27.5
Fiat-Chrysler	Car	All	2010						33.6	31.6	26.2	22.9								27.8
Fiat-Chrysler	Car	All	2011						35.7	31.6	28.1	22.7								28.3
Fiat-Chrysler	Car	All	2012				44.8	39.9	35.7	31.4	28.0	23.5								29.6
Fiat-Chrysler	Car	All	2013				46.2	40.3	165.0	33.2	28.7	24.0								30.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	Car	All	2014				46.6	40.2	165.0	32.6	29.2	24.4	23.1							29.8
Fiat-Chrysler	Car	All	2015				46.6	39.9	82.7	34.9	30.4	24.3	23.1							32.2
Fiat-Chrysler	Car	All	2016				46.6	39.2	101.1	33.5	30.6	24.3	23.7							30.8
Fiat-Chrysler	Car	All	2017				46.6	39.8	105.1	32.7	30.8	24.2	23.7							30.1

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Fiat-Chrysler	Truck	Van	1975							18.8	14.3	11.5	11.2							12.6
Fiat-Chrysler	Truck	Van	1976							19.5	14.9	13.6	11.5							14.2
Fiat-Chrysler	Truck	Van	1977							19.6	15.5	13.3	12.3							13.8
Fiat-Chrysler	Truck	Van	1978							19.2	14.9	12.9	12.6							13.4
Fiat-Chrysler	Truck	Van	1979								15.8	13.7	11.7	10.6						13.8
Fiat-Chrysler	Truck	Van	1980							18.3	17.7	14.8	12.8	11.2						16.6
Fiat-Chrysler	Truck	Van	1981							19.9	17.8	15.6	13.3	11.1						17.4
Fiat-Chrysler	Truck	Van	1982							20.4	18.0	15.4	13.2							17.7
Fiat-Chrysler	Truck	Van	1983								18.6	15.9	13.0							18.0
Fiat-Chrysler	Truck	Van	1984					29.7	25.1	23.9	16.7	14.7	13.1	11.2						20.2
Fiat-Chrysler	Truck	Van	1985					29.8	25.8	23.2	17.2	15.1	13.3	12.0						21.0
Fiat-Chrysler	Truck	Van	1986					29.4	26.5	24.1	18.4	16.5	15.0	12.2						22.0
Fiat-Chrysler	Truck	Van	1987					29.3	27.1	24.4	21.2	16.7	15.2	12.0						22.3
Fiat-Chrysler	Truck	Van	1988						27.8	24.7	22.8	17.4	15.7	12.9						23.0
Fiat-Chrysler	Truck	Van	1989						26.5	24.3	23.2	16.4	15.5	12.2						22.6
Fiat-Chrysler	Truck	Van	1990						26.4	25.4	23.0	16.9	16.2	12.4						23.0
Fiat-Chrysler	Truck	Van	1991						26.2	25.7	23.2	17.9	16.2							22.8
Fiat-Chrysler	Truck	Van	1992						27.7	25.9	23.1	17.0	15.3	14.6						22.7
Fiat-Chrysler	Truck	Van	1993						27.9	25.3	23.2	18.2	16.2	15.2						23.6
Fiat-Chrysler	Truck	Van	1994						28.3	24.7	23.0	17.9	16.6	15.7						22.4
Fiat-Chrysler	Truck	Van	1995						27.7	25.1	23.0	17.1	16.4	15.3						23.0
Fiat-Chrysler	Truck	Van	1996						27.7	24.2	24.0	20.5	17.1	14.7						22.8
Fiat-Chrysler	Truck	Van	1997								23.7	20.6	17.5	14.9	14.4					22.7
Fiat-Chrysler	Truck	Van	1998								24.2	21.8	17.3	17.1						23.3
Fiat-Chrysler	Truck	Van	1999								23.9	21.8	17.8	17.3						23.0
Fiat-Chrysler	Truck	Van	2000								24.5	21.7	17.4	15.7						23.4
Fiat-Chrysler	Truck	Van	2001								24.8	23.7	18.9	16.4						23.4
Fiat-Chrysler	Truck	Van	2002								25.8	23.6	17.3	15.5						23.8
Fiat-Chrysler	Truck	Van	2003								26.0	23.9	18.3							24.5
Fiat-Chrysler	Truck	Van	2004								25.7	24.1	22.5							24.5
Fiat-Chrysler	Truck	Van	2005								25.7	23.3								24.3
Fiat-Chrysler	Truck	Van	2006								25.7	23.9								24.4
Fiat-Chrysler	Truck	Van	2007								25.7	23.4								23.8
Fiat-Chrysler	Truck	Van	2008									24.3	26.0							24.4
Fiat-Chrysler	Truck	Van	2009									24.3	26.0							24.6
Fiat-Chrysler	Truck	Van	2010									24.1	26.0							24.4
Fiat-Chrysler	Truck	Van	2011									25.7								25.7
Fiat-Chrysler	Truck	Van	2012									25.9								25.9
Fiat-Chrysler	Truck	Van	2013									25.6	25.4							25.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	Truck	Van	2014									25.9	25.3							25.9
Fiat-Chrysler	Truck	Van	2015							31.5		25.8								26.1
Fiat-Chrysler	Truck	Van	2016							31.5		25.9								26.1
Fiat-Chrysler	Truck	Van	2017							31.5		28.3	78.7							29.5

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Fiat-Chrysler	Truck	Truck SUV	1975					16.8			13.2	13.1		10.6						14.6
Fiat-Chrysler	Truck	Truck SUV	1976					17.8	15.4		13.8	13.3		11.2						15.0
Fiat-Chrysler	Truck	Truck SUV	1977					18.6	16.8		14.7	14.3		11.9						15.8
Fiat-Chrysler	Truck	Truck SUV	1978					18.1	16.8		14.5	13.9		12.0						15.6
Fiat-Chrysler	Truck	Truck SUV	1979						17.2	15.6	16.9	12.9	12.1							15.1
Fiat-Chrysler	Truck	Truck SUV	1980						19.7	16.3	17.0	12.9	12.4							16.8
Fiat-Chrysler	Truck	Truck SUV	1981						20.9	17.2	17.3	14.9	13.6							18.4
Fiat-Chrysler	Truck	Truck SUV	1982						20.2		20.5	15.1	13.7							17.7
Fiat-Chrysler	Truck	Truck SUV	1983						20.5		20.3	15.0	14.1							17.7
Fiat-Chrysler	Truck	Truck SUV	1984						22.6	20.7	20.1	14.0	12.1							18.3
Fiat-Chrysler	Truck	Truck SUV	1985							22.1		14.4	14.0							15.0
Fiat-Chrysler	Truck	Truck SUV	1986						22.8	21.2	19.1	14.5	13.6							19.1
Fiat-Chrysler	Truck	Truck SUV	1987						22.4	21.8		14.7	13.1							19.9
Fiat-Chrysler	Truck	Truck SUV	1988						22.3	20.3		14.6	14.6							19.2
Fiat-Chrysler	Truck	Truck SUV	1989						22.1	20.2	19.4	14.5	13.2							19.2
Fiat-Chrysler	Truck	Truck SUV	1990						22.1	20.5	20.6	14.6	14.3							19.8
Fiat-Chrysler	Truck	Truck SUV	1991							19.8	18.4	14.4	14.9							19.4
Fiat-Chrysler	Truck	Truck SUV	1992						22.5	19.4	19.3	16.7	15.0							19.8
Fiat-Chrysler	Truck	Truck SUV	1993						22.5	19.6	19.7	16.5	15.3							20.0
Fiat-Chrysler	Truck	Truck SUV	1994						22.1	19.4	18.2									18.9
Fiat-Chrysler	Truck	Truck SUV	1995						22.4	19.4	18.3									19.3
Fiat-Chrysler	Truck	Truck SUV	1996							19.8	18.5									19.0
Fiat-Chrysler	Truck	Truck SUV	1997							21.0	19.1									19.8
Fiat-Chrysler	Truck	Truck SUV	1998							20.3	19.6	16.7	16.5							18.9
Fiat-Chrysler	Truck	Truck SUV	1999							21.5	20.2	18.5	16.4							18.8
Fiat-Chrysler	Truck	Truck SUV	2000							20.3	20.1	18.2	17.1							19.0
Fiat-Chrysler	Truck	Truck SUV	2001							20.5	20.0	18.6	16.8							18.9
Fiat-Chrysler	Truck	Truck SUV	2002							21.8	20.0	19.4	17.6							19.4
Fiat-Chrysler	Truck	Truck SUV	2003							22.1	20.8	21.0	18.9							20.5
Fiat-Chrysler	Truck	Truck SUV	2004							22.2	21.2	20.1	18.0	17.0						20.2
Fiat-Chrysler	Truck	Truck SUV	2005							20.0	20.8	21.8	18.5	17.1						19.8
Fiat-Chrysler	Truck	Truck SUV	2006							23.8	20.2	21.8	19.2	18.3						19.9
Fiat-Chrysler	Truck	Truck SUV	2007							29.1	21.8	21.4	19.4	18.6						21.6
Fiat-Chrysler	Truck	Truck SUV	2008							30.0	22.5	21.8	19.7	18.4						22.3
Fiat-Chrysler	Truck	Truck SUV	2009							28.9	22.3	22.0	19.8	19.4	26.9					22.7
Fiat-Chrysler	Truck	Truck SUV	2010							29.8	22.1	22.3	19.5	19.8						23.1
Fiat-Chrysler	Truck	Truck SUV	2011							30.8	22.6	22.5	23.9	19.9						23.8
Fiat-Chrysler	Truck	Truck SUV	2012							29.8	24.3	23.1	23.9	19.2						23.6
Fiat-Chrysler	Truck	Truck SUV	2013							30.0	25.2	23.3	23.8	19.4						23.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
<i>Fiat-Chrysler</i>	<i>Truck</i>	<i>Truck SUV</i>	2014							30.2	27.3	24.0	25.2	22.0						25.4
<i>Fiat-Chrysler</i>	<i>Truck</i>	<i>Truck SUV</i>	2015							30.8	27.8	24.2	25.4	22.0						25.9
<i>Fiat-Chrysler</i>	<i>Truck</i>	<i>Truck SUV</i>	2016							30.8	28.4	23.6	27.4	22.2						26.9
Fiat-Chrysler	Truck	Truck SUV	2017							31.4	29.1	23.8	27.2	21.1						27.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Fiat-Chrysler	Truck	Pickup	1975							18.7	13.5	12.8	12.0	10.8						13.0
Fiat-Chrysler	Truck	Pickup	1976							19.8	15.3	13.1	12.5	11.3						14.0
Fiat-Chrysler	Truck	Pickup	1977							19.9	15.7	13.8	13.3	11.9						14.5
Fiat-Chrysler	Truck	Pickup	1978							19.1	15.3	13.3	13.2	12.0						14.5
Fiat-Chrysler	Truck	Pickup	1979					23.9			16.6	12.3	11.7	11.7						15.0
Fiat-Chrysler	Truck	Pickup	1980					24.7		18.2	18.0	13.8	12.8	11.4						19.8
Fiat-Chrysler	Truck	Pickup	1981					25.1	23.6	20.2	18.3	14.9								19.9
Fiat-Chrysler	Truck	Pickup	1982				29.6	27.8	23.7	22.5	18.7	15.3	13.7							21.2
Fiat-Chrysler	Truck	Pickup	1983				33.7	29.0	26.1	24.7	19.0	15.1	13.4							23.4
Fiat-Chrysler	Truck	Pickup	1984				30.0	27.8	25.3	20.6	17.7	14.2	12.5							19.4
Fiat-Chrysler	Truck	Pickup	1985					28.3	26.3	22.3	17.2	14.9	13.4							18.6
Fiat-Chrysler	Truck	Pickup	1986					28.7	25.3	23.0	17.8	14.9	13.0							20.2
Fiat-Chrysler	Truck	Pickup	1987					29.9	27.4	22.5	18.6	15.2	13.7							21.2
Fiat-Chrysler	Truck	Pickup	1988					29.6	26.9	21.7	19.0	16.1	13.8							20.8
Fiat-Chrysler	Truck	Pickup	1989					29.6	27.4	20.7	18.2	15.5	14.0							19.9
Fiat-Chrysler	Truck	Pickup	1990						25.0	22.9	19.7	16.0	14.0							19.1
Fiat-Chrysler	Truck	Pickup	1991						24.5	23.2	19.3	16.0	14.2	12.4						18.8
Fiat-Chrysler	Truck	Pickup	1992						24.6	23.0	19.3	17.3	15.2	13.9						19.2
Fiat-Chrysler	Truck	Pickup	1993						26.4	22.0	19.5	17.3	15.8	14.2						18.9
Fiat-Chrysler	Truck	Pickup	1994							23.6	20.7	18.1	15.9	15.2						18.8
Fiat-Chrysler	Truck	Pickup	1995							26.0	20.3	17.5	15.8	15.1						17.8
Fiat-Chrysler	Truck	Pickup	1996							23.2	19.9	17.6	16.6	15.1						17.4
Fiat-Chrysler	Truck	Pickup	1997							24.6	20.3	18.0	17.1	16.0						17.7
Fiat-Chrysler	Truck	Pickup	1998							26.8	20.9	18.6	17.0	16.3	15.5					18.0
Fiat-Chrysler	Truck	Pickup	1999							26.4	20.2	18.0	17.3	16.2	16.2					17.7
Fiat-Chrysler	Truck	Pickup	2000							25.7	21.3	18.9	17.0	16.1	15.8					18.4
Fiat-Chrysler	Truck	Pickup	2001							25.6	20.4	18.9	17.1	15.5	15.8					17.3
Fiat-Chrysler	Truck	Pickup	2002							26.0	20.8	19.2	18.3	16.5	15.3					17.9
Fiat-Chrysler	Truck	Pickup	2003								21.1	19.9	18.9	17.1	16.1					18.2
Fiat-Chrysler	Truck	Pickup	2004								22.2	20.4	18.0	17.0	16.0					17.9
Fiat-Chrysler	Truck	Pickup	2005									20.8	18.4	16.9	13.0					18.2
Fiat-Chrysler	Truck	Pickup	2006									20.8	19.7	18.5	15.8					19.0
Fiat-Chrysler	Truck	Pickup	2007									21.5	18.8	18.5	18.2					18.9
Fiat-Chrysler	Truck	Pickup	2008									21.4	19.7	20.1	17.6					20.2
Fiat-Chrysler	Truck	Pickup	2009									20.6	20.0	19.9	18.4					19.5
Fiat-Chrysler	Truck	Pickup	2010									21.0	20.3	19.7						19.8
Fiat-Chrysler	Truck	Pickup	2011									21.1	20.1	19.7						19.9
Fiat-Chrysler	Truck	Pickup	2012									21.1	20.5	19.5						19.7
Fiat-Chrysler	Truck	Pickup	2013									25.7	21.6	20.0	19.8					20.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
<i>Fiat-Chrysler</i>	<i>Truck</i>	<i>Pickup</i>	2014									25.6	22.6	21.5	20.9					21.5
<i>Fiat-Chrysler</i>	<i>Truck</i>	<i>Pickup</i>	2015									25.7	23.6	21.8	26.2					22.6
<i>Fiat-Chrysler</i>	<i>Truck</i>	<i>Pickup</i>	2016									25.6	23.9	22.0	25.5					22.6
Fiat-Chrysler	Truck	Pickup	2017									25.6	24.0	22.1	23.3					22.4

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Fiat-Chrysler	Truck	All	1975					16.8		18.8	13.9	11.9	11.9	10.7						13.2
Fiat-Chrysler	Truck	All	1976					17.8	15.4	19.7	14.9	13.4	12.2	11.3						14.3
Fiat-Chrysler	Truck	All	1977					18.6	16.8	19.8	15.4	13.6	12.4	11.9						14.5
Fiat-Chrysler	Truck	All	1978					18.1	16.8	19.1	15.0	13.2	12.9	12.0						14.4
Fiat-Chrysler	Truck	All	1979					23.9	17.2	15.6	16.3	13.0	11.8	10.6						14.7
Fiat-Chrysler	Truck	All	1980					24.7	19.7	17.1	17.8	13.6	12.7	11.2						18.2
Fiat-Chrysler	Truck	All	1981					25.1	21.8	19.8	18.0	15.1	13.4	11.1						18.8
Fiat-Chrysler	Truck	All	1982				29.6	27.8	22.0	21.6	18.5	15.2	13.6							19.4
Fiat-Chrysler	Truck	All	1983				33.7	29.0	23.2	24.7	18.8	15.2	13.6							20.6
Fiat-Chrysler	Truck	All	1984				30.0	28.4	23.6	22.6	17.2	14.2	12.3	11.2						19.4
Fiat-Chrysler	Truck	All	1985					28.6	25.9	23.1	17.2	14.8	13.7	12.0						19.4
Fiat-Chrysler	Truck	All	1986					28.7	25.8	22.9	17.9	15.5	13.9	12.2						20.7
Fiat-Chrysler	Truck	All	1987					29.8	26.7	23.1	19.5	15.8	14.0	12.0						21.3
Fiat-Chrysler	Truck	All	1988					29.6	26.5	22.3	21.8	16.2	14.5	12.9						21.4
Fiat-Chrysler	Truck	All	1989					29.6	25.4	22.0	21.9	15.7	14.0	12.2						21.0
Fiat-Chrysler	Truck	All	1990						23.0	22.9	22.3	16.2	14.7	12.4						21.4
Fiat-Chrysler	Truck	All	1991						25.5	21.4	22.4	16.8	14.9	12.4						21.1
Fiat-Chrysler	Truck	All	1992						24.2	21.4	22.3	17.2	15.2	14.6						21.4
Fiat-Chrysler	Truck	All	1993						23.4	23.0	22.1	17.6	15.8	14.7						21.9
Fiat-Chrysler	Truck	All	1994						22.7	22.1	21.1	18.0	16.0	15.3						20.5
Fiat-Chrysler	Truck	All	1995						22.6	22.9	20.3	17.3	15.8	15.1						20.1
Fiat-Chrysler	Truck	All	1996						27.7	20.4	21.8	19.5	16.6	15.1						20.2
Fiat-Chrysler	Truck	All	1997							21.2	21.7	19.6	17.1	16.0	14.4					20.2
Fiat-Chrysler	Truck	All	1998							20.9	21.9	19.9	16.8	16.3	15.5					20.0
Fiat-Chrysler	Truck	All	1999							22.0	22.0	19.3	16.9	16.3	16.2					19.8
Fiat-Chrysler	Truck	All	2000							20.4	22.5	19.6	17.1	16.1	15.8					20.3
Fiat-Chrysler	Truck	All	2001							21.0	21.1	21.3	17.1	15.5	15.8					19.4
Fiat-Chrysler	Truck	All	2002							21.9	21.8	21.1	18.0	16.5	15.3					20.0
Fiat-Chrysler	Truck	All	2003							22.1	23.0	22.1	18.9	17.1	16.1					20.8
Fiat-Chrysler	Truck	All	2004							22.2	21.5	21.6	18.0	17.0	16.0					19.7
Fiat-Chrysler	Truck	All	2005							20.0	23.5	22.6	18.4	17.0	13.0					20.9
Fiat-Chrysler	Truck	All	2006							23.8	22.0	23.0	19.4	18.4	15.8					21.0
Fiat-Chrysler	Truck	All	2007							29.1	22.8	22.4	19.2	18.6	18.2					21.5
Fiat-Chrysler	Truck	All	2008							30.0	22.5	22.9	20.8	19.8	17.6					22.4
Fiat-Chrysler	Truck	All	2009							28.9	22.3	23.0	22.0	19.8	18.5					22.4
Fiat-Chrysler	Truck	All	2010							29.8	22.1	23.2	23.1	19.7						22.9
Fiat-Chrysler	Truck	All	2011							30.8	22.6	23.8	23.4	19.8						23.2
Fiat-Chrysler	Truck	All	2012							29.8	24.3	24.4	23.0	19.5						23.1
Fiat-Chrysler	Truck	All	2013							30.0	25.2	24.3	24.2	19.9	19.8					23.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	Truck	All	2014							30.2	27.3	25.0	24.8	21.6	20.9					24.5
Fiat-Chrysler	Truck	All	2015							30.9	27.8	24.8	25.2	21.8	26.2					25.2
Fiat-Chrysler	Truck	All	2016							30.8	28.4	24.6	26.7	22.0	25.5					25.6
Fiat-Chrysler	Truck	All	2017							31.4	29.1	25.8	27.7	22.0	23.3					26.3

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Fiat-Chrysler	All	All	1975			26.6	23.4	19.6	20.8	19.5	15.2	12.6	13.7	12.2						15.3
Fiat-Chrysler	All	All	1976			24.6	26.1	21.2	20.6	19.5	17.1	13.9	13.6	12.1						16.3
Fiat-Chrysler	All	All	1977			29.6	28.4	20.2	20.0	20.4	17.0	14.2	13.2	12.1						16.2
Fiat-Chrysler	All	All	1978			28.1	28.2	20.8	22.0	19.9	16.8	14.3	13.4	11.4						17.6
Fiat-Chrysler	All	All	1979		37.6	32.6	28.0	24.0	19.6	19.5	17.5	14.3	11.8	10.6						18.8
Fiat-Chrysler	All	All	1980		38.8	31.3	27.5	24.7	21.9	19.9	17.5	13.6	12.7	11.2						21.5
Fiat-Chrysler	All	All	1981		41.7	34.0	29.6	26.6	22.7	20.9	18.3	15.1	13.4	11.1						24.5
Fiat-Chrysler	All	All	1982		41.7	36.2	31.1	28.7	24.7	22.0	19.2	15.2	13.3							24.5
Fiat-Chrysler	All	All	1983		42.7	36.0	33.2	30.1	24.4	23.1	19.1	15.2	13.5							25.8
Fiat-Chrysler	All	All	1984		44.8	36.2	31.2	28.8	25.5	22.6	18.2	14.2	12.3	11.2						24.6
Fiat-Chrysler	All	All	1985			37.5	31.4	29.6	26.2	23.1	19.2	14.8	13.6	12.0						24.6
Fiat-Chrysler	All	All	1986			39.3	31.7	29.6	26.9	22.9	19.8	15.5	13.9	12.2						24.8
Fiat-Chrysler	All	All	1987			38.8	30.2	29.3	26.6	23.1	20.4	15.8	14.0	12.0						24.6
Fiat-Chrysler	All	All	1988			39.7	32.7	30.2	27.6	22.8	21.7	16.2	14.5	12.9						24.7
Fiat-Chrysler	All	All	1989				36.5	30.6	28.0	22.9	21.9	15.7	14.0	12.2						24.1
Fiat-Chrysler	All	All	1990				35.3	31.6	28.1	23.9	22.5	16.2	14.7	12.4						23.9
Fiat-Chrysler	All	All	1991				37.0	32.0	28.5	23.4	22.5	16.8	14.9	12.4						24.1
Fiat-Chrysler	All	All	1992				36.8	32.6	28.2	23.2	22.3	17.2	15.2	14.6						23.7
Fiat-Chrysler	All	All	1993			42.5	37.0	32.3	28.4	23.9	21.0	17.6	15.8	14.7						23.5
Fiat-Chrysler	All	All	1994			41.8	35.8	31.9	27.6	23.1	21.5	18.0	16.0	15.3						22.2
Fiat-Chrysler	All	All	1995			41.8	37.4	31.9	25.6	24.2	20.8	17.3	15.8	15.1						22.9
Fiat-Chrysler	All	All	1996			41.7	33.9	31.1	29.7	23.6	22.0	19.5	16.6	15.1						22.2
Fiat-Chrysler	All	All	1997					31.2	29.8	24.1	21.9	19.5	17.1	16.0	14.4					22.2
Fiat-Chrysler	All	All	1998					31.8	31.6	24.8	21.8	19.9	16.8	16.3	15.5					21.9
Fiat-Chrysler	All	All	1999					31.1	27.9	26.4	22.3	19.3	16.9	16.3	16.2					21.5
Fiat-Chrysler	All	All	2000					32.5	30.6	24.8	22.7	19.6	17.1	16.1	15.8					22.3
Fiat-Chrysler	All	All	2001					34.6	31.9	26.3	21.5	21.3	17.1	15.5	15.8					21.6
Fiat-Chrysler	All	All	2002					36.1	31.5	26.3	22.1	21.1	18.0	16.5	15.3					21.8
Fiat-Chrysler	All	All	2003					37.1	32.9	26.7	23.0	22.1	18.9	17.1	16.1					22.3
Fiat-Chrysler	All	All	2004					37.1	32.5	27.9	21.8	21.7	18.8	17.0	16.0					22.0
Fiat-Chrysler	All	All	2005					33.3	32.1	27.2	23.8	22.6	19.0	17.0	13.0					22.6
Fiat-Chrysler	All	All	2006							27.8	23.6	22.8	19.6	18.4	15.8					22.5
Fiat-Chrysler	All	All	2007							30.1	23.5	22.3	19.3	18.6	18.2					23.2
Fiat-Chrysler	All	All	2008							30.5	25.0	22.8	20.8	19.8	17.6					24.1
Fiat-Chrysler	All	All	2009						35.3	30.3	25.5	22.9	22.0	19.8	18.5					23.9
Fiat-Chrysler	All	All	2010						33.6	31.1	25.1	23.2	23.1	19.7						24.3
Fiat-Chrysler	All	All	2011						35.7	31.2	25.6	23.7	23.4	19.8						24.2
Fiat-Chrysler	All	All	2012				44.8	39.9	35.7	31.0	27.0	24.3	23.0	19.5						25.0
Fiat-Chrysler	All	All	2013				46.2	40.3	165.0	32.9	27.7	24.2	24.2	19.9	19.8					26.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
<i>Fiat-Chrysler</i>	<i>All</i>	<i>All</i>	2014				46.6	40.2	165.0	31.9	28.4	24.9	24.8	21.6	20.9					25.9
<i>Fiat-Chrysler</i>	<i>All</i>	<i>All</i>	2015				46.6	39.9	82.7	33.8	29.1	24.7	25.2	21.8	26.2					27.3
<i>Fiat-Chrysler</i>	<i>All</i>	<i>All</i>	2016				46.6	39.2	101.1	32.4	29.5	24.6	26.7	22.0	25.5					27.0
Fiat-Chrysler	All	All	2017				46.6	39.8	105.1	31.9	29.8	25.5	27.6	22.0	23.3					27.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Honda	Car	Car	1975		31.4															31.4
Honda	Car	Car	1976		32.9	29.5														32.6
Honda	Car	Car	1977		36.4	33.9														35.5
Honda	Car	Car	1978		33.5	33.9														33.7
Honda	Car	Car	1979		30.9	29.9	27.9													29.0
Honda	Car	Car	1980		33.6	32.5	27.1													29.2
Honda	Car	Car	1981		36.1	33.6	28.5													30.8
Honda	Car	Car	1982		40.5	36.1	30.8													33.4
Honda	Car	Car	1983		44.7	36.6	33.6													35.3
Honda	Car	Car	1984		44.0	36.0	33.5													35.2
Honda	Car	Car	1985		44.4	36.4	32.1	30.4												33.8
Honda	Car	Car	1986		47.6	37.9	32.2	31.8		24.7										33.6
Honda	Car	Car	1987		52.0	38.1	33.1	31.8		24.3										32.8
Honda	Car	Car	1988		60.4	39.8	35.9	31.9	29.7	23.6										31.8
Honda	Car	Car	1989		60.3	39.6	34.9	32.6	29.2	23.4										31.3
Honda	Car	Car	1990			44.4	37.3	31.7	28.9	23.4										30.4
Honda	Car	Car	1991			44.7	37.3	32.9	28.8	24.7										30.3
Honda	Car	Car	1992			52.8	41.4	36.9	29.8	26.2	24.2									30.9
Honda	Car	Car	1993			52.3	41.5	36.5	30.1	27.1	24.0									32.2
Honda	Car	Car	1994			50.5	42.9	35.9	30.5	29.9	24.0									32.1
Honda	Car	Car	1995			55.6	41.4	36.6	30.6	28.9	24.0									32.8
Honda	Car	Car	1996				41.3	37.0	30.8	28.2	24.3									31.8
Honda	Car	Car	1997				41.8	36.9	30.7	28.0	24.3									32.1
Honda	Car	Car	1998				41.3	37.2	32.0	29.1	24.3									32.0
Honda	Car	Car	1999				40.9	36.2	32.1	28.6	23.5									30.9
Honda	Car	Car	2000		76.4		40.7	36.0	29.9	28.5	23.2									31.0
Honda	Car	Car	2001		75.6	66.4		39.3	29.0	28.7	26.0									32.2
Honda	Car	Car	2002		75.3	66.4		39.3	31.4	28.9	25.5									32.0
Honda	Car	Car	2003		75.1	66.4		38.9	38.6	30.1	26.5									32.7
Honda	Car	Car	2004		73.8	66.4		38.7	38.7	30.5	26.8									32.7
Honda	Car	Car	2005		74.3	66.4		38.6	38.7	31.0	26.4									32.8
Honda	Car	Car	2006		73.8	66.4		39.2	39.4	30.8	26.9									33.5
Honda	Car	Car	2007					39.8	39.2	30.9	27.2									33.9
Honda	Car	Car	2008					39.9	39.6	31.8	28.3									34.3
Honda	Car	Car	2009					40.1	39.8	32.0	28.4	23.8								34.6
Honda	Car	Car	2010					40.2	41.7	32.5	28.3	23.8								35.6
Honda	Car	Car	2011					40.9	41.2	34.7	29.9	25.7								36.5
Honda	Car	Car	2012					41.2	43.1	34.7	30.3	25.7								38.1
Honda	Car	Car	2013					41.4	42.6	39.4	32.1									40.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Honda	Car	Car	2014						43.9	39.6	35.1	40.4								40.6
Honda	Car	Car	2015					47.4	43.8	40.0	36.6									41.7
Honda	Car	Car	2016					48.7	47.1	40.1	33.6	40.9								43.0
Honda	Car	Car	2017					47.5	46.3	40.1	36.6	70.2								42.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Honda	Car	Car SUV	1975																	
Honda	Car	Car SUV	1976																	
Honda	Car	Car SUV	1977																	
Honda	Car	Car SUV	1978																	
Honda	Car	Car SUV	1979																	
Honda	Car	Car SUV	1980																	
Honda	Car	Car SUV	1981																	
Honda	Car	Car SUV	1982																	
Honda	Car	Car SUV	1983																	
Honda	Car	Car SUV	1984																	
Honda	Car	Car SUV	1985																	
Honda	Car	Car SUV	1986																	
Honda	Car	Car SUV	1987																	
Honda	Car	Car SUV	1988																	
Honda	Car	Car SUV	1989																	
Honda	Car	Car SUV	1990																	
Honda	Car	Car SUV	1991																	
Honda	Car	Car SUV	1992																	
Honda	Car	Car SUV	1993																	
Honda	Car	Car SUV	1994								20.4									20.4
Honda	Car	Car SUV	1995																	
Honda	Car	Car SUV	1996								19.9									19.9
Honda	Car	Car SUV	1997								19.4									19.4
Honda	Car	Car SUV	1998								27.4	21.1								25.1
Honda	Car	Car SUV	1999								27.5	21.1								25.1
Honda	Car	Car SUV	2000								27.5	21.2								25.5
Honda	Car	Car SUV	2001								27.5	21.7								26.1
Honda	Car	Car SUV	2002								29.7	21.7								28.8
Honda	Car	Car SUV	2003								29.7									29.7
Honda	Car	Car SUV	2004								29.4									29.4
Honda	Car	Car SUV	2005								29.7									29.7
Honda	Car	Car SUV	2006								29.7									29.7
Honda	Car	Car SUV	2007								29.9									29.9
Honda	Car	Car SUV	2008								29.7									29.7
Honda	Car	Car SUV	2009								29.7									29.7
Honda	Car	Car SUV	2010								31.2	27.5								31.0
Honda	Car	Car SUV	2011								31.2	27.5								30.9
Honda	Car	Car SUV	2012								34.1	28.1								32.3
Honda	Car	Car SUV	2013								34.1	30.8	28.7							33.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
Honda	Car	Car SUV	2014							34.2	30.4	28.7								33.4	
Honda	Car	Car SUV	2015							39.4	32.4	28.7									37.1
Honda	Car	Car SUV	2016						41.5	38.8	32.9										38.5
Honda	Car	Car SUV	2017							40.1	30.1										38.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Honda	Car	All	1975		31.4															31.4
Honda	Car	All	1976		32.9	29.5														32.6
Honda	Car	All	1977		36.4	33.9														35.5
Honda	Car	All	1978		33.5	33.9														33.7
Honda	Car	All	1979		30.9	29.9	27.9													29.0
Honda	Car	All	1980		33.6	32.5	27.1													29.2
Honda	Car	All	1981		36.1	33.6	28.5													30.8
Honda	Car	All	1982		40.5	36.1	30.8													33.4
Honda	Car	All	1983		44.7	36.6	33.6													35.3
Honda	Car	All	1984		44.0	36.0	33.5													35.2
Honda	Car	All	1985		44.4	36.4	32.1	30.4												33.8
Honda	Car	All	1986		47.6	37.9	32.2	31.8		24.7										33.6
Honda	Car	All	1987		52.0	38.1	33.1	31.8		24.3										32.8
Honda	Car	All	1988		60.4	39.8	35.9	31.9	29.7	23.6										31.8
Honda	Car	All	1989		60.3	39.6	34.9	32.6	29.2	23.4										31.3
Honda	Car	All	1990			44.4	37.3	31.7	28.9	23.4										30.4
Honda	Car	All	1991			44.7	37.3	32.9	28.8	24.7										30.3
Honda	Car	All	1992			52.8	41.4	36.9	29.8	26.2	24.2									30.9
Honda	Car	All	1993			52.3	41.5	36.5	30.1	27.1	24.0									32.2
Honda	Car	All	1994			50.5	42.9	35.9	30.5	29.9	23.2									31.9
Honda	Car	All	1995			55.6	41.4	36.6	30.6	28.9	24.0									32.8
Honda	Car	All	1996				41.3	37.0	30.8	28.2	23.1									31.6
Honda	Car	All	1997				41.8	36.9	30.7	28.0	23.2									32.0
Honda	Car	All	1998				41.3	37.2	32.0	29.0	23.4									31.7
Honda	Car	All	1999				40.9	36.2	32.1	28.5	22.3									30.6
Honda	Car	All	2000		76.4		40.7	36.0	29.9	28.5	22.4									30.8
Honda	Car	All	2001		75.6	66.4		39.3	29.0	28.6	24.9									31.9
Honda	Car	All	2002		75.3	66.4		39.3	31.4	29.0	25.3									31.8
Honda	Car	All	2003		75.1	66.4		38.9	38.6	30.0	26.5									32.6
Honda	Car	All	2004		73.8	66.4		38.7	38.7	30.4	26.8									32.6
Honda	Car	All	2005		74.3	66.4		38.6	38.7	30.9	26.4									32.7
Honda	Car	All	2006		73.8	66.4		39.2	39.4	30.7	26.9									33.3
Honda	Car	All	2007					39.8	39.2	30.7	27.2									33.5
Honda	Car	All	2008					39.9	39.6	31.3	28.3									33.8
Honda	Car	All	2009					40.1	39.8	31.5	28.4	23.8								34.2
Honda	Car	All	2010					40.2	41.7	32.3	28.3	23.8								35.1
Honda	Car	All	2011					40.9	41.2	33.6	29.7	25.7								35.4
Honda	Car	All	2012					41.2	43.1	34.6	29.8	25.7								37.4
Honda	Car	All	2013					41.4	42.6	38.1	31.7	28.7								39.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Honda	Car	All	2014						43.9	37.8	34.0	29.2								39.0
Honda	Car	All	2015					47.4	43.8	39.8	35.5	28.7								41.0
Honda	Car	All	2016					48.7	46.3	39.6	33.4	40.9								41.7
Honda	Car	All	2017					47.5	46.3	40.1	35.6	70.2								41.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Honda	Truck	Van	1975																	
Honda	Truck	Van	1976																	
Honda	Truck	Van	1977																	
Honda	Truck	Van	1978																	
Honda	Truck	Van	1979																	
Honda	Truck	Van	1980																	
Honda	Truck	Van	1981																	
Honda	Truck	Van	1982																	
Honda	Truck	Van	1983																	
Honda	Truck	Van	1984																	
Honda	Truck	Van	1985																	
Honda	Truck	Van	1986																	
Honda	Truck	Van	1987																	
Honda	Truck	Van	1988																	
Honda	Truck	Van	1989																	
Honda	Truck	Van	1990																	
Honda	Truck	Van	1991																	
Honda	Truck	Van	1992																	
Honda	Truck	Van	1993																	
Honda	Truck	Van	1994																	
Honda	Truck	Van	1995							25.5										25.5
Honda	Truck	Van	1996							28.5										28.5
Honda	Truck	Van	1997							24.9										24.9
Honda	Truck	Van	1998							27.0										27.0
Honda	Truck	Van	1999									24.1								24.1
Honda	Truck	Van	2000									23.9								23.9
Honda	Truck	Van	2001									24.0								24.0
Honda	Truck	Van	2002									24.2								24.2
Honda	Truck	Van	2003									24.2								24.2
Honda	Truck	Van	2004									24.2								24.2
Honda	Truck	Van	2005									26.0								26.0
Honda	Truck	Van	2006									26.1								26.1
Honda	Truck	Van	2007									24.7								24.7
Honda	Truck	Van	2008									25.2								25.2
Honda	Truck	Van	2009									23.9	25.9							25.2
Honda	Truck	Van	2010									23.9	25.4							24.9
Honda	Truck	Van	2011									27.8								27.8
Honda	Truck	Van	2012									27.8								27.8
Honda	Truck	Van	2013									27.7								27.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Honda	Truck	Van	2014									29.0							29.0
Honda	Truck	Van	2015									29.0							29.0
Honda	Truck	Van	2016									29.0							29.0
Honda	Truck	Van	2017									29.0							29.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Honda	Truck	Truck SUV	1975																	
Honda	Truck	Truck SUV	1976																	
Honda	Truck	Truck SUV	1977																	
Honda	Truck	Truck SUV	1978																	
Honda	Truck	Truck SUV	1979																	
Honda	Truck	Truck SUV	1980																	
Honda	Truck	Truck SUV	1981																	
Honda	Truck	Truck SUV	1982																	
Honda	Truck	Truck SUV	1983																	
Honda	Truck	Truck SUV	1984																	
Honda	Truck	Truck SUV	1985																	
Honda	Truck	Truck SUV	1986																	
Honda	Truck	Truck SUV	1987																	
Honda	Truck	Truck SUV	1988																	
Honda	Truck	Truck SUV	1989																	
Honda	Truck	Truck SUV	1990																	
Honda	Truck	Truck SUV	1991																	
Honda	Truck	Truck SUV	1992																	
Honda	Truck	Truck SUV	1993																	
Honda	Truck	Truck SUV	1994								20.1									20.1
Honda	Truck	Truck SUV	1995																	
Honda	Truck	Truck SUV	1996								19.0									19.0
Honda	Truck	Truck SUV	1997							26.9	19.2									25.1
Honda	Truck	Truck SUV	1998							26.8	21.1	19.4								25.5
Honda	Truck	Truck SUV	1999							27.1	21.1	19.4								25.9
Honda	Truck	Truck SUV	2000							27.1		20.5								26.2
Honda	Truck	Truck SUV	2001							27.1		22.2								25.1
Honda	Truck	Truck SUV	2002							27.9	21.4	22.4								25.8
Honda	Truck	Truck SUV	2003							27.6	26.5	22.5								24.7
Honda	Truck	Truck SUV	2004							27.5	26.4	22.3								24.4
Honda	Truck	Truck SUV	2005							28.1	26.4	21.8								24.1
Honda	Truck	Truck SUV	2006							28.1	26.4	22.4								24.5
Honda	Truck	Truck SUV	2007							26.4	27.7	22.4								25.0
Honda	Truck	Truck SUV	2008							26.4	28.0	22.3								25.3
Honda	Truck	Truck SUV	2009								28.4	23.4								25.7
Honda	Truck	Truck SUV	2010								29.2	24.0	23.0							27.0
Honda	Truck	Truck SUV	2011								29.8	24.0	23.0							26.3
Honda	Truck	Truck SUV	2012								33.3	32.1	26.2	23.6						28.1
Honda	Truck	Truck SUV	2013								33.4	31.8	26.2	24.0						29.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Honda	Truck	Truck SUV	2014							33.4	31.6	26.9	25.4							30.4
Honda	Truck	Truck SUV	2015							38.6	35.8	26.6	25.4							32.4
Honda	Truck	Truck SUV	2016							38.1	34.5	28.4								31.9
Honda	Truck	Truck SUV	2017							38.8	32.8	28.7								33.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Honda	Truck	Pickup	1975																	
Honda	Truck	Pickup	1976																	
Honda	Truck	Pickup	1977																	
Honda	Truck	Pickup	1978																	
Honda	Truck	Pickup	1979																	
Honda	Truck	Pickup	1980																	
Honda	Truck	Pickup	1981																	
Honda	Truck	Pickup	1982																	
Honda	Truck	Pickup	1983																	
Honda	Truck	Pickup	1984																	
Honda	Truck	Pickup	1985																	
Honda	Truck	Pickup	1986																	
Honda	Truck	Pickup	1987																	
Honda	Truck	Pickup	1988																	
Honda	Truck	Pickup	1989																	
Honda	Truck	Pickup	1990																	
Honda	Truck	Pickup	1991																	
Honda	Truck	Pickup	1992																	
Honda	Truck	Pickup	1993																	
Honda	Truck	Pickup	1994																	
Honda	Truck	Pickup	1995																	
Honda	Truck	Pickup	1996																	
Honda	Truck	Pickup	1997																	
Honda	Truck	Pickup	1998																	
Honda	Truck	Pickup	1999																	
Honda	Truck	Pickup	2000																	
Honda	Truck	Pickup	2001																	
Honda	Truck	Pickup	2002																	
Honda	Truck	Pickup	2003																	
Honda	Truck	Pickup	2004																	
Honda	Truck	Pickup	2005																	
Honda	Truck	Pickup	2006									21.4								21.4
Honda	Truck	Pickup	2007									21.4								21.4
Honda	Truck	Pickup	2008									21.4								21.4
Honda	Truck	Pickup	2009									22.0								22.0
Honda	Truck	Pickup	2010									22.0								22.0
Honda	Truck	Pickup	2011									22.0								22.0
Honda	Truck	Pickup	2012										22.6							22.6
Honda	Truck	Pickup	2013										22.6							22.6



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Honda	Truck	Pickup	2014										22.6						22.6
Honda	Truck	Pickup	2015																
Honda	Truck	Pickup	2016																
Honda	Truck	Pickup	2017									27.5							27.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Honda	Truck	All	1975																	
Honda	Truck	All	1976																	
Honda	Truck	All	1977																	
Honda	Truck	All	1978																	
Honda	Truck	All	1979																	
Honda	Truck	All	1980																	
Honda	Truck	All	1981																	
Honda	Truck	All	1982																	
Honda	Truck	All	1983																	
Honda	Truck	All	1984																	
Honda	Truck	All	1985																	
Honda	Truck	All	1986																	
Honda	Truck	All	1987																	
Honda	Truck	All	1988																	
Honda	Truck	All	1989																	
Honda	Truck	All	1990																	
Honda	Truck	All	1991																	
Honda	Truck	All	1992																	
Honda	Truck	All	1993																	
Honda	Truck	All	1994								20.1									20.1
Honda	Truck	All	1995							25.5										25.5
Honda	Truck	All	1996							28.5		19.0								22.7
Honda	Truck	All	1997							26.4		19.2								25.1
Honda	Truck	All	1998							26.9	21.1	19.4								25.7
Honda	Truck	All	1999							27.1	21.1	24.0								25.3
Honda	Truck	All	2000							27.1		23.6								24.9
Honda	Truck	All	2001							27.1		23.5								24.6
Honda	Truck	All	2002							27.9	21.4	23.7								25.0
Honda	Truck	All	2003							27.6	26.5	23.3								24.6
Honda	Truck	All	2004							27.5	26.4	23.0								24.3
Honda	Truck	All	2005							28.1	26.4	23.5								24.7
Honda	Truck	All	2006							28.1	26.4	23.6								24.5
Honda	Truck	All	2007							26.4	27.7	23.3								24.5
Honda	Truck	All	2008							26.4	28.0	23.3								24.9
Honda	Truck	All	2009								28.4	23.3	25.9							25.4
Honda	Truck	All	2010								29.2	23.7	24.6							26.2
Honda	Truck	All	2011								29.8	25.1	23.0							26.4
Honda	Truck	All	2012								33.3	32.1	27.1	23.5						27.8
Honda	Truck	All	2013								33.4	31.8	26.9	23.6						28.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Honda	Truck	All	2014							33.4	31.6	28.0	23.9						29.8
Honda	Truck	All	2015							38.6	35.8	27.8	25.4						31.5
Honda	Truck	All	2016							38.1	34.5	28.6							31.2
Honda	Truck	All	2017							38.8	32.8	28.4							32.3

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Honda	All	All	1975		31.4															31.4
Honda	All	All	1976		32.9	29.5														32.6
Honda	All	All	1977		36.4	33.9														35.5
Honda	All	All	1978		33.5	33.9														33.7
Honda	All	All	1979		30.9	29.9	27.9													29.0
Honda	All	All	1980		33.6	32.5	27.1													29.2
Honda	All	All	1981		36.1	33.6	28.5													30.8
Honda	All	All	1982		40.5	36.1	30.8													33.4
Honda	All	All	1983		44.7	36.6	33.6													35.3
Honda	All	All	1984		44.0	36.0	33.5													35.2
Honda	All	All	1985		44.4	36.4	32.1	30.4												33.8
Honda	All	All	1986		47.6	37.9	32.2	31.8		24.7										33.6
Honda	All	All	1987		52.0	38.1	33.1	31.8		24.3										32.8
Honda	All	All	1988		60.4	39.8	35.9	31.9	29.7	23.6										31.8
Honda	All	All	1989		60.3	39.6	34.9	32.6	29.2	23.4										31.3
Honda	All	All	1990			44.4	37.3	31.7	28.9	23.4										30.4
Honda	All	All	1991			44.7	37.3	32.9	28.8	24.7										30.3
Honda	All	All	1992			52.8	41.4	36.9	29.8	26.2	24.2									30.9
Honda	All	All	1993			52.3	41.5	36.5	30.1	27.1	24.0									32.2
Honda	All	All	1994			50.5	42.9	35.9	30.5	29.9	22.2									31.5
Honda	All	All	1995			55.6	41.4	36.6	30.6	28.4	24.0									32.4
Honda	All	All	1996				41.3	37.0	30.8	28.2	23.1	19.0								31.0
Honda	All	All	1997				41.8	36.9	30.7	27.4	23.2	19.2								31.0
Honda	All	All	1998				41.3	37.2	32.0	28.6	22.6	19.4								30.9
Honda	All	All	1999				40.9	36.2	32.1	28.3	21.8	24.0								29.6
Honda	All	All	2000		76.4		40.7	36.0	29.9	28.3	22.4	23.6								29.4
Honda	All	All	2001		75.6	66.4		39.3	29.0	28.4	24.9	23.5								29.9
Honda	All	All	2002		75.3	66.4		39.3	31.4	28.8	25.3	23.7								29.8
Honda	All	All	2003		75.1	66.4		38.9	38.6	29.5	26.5	23.3								29.1
Honda	All	All	2004		73.8	66.4		38.7	38.7	29.7	26.7	23.0								28.9
Honda	All	All	2005		74.3	66.4		38.6	38.7	30.2	26.4	23.5								29.1
Honda	All	All	2006		73.8	66.4		39.2	39.4	30.0	26.8	23.6								28.9
Honda	All	All	2007					39.8	39.2	30.7	27.6	23.3								29.3
Honda	All	All	2008					39.9	39.6	31.3	28.1	23.3								30.1
Honda	All	All	2009					40.1	39.8	31.5	28.4	23.3	25.9							31.1
Honda	All	All	2010					40.2	41.7	32.3	28.9	23.7	24.6							31.5
Honda	All	All	2011					40.9	41.2	33.6	29.8	25.1	23.0							30.4
Honda	All	All	2012					41.2	43.1	34.4	30.6	27.1	23.5							33.7
Honda	All	All	2013					41.4	42.6	37.1	31.8	27.0	23.6							34.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Honda	All	All	2014						43.9	36.7	32.6	28.0	23.9							34.7
Honda	All	All	2015					47.4	43.8	39.7	35.7	27.8	25.4							37.0
Honda	All	All	2016					48.7	46.3	39.4	34.1	28.6								36.7
Honda	All	All	2017					47.5	46.3	39.8	34.5	28.5								38.7

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Nissan	Car	Car	1975			32.1	27.4	25.5	19.5											25.0
Nissan	Car	Car	1976			32.6	29.6	26.2	20.7											26.9
Nissan	Car	Car	1977			33.3	28.3	26.1	20.3											27.2
Nissan	Car	Car	1978			31.5	27.4	26.1	20.1											26.8
Nissan	Car	Car	1979			30.6	26.7	25.1	21.1											26.8
Nissan	Car	Car	1980			33.1	32.6	31.3	23.1											31.2
Nissan	Car	Car	1981			34.0	31.2	30.8	23.8	30.5										30.5
Nissan	Car	Car	1982		41.3	34.9	33.7		25.0	28.7										30.7
Nissan	Car	Car	1983		46.2	37.4	32.6		26.0	25.5										32.7
Nissan	Car	Car	1984			38.3	32.1	32.5	26.6	23.6										31.9
Nissan	Car	Car	1985			36.3	31.2	28.5	27.9	22.8										29.5
Nissan	Car	Car	1986			37.2	33.8	28.3	27.8	24.1										29.9
Nissan	Car	Car	1987			37.5	34.1	30.6	27.5	24.2										29.3
Nissan	Car	Car	1988			36.6	34.5	31.4	27.8	23.9										30.6
Nissan	Car	Car	1989			36.0	34.6	32.3	26.7	25.2										30.2
Nissan	Car	Car	1990				35.5	33.0	26.9	25.0	22.2									28.4
Nissan	Car	Car	1991				37.1	35.5	27.9	25.1	22.2	18.9								29.0
Nissan	Car	Car	1992				37.0	35.8	27.9	25.3	22.0	18.9								29.9
Nissan	Car	Car	1993				37.4	34.4	28.6	25.7	23.1	19.4								29.1
Nissan	Car	Car	1994				37.5	34.7	28.7	25.1	23.0	19.8								29.8
Nissan	Car	Car	1995				39.6	36.1	28.4	27.2	23.1	20.2								29.2
Nissan	Car	Car	1996				38.9	36.4	28.5	27.4	23.0									30.2
Nissan	Car	Car	1997				39.0	36.0	28.3	27.3	23.5									29.6
Nissan	Car	Car	1998				38.4	35.9	30.7	28.6	23.1									30.2
Nissan	Car	Car	1999					35.8	30.8	28.5	23.0									29.6
Nissan	Car	Car	2000					34.1	30.8	27.1	23.1									28.0
Nissan	Car	Car	2001					34.3	30.7	26.7	22.9									28.3
Nissan	Car	Car	2002					35.5	33.6	27.7	23.3									28.9
Nissan	Car	Car	2003					36.5	34.3	27.1	23.0									27.9
Nissan	Car	Car	2004					36.1	35.1	26.6	26.0									28.2
Nissan	Car	Car	2005					36.1	34.9	29.6	25.6									29.4
Nissan	Car	Car	2006					36.0	35.3	29.5	25.0	23.1								29.1
Nissan	Car	Car	2007						36.9	33.3	25.8									31.6
Nissan	Car	Car	2008						36.9	33.3	25.8	20.7								32.2
Nissan	Car	Car	2009						38.1	37.2	34.0	27.5	25.0							33.3
Nissan	Car	Car	2010						38.0	37.8	34.8	27.6	25.3							33.6
Nissan	Car	Car	2011						37.9	37.9	36.0	28.0	25.7							34.3
Nissan	Car	Car	2012						40.5	45.1	38.4	35.7	28.0	26.6						35.4
Nissan	Car	Car	2013						41.4	48.5	44.6	42.1	27.8	26.1						40.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Nissan	Car	Car	2014				41.4	48.0	44.7	41.7	28.7	31.8							40.3
Nissan	Car	Car	2015					46.5	44.4	43.4	30.1	29.3							41.5
Nissan	Car	Car	2016					46.5	43.9	42.7	31.1	27.8							40.6
Nissan	Car	Car	2017					46.5	43.8	43.1	31.1	28.3							40.6



Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Nissan	Car	Car SUV	1975																	
Nissan	Car	Car SUV	1976																	
Nissan	Car	Car SUV	1977																	
Nissan	Car	Car SUV	1978																	
Nissan	Car	Car SUV	1979																	
Nissan	Car	Car SUV	1980																	
Nissan	Car	Car SUV	1981																	
Nissan	Car	Car SUV	1982																	
Nissan	Car	Car SUV	1983																	
Nissan	Car	Car SUV	1984																	
Nissan	Car	Car SUV	1985																	
Nissan	Car	Car SUV	1986																	
Nissan	Car	Car SUV	1987																	
Nissan	Car	Car SUV	1988																	
Nissan	Car	Car SUV	1989																	
Nissan	Car	Car SUV	1990																	
Nissan	Car	Car SUV	1991																	
Nissan	Car	Car SUV	1992																	
Nissan	Car	Car SUV	1993																	
Nissan	Car	Car SUV	1994																	
Nissan	Car	Car SUV	1995																	
Nissan	Car	Car SUV	1996																	
Nissan	Car	Car SUV	1997																	
Nissan	Car	Car SUV	1998																	
Nissan	Car	Car SUV	1999																	
Nissan	Car	Car SUV	2000								20.1									20.1
Nissan	Car	Car SUV	2001								20.4									20.4
Nissan	Car	Car SUV	2002								20.7									20.7
Nissan	Car	Car SUV	2003								23.0									23.0
Nissan	Car	Car SUV	2004								23.3	22.6								23.2
Nissan	Car	Car SUV	2005								25.9	21.7								23.5
Nissan	Car	Car SUV	2006								25.9	21.5								23.3
Nissan	Car	Car SUV	2007								25.8	21.9								23.8
Nissan	Car	Car SUV	2008								32.3	24.9	22.1							26.6
Nissan	Car	Car SUV	2009								32.3	26.3	23.0							27.6
Nissan	Car	Car SUV	2010								32.0	26.2	23.3							28.0
Nissan	Car	Car SUV	2011								32.6	26.6	23.7							29.8
Nissan	Car	Car SUV	2012								33.1	26.6	23.8							30.2
Nissan	Car	Car SUV	2013								33.0	26.6	24.4							31.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Nissan	Car	Car SUV	2014							35.7	26.6	24.0							32.5
Nissan	Car	Car SUV	2015							36.4		24.3							35.8
Nissan	Car	Car SUV	2016							38.0		25.3							37.7
Nissan	Car	Car SUV	2017							38.9	47.9	25.3							38.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	Car	All	1975			32.1	27.4	25.5	19.5											25.0
Nissan	Car	All	1976			32.6	29.6	26.2	20.7											26.9
Nissan	Car	All	1977			33.3	28.3	26.1	20.3											27.2
Nissan	Car	All	1978			31.5	27.4	26.1	20.1											26.8
Nissan	Car	All	1979			30.6	26.7	25.1	21.1											26.8
Nissan	Car	All	1980			33.1	32.6	31.3	23.1											31.2
Nissan	Car	All	1981			34.0	31.2	30.8	23.8	30.5										30.5
Nissan	Car	All	1982		41.3	34.9	33.7		25.0	28.7										30.7
Nissan	Car	All	1983		46.2	37.4	32.6		26.0	25.5										32.7
Nissan	Car	All	1984			38.3	32.1	32.5	26.6	23.6										31.9
Nissan	Car	All	1985			36.3	31.2	28.5	27.9	22.8										29.5
Nissan	Car	All	1986			37.2	33.8	28.3	27.8	24.1										29.9
Nissan	Car	All	1987			37.5	34.1	30.6	27.5	24.2										29.3
Nissan	Car	All	1988			36.6	34.5	31.4	27.8	23.9										30.6
Nissan	Car	All	1989			36.0	34.6	32.3	26.7	25.2										30.2
Nissan	Car	All	1990				35.5	33.0	26.9	25.0	22.2									28.4
Nissan	Car	All	1991				37.1	35.5	27.9	25.1	22.2	18.9								29.0
Nissan	Car	All	1992				37.0	35.8	27.9	25.3	22.0	18.9								29.9
Nissan	Car	All	1993				37.4	34.4	28.6	25.7	23.1	19.4								29.1
Nissan	Car	All	1994				37.5	34.7	28.7	25.1	23.0	19.8								29.8
Nissan	Car	All	1995				39.6	36.1	28.4	27.2	23.1	20.2								29.2
Nissan	Car	All	1996				38.9	36.4	28.5	27.4	23.0									30.2
Nissan	Car	All	1997				39.0	36.0	28.3	27.3	23.5									29.6
Nissan	Car	All	1998				38.4	35.9	30.7	28.6	23.1									30.2
Nissan	Car	All	1999					35.8	30.8	28.5	23.0									29.6
Nissan	Car	All	2000					34.1	30.8	27.1	20.3									26.9
Nissan	Car	All	2001					34.3	30.7	26.7	20.5									27.1
Nissan	Car	All	2002					35.5	33.6	27.7	21.0									27.8
Nissan	Car	All	2003					36.5	34.3	27.1	23.0									27.2
Nissan	Car	All	2004					36.1	35.1	26.6	25.0	22.6								27.3
Nissan	Car	All	2005					36.1	34.9	29.6	25.6	21.7								28.7
Nissan	Car	All	2006					36.0	35.3	29.5	25.1	21.5								28.4
Nissan	Car	All	2007						36.9	33.3	25.8	21.9								30.7
Nissan	Car	All	2008						36.9	33.2	25.8	22.1								31.7
Nissan	Car	All	2009						38.1	37.2	33.8	27.2	23.9							32.5
Nissan	Car	All	2010						38.0	37.8	34.4	27.4	23.9							32.9
Nissan	Car	All	2011						37.9	37.9	35.3	27.8	24.9							33.6
Nissan	Car	All	2012						40.5	45.1	38.4	35.3	27.8	25.2						34.8
Nissan	Car	All	2013						41.4	48.5	44.6	40.4	27.7	25.2						38.6



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Nissan	Car	All	2014				41.4	48.0	44.7	40.4	28.4	27.9							39.3
Nissan	Car	All	2015					46.5	44.4	41.7	30.1	25.7							40.7
Nissan	Car	All	2016					46.5	43.9	41.1	31.1	27.1							40.1
Nissan	Car	All	2017					46.5	43.8	42.3	31.3	27.8							40.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Nissan	Truck	Van	1975																	
Nissan	Truck	Van	1976																	
Nissan	Truck	Van	1977																	
Nissan	Truck	Van	1978																	
Nissan	Truck	Van	1979																	
Nissan	Truck	Van	1980																	
Nissan	Truck	Van	1981																	
Nissan	Truck	Van	1982																	
Nissan	Truck	Van	1983																	
Nissan	Truck	Van	1984																	
Nissan	Truck	Van	1985																	
Nissan	Truck	Van	1986																	
Nissan	Truck	Van	1987							22.4										22.4
Nissan	Truck	Van	1988							22.5	21.8									22.3
Nissan	Truck	Van	1989							22.5	21.8									22.2
Nissan	Truck	Van	1990						27.5	25.3	21.3									25.4
Nissan	Truck	Van	1991						27.6	25.6										26.0
Nissan	Truck	Van	1992							25.6										25.6
Nissan	Truck	Van	1993								21.8									21.8
Nissan	Truck	Van	1994								22.7									22.7
Nissan	Truck	Van	1995								23.0									23.0
Nissan	Truck	Van	1996								22.9									22.9
Nissan	Truck	Van	1997								22.6									22.6
Nissan	Truck	Van	1998								22.7									22.7
Nissan	Truck	Van	1999								23.1									23.1
Nissan	Truck	Van	2000								22.8									22.8
Nissan	Truck	Van	2001								22.6									22.6
Nissan	Truck	Van	2002								22.6									22.6
Nissan	Truck	Van	2003																	
Nissan	Truck	Van	2004									24.6								24.6
Nissan	Truck	Van	2005									24.7								24.7
Nissan	Truck	Van	2006									24.9								24.9
Nissan	Truck	Van	2007									24.5								24.5
Nissan	Truck	Van	2008									24.5								24.5
Nissan	Truck	Van	2009									24.5								24.5
Nissan	Truck	Van	2010																	
Nissan	Truck	Van	2011									27.1								27.1
Nissan	Truck	Van	2012									27.4								27.4
Nissan	Truck	Van	2013							33.6		27.8								29.5

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	Truck	Van	2014							33.6		27.9								30.8
Nissan	Truck	Van	2015							34.9		29.6								33.4
Nissan	Truck	Van	2016							34.9		29.7								32.4
Nissan	Truck	Van	2017							34.9		29.6								33.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Nissan	Truck	Truck SUV	1975																	
Nissan	Truck	Truck SUV	1976																	
Nissan	Truck	Truck SUV	1977																	
Nissan	Truck	Truck SUV	1978																	
Nissan	Truck	Truck SUV	1979																	
Nissan	Truck	Truck SUV	1980																	
Nissan	Truck	Truck SUV	1981																	
Nissan	Truck	Truck SUV	1982																	
Nissan	Truck	Truck SUV	1983																	
Nissan	Truck	Truck SUV	1984																	
Nissan	Truck	Truck SUV	1985																	
Nissan	Truck	Truck SUV	1986																	
Nissan	Truck	Truck SUV	1987								18.7									18.7
Nissan	Truck	Truck SUV	1988								18.5									18.5
Nissan	Truck	Truck SUV	1989								19.0									19.0
Nissan	Truck	Truck SUV	1990								19.5									19.5
Nissan	Truck	Truck SUV	1991								19.5									19.5
Nissan	Truck	Truck SUV	1992								19.6									19.6
Nissan	Truck	Truck SUV	1993								20.3	18.9								19.4
Nissan	Truck	Truck SUV	1994								19.0	18.4								18.6
Nissan	Truck	Truck SUV	1995								19.4	18.6								19.1
Nissan	Truck	Truck SUV	1996								19.8									19.8
Nissan	Truck	Truck SUV	1997								20.4	19.4								19.6
Nissan	Truck	Truck SUV	1998								20.3	19.3								19.5
Nissan	Truck	Truck SUV	1999								20.2	19.3								19.5
Nissan	Truck	Truck SUV	2000								20.0	19.2								19.3
Nissan	Truck	Truck SUV	2001								20.2	19.5								19.7
Nissan	Truck	Truck SUV	2002								20.2	19.4								19.5
Nissan	Truck	Truck SUV	2003								24.1	20.2								21.3
Nissan	Truck	Truck SUV	2004								24.4	20.6	18.4	18.0	17.4					19.6
Nissan	Truck	Truck SUV	2005								25.6	21.1	20.6	18.1	17.4					20.7
Nissan	Truck	Truck SUV	2006								25.5	22.4	20.6	18.0	17.4					20.9
Nissan	Truck	Truck SUV	2007								25.5	23.0	21.3		17.8					21.9
Nissan	Truck	Truck SUV	2008								30.8	28.8	21.7	21.0	18.1	17.4				22.3
Nissan	Truck	Truck SUV	2009								30.7	27.9	24.6	21.4	18.3					25.4
Nissan	Truck	Truck SUV	2010								30.5	29.4	24.0	21.5	18.3					24.0
Nissan	Truck	Truck SUV	2011								31.4	30.8	23.9	21.6	19.2					24.9
Nissan	Truck	Truck SUV	2012								31.6	30.4	24.0	21.6	19.3					24.7
Nissan	Truck	Truck SUV	2013								31.5	30.7	27.1	20.9	19.2					27.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	Truck	Truck SUV	2014							31.8	35.2	27.5	36.2		19.5					28.2
Nissan	Truck	Truck SUV	2015							30.9	36.6	29.2	29.0		19.6	19.4				30.3
Nissan	Truck	Truck SUV	2016								36.8	29.7	28.9		20.8	20.0				33.2
Nissan	Truck	Truck SUV	2017								37.1	29.0	28.3		20.8	19.7				31.5

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Nissan	Truck	Pickup	1975					23.6												23.6
Nissan	Truck	Pickup	1976					24.5												24.5
Nissan	Truck	Pickup	1977					25.0												25.0
Nissan	Truck	Pickup	1978					25.9		20.6										25.6
Nissan	Truck	Pickup	1979					23.7		15.5										23.2
Nissan	Truck	Pickup	1980					26.6	23.1	16.3										25.1
Nissan	Truck	Pickup	1981					29.0	27.2	22.1	17.7									27.7
Nissan	Truck	Pickup	1982					28.3	27.9	23.9	17.4									27.8
Nissan	Truck	Pickup	1983					30.2	27.9	24.0	17.5									27.4
Nissan	Truck	Pickup	1984					29.2	28.4	23.0	17.6									26.2
Nissan	Truck	Pickup	1985						26.9	22.9	17.5									25.7
Nissan	Truck	Pickup	1986						26.3	22.8	20.8									24.7
Nissan	Truck	Pickup	1987						26.9	22.1	19.1									25.1
Nissan	Truck	Pickup	1988						26.7	23.0	19.8									24.7
Nissan	Truck	Pickup	1989						27.0	22.5	19.8									24.8
Nissan	Truck	Pickup	1990						28.8	24.3	21.2									27.1
Nissan	Truck	Pickup	1991						28.6	24.9	21.6									26.9
Nissan	Truck	Pickup	1992						28.7	25.0	21.3									26.7
Nissan	Truck	Pickup	1993						28.6	25.2	21.1									26.4
Nissan	Truck	Pickup	1994						28.3	25.6	21.2									25.6
Nissan	Truck	Pickup	1995						27.5	25.5	20.4	19.0								24.9
Nissan	Truck	Pickup	1996						27.4	24.8	21.2									25.2
Nissan	Truck	Pickup	1997						26.6	25.1	21.2									24.9
Nissan	Truck	Pickup	1998						28.8	26.6	22.4									25.5
Nissan	Truck	Pickup	1999							25.9	20.4	19.6								23.3
Nissan	Truck	Pickup	2000							26.1	19.7	19.4								21.8
Nissan	Truck	Pickup	2001							26.3	20.2	19.6								22.2
Nissan	Truck	Pickup	2002							26.1	20.3	19.6								22.0
Nissan	Truck	Pickup	2003							26.2	21.2	20.2								22.4
Nissan	Truck	Pickup	2004							26.5	21.5	20.6								23.2
Nissan	Truck	Pickup	2005								25.6	20.7	18.5	17.9						19.4
Nissan	Truck	Pickup	2006								25.4	20.7	18.5	17.9						19.8
Nissan	Truck	Pickup	2007								25.2	21.1	18.5	17.7						20.1
Nissan	Truck	Pickup	2008								25.3	21.2	18.9	18.3	17.4					19.4
Nissan	Truck	Pickup	2009								25.4	21.5	20.6	18.5	17.7					20.3
Nissan	Truck	Pickup	2010								24.8	21.3	21.0	18.8	17.8					20.4
Nissan	Truck	Pickup	2011								25.1	21.4	20.5	18.6	17.8					20.4
Nissan	Truck	Pickup	2012								25.5	21.4	20.2	18.8	17.8					20.6
Nissan	Truck	Pickup	2013								25.4	23.1	21.2	18.9	17.7					22.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	Truck	Pickup	2014								25.2	23.1	21.2	18.9	17.6					22.2
Nissan	Truck	Pickup	2015								25.2	23.2	21.7	19.0	17.7					22.5
Nissan	Truck	Pickup	2016								25.2	23.2	21.9							23.4
Nissan	Truck	Pickup	2017								25.4	23.2	21.4	23.0	22.6					23.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	Truck	All	1975					23.6												23.6
Nissan	Truck	All	1976					24.5												24.5
Nissan	Truck	All	1977					25.0												25.0
Nissan	Truck	All	1978					25.9		20.6										25.6
Nissan	Truck	All	1979					23.7		15.5										23.2
Nissan	Truck	All	1980					26.6	23.1	16.3										25.1
Nissan	Truck	All	1981					29.0	27.2	22.1	17.7									27.7
Nissan	Truck	All	1982					28.3	27.9	23.9	17.4									27.8
Nissan	Truck	All	1983					30.2	27.9	24.0	17.5									27.4
Nissan	Truck	All	1984					29.2	28.4	23.0	17.6									26.2
Nissan	Truck	All	1985						26.9	22.9	17.5									25.7
Nissan	Truck	All	1986						26.3	22.8	20.8									24.7
Nissan	Truck	All	1987						26.9	22.2	18.8									23.5
Nissan	Truck	All	1988						26.7	22.8	19.0									22.7
Nissan	Truck	All	1989						27.0	22.5	19.3									23.7
Nissan	Truck	All	1990						28.8	24.7	20.0									25.3
Nissan	Truck	All	1991						28.6	24.9	20.0									24.8
Nissan	Truck	All	1992						28.7	25.0	19.9									24.0
Nissan	Truck	All	1993						28.6	25.2	21.1	18.9								23.7
Nissan	Truck	All	1994						28.3	25.6	21.5	18.4								22.9
Nissan	Truck	All	1995						27.5	25.5	20.9	18.6								22.4
Nissan	Truck	All	1996						27.4	24.8	21.2									22.9
Nissan	Truck	All	1997						26.6	25.1	21.7	19.4								22.3
Nissan	Truck	All	1998						28.8	26.6	22.0	19.3								22.3
Nissan	Truck	All	1999							25.9	21.6	19.3								21.2
Nissan	Truck	All	2000							26.1	20.9	19.3								20.9
Nissan	Truck	All	2001							26.3	20.8	19.5								20.7
Nissan	Truck	All	2002							26.1	20.9	19.4								20.7
Nissan	Truck	All	2003							26.2	22.8	20.2								21.6
Nissan	Truck	All	2004							26.5	23.2	22.1	18.4	18.0	17.4					20.9
Nissan	Truck	All	2005								25.6	21.7	19.9	18.0	17.4					20.5
Nissan	Truck	All	2006								25.4	22.1	19.8	17.9	17.4					20.6
Nissan	Truck	All	2007								25.4	22.7	20.4	17.7	17.8					21.5
Nissan	Truck	All	2008								30.8	28.4	22.0	21.0	18.3	17.8	17.4			21.4
Nissan	Truck	All	2009								30.7	27.7	23.9	21.4	18.5	18.1				24.2
Nissan	Truck	All	2010								30.5	28.4	23.0	21.3	18.8	18.2				22.8
Nissan	Truck	All	2011								31.4	30.3	23.4	21.3	18.6	18.9				23.8
Nissan	Truck	All	2012								31.6	29.9	23.3	21.3	18.8	18.9				23.5
Nissan	Truck	All	2013								31.7	29.6	26.3	21.2	18.9	18.9				26.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	Truck	All	2014							32.3	32.9	26.6	25.7	18.9	19.1					26.9
Nissan	Truck	All	2015							32.9	35.0	27.7	25.7	19.0	19.3	19.4				29.0
Nissan	Truck	All	2016							34.9	35.4	26.1	24.1		20.8	20.0				30.1
Nissan	Truck	All	2017							34.9	35.9	27.4	24.9	23.0	22.3	19.7				28.9

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Nissan	All	All	1975			32.1	27.4	24.1	19.5										24.7
Nissan	All	All	1976			32.6	29.6	25.2	20.7										26.3
Nissan	All	All	1977			33.3	28.3	25.5	20.3										26.7
Nissan	All	All	1978			31.5	27.4	26.0	20.1	20.6									26.5
Nissan	All	All	1979			30.6	26.7	24.1	21.1	15.5									26.2
Nissan	All	All	1980			33.1	32.6	28.9	23.1	16.3									29.8
Nissan	All	All	1981			34.0	31.2	30.1	24.7	25.2	17.7								30.0
Nissan	All	All	1982	41.3	34.9	33.7	28.3	25.6	27.1	17.4									30.0
Nissan	All	All	1983	46.2	37.4	32.6	30.2	26.5	24.7	17.5									31.7
Nissan	All	All	1984			38.3	32.1	32.1	27.4	23.3	17.6								30.5
Nissan	All	All	1985			36.3	31.2	28.5	27.1	22.8	17.5								28.4
Nissan	All	All	1986			37.2	33.8	28.3	26.7	23.7	20.8								27.5
Nissan	All	All	1987			37.5	34.1	30.6	27.2	23.9	18.8								27.8
Nissan	All	All	1988			36.6	34.5	31.4	27.2	23.7	19.0								28.1
Nissan	All	All	1989			36.0	34.6	32.3	26.8	24.7	19.3								28.4
Nissan	All	All	1990				35.5	33.0	27.7	24.9	20.6								27.5
Nissan	All	All	1991				37.1	35.5	28.2	25.1	20.6	18.9							27.6
Nissan	All	All	1992				37.0	35.8	28.2	25.3	20.4	18.9							28.2
Nissan	All	All	1993				37.4	34.4	28.6	25.6	21.7	18.9							27.1
Nissan	All	All	1994				37.5	34.7	28.5	25.2	21.9	18.5							27.3
Nissan	All	All	1995				39.6	36.1	28.1	26.9	21.2	18.6							26.1
Nissan	All	All	1996				38.9	36.4	28.2	27.0	21.3								27.7
Nissan	All	All	1997				39.0	36.0	27.9	26.8	22.0	19.4							26.6
Nissan	All	All	1998				38.4	35.9	30.4	28.2	22.1	19.3							27.1
Nissan	All	All	1999					35.8	30.8	28.3	21.7	19.3							26.5
Nissan	All	All	2000					34.1	30.8	26.9	20.7	19.3							24.3
Nissan	All	All	2001					34.3	30.7	26.6	20.7	19.5							24.1
Nissan	All	All	2002					35.5	33.6	27.5	20.9	19.4							25.0
Nissan	All	All	2003					36.5	34.3	27.0	22.9	20.2							25.4
Nissan	All	All	2004					36.1	35.1	26.6	24.5	22.1	18.4	18.0	17.4				24.1
Nissan	All	All	2005					36.1	34.9	29.6	25.6	21.7	19.9	18.0	17.4				25.1
Nissan	All	All	2006					36.0	35.3	29.5	25.1	22.0	19.8	17.9	17.4				25.0
Nissan	All	All	2007						36.9	33.3	25.7	22.6	20.4	17.7	17.8				26.8
Nissan	All	All	2008						36.9	33.1	26.4	22.0	21.0	18.3	17.8	17.4			27.6
Nissan	All	All	2009						38.1	37.2	33.6	27.3	23.9	21.4	18.5	18.1			29.9
Nissan	All	All	2010						38.0	37.8	33.9	27.6	23.2	21.3	18.8	18.2			29.4
Nissan	All	All	2011						37.9	37.9	34.8	28.5	23.6	21.3	18.6	18.9			29.8
Nissan	All	All	2012						40.5	45.1	38.4	35.0	28.4	23.5	21.3	18.8	18.9		30.8
Nissan	All	All	2013						41.4	48.5	44.6	39.4	28.3	26.3	21.2	18.9	18.9		34.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Nissan	All	All	2014				41.4	48.0	44.7	39.6	29.7	26.6	25.7	18.9	19.1					34.6
Nissan	All	All	2015					46.5	44.4	40.6	32.4	27.6	25.7	19.0	19.3	19.4				36.5
Nissan	All	All	2016					46.5	43.9	41.0	33.5	26.2	24.1		20.8	20.0				36.5
Nissan	All	All	2017					46.5	43.8	42.1	33.2	27.4	24.9	23.0	22.3	19.7				36.6



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Kia	Car	Car	1975																	
Kia	Car	Car	1976																	
Kia	Car	Car	1977																	
Kia	Car	Car	1978																	
Kia	Car	Car	1979																	
Kia	Car	Car	1980																	
Kia	Car	Car	1981																	
Kia	Car	Car	1982																	
Kia	Car	Car	1983																	
Kia	Car	Car	1984																	
Kia	Car	Car	1985																	
Kia	Car	Car	1986																	
Kia	Car	Car	1987																	
Kia	Car	Car	1988																	
Kia	Car	Car	1989																	
Kia	Car	Car	1990																	
Kia	Car	Car	1991																	
Kia	Car	Car	1992																	
Kia	Car	Car	1993					31.7												31.7
Kia	Car	Car	1994					32.9												32.9
Kia	Car	Car	1995					31.0												31.0
Kia	Car	Car	1996					28.9												28.9
Kia	Car	Car	1997					30.8												30.8
Kia	Car	Car	1998					30.7												30.7
Kia	Car	Car	1999					30.7												30.7
Kia	Car	Car	2000					29.8												29.8
Kia	Car	Car	2001				32.9	30.1		25.9										30.3
Kia	Car	Car	2002					32.4	29.2	25.0										29.4
Kia	Car	Car	2003					33.2	29.2	27.8										30.1
Kia	Car	Car	2004					31.8	31.4	28.1	22.6									28.9
Kia	Car	Car	2005					31.4	32.3	28.4	23.1									29.2
Kia	Car	Car	2006					38.3	33.1	30.1	23.1									32.4
Kia	Car	Car	2007					38.2	34.9	31.0	26.2									33.0
Kia	Car	Car	2008					38.2	35.2	31.5	26.8									33.3
Kia	Car	Car	2009					39.5	35.2	31.8	26.2									34.8
Kia	Car	Car	2010					40.5	36.2	33.0	27.3									36.1
Kia	Car	Car	2011					40.4	36.2	36.4										36.6
Kia	Car	Car	2012					42.0	35.9	36.7	48.7									36.7
Kia	Car	Car	2013					42.1	35.5	36.5	50.4									36.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Kia	Car	Car	2014					40.9	35.9	35.1	31.0									35.5
Kia	Car	Car	2015					40.9	36.5	35.0	31.7	22.7								35.6
Kia	Car	Car	2016					40.9	36.8	39.4	33.4	25.9	22.6							37.6
Kia	Car	Car	2017					41.1	39.8	43.0	34.9	25.9	22.6							40.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Kia	Car	Car SUV	1975																	
Kia	Car	Car SUV	1976																	
Kia	Car	Car SUV	1977																	
Kia	Car	Car SUV	1978																	
Kia	Car	Car SUV	1979																	
Kia	Car	Car SUV	1980																	
Kia	Car	Car SUV	1981																	
Kia	Car	Car SUV	1982																	
Kia	Car	Car SUV	1983																	
Kia	Car	Car SUV	1984																	
Kia	Car	Car SUV	1985																	
Kia	Car	Car SUV	1986																	
Kia	Car	Car SUV	1987																	
Kia	Car	Car SUV	1988																	
Kia	Car	Car SUV	1989																	
Kia	Car	Car SUV	1990																	
Kia	Car	Car SUV	1991																	
Kia	Car	Car SUV	1992																	
Kia	Car	Car SUV	1993																	
Kia	Car	Car SUV	1994																	
Kia	Car	Car SUV	1995							25.6										25.6
Kia	Car	Car SUV	1996							24.9										24.9
Kia	Car	Car SUV	1997							23.3										23.3
Kia	Car	Car SUV	1998							24.4										24.4
Kia	Car	Car SUV	1999							24.4										24.4
Kia	Car	Car SUV	2000							23.3										23.3
Kia	Car	Car SUV	2001							22.9										22.9
Kia	Car	Car SUV	2002							23.1										23.1
Kia	Car	Car SUV	2003																	
Kia	Car	Car SUV	2004																	
Kia	Car	Car SUV	2005							28.3	25.4									26.2
Kia	Car	Car SUV	2006							28.3	25.4									26.4
Kia	Car	Car SUV	2007							28.2	25.4	22.2								25.2
Kia	Car	Car SUV	2008							28.1	25.4	23.1								25.1
Kia	Car	Car SUV	2009							28.9	26.6	23.5								26.1
Kia	Car	Car SUV	2010							28.9	26.6	23.8								28.7
Kia	Car	Car SUV	2011							32.7	30.8	26.7								31.0
Kia	Car	Car SUV	2012							32.2	30.8	26.7								30.4
Kia	Car	Car SUV	2013							32.2	30.8	26.7								30.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Kia	Car	Car SUV	2014							30.8	28.9	25.8							28.6
Kia	Car	Car SUV	2015							30.9	28.8	25.9							28.7
Kia	Car	Car SUV	2016							30.9	30.5	27.4							30.5
Kia	Car	Car SUV	2017							33.8	30.7								31.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Kia	Car	All	1975																	
Kia	Car	All	1976																	
Kia	Car	All	1977																	
Kia	Car	All	1978																	
Kia	Car	All	1979																	
Kia	Car	All	1980																	
Kia	Car	All	1981																	
Kia	Car	All	1982																	
Kia	Car	All	1983																	
Kia	Car	All	1984																	
Kia	Car	All	1985																	
Kia	Car	All	1986																	
Kia	Car	All	1987																	
Kia	Car	All	1988																	
Kia	Car	All	1989																	
Kia	Car	All	1990																	
Kia	Car	All	1991																	
Kia	Car	All	1992																	
Kia	Car	All	1993					31.7												31.7
Kia	Car	All	1994					32.9												32.9
Kia	Car	All	1995					31.0		25.6										30.9
Kia	Car	All	1996					28.9		24.9										28.6
Kia	Car	All	1997					30.8		23.3										29.1
Kia	Car	All	1998					30.7		24.4										29.5
Kia	Car	All	1999					30.7		24.4										29.3
Kia	Car	All	2000					29.8		23.3										27.9
Kia	Car	All	2001				32.9	30.1		24.2										28.9
Kia	Car	All	2002					32.4	29.2	24.1										28.4
Kia	Car	All	2003					33.2	29.2	27.8										30.1
Kia	Car	All	2004					31.8	31.4	28.1	22.6									28.9
Kia	Car	All	2005					31.4	32.3	28.4	23.7									28.9
Kia	Car	All	2006					38.3	33.1	29.8	24.6									31.4
Kia	Car	All	2007					38.2	34.9	30.1	25.9	22.2								30.7
Kia	Car	All	2008					38.2	35.2	30.5	26.5	23.1								30.9
Kia	Car	All	2009					39.5	35.2	31.0	26.5	23.5								32.6
Kia	Car	All	2010					40.5	36.2	32.2	26.6	23.8								35.8
Kia	Car	All	2011					40.4	36.2	35.2	30.8	26.7								34.2
Kia	Car	All	2012					42.0	35.9	35.7	31.3	26.7								34.5
Kia	Car	All	2013					42.1	35.5	36.0	31.8	26.7								35.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Kia	Car	All	2014					40.9	35.9	34.3	29.4	25.8								33.4
Kia	Car	All	2015					40.9	36.5	34.5	29.5	25.2								34.0
Kia	Car	All	2016					40.9	36.8	37.7	31.1	27.1	22.6							36.1
Kia	Car	All	2017					41.1	39.8	40.2	32.0	25.9	22.6							38.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Kia	Truck	Van	1975																	
Kia	Truck	Van	1976																	
Kia	Truck	Van	1977																	
Kia	Truck	Van	1978																	
Kia	Truck	Van	1979																	
Kia	Truck	Van	1980																	
Kia	Truck	Van	1981																	
Kia	Truck	Van	1982																	
Kia	Truck	Van	1983																	
Kia	Truck	Van	1984																	
Kia	Truck	Van	1985																	
Kia	Truck	Van	1986																	
Kia	Truck	Van	1987																	
Kia	Truck	Van	1988																	
Kia	Truck	Van	1989																	
Kia	Truck	Van	1990																	
Kia	Truck	Van	1991																	
Kia	Truck	Van	1992																	
Kia	Truck	Van	1993																	
Kia	Truck	Van	1994																	
Kia	Truck	Van	1995																	
Kia	Truck	Van	1996																	
Kia	Truck	Van	1997																	
Kia	Truck	Van	1998																	
Kia	Truck	Van	1999																	
Kia	Truck	Van	2000																	
Kia	Truck	Van	2001																	
Kia	Truck	Van	2002											20.0						20.0
Kia	Truck	Van	2003											20.0						20.0
Kia	Truck	Van	2004											21.1						21.1
Kia	Truck	Van	2005											21.3						21.3
Kia	Truck	Van	2006										23.8							23.8
Kia	Truck	Van	2007										23.8							23.8
Kia	Truck	Van	2008										23.8							23.8
Kia	Truck	Van	2009										23.8							23.8
Kia	Truck	Van	2010										24.7							24.7
Kia	Truck	Van	2011										26.8							26.8
Kia	Truck	Van	2012										26.8							26.8
Kia	Truck	Van	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Kia	Truck	Van	2014									25.4							25.4
Kia	Truck	Van	2015									26.5	24.4						26.2
Kia	Truck	Van	2016									26.4	24.4						26.3
Kia	Truck	Van	2017									26.4	24.4						26.2

2017 FE Trends Report  
Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Kia	Truck	Truck SUV	1975																	
Kia	Truck	Truck SUV	1976																	
Kia	Truck	Truck SUV	1977																	
Kia	Truck	Truck SUV	1978																	
Kia	Truck	Truck SUV	1979																	
Kia	Truck	Truck SUV	1980																	
Kia	Truck	Truck SUV	1981																	
Kia	Truck	Truck SUV	1982																	
Kia	Truck	Truck SUV	1983																	
Kia	Truck	Truck SUV	1984																	
Kia	Truck	Truck SUV	1985																	
Kia	Truck	Truck SUV	1986																	
Kia	Truck	Truck SUV	1987																	
Kia	Truck	Truck SUV	1988																	
Kia	Truck	Truck SUV	1989																	
Kia	Truck	Truck SUV	1990																	
Kia	Truck	Truck SUV	1991																	
Kia	Truck	Truck SUV	1992																	
Kia	Truck	Truck SUV	1993																	
Kia	Truck	Truck SUV	1994																	
Kia	Truck	Truck SUV	1995							24.3										24.3
Kia	Truck	Truck SUV	1996							23.0										23.0
Kia	Truck	Truck SUV	1997							24.0										24.0
Kia	Truck	Truck SUV	1998							24.4										24.4
Kia	Truck	Truck SUV	1999							24.4										24.4
Kia	Truck	Truck SUV	2000							23.6										23.6
Kia	Truck	Truck SUV	2001							22.9										22.9
Kia	Truck	Truck SUV	2002							23.3										23.3
Kia	Truck	Truck SUV	2003									19.3								19.3
Kia	Truck	Truck SUV	2004									19.9								19.9
Kia	Truck	Truck SUV	2005								24.2	20.2								20.7
Kia	Truck	Truck SUV	2006								24.3	20.3								21.1
Kia	Truck	Truck SUV	2007								24.4	22.0								23.2
Kia	Truck	Truck SUV	2008								24.3	22.4								23.4
Kia	Truck	Truck SUV	2009								25.8	23.0	21.6							24.3
Kia	Truck	Truck SUV	2010								25.7									25.7
Kia	Truck	Truck SUV	2011							30.6	30.5	26.7								29.1
Kia	Truck	Truck SUV	2012							29.6	28.7									29.5
Kia	Truck	Truck SUV	2013							29.6	28.7									29.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
Kia	Truck	Truck SUV	2014							28.8	27.2									28.6	
Kia	Truck	Truck SUV	2015							28.8	28.0										28.8
Kia	Truck	Truck SUV	2016							28.8	30.6	26.4									27.6
Kia	Truck	Truck SUV	2017								29.5	26.3									27.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Kia	Truck	All	1975																	
Kia	Truck	All	1976																	
Kia	Truck	All	1977																	
Kia	Truck	All	1978																	
Kia	Truck	All	1979																	
Kia	Truck	All	1980																	
Kia	Truck	All	1981																	
Kia	Truck	All	1982																	
Kia	Truck	All	1983																	
Kia	Truck	All	1984																	
Kia	Truck	All	1985																	
Kia	Truck	All	1986																	
Kia	Truck	All	1987																	
Kia	Truck	All	1988																	
Kia	Truck	All	1989																	
Kia	Truck	All	1990																	
Kia	Truck	All	1991																	
Kia	Truck	All	1992																	
Kia	Truck	All	1993																	
Kia	Truck	All	1994																	
Kia	Truck	All	1995							24.3										24.3
Kia	Truck	All	1996							23.0										23.0
Kia	Truck	All	1997							24.0										24.0
Kia	Truck	All	1998							24.4										24.4
Kia	Truck	All	1999							24.4										24.4
Kia	Truck	All	2000							23.6										23.6
Kia	Truck	All	2001							22.9										22.9
Kia	Truck	All	2002							23.3			20.0							20.9
Kia	Truck	All	2003									19.3	20.0							19.7
Kia	Truck	All	2004									19.9	21.1							20.6
Kia	Truck	All	2005								24.2	20.2	21.3							21.0
Kia	Truck	All	2006								24.3	21.9								22.1
Kia	Truck	All	2007								24.4	23.5								23.6
Kia	Truck	All	2008								24.3	23.4								23.6
Kia	Truck	All	2009								25.8	23.5	21.6							24.1
Kia	Truck	All	2010								25.7	24.7								25.0
Kia	Truck	All	2011							30.6	30.5	26.7								28.6
Kia	Truck	All	2012							29.6	28.7	26.8								27.6
Kia	Truck	All	2013							29.6	28.7									29.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Kia	Truck	All	2014							28.8	27.2	25.4							26.9
Kia	Truck	All	2015							28.8	28.0	26.5	24.4						27.2
Kia	Truck	All	2016							28.8	30.6	26.4	24.4						27.2
Kia	Truck	All	2017								29.5	26.4	24.4						27.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Kia	All	All	1975																	
Kia	All	All	1976																	
Kia	All	All	1977																	
Kia	All	All	1978																	
Kia	All	All	1979																	
Kia	All	All	1980																	
Kia	All	All	1981																	
Kia	All	All	1982																	
Kia	All	All	1983																	
Kia	All	All	1984																	
Kia	All	All	1985																	
Kia	All	All	1986																	
Kia	All	All	1987																	
Kia	All	All	1988																	
Kia	All	All	1989																	
Kia	All	All	1990																	
Kia	All	All	1991																	
Kia	All	All	1992																	
Kia	All	All	1993					31.7												31.7
Kia	All	All	1994					32.9												32.9
Kia	All	All	1995					31.0		24.3										28.3
Kia	All	All	1996					28.9		23.4										27.3
Kia	All	All	1997					30.8		23.7										27.8
Kia	All	All	1998					30.7		24.4										28.0
Kia	All	All	1999					30.7		24.4										27.8
Kia	All	All	2000					29.8		23.5										26.9
Kia	All	All	2001				32.9	30.1		23.7										27.9
Kia	All	All	2002					32.4	29.2	23.8			20.0							25.7
Kia	All	All	2003					33.2	29.2	27.8		19.3	20.0							24.8
Kia	All	All	2004					31.8	31.4	28.1	22.6	19.9	21.1							25.1
Kia	All	All	2005					31.4	32.3	28.4	23.9	20.2	21.3							24.4
Kia	All	All	2006					38.3	33.1	29.8	24.5	21.9								27.0
Kia	All	All	2007					38.2	34.9	30.1	25.3	23.2								28.3
Kia	All	All	2008					38.2	35.2	30.5	25.6	23.3								28.8
Kia	All	All	2009					39.5	35.2	31.0	26.0	23.5	21.6							30.7
Kia	All	All	2010					40.5	36.2	32.2	25.8	24.7								34.5
Kia	All	All	2011					40.4	36.2	34.5	30.8	26.7								33.0
Kia	All	All	2012					42.0	35.9	35.0	31.3	26.8								33.7
Kia	All	All	2013					42.1	35.5	35.5	31.7	26.7								35.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Kia	All	All	2014					40.9	35.9	33.6	29.4	25.6							33.0
Kia	All	All	2015					40.9	36.5	34.0	29.5	25.8	24.4						33.4
Kia	All	All	2016					40.9	36.8	36.4	31.0	26.4	24.3						33.7
Kia	All	All	2017					41.1	39.8	40.2	31.3	26.4	24.3						35.6



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Hyundai	Car	Car	1975																	
Hyundai	Car	Car	1976																	
Hyundai	Car	Car	1977																	
Hyundai	Car	Car	1978																	
Hyundai	Car	Car	1979																	
Hyundai	Car	Car	1980																	
Hyundai	Car	Car	1981																	
Hyundai	Car	Car	1982																	
Hyundai	Car	Car	1983																	
Hyundai	Car	Car	1984																	
Hyundai	Car	Car	1985																	
Hyundai	Car	Car	1986				34.9													34.9
Hyundai	Car	Car	1987				34.5													34.5
Hyundai	Car	Car	1988				34.3													34.3
Hyundai	Car	Car	1989				34.8		26.5											33.1
Hyundai	Car	Car	1990				35.7		26.9	23.8										33.1
Hyundai	Car	Car	1991				34.9		26.9	23.7										32.7
Hyundai	Car	Car	1992				34.8	28.8	28.9	24.9										31.1
Hyundai	Car	Car	1993				35.0	28.5	29.2	25.2										31.0
Hyundai	Car	Car	1994				35.8	28.5	29.2	24.9										32.7
Hyundai	Car	Car	1995				36.8	29.2	28.6	23.7										30.9
Hyundai	Car	Car	1996				35.9	31.6	29.5	24.5										32.7
Hyundai	Car	Car	1997				35.8	31.0	29.1	23.8										31.0
Hyundai	Car	Car	1998				35.6	31.8	28.6	23.1										30.6
Hyundai	Car	Car	1999				35.8		29.5	26.7										30.5
Hyundai	Car	Car	2000				36.5	34.0	29.6	26.8										30.0
Hyundai	Car	Car	2001				36.6	33.9	31.9	27.0	25.4									31.0
Hyundai	Car	Car	2002				36.6	33.8	32.4	27.4	24.1									30.8
Hyundai	Car	Car	2003					35.0	32.2	26.5	23.4									30.1
Hyundai	Car	Car	2004					35.0	32.3	26.7	23.4									29.2
Hyundai	Car	Car	2005					35.0	32.4	26.8	24.3									30.2
Hyundai	Car	Car	2006					37.2	32.2	30.2	27.5									29.8
Hyundai	Car	Car	2007					37.1	36.8	31.1	27.3									32.1
Hyundai	Car	Car	2008					37.2	36.6	31.4	27.8									33.8
Hyundai	Car	Car	2009					39.0	36.6	33.2	28.7	25.2								33.8
Hyundai	Car	Car	2010					40.2	38.7	32.5	28.3	25.2								35.9
Hyundai	Car	Car	2011					40.2	44.4	35.3	28.1	24.9								36.4
Hyundai	Car	Car	2012					41.8	41.6	36.1	30.9	24.2								37.7
Hyundai	Car	Car	2013					42.1	41.6	35.8	32.6	23.5								38.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Hyundai	Car	Car	2014					40.8	40.4	36.0	32.9	22.8								38.0
Hyundai	Car	Car	2015					40.8	41.3	37.8	32.7	25.9								37.2
Hyundai	Car	Car	2016					40.8	41.4	40.0	35.9	26.3								39.9
Hyundai	Car	Car	2017					40.8	43.4	40.9	40.2	26.4	25.3							41.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Hyundai	Car	Car SUV	1975																	
Hyundai	Car	Car SUV	1976																	
Hyundai	Car	Car SUV	1977																	
Hyundai	Car	Car SUV	1978																	
Hyundai	Car	Car SUV	1979																	
Hyundai	Car	Car SUV	1980																	
Hyundai	Car	Car SUV	1981																	
Hyundai	Car	Car SUV	1982																	
Hyundai	Car	Car SUV	1983																	
Hyundai	Car	Car SUV	1984																	
Hyundai	Car	Car SUV	1985																	
Hyundai	Car	Car SUV	1986																	
Hyundai	Car	Car SUV	1987																	
Hyundai	Car	Car SUV	1988																	
Hyundai	Car	Car SUV	1989																	
Hyundai	Car	Car SUV	1990																	
Hyundai	Car	Car SUV	1991																	
Hyundai	Car	Car SUV	1992																	
Hyundai	Car	Car SUV	1993																	
Hyundai	Car	Car SUV	1994																	
Hyundai	Car	Car SUV	1995																	
Hyundai	Car	Car SUV	1996																	
Hyundai	Car	Car SUV	1997																	
Hyundai	Car	Car SUV	1998																	
Hyundai	Car	Car SUV	1999																	
Hyundai	Car	Car SUV	2000																	
Hyundai	Car	Car SUV	2001								25.9									25.9
Hyundai	Car	Car SUV	2002								25.3									25.3
Hyundai	Car	Car SUV	2003								25.6									25.6
Hyundai	Car	Car SUV	2004								25.0									25.0
Hyundai	Car	Car SUV	2005							28.2	25.0									25.4
Hyundai	Car	Car SUV	2006							28.2	25.2									25.7
Hyundai	Car	Car SUV	2007							28.2	25.8	23.6								26.0
Hyundai	Car	Car SUV	2008							28.2	26.2	23.6								26.1
Hyundai	Car	Car SUV	2009							28.9	26.2	23.6								26.4
Hyundai	Car	Car SUV	2010							34.0	30.0	24.7								30.4
Hyundai	Car	Car SUV	2011							32.8	29.7	24.7								30.4
Hyundai	Car	Car SUV	2012							32.3	29.7	24.7								30.3
Hyundai	Car	Car SUV	2013							32.3	29.5									30.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Hyundai	Car	Car SUV	2014							31.5	28.7								29.3
Hyundai	Car	Car SUV	2015							31.9	28.7	71.1							29.7
Hyundai	Car	Car SUV	2016							33.9	31.2	71.1							32.1
Hyundai	Car	Car SUV	2017							34.4	31.3	71.1							31.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Hyundai	Car	All	1975																	
Hyundai	Car	All	1976																	
Hyundai	Car	All	1977																	
Hyundai	Car	All	1978																	
Hyundai	Car	All	1979																	
Hyundai	Car	All	1980																	
Hyundai	Car	All	1981																	
Hyundai	Car	All	1982																	
Hyundai	Car	All	1983																	
Hyundai	Car	All	1984																	
Hyundai	Car	All	1985																	
Hyundai	Car	All	1986				34.9													34.9
Hyundai	Car	All	1987				34.5													34.5
Hyundai	Car	All	1988				34.3													34.3
Hyundai	Car	All	1989				34.8		26.5											33.1
Hyundai	Car	All	1990				35.7		26.9	23.8										33.1
Hyundai	Car	All	1991				34.9		26.9	23.7										32.7
Hyundai	Car	All	1992				34.8	28.8	28.9	24.9										31.1
Hyundai	Car	All	1993				35.0	28.5	29.2	25.2										31.0
Hyundai	Car	All	1994				35.8	28.5	29.2	24.9										32.7
Hyundai	Car	All	1995				36.8	29.2	28.6	23.7										30.9
Hyundai	Car	All	1996				35.9	31.6	29.5	24.5										32.7
Hyundai	Car	All	1997				35.8	31.0	29.1	23.8										31.0
Hyundai	Car	All	1998				35.6	31.8	28.6	23.1										30.6
Hyundai	Car	All	1999				35.8		29.5	26.7										30.5
Hyundai	Car	All	2000				36.5	34.0	29.6	26.8										30.0
Hyundai	Car	All	2001				36.6	33.9	31.9	27.0	25.7									30.5
Hyundai	Car	All	2002				36.6	33.8	32.4	27.4	25.0									30.0
Hyundai	Car	All	2003					35.0	32.2	26.5	25.2									29.3
Hyundai	Car	All	2004					35.0	32.3	26.7	24.6									28.2
Hyundai	Car	All	2005					35.0	32.4	27.0	24.8									28.8
Hyundai	Car	All	2006					37.2	32.2	29.8	26.8									29.0
Hyundai	Car	All	2007					37.1	36.8	30.5	26.5	23.6								30.0
Hyundai	Car	All	2008					37.2	36.6	30.9	26.8	23.6								31.7
Hyundai	Car	All	2009					39.0	36.6	33.0	27.3	24.9								32.3
Hyundai	Car	All	2010					40.2	38.7	32.7	29.6	24.9								34.9
Hyundai	Car	All	2011					40.2	44.4	35.1	29.3	24.8								35.4
Hyundai	Car	All	2012					41.8	41.6	35.5	30.3	24.4								36.6
Hyundai	Car	All	2013					42.1	41.6	35.4	30.7	23.5								37.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Hyundai	Car	All	2014					40.8	40.4	35.3	29.5	22.8							35.8
Hyundai	Car	All	2015					40.8	41.3	37.1	30.1	26.0							36.0
Hyundai	Car	All	2016					40.8	41.4	38.3	31.9	26.4							37.8
Hyundai	Car	All	2017					40.8	43.4	39.6	32.2	26.6	25.3						38.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Hyundai	Truck	Truck SUV	1975																	
Hyundai	Truck	Truck SUV	1976																	
Hyundai	Truck	Truck SUV	1977																	
Hyundai	Truck	Truck SUV	1978																	
Hyundai	Truck	Truck SUV	1979																	
Hyundai	Truck	Truck SUV	1980																	
Hyundai	Truck	Truck SUV	1981																	
Hyundai	Truck	Truck SUV	1982																	
Hyundai	Truck	Truck SUV	1983																	
Hyundai	Truck	Truck SUV	1984																	
Hyundai	Truck	Truck SUV	1985																	
Hyundai	Truck	Truck SUV	1986																	
Hyundai	Truck	Truck SUV	1987																	
Hyundai	Truck	Truck SUV	1988																	
Hyundai	Truck	Truck SUV	1989																	
Hyundai	Truck	Truck SUV	1990																	
Hyundai	Truck	Truck SUV	1991																	
Hyundai	Truck	Truck SUV	1992																	
Hyundai	Truck	Truck SUV	1993																	
Hyundai	Truck	Truck SUV	1994																	
Hyundai	Truck	Truck SUV	1995																	
Hyundai	Truck	Truck SUV	1996																	
Hyundai	Truck	Truck SUV	1997																	
Hyundai	Truck	Truck SUV	1998																	
Hyundai	Truck	Truck SUV	1999																	
Hyundai	Truck	Truck SUV	2000																	
Hyundai	Truck	Truck SUV	2001								24.0									24.0
Hyundai	Truck	Truck SUV	2002								23.5									23.5
Hyundai	Truck	Truck SUV	2003								23.3									23.3
Hyundai	Truck	Truck SUV	2004								22.8									22.8
Hyundai	Truck	Truck SUV	2005								23.0									23.0
Hyundai	Truck	Truck SUV	2006								23.5	22.1								22.9
Hyundai	Truck	Truck SUV	2007								25.1	24.3								24.5
Hyundai	Truck	Truck SUV	2008								24.9	24.5								24.6
Hyundai	Truck	Truck SUV	2009								25.8	24.8								24.9
Hyundai	Truck	Truck SUV	2010								31.1	29.6	23.7							29.2
Hyundai	Truck	Truck SUV	2011								31.1	28.5	23.7							28.7
Hyundai	Truck	Truck SUV	2012								29.5	28.5	23.7							28.5
Hyundai	Truck	Truck SUV	2013								29.5	26.9	26.4							28.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Hyundai	Truck	Truck SUV	2014							29.0	26.9	26.0								27.3
Hyundai	Truck	Truck SUV	2015							29.1	26.9	25.7								27.5
Hyundai	Truck	Truck SUV	2016								27.1	26.0								26.4
Hyundai	Truck	Truck SUV	2017								27.3	26.6								26.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Hyundai	Truck	All	1975																	
Hyundai	Truck	All	1976																	
Hyundai	Truck	All	1977																	
Hyundai	Truck	All	1978																	
Hyundai	Truck	All	1979																	
Hyundai	Truck	All	1980																	
Hyundai	Truck	All	1981																	
Hyundai	Truck	All	1982																	
Hyundai	Truck	All	1983																	
Hyundai	Truck	All	1984																	
Hyundai	Truck	All	1985																	
Hyundai	Truck	All	1986																	
Hyundai	Truck	All	1987																	
Hyundai	Truck	All	1988																	
Hyundai	Truck	All	1989																	
Hyundai	Truck	All	1990																	
Hyundai	Truck	All	1991																	
Hyundai	Truck	All	1992																	
Hyundai	Truck	All	1993																	
Hyundai	Truck	All	1994																	
Hyundai	Truck	All	1995																	
Hyundai	Truck	All	1996																	
Hyundai	Truck	All	1997																	
Hyundai	Truck	All	1998																	
Hyundai	Truck	All	1999																	
Hyundai	Truck	All	2000																	
Hyundai	Truck	All	2001								24.0									24.0
Hyundai	Truck	All	2002								23.5									23.5
Hyundai	Truck	All	2003								23.3									23.3
Hyundai	Truck	All	2004								22.8									22.8
Hyundai	Truck	All	2005								23.0									23.0
Hyundai	Truck	All	2006								23.5	22.1								22.9
Hyundai	Truck	All	2007								25.1	24.3								24.5
Hyundai	Truck	All	2008								24.9	24.5								24.6
Hyundai	Truck	All	2009								25.8	24.8								24.9
Hyundai	Truck	All	2010								31.1	29.6	23.7							29.2
Hyundai	Truck	All	2011								31.1	28.5	23.7							28.7
Hyundai	Truck	All	2012								29.5	28.5	23.7							28.5
Hyundai	Truck	All	2013								29.5	26.9	26.4							28.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Hyundai	Truck	All	2014							29.0	26.9	26.0							27.3
Hyundai	Truck	All	2015							29.1	26.9	25.7							27.5
Hyundai	Truck	All	2016								27.1	26.0							26.4
Hyundai	Truck	All	2017								27.3	26.6							26.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Hyundai	All	All	1975																	
Hyundai	All	All	1976																	
Hyundai	All	All	1977																	
Hyundai	All	All	1978																	
Hyundai	All	All	1979																	
Hyundai	All	All	1980																	
Hyundai	All	All	1981																	
Hyundai	All	All	1982																	
Hyundai	All	All	1983																	
Hyundai	All	All	1984																	
Hyundai	All	All	1985																	
Hyundai	All	All	1986				34.9													34.9
Hyundai	All	All	1987				34.5													34.5
Hyundai	All	All	1988				34.3													34.3
Hyundai	All	All	1989				34.8		26.5											33.1
Hyundai	All	All	1990				35.7		26.9	23.8										33.1
Hyundai	All	All	1991				34.9		26.9	23.7										32.7
Hyundai	All	All	1992				34.8	28.8	28.9	24.9										31.1
Hyundai	All	All	1993				35.0	28.5	29.2	25.2										31.0
Hyundai	All	All	1994				35.8	28.5	29.2	24.9										32.7
Hyundai	All	All	1995				36.8	29.2	28.6	23.7										30.9
Hyundai	All	All	1996				35.9	31.6	29.5	24.5										32.7
Hyundai	All	All	1997				35.8	31.0	29.1	23.8										31.0
Hyundai	All	All	1998				35.6	31.8	28.6	23.1										30.6
Hyundai	All	All	1999				35.8		29.5	26.7										30.5
Hyundai	All	All	2000				36.5	34.0	29.6	26.8										30.0
Hyundai	All	All	2001				36.6	33.9	31.9	27.0	25.1									29.9
Hyundai	All	All	2002				36.6	33.8	32.4	27.4	24.4									29.2
Hyundai	All	All	2003					35.0	32.2	26.5	24.3									28.5
Hyundai	All	All	2004					35.0	32.3	26.7	24.0									27.5
Hyundai	All	All	2005					35.0	32.4	27.0	24.3									28.2
Hyundai	All	All	2006					37.2	32.2	29.8	26.6	22.1								28.7
Hyundai	All	All	2007					37.1	36.8	30.5	26.4	24.2								29.2
Hyundai	All	All	2008					37.2	36.6	30.9	26.7	24.3								30.9
Hyundai	All	All	2009					39.0	36.6	33.0	27.3	24.8								31.7
Hyundai	All	All	2010					40.2	38.7	32.6	29.6	24.6								34.4
Hyundai	All	All	2011					40.2	44.4	34.9	29.0	24.6								34.7
Hyundai	All	All	2012					41.8	41.6	35.1	29.8	24.3								35.8
Hyundai	All	All	2013					42.1	41.6	35.0	30.4	25.1								37.0



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Hyundai	All	All	2014					40.8	40.4	34.6	29.2	24.9								35.1
Hyundai	All	All	2015					40.8	41.3	36.3	30.0	25.9								35.3
Hyundai	All	All	2016					40.8	41.4	38.3	31.6	26.2								37.4
Hyundai	All	All	2017					40.8	43.4	39.6	31.7	26.6	25.3							37.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	Car	Car	1975			27.4	26.1	19.5	21.6	10.2										26.5
VW	Car	Car	1976			28.5	27.0	20.7	21.0											27.5
VW	Car	Car	1977			30.5	28.5	17.8	20.5											28.8
VW	Car	Car	1978			30.4	25.8		19.5	14.1										27.2
VW	Car	Car	1979			31.5	27.8		19.7	13.3										28.6
VW	Car	Car	1980			33.6	31.0	22.9	22.2	19.4										31.2
VW	Car	Car	1981			38.9	32.3	25.4	23.0	18.5										34.2
VW	Car	Car	1982			38.3	33.9	28.5	22.1	18.9										32.8
VW	Car	Car	1983			33.6	32.6	30.3	24.0	19.9										30.0
VW	Car	Car	1984			35.4	30.8	26.0	23.5	21.4										28.4
VW	Car	Car	1985				33.8	26.4	23.7	22.2										29.5
VW	Car	Car	1986				32.9	26.0	23.7	23.0	18.4									29.0
VW	Car	Car	1987				31.8	27.8	24.4	22.2	18.5		11.5	10.8						28.3
VW	Car	Car	1988				31.4	30.6	25.2	21.8	20.7		12.4	12.2						29.7
VW	Car	Car	1989				31.1	31.4	24.0	22.6	20.6		12.4	12.8						29.3
VW	Car	Car	1990				31.8	30.9	27.0	24.3	18.9			12.9						28.3
VW	Car	Car	1991				32.6	31.8	26.5	24.1	21.1			12.9						28.9
VW	Car	Car	1992				32.7	31.3	26.6	24.7	22.0			14.5						28.7
VW	Car	Car	1993				32.7	30.7	27.5	23.7	22.2			14.1						26.5
VW	Car	Car	1994					31.0	29.1	23.7	22.2					13.6				27.7
VW	Car	Car	1995					31.7	29.9	23.8	23.2									28.2
VW	Car	Car	1996					30.1	29.0	25.5	24.0			15.4	14.9					27.8
VW	Car	Car	1997					31.1	29.3	25.2	23.8			15.0	14.9					28.1
VW	Car	Car	1998					31.0	29.9	26.9	23.3			15.0	14.9					28.4
VW	Car	Car	1999						29.7	26.5	23.2		16.0	14.9						27.9
VW	Car	Car	2000						30.5	26.2	23.0	22.8		15.2	15.0					28.2
VW	Car	Car	2001						30.8	26.5	22.9	20.9			15.0	15.2				27.8
VW	Car	Car	2002						31.1	28.8	24.4	20.3			14.5	15.2				28.7
VW	Car	Car	2003						32.0	29.2	25.5	21.6			13.8	15.2				29.1
VW	Car	Car	2004						32.1	28.8	25.2	22.5		18.9	13.8					28.2
VW	Car	Car	2005						31.6	29.8	26.4	22.4	19.7	16.5	13.8					28.4
VW	Car	Car	2006						31.3	31.0	27.4	23.3	19.7	16.8	15.4					29.6
VW	Car	Car	2007						30.4	29.1	28.6	23.5	19.1	16.2	15.7	14.3				28.4
VW	Car	Car	2008						30.6	29.7	27.9	23.1	19.1	16.2	15.7	14.4				28.8
VW	Car	Car	2009						30.4	32.1	29.0	25.2	19.1	16.2	15.5	14.5				30.8
VW	Car	Car	2010						30.6	34.7	29.8	25.6	17.7	16.2	15.8	14.5				32.7
VW	Car	Car	2011						33.1	35.4	29.7	25.5	17.8	17.3	16.5					33.0
VW	Car	Car	2012						33.2	34.4	29.6	26.8	20.5	17.3	16.9					32.9
VW	Car	Car	2013						33.1	34.9	30.0	26.4	23.9	21.1	19.2	15.8				33.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
VW	Car	Car	2014						33.2	37.2	29.7	28.1	29.0	21.4	18.9	15.8				34.4	
VW	Car	Car	2015						35.0	38.3	32.7	28.4	29.0	22.1	20.5	15.8					36.0
VW	Car	Car	2016						44.8	38.6	32.1	30.0	27.9	21.5	20.2	17.2					36.3
VW	Car	Car	2017						44.8	37.8	33.2	30.1	26.5	21.0	20.0	17.1					36.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
VW	Car	Car SUV	1975																	
VW	Car	Car SUV	1976																	
VW	Car	Car SUV	1977																	
VW	Car	Car SUV	1978																	
VW	Car	Car SUV	1979																	
VW	Car	Car SUV	1980																	
VW	Car	Car SUV	1981																	
VW	Car	Car SUV	1982																	
VW	Car	Car SUV	1983																	
VW	Car	Car SUV	1984																	
VW	Car	Car SUV	1985																	
VW	Car	Car SUV	1986																	
VW	Car	Car SUV	1987																	
VW	Car	Car SUV	1988																	
VW	Car	Car SUV	1989																	
VW	Car	Car SUV	1990																	
VW	Car	Car SUV	1991																	
VW	Car	Car SUV	1992																	
VW	Car	Car SUV	1993																	
VW	Car	Car SUV	1994																	
VW	Car	Car SUV	1995																	
VW	Car	Car SUV	1996																	
VW	Car	Car SUV	1997																	
VW	Car	Car SUV	1998																	
VW	Car	Car SUV	1999																	
VW	Car	Car SUV	2000																	
VW	Car	Car SUV	2001																	
VW	Car	Car SUV	2002																	
VW	Car	Car SUV	2003																	
VW	Car	Car SUV	2004																	
VW	Car	Car SUV	2005																	
VW	Car	Car SUV	2006																	
VW	Car	Car SUV	2007																	
VW	Car	Car SUV	2008																	
VW	Car	Car SUV	2009																	
VW	Car	Car SUV	2010																	
VW	Car	Car SUV	2011																	
VW	Car	Car SUV	2012																	30.8
VW	Car	Car SUV	2013																	30.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
VW	Car	Car SUV	2014								29.4								29.4
VW	Car	Car SUV	2015								29.4								29.4
VW	Car	Car SUV	2016								29.2								29.2
VW	Car	Car SUV	2017								28.7				18.4				28.0

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
VW	Car	All	1975			27.4	26.1	19.5	21.6	10.2										26.5
VW	Car	All	1976			28.5	27.0	20.7	21.0											27.5
VW	Car	All	1977			30.5	28.5	17.8	20.5											28.8
VW	Car	All	1978			30.4	25.8		19.5	14.1										27.2
VW	Car	All	1979			31.5	27.8		19.7	13.3										28.6
VW	Car	All	1980			33.6	31.0	22.9	22.2	19.4										31.2
VW	Car	All	1981			38.9	32.3	25.4	23.0	18.5										34.2
VW	Car	All	1982			38.3	33.9	28.5	22.1	18.9										32.8
VW	Car	All	1983			33.6	32.6	30.3	24.0	19.9										30.0
VW	Car	All	1984			35.4	30.8	26.0	23.5	21.4										28.4
VW	Car	All	1985				33.8	26.4	23.7	22.2										29.5
VW	Car	All	1986				32.9	26.0	23.7	23.0	18.4									29.0
VW	Car	All	1987				31.8	27.8	24.4	22.2	18.5		11.5	10.8						28.3
VW	Car	All	1988				31.4	30.6	25.2	21.8	20.7		12.4	12.2						29.7
VW	Car	All	1989				31.1	31.4	24.0	22.6	20.6		12.4	12.8						29.3
VW	Car	All	1990				31.8	30.9	27.0	24.3	18.9			12.9						28.3
VW	Car	All	1991				32.6	31.8	26.5	24.1	21.1			12.9						28.9
VW	Car	All	1992				32.7	31.3	26.6	24.7	22.0			14.5						28.7
VW	Car	All	1993				32.7	30.7	27.5	23.7	22.2			14.1						26.5
VW	Car	All	1994					31.0	29.1	23.7	22.2					13.6				27.7
VW	Car	All	1995					31.7	29.9	23.8	23.2									28.2
VW	Car	All	1996					30.1	29.0	25.5	24.0			15.4	14.9					27.8
VW	Car	All	1997					31.1	29.3	25.2	23.8			15.0	14.9					28.1
VW	Car	All	1998					31.0	29.9	26.9	23.3			15.0	14.9					28.4
VW	Car	All	1999						29.7	26.5	23.2		16.0	14.9						27.9
VW	Car	All	2000						30.5	26.2	23.0	22.8		15.2	15.0					28.2
VW	Car	All	2001						30.8	26.5	22.9	20.9			15.0	15.2				27.8
VW	Car	All	2002						31.1	28.8	24.4	20.3			14.5	15.2				28.7
VW	Car	All	2003						32.0	29.2	25.5	21.6			13.8	15.2				29.1
VW	Car	All	2004						32.1	28.8	25.2	22.5		18.9	13.8					28.2
VW	Car	All	2005						31.6	29.8	26.4	22.4	19.7	16.5	13.8					28.4
VW	Car	All	2006						31.3	31.0	27.4	23.3	19.7	16.8	15.4					29.6
VW	Car	All	2007						30.4	29.1	28.6	23.5	19.1	16.2	15.7	14.3				28.4
VW	Car	All	2008						30.6	29.7	27.9	23.1	19.1	16.2	15.7	14.4				28.8
VW	Car	All	2009						30.4	32.1	29.0	25.2	19.1	16.2	15.5	14.5				30.8
VW	Car	All	2010						30.6	34.7	29.8	25.6	17.7	16.2	15.8	14.5				32.7
VW	Car	All	2011						33.1	35.4	29.7	25.5	17.8	17.3	16.5					33.0
VW	Car	All	2012						33.2	34.4	29.8	26.8	20.5	17.3	16.9					32.8
VW	Car	All	2013						33.1	34.9	30.0	26.4	23.9	21.1	19.2	15.8				33.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
VW	Car	All	2014						33.2	37.2	29.6	28.1	29.0	21.4	18.9	15.8				34.2	
VW	Car	All	2015						35.0	38.3	32.3	28.4	29.0	22.1	20.5	15.8					35.8
VW	Car	All	2016						44.8	38.6	31.4	30.0	27.9	21.5	20.2	17.2					35.8
VW	Car	All	2017						44.8	37.8	31.9	30.1	26.5	21.0	19.3	17.1					35.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
VW	Truck	Van	1975						21.2	20.7										20.7
VW	Truck	Van	1976							19.9										19.9
VW	Truck	Van	1977							22.2										22.2
VW	Truck	Van	1978							20.0										20.0
VW	Truck	Van	1979							18.7										18.7
VW	Truck	Van	1980							19.2	18.4									19.0
VW	Truck	Van	1981							18.8	18.0									18.5
VW	Truck	Van	1982							21.8	21.4									21.7
VW	Truck	Van	1983							19.5	18.6									19.3
VW	Truck	Van	1984							20.9	20.1									20.7
VW	Truck	Van	1985							21.5	20.9									21.3
VW	Truck	Van	1986							20.3	18.4									19.2
VW	Truck	Van	1987							20.3	18.3									18.9
VW	Truck	Van	1988							20.3	19.7									19.9
VW	Truck	Van	1989								21.1	18.6								20.8
VW	Truck	Van	1990								20.9	18.5								20.8
VW	Truck	Van	1991								21.0	18.5								20.9
VW	Truck	Van	1992																	
VW	Truck	Van	1993								21.3	20.3								21.0
VW	Truck	Van	1994								21.0	19.4								20.1
VW	Truck	Van	1995										19.6							19.6
VW	Truck	Van	1996																	
VW	Truck	Van	1997									20.1		18.5						18.5
VW	Truck	Van	1998																	
VW	Truck	Van	1999									19.5		18.5						19.1
VW	Truck	Van	2000									19.7		18.5						19.0
VW	Truck	Van	2001									21.0		20.0						20.7
VW	Truck	Van	2002									21.0		20.0						20.9
VW	Truck	Van	2003									20.9		20.0						20.9
VW	Truck	Van	2004																	
VW	Truck	Van	2005																	
VW	Truck	Van	2006																	
VW	Truck	Van	2007																	
VW	Truck	Van	2008																	
VW	Truck	Van	2009																	
VW	Truck	Van	2010																	
VW	Truck	Van	2011																	
VW	Truck	Van	2012																	
VW	Truck	Van	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	Truck	Van	2014																	
VW	Truck	Van	2015																	
VW	Truck	Van	2016																	
VW	Truck	Van	2017																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
VW	Truck	Truck SUV	1975																	
VW	Truck	Truck SUV	1976																	
VW	Truck	Truck SUV	1977																	
VW	Truck	Truck SUV	1978																	
VW	Truck	Truck SUV	1979																	
VW	Truck	Truck SUV	1980																	
VW	Truck	Truck SUV	1981																	
VW	Truck	Truck SUV	1982																	
VW	Truck	Truck SUV	1983																	
VW	Truck	Truck SUV	1984																	
VW	Truck	Truck SUV	1985																	
VW	Truck	Truck SUV	1986																	
VW	Truck	Truck SUV	1987																	
VW	Truck	Truck SUV	1988																	
VW	Truck	Truck SUV	1989																	
VW	Truck	Truck SUV	1990																	
VW	Truck	Truck SUV	1991																	
VW	Truck	Truck SUV	1992																	
VW	Truck	Truck SUV	1993																	
VW	Truck	Truck SUV	1994																	
VW	Truck	Truck SUV	1995																	
VW	Truck	Truck SUV	1996																	
VW	Truck	Truck SUV	1997																	
VW	Truck	Truck SUV	1998																	
VW	Truck	Truck SUV	1999																	
VW	Truck	Truck SUV	2000																	
VW	Truck	Truck SUV	2001																	
VW	Truck	Truck SUV	2002																	
VW	Truck	Truck SUV	2003											18.0						18.0
VW	Truck	Truck SUV	2004										19.6	18.6	22.8					18.7
VW	Truck	Truck SUV	2005										19.6	19.0						19.1
VW	Truck	Truck SUV	2006										19.6	18.9	21.7					19.1
VW	Truck	Truck SUV	2007											19.8	18.2					19.5
VW	Truck	Truck SUV	2008										20.7	20.5	18.0					20.1
VW	Truck	Truck SUV	2009							26.7	25.7	20.7	20.8	20.4						23.5
VW	Truck	Truck SUV	2010							26.7	25.7	20.7	21.4	23.3						24.8
VW	Truck	Truck SUV	2011							28.0	27.6	24.5	24.5	25.2						26.6
VW	Truck	Truck SUV	2012							30.8	27.5	25.4	24.6	24.6						26.9
VW	Truck	Truck SUV	2013							29.6	29.1	25.7	23.5	24.9						27.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	Truck	Truck SUV	2014								29.3	29.3	25.8	23.2	28.1					27.2
VW	Truck	Truck SUV	2015								29.2	28.3	27.6	23.0	28.8					27.0
VW	Truck	Truck SUV	2016								28.9	28.2	26.2	30.1						28.1
VW	Truck	Truck SUV	2017								27.8	28.0	26.9	24.9						27.4



Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	Truck	Pickup	1975																	
VW	Truck	Pickup	1976																	
VW	Truck	Pickup	1977																	
VW	Truck	Pickup	1978																	
VW	Truck	Pickup	1979																	
VW	Truck	Pickup	1980			32.0	23.7													31.3
VW	Truck	Pickup	1981			41.5	28.5													36.9
VW	Truck	Pickup	1982			43.5	29.9													39.2
VW	Truck	Pickup	1983			43.9	30.3													35.7
VW	Truck	Pickup	1984																	
VW	Truck	Pickup	1985																	
VW	Truck	Pickup	1986																	
VW	Truck	Pickup	1987																	
VW	Truck	Pickup	1988																	
VW	Truck	Pickup	1989																	
VW	Truck	Pickup	1990																	
VW	Truck	Pickup	1991																	
VW	Truck	Pickup	1992																	
VW	Truck	Pickup	1993																	
VW	Truck	Pickup	1994																	
VW	Truck	Pickup	1995																	
VW	Truck	Pickup	1996																	
VW	Truck	Pickup	1997																	
VW	Truck	Pickup	1998																	
VW	Truck	Pickup	1999																	
VW	Truck	Pickup	2000																	
VW	Truck	Pickup	2001																	
VW	Truck	Pickup	2002																	
VW	Truck	Pickup	2003																	
VW	Truck	Pickup	2004																	
VW	Truck	Pickup	2005																	
VW	Truck	Pickup	2006																	
VW	Truck	Pickup	2007																	
VW	Truck	Pickup	2008																	
VW	Truck	Pickup	2009																	
VW	Truck	Pickup	2010																	
VW	Truck	Pickup	2011																	
VW	Truck	Pickup	2012																	
VW	Truck	Pickup	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	Truck	Pickup	2014																	
VW	Truck	Pickup	2015																	
VW	Truck	Pickup	2016																	
VW	Truck	Pickup	2017																	

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
VW	Truck	All	1975						21.2	20.7										20.7
VW	Truck	All	1976							19.9										19.9
VW	Truck	All	1977							22.2										22.2
VW	Truck	All	1978							20.0										20.0
VW	Truck	All	1979							18.7										18.7
VW	Truck	All	1980			32.0	23.7			19.2	18.4									25.2
VW	Truck	All	1981			41.5	28.5			18.8	18.0									29.5
VW	Truck	All	1982			43.5	29.9			21.8	21.4									27.8
VW	Truck	All	1983			43.9	30.3			19.5	18.6									20.3
VW	Truck	All	1984							20.9	20.1									20.7
VW	Truck	All	1985							21.5	20.9									21.3
VW	Truck	All	1986							20.3	18.4									19.2
VW	Truck	All	1987							20.3	18.3									18.9
VW	Truck	All	1988							20.3	19.7									19.9
VW	Truck	All	1989								21.1	18.6								20.8
VW	Truck	All	1990								20.9	18.5								20.8
VW	Truck	All	1991								21.0	18.5								20.9
VW	Truck	All	1992																	
VW	Truck	All	1993								21.3	20.3								21.0
VW	Truck	All	1994								21.0	19.4								20.1
VW	Truck	All	1995										19.6							19.6
VW	Truck	All	1996																	
VW	Truck	All	1997									20.1		18.5						18.5
VW	Truck	All	1998																	
VW	Truck	All	1999									19.5		18.5						19.1
VW	Truck	All	2000									19.7		18.5						19.0
VW	Truck	All	2001										21.0		20.0					20.7
VW	Truck	All	2002										21.0		20.0					20.9
VW	Truck	All	2003										20.9		18.4					20.2
VW	Truck	All	2004											19.6	18.6	22.8				18.7
VW	Truck	All	2005											19.6	19.0					19.1
VW	Truck	All	2006											19.6	18.9	21.7				19.1
VW	Truck	All	2007												19.8	18.2				19.5
VW	Truck	All	2008												20.7	20.5	18.0			20.1
VW	Truck	All	2009									26.7	25.7	20.7	20.8	20.4				23.5
VW	Truck	All	2010									26.7	25.7	20.7	21.4	23.3				24.8
VW	Truck	All	2011									28.0	27.6	24.5	24.5	25.2				26.6
VW	Truck	All	2012									30.8	27.5	25.4	24.6	24.6				26.9
VW	Truck	All	2013									29.6	29.1	25.7	23.5	24.9				27.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	Truck	All	2014								29.3	29.3	25.8	23.2	28.1					27.2
VW	Truck	All	2015								29.2	28.3	27.6	23.0	28.8					27.0
VW	Truck	All	2016								28.9	28.2	26.2	30.1						28.1
VW	Truck	All	2017								27.8	28.0	26.9	24.9						27.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	All	All	1975			27.4	26.1	19.5	21.6	18.6										26.4
VW	All	All	1976			28.5	27.0	20.7	21.0	19.9										27.4
VW	All	All	1977			30.5	28.5	17.8	20.5	22.2										28.8
VW	All	All	1978			30.4	25.8		19.5	17.8										27.1
VW	All	All	1979			31.5	27.8		19.7	17.7										28.0
VW	All	All	1980			33.5	30.8	22.9	22.2	19.3	18.4									30.5
VW	All	All	1981			39.1	31.8	25.4	23.0	18.7	18.0									33.5
VW	All	All	1982			38.8	33.7	28.5	22.1	21.2	21.4									32.2
VW	All	All	1983			33.7	32.5	30.3	24.0	19.6	18.6									28.8
VW	All	All	1984			35.4	30.8	26.0	23.5	21.1	20.1									27.7
VW	All	All	1985				33.8	26.4	23.7	21.8	20.9									28.8
VW	All	All	1986				32.9	26.0	23.7	22.3	18.4									28.5
VW	All	All	1987				31.8	27.8	24.4	21.8	18.4		11.5	10.8						27.7
VW	All	All	1988				31.4	30.6	25.2	21.4	20.0		12.4	12.2						29.4
VW	All	All	1989				31.1	31.4	24.0	22.6	20.9	18.6	12.4	12.8						29.1
VW	All	All	1990				31.8	30.9	27.0	24.3	20.2	18.5		12.9						27.9
VW	All	All	1991				32.6	31.8	26.5	24.1	21.0	18.5		12.9						28.5
VW	All	All	1992				32.7	31.3	26.6	24.7	22.0			14.5						28.7
VW	All	All	1993				32.7	30.7	27.5	23.7	21.6	20.3		14.1						25.5
VW	All	All	1994					31.0	29.1	23.7	22.2	19.4				13.6				27.7
VW	All	All	1995					31.7	29.9	23.8	23.2		19.6							28.0
VW	All	All	1996					30.1	29.0	25.5	24.0			15.4	14.9					27.8
VW	All	All	1997					31.1	29.3	25.2	23.8	20.1		18.0	14.9					28.0
VW	All	All	1998					31.0	29.9	26.9	23.3			15.0	14.9					28.4
VW	All	All	1999						29.7	26.5	23.2	19.5	16.0	18.0						27.8
VW	All	All	2000						30.5	26.2	23.0	20.8		18.5	15.0					28.1
VW	All	All	2001						30.8	26.5	22.9	20.9		20.0	15.0	15.2				27.7
VW	All	All	2002						31.1	28.8	24.4	20.6		20.0	14.5	15.2				28.5
VW	All	All	2003						32.0	29.2	25.5	21.3		18.4	13.8	15.2				28.9
VW	All	All	2004						32.1	28.8	25.2	22.5	19.6	18.6	20.0					26.1
VW	All	All	2005						31.6	29.8	26.4	22.4	19.6	18.7	13.8					26.5
VW	All	All	2006						31.3	31.0	27.4	23.3	19.6	18.8	16.2					28.4
VW	All	All	2007						30.4	29.1	28.6	23.5	19.1	19.6	16.9	14.3				27.3
VW	All	All	2008						30.6	29.7	27.9	23.1	19.4	20.4	17.3	14.4				27.3
VW	All	All	2009						30.4	32.1	28.4	25.5	19.3	20.7	19.1	14.5				29.4
VW	All	All	2010						30.6	34.7	28.9	25.6	17.7	21.2	21.3	14.5				31.2
VW	All	All	2011						33.1	35.4	29.2	26.6	24.5	24.3	23.6					31.4
VW	All	All	2012						33.2	34.4	29.9	27.2	25.4	22.9	22.7					31.9
VW	All	All	2013						33.1	34.9	30.0	27.9	25.5	23.2	23.7	15.8				32.2

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
VW	All	All	2014						33.2	37.2	29.6	28.9	26.2	23.1	24.1	15.8				32.7
VW	All	All	2015						35.0	38.3	32.0	28.3	28.1	23.0	26.6	15.8				33.8
VW	All	All	2016						44.8	38.6	30.9	28.8	26.4	29.5	20.2	17.2				33.8
VW	All	All	2017						44.8	37.8	31.0	28.7	26.8	24.3	19.3	17.1				33.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Subaru	Car	Car	1975			27.1	25.5													26.5
Subaru	Car	Car	1976			31.6	27.9													29.7
Subaru	Car	Car	1977			30.3	29.9													30.2
Subaru	Car	Car	1978			32.9	27.5													29.9
Subaru	Car	Car	1979			32.4	28.0													29.5
Subaru	Car	Car	1980			31.7	26.2													28.1
Subaru	Car	Car	1981			34.8	29.3													31.3
Subaru	Car	Car	1982			35.8	32.3	28.2												31.7
Subaru	Car	Car	1983			34.7	32.3	28.7												31.3
Subaru	Car	Car	1984			36.8	32.5	28.8												31.1
Subaru	Car	Car	1985			36.1	32.1	29.2	26.7											30.5
Subaru	Car	Car	1986			37.2	31.8	29.1	28.0											30.1
Subaru	Car	Car	1987		46.0	36.7	31.0	29.1	26.8											29.5
Subaru	Car	Car	1988		41.6		31.5	30.2	27.3											31.4
Subaru	Car	Car	1989		41.6	38.6	31.0	30.0	27.7											31.5
Subaru	Car	Car	1990		41.8	36.7	30.3	29.3	28.1	26.2										28.0
Subaru	Car	Car	1991		41.8	36.8	33.7	29.5	28.2	26.1										28.2
Subaru	Car	Car	1992		41.9	37.7	32.8	29.0	29.5	27.0	23.6									28.1
Subaru	Car	Car	1993		41.4	35.8	32.8	30.2	29.3	27.2	23.5									29.2
Subaru	Car	Car	1994		41.4	39.8	31.8	30.3	29.0	26.6	23.4									28.2
Subaru	Car	Car	1995					30.9	28.9	27.9	23.5									28.5
Subaru	Car	Car	1996					30.8	28.9	26.8	23.3									27.4
Subaru	Car	Car	1997					31.1	29.9	27.1	23.3									28.0
Subaru	Car	Car	1998						29.8	27.2										27.8
Subaru	Car	Car	1999						29.3	27.2										27.6
Subaru	Car	Car	2000						29.0	27.8	27.2									28.0
Subaru	Car	Car	2001						28.8	27.9	27.5									27.7
Subaru	Car	Car	2002						27.0	27.2	27.2									27.2
Subaru	Car	Car	2003						27.4	27.4	27.1									27.3
Subaru	Car	Car	2004						27.6	26.7	27.1									26.9
Subaru	Car	Car	2005						29.9	27.9	24.7									27.3
Subaru	Car	Car	2006							28.3	25.1									28.0
Subaru	Car	Car	2007							28.6	25.6									28.4
Subaru	Car	Car	2008							29.0	25.9									28.7
Subaru	Car	Car	2009							29.0	25.9									28.9
Subaru	Car	Car	2010							30.4	26.2									30.2
Subaru	Car	Car	2011							30.4	26.2									30.2
Subaru	Car	Car	2012						39.1	35.1	26.4									35.2
Subaru	Car	Car	2013						36.6	35.7	26.4									35.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Subaru	Car	Car	2014						34.4	36.5	26.4								36.1
Subaru	Car	Car	2015						34.7	37.1	37.2								37.0
Subaru	Car	Car	2016						35.3	37.1	35.3								36.7
Subaru	Car	Car	2017						33.2	39.3	37.2								38.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Subaru	Car	All	1975			27.1	25.5													26.5
Subaru	Car	All	1976			31.6	27.9													29.7
Subaru	Car	All	1977			30.3	29.9													30.2
Subaru	Car	All	1978			32.9	27.5													29.9
Subaru	Car	All	1979			32.4	28.0													29.5
Subaru	Car	All	1980			31.7	26.2													28.1
Subaru	Car	All	1981			34.8	29.3													31.3
Subaru	Car	All	1982			35.8	32.3	28.2												31.7
Subaru	Car	All	1983			34.7	32.3	28.7												31.3
Subaru	Car	All	1984			36.8	32.5	28.8												31.1
Subaru	Car	All	1985			36.1	32.1	29.2	26.7											30.5
Subaru	Car	All	1986			37.2	31.8	29.1	28.0											30.1
Subaru	Car	All	1987		46.0	36.7	31.0	29.1	26.8											29.5
Subaru	Car	All	1988		41.6		31.5	30.2	27.3											31.4
Subaru	Car	All	1989		41.6	38.6	31.0	30.0	27.7											31.5
Subaru	Car	All	1990		41.8	36.7	30.3	29.3	28.1	26.2										28.0
Subaru	Car	All	1991		41.8	36.8	33.7	29.5	28.2	26.1										28.2
Subaru	Car	All	1992		41.9	37.7	32.8	29.0	29.5	27.0	23.6									28.1
Subaru	Car	All	1993		41.4	35.8	32.8	30.2	29.3	27.2	23.5									29.2
Subaru	Car	All	1994		41.4	39.8	31.8	30.3	29.0	26.6	23.4									28.2
Subaru	Car	All	1995					30.9	28.9	27.9	23.5									28.5
Subaru	Car	All	1996					30.8	28.9	26.8	23.3									27.4
Subaru	Car	All	1997					31.1	29.9	27.1	23.3									28.0
Subaru	Car	All	1998						29.8	27.2										27.8
Subaru	Car	All	1999						29.3	27.2										27.6
Subaru	Car	All	2000						29.0	27.8	27.2									28.0
Subaru	Car	All	2001						28.8	27.9	27.5									27.7
Subaru	Car	All	2002						27.0	27.2	27.2									27.2
Subaru	Car	All	2003						27.4	27.4	27.1									27.3
Subaru	Car	All	2004						27.6	26.7	27.1									26.9
Subaru	Car	All	2005						29.9	27.9	24.7									27.3
Subaru	Car	All	2006							28.3	25.1									28.0
Subaru	Car	All	2007							28.6	25.6									28.4
Subaru	Car	All	2008							29.0	25.9									28.7
Subaru	Car	All	2009							29.0	25.9									28.9
Subaru	Car	All	2010							30.4	26.2									30.2
Subaru	Car	All	2011							30.4	26.2									30.2
Subaru	Car	All	2012						39.1	35.1	26.4									35.2
Subaru	Car	All	2013						36.6	35.7	26.4									35.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Subaru	Car	All	2014						34.4	36.5	26.4								36.1
Subaru	Car	All	2015						34.7	37.1	37.2								37.0
Subaru	Car	All	2016						35.3	37.1	35.3								36.7
Subaru	Car	All	2017						33.2	39.3	37.2								38.0

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Subaru	Truck	Truck SUV	1975																	
Subaru	Truck	Truck SUV	1976																	
Subaru	Truck	Truck SUV	1977																	
Subaru	Truck	Truck SUV	1978																	
Subaru	Truck	Truck SUV	1979																	
Subaru	Truck	Truck SUV	1980																	
Subaru	Truck	Truck SUV	1981																	
Subaru	Truck	Truck SUV	1982																	
Subaru	Truck	Truck SUV	1983																	
Subaru	Truck	Truck SUV	1984																	
Subaru	Truck	Truck SUV	1985																	
Subaru	Truck	Truck SUV	1986																	
Subaru	Truck	Truck SUV	1987																	
Subaru	Truck	Truck SUV	1988																	
Subaru	Truck	Truck SUV	1989																	
Subaru	Truck	Truck SUV	1990																	
Subaru	Truck	Truck SUV	1991																	
Subaru	Truck	Truck SUV	1992																	
Subaru	Truck	Truck SUV	1993																	
Subaru	Truck	Truck SUV	1994																	
Subaru	Truck	Truck SUV	1995																	
Subaru	Truck	Truck SUV	1996																	
Subaru	Truck	Truck SUV	1997																	
Subaru	Truck	Truck SUV	1998							26.8										26.8
Subaru	Truck	Truck SUV	1999							27.0										27.0
Subaru	Truck	Truck SUV	2000							27.8										27.8
Subaru	Truck	Truck SUV	2001							27.9										27.9
Subaru	Truck	Truck SUV	2002							28.0										28.0
Subaru	Truck	Truck SUV	2003							27.5										27.5
Subaru	Truck	Truck SUV	2004							27.1										27.1
Subaru	Truck	Truck SUV	2005							28.6										28.6
Subaru	Truck	Truck SUV	2006							28.8	23.0									26.4
Subaru	Truck	Truck SUV	2007							28.7	23.0									27.3
Subaru	Truck	Truck SUV	2008							28.9	23.2									26.4
Subaru	Truck	Truck SUV	2009							28.9	23.2									28.4
Subaru	Truck	Truck SUV	2010							28.9	31.1	23.4								29.6
Subaru	Truck	Truck SUV	2011							30.1	30.8	23.4								30.4
Subaru	Truck	Truck SUV	2012							30.2	30.9	23.4								30.5
Subaru	Truck	Truck SUV	2013							33.4	33.5	23.4								33.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Subaru	Truck	Truck SUV	2014							36.4	33.8	23.4							35.4
Subaru	Truck	Truck SUV	2015							36.6	36.1								36.4
Subaru	Truck	Truck SUV	2016							36.9	36.0								36.5
Subaru	Truck	Truck SUV	2017							37.7	35.7								36.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Subaru	Truck	Pickup	1975																	
Subaru	Truck	Pickup	1976																	
Subaru	Truck	Pickup	1977																	
Subaru	Truck	Pickup	1978				27.2													27.2
Subaru	Truck	Pickup	1979				27.5													27.5
Subaru	Truck	Pickup	1980				26.0													26.0
Subaru	Truck	Pickup	1981				28.4													28.4
Subaru	Truck	Pickup	1982				29.8													29.8
Subaru	Truck	Pickup	1983				29.6	26.6												29.5
Subaru	Truck	Pickup	1984				29.9	26.5												29.7
Subaru	Truck	Pickup	1985				29.6													29.6
Subaru	Truck	Pickup	1986				30.0													30.0
Subaru	Truck	Pickup	1987				29.8													29.8
Subaru	Truck	Pickup	1988																	
Subaru	Truck	Pickup	1989																	
Subaru	Truck	Pickup	1990																	
Subaru	Truck	Pickup	1991																	
Subaru	Truck	Pickup	1992																	
Subaru	Truck	Pickup	1993																	
Subaru	Truck	Pickup	1994																	
Subaru	Truck	Pickup	1995																	
Subaru	Truck	Pickup	1996																	
Subaru	Truck	Pickup	1997																	
Subaru	Truck	Pickup	1998																	
Subaru	Truck	Pickup	1999																	
Subaru	Truck	Pickup	2000																	
Subaru	Truck	Pickup	2001																	
Subaru	Truck	Pickup	2002																	
Subaru	Truck	Pickup	2003							25.7	26.6									26.3
Subaru	Truck	Pickup	2004								25.4									25.4
Subaru	Truck	Pickup	2005								25.8									25.8
Subaru	Truck	Pickup	2006							29.0	26.5									26.9
Subaru	Truck	Pickup	2007																	
Subaru	Truck	Pickup	2008																	
Subaru	Truck	Pickup	2009																	
Subaru	Truck	Pickup	2010																	
Subaru	Truck	Pickup	2011																	
Subaru	Truck	Pickup	2012																	
Subaru	Truck	Pickup	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Subaru	Truck	Pickup	2014																	
Subaru	Truck	Pickup	2015																	
Subaru	Truck	Pickup	2016																	
Subaru	Truck	Pickup	2017																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Subaru	Truck	All	1975																	
Subaru	Truck	All	1976																	
Subaru	Truck	All	1977																	
Subaru	Truck	All	1978				27.2													27.2
Subaru	Truck	All	1979				27.5													27.5
Subaru	Truck	All	1980				26.0													26.0
Subaru	Truck	All	1981				28.4													28.4
Subaru	Truck	All	1982				29.8													29.8
Subaru	Truck	All	1983				29.6	26.6												29.5
Subaru	Truck	All	1984				29.9	26.5												29.7
Subaru	Truck	All	1985				29.6													29.6
Subaru	Truck	All	1986				30.0													30.0
Subaru	Truck	All	1987				29.8													29.8
Subaru	Truck	All	1988																	
Subaru	Truck	All	1989																	
Subaru	Truck	All	1990																	
Subaru	Truck	All	1991																	
Subaru	Truck	All	1992																	
Subaru	Truck	All	1993																	
Subaru	Truck	All	1994																	
Subaru	Truck	All	1995																	
Subaru	Truck	All	1996																	
Subaru	Truck	All	1997																	
Subaru	Truck	All	1998							26.8										26.8
Subaru	Truck	All	1999							27.0										27.0
Subaru	Truck	All	2000							27.8										27.8
Subaru	Truck	All	2001							27.9										27.9
Subaru	Truck	All	2002							28.0										28.0
Subaru	Truck	All	2003							27.4	26.6									27.3
Subaru	Truck	All	2004							27.1	25.4									27.1
Subaru	Truck	All	2005							28.6	25.8									28.2
Subaru	Truck	All	2006							28.8	26.5	23.0								26.5
Subaru	Truck	All	2007							28.7		23.0								27.3
Subaru	Truck	All	2008							28.9		23.2								26.4
Subaru	Truck	All	2009							28.9		23.2								28.4
Subaru	Truck	All	2010							28.9	31.1	23.4								29.6
Subaru	Truck	All	2011							30.1	30.8	23.4								30.4
Subaru	Truck	All	2012							30.2	30.9	23.4								30.5
Subaru	Truck	All	2013							33.4	33.5	23.4								33.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
Subaru	Truck	All	2014							36.4	33.8	23.4								35.4	
Subaru	Truck	All	2015							36.6	36.1										36.4
Subaru	Truck	All	2016							36.9	36.0										36.5
Subaru	Truck	All	2017							37.7	35.7										36.8

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Subaru	All	All	1975			27.1	25.5													26.5
Subaru	All	All	1976			31.6	27.9													29.7
Subaru	All	All	1977			30.3	29.9													30.2
Subaru	All	All	1978			32.9	27.4													29.3
Subaru	All	All	1979			32.4	27.8													28.9
Subaru	All	All	1980			31.7	26.2													27.9
Subaru	All	All	1981			34.8	29.1													30.9
Subaru	All	All	1982			35.8	32.1	28.2												31.6
Subaru	All	All	1983			34.7	32.2	28.7												31.2
Subaru	All	All	1984			36.8	32.3	28.8												31.1
Subaru	All	All	1985			36.1	31.9	29.2	26.7											30.5
Subaru	All	All	1986			37.2	31.7	29.1	28.0											30.1
Subaru	All	All	1987		46.0	36.7	30.9	29.1	26.8											29.5
Subaru	All	All	1988		41.6		31.5	30.2	27.3											31.4
Subaru	All	All	1989		41.6	38.6	31.0	30.0	27.7											31.5
Subaru	All	All	1990		41.8	36.7	30.3	29.3	28.1	26.2										28.0
Subaru	All	All	1991		41.8	36.8	33.7	29.5	28.2	26.1										28.2
Subaru	All	All	1992		41.9	37.7	32.8	29.0	29.5	27.0	23.6									28.1
Subaru	All	All	1993		41.4	35.8	32.8	30.2	29.3	27.2	23.5									29.2
Subaru	All	All	1994		41.4	39.8	31.8	30.3	29.0	26.6	23.4									28.2
Subaru	All	All	1995					30.9	28.9	27.9	23.5									28.5
Subaru	All	All	1996					30.8	28.9	26.8	23.3									27.4
Subaru	All	All	1997					31.1	29.9	27.1	23.3									28.0
Subaru	All	All	1998						29.8	27.0										27.5
Subaru	All	All	1999						29.3	27.2										27.4
Subaru	All	All	2000						29.0	27.8	27.2									28.0
Subaru	All	All	2001						28.8	27.9	27.5									27.8
Subaru	All	All	2002						27.0	27.5	27.2									27.4
Subaru	All	All	2003						27.4	27.4	27.0									27.3
Subaru	All	All	2004						27.6	26.9	27.0									27.0
Subaru	All	All	2005						29.9	28.1	25.0									27.6
Subaru	All	All	2006							28.5	25.6	23.0								27.3
Subaru	All	All	2007							28.6	25.6	23.0								28.0
Subaru	All	All	2008							28.9	25.9	23.2								28.1
Subaru	All	All	2009							29.0	25.9	23.2								28.7
Subaru	All	All	2010							29.4	30.9	23.4								29.7
Subaru	All	All	2011							30.3	30.6	23.4								30.4
Subaru	All	All	2012						39.1	32.8	30.7	23.4								32.2
Subaru	All	All	2013						36.6	34.6	33.3	23.4								34.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Subaru	All	All	2014						34.4	36.4	33.7	23.4							35.5
Subaru	All	All	2015						34.7	36.7	36.2								36.5
Subaru	All	All	2016						35.3	36.9	35.9								36.6
Subaru	All	All	2017						33.2	38.2	36.1								37.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Car	Car	1975				24.5	15.9	15.7											17.1
Mazda	Car	Car	1976				29.8	21.5	20.2											21.9
Mazda	Car	Car	1977			36.5	29.9	22.0	22.4											29.3
Mazda	Car	Car	1978			36.3	22.5		20.3											35.5
Mazda	Car	Car	1979			33.5	31.4	21.6												25.6
Mazda	Car	Car	1980			32.8	28.7	23.0												26.0
Mazda	Car	Car	1981		38.5	35.1	25.3	31.0												31.1
Mazda	Car	Car	1982			37.2	24.4	29.4												29.4
Mazda	Car	Car	1983			38.6	24.2	30.5												28.9
Mazda	Car	Car	1984			37.4	23.0	29.9												30.0
Mazda	Car	Car	1985			37.2	22.7	30.0												29.7
Mazda	Car	Car	1986			33.4	33.2	29.7	24.0											29.4
Mazda	Car	Car	1987			34.0	33.4	31.0	23.5											29.2
Mazda	Car	Car	1988			33.1	32.7		27.3	23.8										28.4
Mazda	Car	Car	1989			33.2	32.6		28.7	24.0										29.5
Mazda	Car	Car	1990				32.6	32.6	28.9	23.0	22.9									29.9
Mazda	Car	Car	1991				32.7	32.6	29.1	23.0	22.9									30.2
Mazda	Car	Car	1992				33.2	31.8	29.5	22.7	24.4									30.5
Mazda	Car	Car	1993				33.3	32.3	28.4		24.4									30.1
Mazda	Car	Car	1994				29.7	32.8	28.9		24.4									30.3
Mazda	Car	Car	1995				30.1	35.8	29.7	26.1	24.4									30.6
Mazda	Car	Car	1996				29.4	36.3	30.1	26.0										31.5
Mazda	Car	Car	1997				29.5	34.1	30.3	26.0										30.8
Mazda	Car	Car	1998					33.7	29.4	26.2										30.0
Mazda	Car	Car	1999				31.1	33.6	29.1	26.2										30.2
Mazda	Car	Car	2000				31.1	33.2	28.5	26.3										30.0
Mazda	Car	Car	2001					31.8	29.6	26.1										29.3
Mazda	Car	Car	2002					29.2	30.6	26.1										29.6
Mazda	Car	Car	2003					29.1	31.6	27.9										30.0
Mazda	Car	Car	2004					27.9	32.1	25.9		22.5								28.0
Mazda	Car	Car	2005					28.2	32.2	27.2										29.5
Mazda	Car	Car	2006					30.6	33.4	27.9	24.9									30.3
Mazda	Car	Car	2007					30.2	33.3	28.7	24.9									31.0
Mazda	Car	Car	2008					30.0	33.5	29.8										32.0
Mazda	Car	Car	2009					31.1	33.5	30.6	25.6									31.2
Mazda	Car	Car	2010					31.0	35.8	31.8	25.8									33.4
Mazda	Car	Car	2011				39.9	31.0	36.0	32.0	26.3									34.5
Mazda	Car	Car	2012				41.2	31.1	41.1	32.0	26.2									37.8
Mazda	Car	Car	2013				41.1	31.0	41.1	30.6	26.1									38.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	Car	Car	2014				41.1	31.0	45.2	40.3										42.4
Mazda	Car	Car	2015					30.9	45.3	40.6										42.9
Mazda	Car	Car	2016				40.5	40.7	44.4	40.8										42.9
Mazda	Car	Car	2017				40.6	40.1	42.3	39.5										40.7



Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Car	Car SUV	1975																	
Mazda	Car	Car SUV	1976																	
Mazda	Car	Car SUV	1977																	
Mazda	Car	Car SUV	1978																	
Mazda	Car	Car SUV	1979																	
Mazda	Car	Car SUV	1980																	
Mazda	Car	Car SUV	1981																	
Mazda	Car	Car SUV	1982																	
Mazda	Car	Car SUV	1983																	
Mazda	Car	Car SUV	1984																	
Mazda	Car	Car SUV	1985																	
Mazda	Car	Car SUV	1986																	
Mazda	Car	Car SUV	1987																	
Mazda	Car	Car SUV	1988																	
Mazda	Car	Car SUV	1989																	
Mazda	Car	Car SUV	1990																	
Mazda	Car	Car SUV	1991																	
Mazda	Car	Car SUV	1992								21.4									21.4
Mazda	Car	Car SUV	1993								21.8									21.8
Mazda	Car	Car SUV	1994								21.4									21.4
Mazda	Car	Car SUV	1995																	
Mazda	Car	Car SUV	1996																	
Mazda	Car	Car SUV	1997																	
Mazda	Car	Car SUV	1998																	
Mazda	Car	Car SUV	1999																	
Mazda	Car	Car SUV	2000																	
Mazda	Car	Car SUV	2001							24.6										24.6
Mazda	Car	Car SUV	2002							25.1										25.1
Mazda	Car	Car SUV	2003							25.2										25.2
Mazda	Car	Car SUV	2004							25.2										25.2
Mazda	Car	Car SUV	2005							26.5										26.5
Mazda	Car	Car SUV	2006							27.2										27.2
Mazda	Car	Car SUV	2007								24.2									24.2
Mazda	Car	Car SUV	2008								28.5	25.1								26.6
Mazda	Car	Car SUV	2009								29.8	25.7								26.9
Mazda	Car	Car SUV	2010								29.9	26.7								29.4
Mazda	Car	Car SUV	2011								29.9	26.7								29.7
Mazda	Car	Car SUV	2012									29.5								29.5
Mazda	Car	Car SUV	2013									38.5								38.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	Car	Car SUV	2014							36.9										36.9
Mazda	Car	Car SUV	2015							36.8										36.8
Mazda	Car	Car SUV	2016							38.9										38.9
Mazda	Car	Car SUV	2017								36.6									36.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Car	All	1975				24.5	15.9	15.7											17.1
Mazda	Car	All	1976				29.8	21.5	20.2											21.9
Mazda	Car	All	1977			36.5	29.9	22.0	22.4											29.3
Mazda	Car	All	1978			36.3	22.5		20.3											35.5
Mazda	Car	All	1979			33.5	31.4	21.6												25.6
Mazda	Car	All	1980			32.8	28.7	23.0												26.0
Mazda	Car	All	1981		38.5	35.1	25.3	31.0												31.1
Mazda	Car	All	1982			37.2	24.4	29.4												29.4
Mazda	Car	All	1983			38.6	24.2	30.5												28.9
Mazda	Car	All	1984			37.4	23.0	29.9												30.0
Mazda	Car	All	1985			37.2	22.7	30.0												29.7
Mazda	Car	All	1986			33.4	33.2	29.7	24.0											29.4
Mazda	Car	All	1987			34.0	33.4	31.0	23.5											29.2
Mazda	Car	All	1988			33.1	32.7		27.3	23.8										28.4
Mazda	Car	All	1989			33.2	32.6		28.7	24.0										29.5
Mazda	Car	All	1990				32.6	32.6	28.9	23.0	22.9									29.9
Mazda	Car	All	1991				32.7	32.6	29.1	23.0	22.9									30.2
Mazda	Car	All	1992				33.2	31.8	29.5	22.7	24.0									30.2
Mazda	Car	All	1993				33.3	32.3	28.4		24.2									30.0
Mazda	Car	All	1994				29.7	32.8	28.9		23.9									30.2
Mazda	Car	All	1995				30.1	35.8	29.7	26.1	24.4									30.6
Mazda	Car	All	1996				29.4	36.3	30.1	26.0										31.5
Mazda	Car	All	1997				29.5	34.1	30.3	26.0										30.8
Mazda	Car	All	1998					33.7	29.4	26.2										30.0
Mazda	Car	All	1999				31.1	33.6	29.1	26.2										30.2
Mazda	Car	All	2000				31.1	33.2	28.5	26.3										30.0
Mazda	Car	All	2001					31.8	29.6	25.4										28.4
Mazda	Car	All	2002					29.2	30.6	25.7										28.9
Mazda	Car	All	2003					29.1	31.6	27.0										29.2
Mazda	Car	All	2004					27.9	32.1	25.8		22.5								27.8
Mazda	Car	All	2005					28.2	32.2	27.0										29.0
Mazda	Car	All	2006					30.6	33.4	27.7	24.9									30.0
Mazda	Car	All	2007					30.2	33.3	28.7	24.2									29.9
Mazda	Car	All	2008					30.0	33.5	29.5	25.1									30.9
Mazda	Car	All	2009					31.1	33.5	30.5	25.6									30.7
Mazda	Car	All	2010					31.0	35.8	31.3	26.3									32.8
Mazda	Car	All	2011				39.9	31.0	36.0	31.1	26.5									33.4
Mazda	Car	All	2012				41.2	31.1	41.1	32.0	29.0									37.4
Mazda	Car	All	2013				41.1	31.0	41.1	35.3	26.1									38.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
Mazda	Car	All	2014				41.1	31.0	45.2	38.7										41.0	
Mazda	Car	All	2015					30.9	45.3	39.0											41.4
Mazda	Car	All	2016				40.5	40.7	44.4	39.7											41.6
Mazda	Car	All	2017				40.6	40.1	42.3	39.5	36.6										40.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Truck	Van	1975																	
Mazda	Truck	Van	1976																	
Mazda	Truck	Van	1977																	
Mazda	Truck	Van	1978																	
Mazda	Truck	Van	1979																	
Mazda	Truck	Van	1980																	
Mazda	Truck	Van	1981																	
Mazda	Truck	Van	1982																	
Mazda	Truck	Van	1983																	
Mazda	Truck	Van	1984																	
Mazda	Truck	Van	1985																	
Mazda	Truck	Van	1986																	
Mazda	Truck	Van	1987																	
Mazda	Truck	Van	1988																	
Mazda	Truck	Van	1989							24.9	22.5									22.5
Mazda	Truck	Van	1990							24.4	20.2									20.2
Mazda	Truck	Van	1991							24.7	20.3									20.3
Mazda	Truck	Van	1992							24.7	21.8	19.1								21.3
Mazda	Truck	Van	1993								21.7	19.1								21.4
Mazda	Truck	Van	1994								21.6	19.5								21.3
Mazda	Truck	Van	1995								21.3	19.4								20.9
Mazda	Truck	Van	1996								21.4	19.2								20.8
Mazda	Truck	Van	1997								21.4	19.2								20.5
Mazda	Truck	Van	1998								21.3	19.2								20.0
Mazda	Truck	Van	1999																	
Mazda	Truck	Van	2000								23.1									23.1
Mazda	Truck	Van	2001								23.2									23.2
Mazda	Truck	Van	2002								23.7									23.7
Mazda	Truck	Van	2003								23.8									23.8
Mazda	Truck	Van	2004								23.7									23.7
Mazda	Truck	Van	2005								23.7									23.7
Mazda	Truck	Van	2006								23.6									23.6
Mazda	Truck	Van	2007																	
Mazda	Truck	Van	2008								30.7									30.7
Mazda	Truck	Van	2009								30.3									30.3
Mazda	Truck	Van	2010								30.7									30.7
Mazda	Truck	Van	2011																	
Mazda	Truck	Van	2012								32.3									32.3
Mazda	Truck	Van	2013								32.2									32.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
Mazda	Truck	Van	2014							32.3										32.3	
Mazda	Truck	Van	2015							32.4											32.4
Mazda	Truck	Van	2016																		
Mazda	Truck	Van	2017																		

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Truck	Truck SUV	1975																	
Mazda	Truck	Truck SUV	1976																	
Mazda	Truck	Truck SUV	1977																	
Mazda	Truck	Truck SUV	1978																	
Mazda	Truck	Truck SUV	1979																	
Mazda	Truck	Truck SUV	1980																	
Mazda	Truck	Truck SUV	1981																	
Mazda	Truck	Truck SUV	1982																	
Mazda	Truck	Truck SUV	1983																	
Mazda	Truck	Truck SUV	1984																	
Mazda	Truck	Truck SUV	1985																	
Mazda	Truck	Truck SUV	1986																	
Mazda	Truck	Truck SUV	1987																	
Mazda	Truck	Truck SUV	1988																	
Mazda	Truck	Truck SUV	1989																	
Mazda	Truck	Truck SUV	1990																	
Mazda	Truck	Truck SUV	1991								21.3	20.0								20.5
Mazda	Truck	Truck SUV	1992									20.5								20.5
Mazda	Truck	Truck SUV	1993									20.6								20.6
Mazda	Truck	Truck SUV	1994								21.2	20.1								20.3
Mazda	Truck	Truck SUV	1995																	
Mazda	Truck	Truck SUV	1996																	
Mazda	Truck	Truck SUV	1997																	
Mazda	Truck	Truck SUV	1998																	
Mazda	Truck	Truck SUV	1999																	
Mazda	Truck	Truck SUV	2000																	
Mazda	Truck	Truck SUV	2001								23.6									23.6
Mazda	Truck	Truck SUV	2002								23.8									23.8
Mazda	Truck	Truck SUV	2003								23.6									23.6
Mazda	Truck	Truck SUV	2004								23.7									23.7
Mazda	Truck	Truck SUV	2005								25.1	23.8								24.0
Mazda	Truck	Truck SUV	2006								26.6	24.1								24.8
Mazda	Truck	Truck SUV	2007									23.7	22.5							23.2
Mazda	Truck	Truck SUV	2008								28.4	24.2	22.9							23.5
Mazda	Truck	Truck SUV	2009									24.4	22.6							23.1
Mazda	Truck	Truck SUV	2010									25.6	22.7							23.2
Mazda	Truck	Truck SUV	2011								29.6	25.1	24.5							24.6
Mazda	Truck	Truck SUV	2012									25.1	24.5							24.5
Mazda	Truck	Truck SUV	2013								36.9		24.5							29.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	Truck	Truck SUV	2014							36.8	34.8	24.5								31.2
Mazda	Truck	Truck SUV	2015							36.8	34.8	24.6								31.5
Mazda	Truck	Truck SUV	2016								34.6	30.6								34.2
Mazda	Truck	Truck SUV	2017								34.4	31.1								33.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Truck	Pickup	1975						16.8											16.8
Mazda	Truck	Pickup	1976						18.2											18.2
Mazda	Truck	Pickup	1977						24.5											24.5
Mazda	Truck	Pickup	1978						31.7											31.7
Mazda	Truck	Pickup	1979						30.2											30.2
Mazda	Truck	Pickup	1980					30.2	30.1											30.1
Mazda	Truck	Pickup	1981					30.8	31.1											31.0
Mazda	Truck	Pickup	1982					30.6	32.1											31.6
Mazda	Truck	Pickup	1983					30.8	30.5											30.6
Mazda	Truck	Pickup	1984					29.6	29.8											29.7
Mazda	Truck	Pickup	1985																	
Mazda	Truck	Pickup	1986						27.7											27.7
Mazda	Truck	Pickup	1987						27.2	20.7										26.2
Mazda	Truck	Pickup	1988						26.7	21.9										26.4
Mazda	Truck	Pickup	1989						26.7	22.6										26.2
Mazda	Truck	Pickup	1990						26.8	23.2	21.3									25.9
Mazda	Truck	Pickup	1991						26.8	23.6	21.3									25.6
Mazda	Truck	Pickup	1992						26.8	23.5	21.3									25.6
Mazda	Truck	Pickup	1993						26.8	22.3	21.3									25.9
Mazda	Truck	Pickup	1994						29.8	25.6	21.0									24.5
Mazda	Truck	Pickup	1995							28.0	22.6									26.8
Mazda	Truck	Pickup	1996																	
Mazda	Truck	Pickup	1997																	
Mazda	Truck	Pickup	1998							26.1	21.1									24.8
Mazda	Truck	Pickup	1999							26.0	20.8									24.0
Mazda	Truck	Pickup	2000							25.2	20.7									23.8
Mazda	Truck	Pickup	2001							24.0	20.4									23.1
Mazda	Truck	Pickup	2002							26.2	21.1									23.5
Mazda	Truck	Pickup	2003							28.1	21.7									24.9
Mazda	Truck	Pickup	2004							28.1	21.5									25.0
Mazda	Truck	Pickup	2005							28.1	21.3									25.0
Mazda	Truck	Pickup	2006							28.4	21.6									26.0
Mazda	Truck	Pickup	2007							28.5	21.1									26.2
Mazda	Truck	Pickup	2008							28.5	20.0									26.3
Mazda	Truck	Pickup	2009							30.0	19.0									28.5
Mazda	Truck	Pickup	2010																	
Mazda	Truck	Pickup	2011																	
Mazda	Truck	Pickup	2012																	
Mazda	Truck	Pickup	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	Truck	Pickup	2014																	
Mazda	Truck	Pickup	2015																	
Mazda	Truck	Pickup	2016																	
Mazda	Truck	Pickup	2017																	

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mazda	Truck	All	1975						16.8											16.8
Mazda	Truck	All	1976						18.2											18.2
Mazda	Truck	All	1977						24.5											24.5
Mazda	Truck	All	1978						31.7											31.7
Mazda	Truck	All	1979						30.2											30.2
Mazda	Truck	All	1980					30.2	30.1											30.1
Mazda	Truck	All	1981					30.8	31.1											31.0
Mazda	Truck	All	1982					30.6	32.1											31.6
Mazda	Truck	All	1983					30.8	30.5											30.6
Mazda	Truck	All	1984					29.6	29.8											29.7
Mazda	Truck	All	1985																	
Mazda	Truck	All	1986						27.7											27.7
Mazda	Truck	All	1987						27.2	20.7										26.2
Mazda	Truck	All	1988						26.7	21.9										26.4
Mazda	Truck	All	1989						26.7	22.6	22.5									25.2
Mazda	Truck	All	1990						26.8	23.2	20.2									23.3
Mazda	Truck	All	1991						26.8	23.6	20.4	20.0								22.8
Mazda	Truck	All	1992						26.8	23.5	21.8	19.6								23.2
Mazda	Truck	All	1993						26.8	22.3	21.7	19.9								23.3
Mazda	Truck	All	1994						29.8	25.6	21.2	19.8								23.6
Mazda	Truck	All	1995							28.0	21.6	19.4								24.4
Mazda	Truck	All	1996								21.4	19.2								20.8
Mazda	Truck	All	1997								21.4	19.2								20.5
Mazda	Truck	All	1998							26.1	21.2	19.2								23.4
Mazda	Truck	All	1999							26.0	20.8									24.0
Mazda	Truck	All	2000							25.2	22.7									23.3
Mazda	Truck	All	2001							23.8	22.7									23.3
Mazda	Truck	All	2002							24.5	22.9									23.7
Mazda	Truck	All	2003							24.9	23.3									24.0
Mazda	Truck	All	2004							24.8	23.4									24.0
Mazda	Truck	All	2005							26.5	23.6									24.0
Mazda	Truck	All	2006							27.5	23.6									24.5
Mazda	Truck	All	2007							28.5	23.6	22.5								23.4
Mazda	Truck	All	2008							30.2	24.1	22.9								24.8
Mazda	Truck	All	2009							30.3	24.3	22.6								26.5
Mazda	Truck	All	2010							30.7	25.6	22.7								25.2
Mazda	Truck	All	2011							29.6	25.1	24.5								24.6
Mazda	Truck	All	2012							32.3	25.1	24.5								27.8
Mazda	Truck	All	2013							35.0		24.5								30.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	Truck	All	2014							33.6	34.8	24.5								31.4
Mazda	Truck	All	2015							32.6	34.8	24.6								31.6
Mazda	Truck	All	2016								34.6	30.6								34.2
Mazda	Truck	All	2017								34.4	31.1								33.3

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	All	All	1975				24.5	15.9	15.8											17.1
Mazda	All	All	1976				29.8	21.5	19.8											21.3
Mazda	All	All	1977			36.5	29.9	22.0	23.0											28.8
Mazda	All	All	1978			36.3	22.5		27.7											35.3
Mazda	All	All	1979			33.5	31.4	21.6	30.2											25.8
Mazda	All	All	1980			32.8	28.7	23.2	30.1											26.2
Mazda	All	All	1981		38.5	35.1	25.3	31.0	31.1											31.1
Mazda	All	All	1982			37.2	24.4	29.6	32.1											29.7
Mazda	All	All	1983			38.6	24.2	30.6	30.5											29.4
Mazda	All	All	1984			37.4	23.0	29.8	29.8											29.9
Mazda	All	All	1985			37.2	22.7	30.0												29.7
Mazda	All	All	1986			33.4	33.2	29.7	26.9											28.7
Mazda	All	All	1987			34.0	33.4	31.0	26.2	20.7										27.7
Mazda	All	All	1988			33.1	32.7		27.1	23.5										27.9
Mazda	All	All	1989			33.2	32.6		27.8	23.6	22.5									27.7
Mazda	All	All	1990				32.6	32.6	28.2	23.1	20.8									27.4
Mazda	All	All	1991				32.7	32.6	28.4	23.5	20.7	20.0								27.1
Mazda	All	All	1992				33.2	31.8	28.2	23.5	22.8	19.6								27.7
Mazda	All	All	1993				33.3	32.3	28.1	22.3	22.6	19.9								28.6
Mazda	All	All	1994				29.7	32.8	29.0	25.6	21.7	19.8								27.5
Mazda	All	All	1995				30.1	35.8	29.7	26.7	22.1	19.4								29.5
Mazda	All	All	1996				29.4	36.3	30.1	26.0	21.4	19.2								30.3
Mazda	All	All	1997				29.5	34.1	30.3	26.0	21.4	19.2								29.8
Mazda	All	All	1998					33.7	29.4	26.1	21.2	19.2								27.9
Mazda	All	All	1999				31.1	33.6	29.1	26.1	20.8									28.9
Mazda	All	All	2000				31.1	33.2	28.5	25.9	22.7									27.6
Mazda	All	All	2001					31.8	29.6	24.6	22.7									26.3
Mazda	All	All	2002					29.2	30.6	25.2	22.9									27.4
Mazda	All	All	2003					29.1	31.6	26.4	23.3									27.4
Mazda	All	All	2004					27.9	32.1	25.7	23.4	22.5								27.0
Mazda	All	All	2005					28.2	32.2	27.0	23.6									27.9
Mazda	All	All	2006					30.6	33.4	27.7	24.0									29.4
Mazda	All	All	2007					30.2	33.3	28.7	24.0	22.5								28.6
Mazda	All	All	2008					30.0	33.5	29.6	24.6	22.9								29.2
Mazda	All	All	2009					31.1	33.5	30.4	25.3	22.6								29.3
Mazda	All	All	2010					31.0	35.8	31.2	26.0	22.7								30.9
Mazda	All	All	2011				39.9	31.0	36.0	31.1	25.7	24.5								31.7
Mazda	All	All	2012				41.2	31.1	41.1	32.1	28.9	24.5								34.6
Mazda	All	All	2013				41.1	31.0	41.1	35.2	26.1	24.5								36.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mazda	All	All	2014				41.1	31.0	45.2	38.0	34.8	24.5								37.9
Mazda	All	All	2015					30.9	45.3	38.3	34.8	24.6								38.1
Mazda	All	All	2016				40.5	40.7	44.4	39.7	34.6	30.6								38.8
Mazda	All	All	2017				40.6	40.1	42.3	39.5	35.3	31.1								38.6

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Car	Car	1975					22.4		14.6				10.2						17.2
BMW	Car	Car	1976					21.4		16.4				11.3						18.4
BMW	Car	Car	1977					22.6		16.4				11.1						19.8
BMW	Car	Car	1978					21.5		16.3	15.0			10.8						19.2
BMW	Car	Car	1979					21.6		20.0	14.9			10.8						19.5
BMW	Car	Car	1980					28.9		21.3	18.8		11.3	10.7						25.0
BMW	Car	Car	1981					28.9		21.3	19.1		11.0	10.5						25.6
BMW	Car	Car	1982					29.0	24.4	21.2			11.1	10.1						25.4
BMW	Car	Car	1983					29.0	24.4	21.5			11.1	10.9						25.3
BMW	Car	Car	1984				30.7	29.0	26.8	22.5			11.1	11.0						27.0
BMW	Car	Car	1985					29.0	27.7	23.4	20.5		11.1	11.0	10.1					25.4
BMW	Car	Car	1986						27.3	23.2	19.5		11.1	11.0	10.1					25.0
BMW	Car	Car	1987						25.8	22.7	19.4		11.4	10.9	10.4					23.9
BMW	Car	Car	1988						24.2	22.9	18.7	16.2	12.4	12.2	11.8					21.3
BMW	Car	Car	1989						23.1	23.3	20.0	16.5	12.4	12.2						21.7
BMW	Car	Car	1990						23.2	23.4	20.6	16.7		13.3						21.9
BMW	Car	Car	1991					28.2	24.9	23.4	21.8	16.7		13.3						22.8
BMW	Car	Car	1992						28.2	24.3	22.5	16.7		13.9						23.8
BMW	Car	Car	1993						29.0	26.3	23.2	19.5		13.9	13.6					25.0
BMW	Car	Car	1994						29.5	26.5	22.5	18.9		14.0	13.9	13.6				24.9
BMW	Car	Car	1995						29.3	26.5	23.9	22.0		14.1	13.9	13.6				25.1
BMW	Car	Car	1996						30.3	26.7		21.8		15.9						27.1
BMW	Car	Car	1997						28.7	25.7	22.7	22.4		15.1		14.9				25.5
BMW	Car	Car	1998						27.8	25.5	22.8	22.4		15.0		13.8				25.2
BMW	Car	Car	1999						25.8	26.2	23.8	22.6	17.4	14.9						25.2
BMW	Car	Car	2000						25.6	25.8	23.2	22.4	18.3	16.1		15.2				24.6
BMW	Car	Car	2001						26.3	26.0	23.7	22.1	18.2	16.1		15.2				24.7
BMW	Car	Car	2002						35.5	29.6	26.5	24.4	23.6		16.1		15.2			26.0
BMW	Car	Car	2003						35.6	29.6	26.5	24.3	23.6	20.3						26.5
BMW	Car	Car	2004						35.4	30.4	25.9	24.4	23.5	20.3	17.0					26.2
BMW	Car	Car	2005						35.2	31.3	25.7	24.3	23.3	20.3	17.0					26.9
BMW	Car	Car	2006						35.1	32.0	27.7	24.5	23.1	20.4	17.0					27.0
BMW	Car	Car	2007						39.8	35.0	28.3	25.8	22.3	19.6	17.3					27.5
BMW	Car	Car	2008						42.5	36.6	28.5	25.8	22.5	19.6	17.3					27.2
BMW	Car	Car	2009						42.5	38.7	28.2	26.2	21.9	21.5	17.3					28.4
BMW	Car	Car	2010						42.1	37.0	28.1	26.3	23.7	21.3	19.7	17.3				28.5
BMW	Car	Car	2011						41.8	39.2	29.4	27.9	28.4	21.8		19.3				29.1
BMW	Car	Car	2012						41.9	39.2	34.8	30.7	27.7	21.4		19.6				32.2
BMW	Car	Car	2013						41.7	38.9	34.9	32.3	27.5	24.9		18.5	17.4			32.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Car	Car	2014					44.0	44.4	38.2	34.3	29.1	24.9	19.3	18.5	17.4				34.7
BMW	Car	Car	2015					44.3	41.1	38.3	33.3	29.0	25.1	19.3	18.6	17.4				34.6
BMW	Car	Car	2016					43.0	39.8	37.5	33.3	29.2	25.1	19.3	18.5	17.4				33.9
BMW	Car	Car	2017					43.0	40.4	39.9	34.5	29.6	26.1	18.7	17.9	17.4				35.3



Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
BMW	Car	Car SUV	1975																	
BMW	Car	Car SUV	1976																	
BMW	Car	Car SUV	1977																	
BMW	Car	Car SUV	1978																	
BMW	Car	Car SUV	1979																	
BMW	Car	Car SUV	1980																	
BMW	Car	Car SUV	1981																	
BMW	Car	Car SUV	1982																	
BMW	Car	Car SUV	1983																	
BMW	Car	Car SUV	1984																	
BMW	Car	Car SUV	1985																	
BMW	Car	Car SUV	1986																	
BMW	Car	Car SUV	1987																	
BMW	Car	Car SUV	1988																	
BMW	Car	Car SUV	1989																	
BMW	Car	Car SUV	1990																	
BMW	Car	Car SUV	1991																	
BMW	Car	Car SUV	1992																	
BMW	Car	Car SUV	1993																	
BMW	Car	Car SUV	1994																	
BMW	Car	Car SUV	1995																	
BMW	Car	Car SUV	1996																	
BMW	Car	Car SUV	1997																	
BMW	Car	Car SUV	1998																	
BMW	Car	Car SUV	1999																	
BMW	Car	Car SUV	2000																	
BMW	Car	Car SUV	2001																	
BMW	Car	Car SUV	2002																	
BMW	Car	Car SUV	2003																	
BMW	Car	Car SUV	2004																	
BMW	Car	Car SUV	2005																	
BMW	Car	Car SUV	2006																	
BMW	Car	Car SUV	2007																	
BMW	Car	Car SUV	2008																	
BMW	Car	Car SUV	2009																	
BMW	Car	Car SUV	2010																	
BMW	Car	Car SUV	2011																	
BMW	Car	Car SUV	2012																	
BMW	Car	Car SUV	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Car	Car SUV	2014																	
BMW	Car	Car SUV	2015								35.3									35.3
BMW	Car	Car SUV	2016								34.8									34.8
BMW	Car	Car SUV	2017								31.3									31.3

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Car	All	1975					22.4		14.6				10.2						17.2
BMW	Car	All	1976					21.4		16.4				11.3						18.4
BMW	Car	All	1977					22.6		16.4				11.1						19.8
BMW	Car	All	1978					21.5		16.3	15.0			10.8						19.2
BMW	Car	All	1979					21.6		20.0	14.9			10.8						19.5
BMW	Car	All	1980					28.9		21.3	18.8		11.3	10.7						25.0
BMW	Car	All	1981					28.9		21.3	19.1		11.0	10.5						25.6
BMW	Car	All	1982					29.0	24.4	21.2			11.1	10.1						25.4
BMW	Car	All	1983					29.0	24.4	21.5			11.1	10.9						25.3
BMW	Car	All	1984				30.7	29.0	26.8	22.5			11.1	11.0						27.0
BMW	Car	All	1985					29.0	27.7	23.4	20.5		11.1	11.0	10.1					25.4
BMW	Car	All	1986						27.3	23.2	19.5		11.1	11.0	10.1					25.0
BMW	Car	All	1987						25.8	22.7	19.4		11.4	10.9	10.4					23.9
BMW	Car	All	1988						24.2	22.9	18.7	16.2	12.4	12.2	11.8					21.3
BMW	Car	All	1989						23.1	23.3	20.0	16.5	12.4	12.2						21.7
BMW	Car	All	1990						23.2	23.4	20.6	16.7		13.3						21.9
BMW	Car	All	1991					28.2	24.9	23.4	21.8	16.7		13.3						22.8
BMW	Car	All	1992						28.2	24.3	22.5	16.7		13.9						23.8
BMW	Car	All	1993						29.0	26.3	23.2	19.5		13.9	13.6					25.0
BMW	Car	All	1994						29.5	26.5	22.5	18.9		14.0	13.9	13.6				24.9
BMW	Car	All	1995						29.3	26.5	23.9	22.0		14.1	13.9	13.6				25.1
BMW	Car	All	1996						30.3	26.7		21.8		15.9						27.1
BMW	Car	All	1997						28.7	25.7	22.7	22.4		15.1		14.9				25.5
BMW	Car	All	1998						27.8	25.5	22.8	22.4		15.0		13.8				25.2
BMW	Car	All	1999						25.8	26.2	23.8	22.6	17.4	14.9						25.2
BMW	Car	All	2000						25.6	25.8	23.2	22.4	18.3	16.1		15.2				24.6
BMW	Car	All	2001						26.3	26.0	23.7	22.1	18.2	16.1		15.2				24.7
BMW	Car	All	2002						35.5	29.6	26.5	24.4	23.6		16.1		15.2			26.0
BMW	Car	All	2003						35.6	29.6	26.5	24.3	23.6	20.3						26.5
BMW	Car	All	2004						35.4	30.4	25.9	24.4	23.5	20.3	17.0					26.2
BMW	Car	All	2005						35.2	31.3	25.7	24.3	23.3	20.3	17.0					26.9
BMW	Car	All	2006						35.1	32.0	27.7	24.5	23.1	20.4	17.0					27.0
BMW	Car	All	2007						39.8	35.0	28.3	25.8	22.3	19.6	17.3					27.5
BMW	Car	All	2008						42.5	36.6	28.5	25.8	22.5	19.6	17.3					27.2
BMW	Car	All	2009						42.5	38.7	28.2	26.2	21.9	21.5	17.3					28.4
BMW	Car	All	2010						42.1	37.0	28.1	26.3	23.7	21.3	19.7	17.3				28.5
BMW	Car	All	2011						41.8	39.2	29.4	27.9	28.4	21.8		19.3				29.1
BMW	Car	All	2012						41.9	39.2	34.8	30.7	27.7	21.4		19.6				32.2
BMW	Car	All	2013						41.7	38.9	34.9	32.3	27.5	24.9		18.5	17.4			32.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Car	All	2014					44.0	44.4	38.2	34.3	29.1	24.9	19.3	18.5	17.4				34.7
BMW	Car	All	2015					44.3	41.1	38.3	33.3	29.0	25.1	19.3	18.6	17.4				34.6
BMW	Car	All	2016					43.0	39.8	37.5	33.4	29.2	25.1	19.3	18.5	17.4				33.9
BMW	Car	All	2017					43.0	40.4	39.9	34.4	29.6	26.1	18.7	17.9	17.4				35.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
BMW	Truck	Truck SUV	1975																	
BMW	Truck	Truck SUV	1976																	
BMW	Truck	Truck SUV	1977																	
BMW	Truck	Truck SUV	1978																	
BMW	Truck	Truck SUV	1979																	
BMW	Truck	Truck SUV	1980																	
BMW	Truck	Truck SUV	1981																	
BMW	Truck	Truck SUV	1982																	
BMW	Truck	Truck SUV	1983																	
BMW	Truck	Truck SUV	1984																	
BMW	Truck	Truck SUV	1985																	
BMW	Truck	Truck SUV	1986																	
BMW	Truck	Truck SUV	1987																	
BMW	Truck	Truck SUV	1988																	
BMW	Truck	Truck SUV	1989																	
BMW	Truck	Truck SUV	1990																	
BMW	Truck	Truck SUV	1991																	
BMW	Truck	Truck SUV	1992																	
BMW	Truck	Truck SUV	1993																	
BMW	Truck	Truck SUV	1994																	
BMW	Truck	Truck SUV	1995																	
BMW	Truck	Truck SUV	1996																	
BMW	Truck	Truck SUV	1997																	
BMW	Truck	Truck SUV	1998																	
BMW	Truck	Truck SUV	1999																	
BMW	Truck	Truck SUV	2000										17.5							17.5
BMW	Truck	Truck SUV	2001									20.2	18.5							19.2
BMW	Truck	Truck SUV	2002										20.1							20.1
BMW	Truck	Truck SUV	2003										20.0							20.0
BMW	Truck	Truck SUV	2004								22.3	20.8								21.5
BMW	Truck	Truck SUV	2005								21.9	20.8								21.3
BMW	Truck	Truck SUV	2006								21.7	20.8								21.2
BMW	Truck	Truck SUV	2007								25.4	22.8	20.1							23.4
BMW	Truck	Truck SUV	2008								25.4	22.6	20.0							22.9
BMW	Truck	Truck SUV	2009								25.4	22.6	21.6							22.7
BMW	Truck	Truck SUV	2010								25.4	22.7	23.4	23.1						23.6
BMW	Truck	Truck SUV	2011									27.9	23.9	24.3	23.2					25.3
BMW	Truck	Truck SUV	2012									27.9	23.9	25.0						25.0
BMW	Truck	Truck SUV	2013								31.3	27.9	23.9	22.6						25.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Truck	Truck SUV	2014								31.5	27.9	28.3	21.4						28.7
BMW	Truck	Truck SUV	2015								31.3	30.6	28.7	21.8						28.5
BMW	Truck	Truck SUV	2016								31.3	29.9	26.9	29.4						28.8
BMW	Truck	Truck SUV	2017								31.3	28.5	26.9	22.5						27.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
BMW	Truck	All	1975																	
BMW	Truck	All	1976																	
BMW	Truck	All	1977																	
BMW	Truck	All	1978																	
BMW	Truck	All	1979																	
BMW	Truck	All	1980																	
BMW	Truck	All	1981																	
BMW	Truck	All	1982																	
BMW	Truck	All	1983																	
BMW	Truck	All	1984																	
BMW	Truck	All	1985																	
BMW	Truck	All	1986																	
BMW	Truck	All	1987																	
BMW	Truck	All	1988																	
BMW	Truck	All	1989																	
BMW	Truck	All	1990																	
BMW	Truck	All	1991																	
BMW	Truck	All	1992																	
BMW	Truck	All	1993																	
BMW	Truck	All	1994																	
BMW	Truck	All	1995																	
BMW	Truck	All	1996																	
BMW	Truck	All	1997																	
BMW	Truck	All	1998																	
BMW	Truck	All	1999																	
BMW	Truck	All	2000										17.5							17.5
BMW	Truck	All	2001									20.2	18.5							19.2
BMW	Truck	All	2002										20.1							20.1
BMW	Truck	All	2003										20.0							20.0
BMW	Truck	All	2004								22.3	20.8								21.5
BMW	Truck	All	2005								21.9	20.8								21.3
BMW	Truck	All	2006								21.7	20.8								21.2
BMW	Truck	All	2007								25.4	22.8	20.1							23.4
BMW	Truck	All	2008								25.4	22.6	20.0							22.9
BMW	Truck	All	2009								25.4	22.6	21.6							22.7
BMW	Truck	All	2010								25.4	22.7	23.4	23.1						23.6
BMW	Truck	All	2011									27.9	23.9	24.3	23.2					25.3
BMW	Truck	All	2012									27.9	23.9	25.0						25.0
BMW	Truck	All	2013								31.3	27.9	23.9	22.6						25.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	Truck	All	2014								31.5	27.9	28.3	21.4						28.7
BMW	Truck	All	2015								31.3	30.6	28.7	21.8						28.5
BMW	Truck	All	2016								31.3	29.9	26.9	29.4						28.8
BMW	Truck	All	2017								31.3	28.5	26.9	22.5						27.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	All	All	1975					22.4		14.6				10.2						17.2
BMW	All	All	1976					21.4		16.4				11.3						18.4
BMW	All	All	1977					22.6		16.4				11.1						19.8
BMW	All	All	1978					21.5		16.3	15.0			10.8						19.2
BMW	All	All	1979					21.6		20.0	14.9			10.8						19.5
BMW	All	All	1980					28.9		21.3	18.8		11.3	10.7						25.0
BMW	All	All	1981					28.9		21.3	19.1		11.0	10.5						25.6
BMW	All	All	1982					29.0	24.4	21.2			11.1	10.1						25.4
BMW	All	All	1983					29.0	24.4	21.5			11.1	10.9						25.3
BMW	All	All	1984				30.7	29.0	26.8	22.5			11.1	11.0						27.0
BMW	All	All	1985					29.0	27.7	23.4	20.5		11.1	11.0	10.1					25.4
BMW	All	All	1986						27.3	23.2	19.5		11.1	11.0	10.1					25.0
BMW	All	All	1987						25.8	22.7	19.4		11.4	10.9	10.4					23.9
BMW	All	All	1988						24.2	22.9	18.7	16.2	12.4	12.2	11.8					21.3
BMW	All	All	1989						23.1	23.3	20.0	16.5	12.4	12.2						21.7
BMW	All	All	1990						23.2	23.4	20.6	16.7		13.3						21.9
BMW	All	All	1991					28.2	24.9	23.4	21.8	16.7		13.3						22.8
BMW	All	All	1992						28.2	24.3	22.5	16.7		13.9						23.8
BMW	All	All	1993						29.0	26.3	23.2	19.5		13.9	13.6					25.0
BMW	All	All	1994						29.5	26.5	22.5	18.9		14.0	13.9	13.6				24.9
BMW	All	All	1995						29.3	26.5	23.9	22.0		14.1	13.9	13.6				25.1
BMW	All	All	1996						30.3	26.7		21.8		15.9						27.1
BMW	All	All	1997						28.7	25.7	22.7	22.4		15.1		14.9				25.5
BMW	All	All	1998						27.8	25.5	22.8	22.4		15.0		13.8				25.2
BMW	All	All	1999						25.8	26.2	23.8	22.6	17.4	14.9						25.2
BMW	All	All	2000						25.6	25.8	23.2	22.4	17.5	16.1		15.2				24.3
BMW	All	All	2001						26.3	26.0	23.7	21.2	18.5	16.1		15.2				23.3
BMW	All	All	2002						35.5	29.6	26.5	24.4	23.6	20.1	16.1		15.2			24.7
BMW	All	All	2003						35.6	29.6	26.5	24.3	23.6	20.0						25.2
BMW	All	All	2004						35.4	30.4	25.9	23.5	23.5	20.8	17.0					24.9
BMW	All	All	2005						35.2	31.3	25.7	23.2	23.3	20.8	17.0					25.1
BMW	All	All	2006						35.1	32.0	27.7	23.6	23.1	20.8	17.0					25.8
BMW	All	All	2007						39.8	35.0	28.3	25.7	22.3	22.8	20.0					26.7
BMW	All	All	2008						42.5	36.6	28.5	25.8	22.5	22.6	19.9					26.3
BMW	All	All	2009						42.5	38.7	28.2	26.2	21.9	22.3	21.4					27.3
BMW	All	All	2010						42.1	37.0	28.1	26.2	23.7	22.2	23.2	19.9				27.6
BMW	All	All	2011						41.8	39.2	29.4	27.9	28.2	23.3	24.3	19.5				28.4
BMW	All	All	2012						41.9	39.2	34.8	30.7	27.7	23.2	25.0	19.6				30.0
BMW	All	All	2013						41.7	38.9	34.9	32.1	27.6	24.1	22.6	18.5	17.4			30.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
BMW	All	All	2014					44.0	44.4	38.2	33.6	28.9	27.5	21.2	18.5	17.4				33.2
BMW	All	All	2015					44.3	41.1	38.3	33.1	29.3	28.2	21.6	18.6	17.4				33.2
BMW	All	All	2016					43.0	39.8	37.5	32.9	29.3	26.6	28.9	18.5	17.4				32.4
BMW	All	All	2017					43.0	40.4	39.9	33.8	29.0	26.8	22.1	17.9	17.4				32.7

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mercedes	Car	Car	1975							26.0	15.1	13.4								17.3
Mercedes	Car	Car	1976							25.0	17.9	13.4								18.6
Mercedes	Car	Car	1977							26.5	18.3	14.3								19.2
Mercedes	Car	Car	1978							27.3	18.3	13.9								18.7
Mercedes	Car	Car	1979							29.7	20.1	13.6								20.5
Mercedes	Car	Car	1980							26.1	22.5									23.9
Mercedes	Car	Car	1981							26.9	24.4									25.6
Mercedes	Car	Car	1982							28.9	25.6									26.3
Mercedes	Car	Car	1983						26.1	30.0	26.1									26.4
Mercedes	Car	Car	1984						26.8		24.5									26.0
Mercedes	Car	Car	1985						25.7		22.1									23.1
Mercedes	Car	Car	1986						25.6	23.1	19.3	16.8								21.1
Mercedes	Car	Car	1987						26.1	25.0	19.2									22.0
Mercedes	Car	Car	1988						26.5	23.4	18.5									21.1
Mercedes	Car	Car	1989							24.3	18.8									21.2
Mercedes	Car	Car	1990							23.6	20.2	17.5								21.2
Mercedes	Car	Car	1991						27.0	25.1	21.2	17.8								22.2
Mercedes	Car	Car	1992						27.1	25.5	21.2	18.8	17.3							21.8
Mercedes	Car	Car	1993						27.3	26.7	24.1	19.8	18.9	15.6						22.7
Mercedes	Car	Car	1994							26.7	24.4	20.1	20.4	16.1						23.6
Mercedes	Car	Car	1995							27.5	26.5	22.2	19.6							24.5
Mercedes	Car	Car	1996							27.7	26.6	22.6	19.9							25.2
Mercedes	Car	Car	1997							28.5	25.2	22.0	20.2							25.0
Mercedes	Car	Car	1998							29.5	27.6	21.6	20.2							27.0
Mercedes	Car	Car	1999						28.6	27.6	27.2	22.1	20.1							26.3
Mercedes	Car	Car	2000						28.6	27.7	26.1	21.9								24.9
Mercedes	Car	Car	2001						26.9	26.2	25.7	22.2	19.2							24.9
Mercedes	Car	Car	2002						27.3	25.9	24.8	22.0	19.1							24.6
Mercedes	Car	Car	2003							27.0	24.1	20.9								24.4
Mercedes	Car	Car	2004							28.5	23.9	21.4	17.0							24.5
Mercedes	Car	Car	2005							26.8	24.9	21.1	17.2							25.0
Mercedes	Car	Car	2006							25.4	24.9	21.7	17.2	20.3						24.0
Mercedes	Car	Car	2007							25.2	25.1	20.9	20.1	21.1						23.2
Mercedes	Car	Car	2008		49.5					25.2	25.5	20.9	19.9	21.4		15.3				25.3
Mercedes	Car	Car	2009		49.5					26.9	25.6	20.6	20.0	21.3		15.2				25.6
Mercedes	Car	Car	2010		49.1					27.4	25.7	22.8	20.9	16.6		15.2				24.8
Mercedes	Car	Car	2011		53.2					27.7	25.8	23.8	21.8	18.4		15.5				25.3
Mercedes	Car	Car	2012		49.5					32.3	27.0	28.1	23.9	18.4		15.5				28.6
Mercedes	Car	Car	2013		49.8	152.8				33.2	28.5	28.6	23.7	18.5						30.2

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	Car	Car	2014		49.7	152.8				35.8	29.5	29.5	25.3							31.4
Mercedes	Car	Car	2015		49.7	152.8				37.4	33.6	29.5	24.7	21.4						32.9
Mercedes	Car	Car	2016			152.8	50.0			37.2	32.5	30.2	24.6	23.7						33.0
Mercedes	Car	Car	2017				60.9			37.1	34.1	29.4	25.4	23.8						33.8



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mercedes	Car	Car SUV	1975																	
Mercedes	Car	Car SUV	1976																	
Mercedes	Car	Car SUV	1977																	
Mercedes	Car	Car SUV	1978																	
Mercedes	Car	Car SUV	1979																	
Mercedes	Car	Car SUV	1980																	
Mercedes	Car	Car SUV	1981																	
Mercedes	Car	Car SUV	1982																	
Mercedes	Car	Car SUV	1983																	
Mercedes	Car	Car SUV	1984																	
Mercedes	Car	Car SUV	1985																	
Mercedes	Car	Car SUV	1986																	
Mercedes	Car	Car SUV	1987																	
Mercedes	Car	Car SUV	1988																	
Mercedes	Car	Car SUV	1989																	
Mercedes	Car	Car SUV	1990																	
Mercedes	Car	Car SUV	1991																	
Mercedes	Car	Car SUV	1992																	
Mercedes	Car	Car SUV	1993																	
Mercedes	Car	Car SUV	1994																	
Mercedes	Car	Car SUV	1995																	
Mercedes	Car	Car SUV	1996																	
Mercedes	Car	Car SUV	1997																	
Mercedes	Car	Car SUV	1998																	
Mercedes	Car	Car SUV	1999																	
Mercedes	Car	Car SUV	2000																	
Mercedes	Car	Car SUV	2001																	
Mercedes	Car	Car SUV	2002																	
Mercedes	Car	Car SUV	2003																	
Mercedes	Car	Car SUV	2004																	
Mercedes	Car	Car SUV	2005																	
Mercedes	Car	Car SUV	2006																	
Mercedes	Car	Car SUV	2007																	
Mercedes	Car	Car SUV	2008																	
Mercedes	Car	Car SUV	2009																	
Mercedes	Car	Car SUV	2010									23.8								23.8
Mercedes	Car	Car SUV	2011								23.5									23.5
Mercedes	Car	Car SUV	2012								23.3	23.9								23.5
Mercedes	Car	Car SUV	2013									28.1								28.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
Mercedes	Car	Car SUV	2014									27.8							27.8
Mercedes	Car	Car SUV	2015									27.8							27.8
Mercedes	Car	Car SUV	2016								32.3								32.3
Mercedes	Car	Car SUV	2017								32.3								32.3

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	Car	All	1975							26.0	15.1	13.4								17.3
Mercedes	Car	All	1976							25.0	17.9	13.4								18.6
Mercedes	Car	All	1977							26.5	18.3	14.3								19.2
Mercedes	Car	All	1978							27.3	18.3	13.9								18.7
Mercedes	Car	All	1979							29.7	20.1	13.6								20.5
Mercedes	Car	All	1980							26.1	22.5									23.9
Mercedes	Car	All	1981							26.9	24.4									25.6
Mercedes	Car	All	1982							28.9	25.6									26.3
Mercedes	Car	All	1983						26.1	30.0	26.1									26.4
Mercedes	Car	All	1984						26.8		24.5									26.0
Mercedes	Car	All	1985						25.7		22.1									23.1
Mercedes	Car	All	1986						25.6	23.1	19.3	16.8								21.1
Mercedes	Car	All	1987						26.1	25.0	19.2									22.0
Mercedes	Car	All	1988						26.5	23.4	18.5									21.1
Mercedes	Car	All	1989							24.3	18.8									21.2
Mercedes	Car	All	1990							23.6	20.2	17.5								21.2
Mercedes	Car	All	1991						27.0	25.1	21.2	17.8								22.2
Mercedes	Car	All	1992						27.1	25.5	21.2	18.8	17.3							21.8
Mercedes	Car	All	1993						27.3	26.7	24.1	19.8	18.9	15.6						22.7
Mercedes	Car	All	1994							26.7	24.4	20.1	20.4	16.1						23.6
Mercedes	Car	All	1995							27.5	26.5	22.2	19.6							24.5
Mercedes	Car	All	1996							27.7	26.6	22.6	19.9							25.2
Mercedes	Car	All	1997							28.5	25.2	22.0	20.2							25.0
Mercedes	Car	All	1998							29.5	27.6	21.6	20.2							27.0
Mercedes	Car	All	1999						28.6	27.6	27.2	22.1	20.1							26.3
Mercedes	Car	All	2000						28.6	27.7	26.1	21.9								24.9
Mercedes	Car	All	2001						26.9	26.2	25.7	22.2	19.2							24.9
Mercedes	Car	All	2002						27.3	25.9	24.8	22.0	19.1							24.6
Mercedes	Car	All	2003							27.0	24.1	20.9								24.4
Mercedes	Car	All	2004							28.5	23.9	21.4	17.0							24.5
Mercedes	Car	All	2005							26.8	24.9	21.1	17.2							25.0
Mercedes	Car	All	2006							25.4	24.9	21.7	17.2	20.3						24.0
Mercedes	Car	All	2007							25.2	25.1	20.9	20.1	21.1						23.2
Mercedes	Car	All	2008		49.5					25.2	25.5	20.9	19.9	21.4		15.3				25.3
Mercedes	Car	All	2009		49.5					26.9	25.6	20.6	20.0	21.3		15.2				25.6
Mercedes	Car	All	2010		49.1					27.4	25.7	23.1	20.9	16.6		15.2				24.7
Mercedes	Car	All	2011		53.2					27.7	25.6	23.8	21.8	18.4		15.5				25.2
Mercedes	Car	All	2012		49.5					32.3	26.5	27.8	23.9	18.4		15.5				28.2
Mercedes	Car	All	2013		49.8	152.8				33.2	28.5	28.5	23.7	18.5						30.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	Car	All	2014		49.7	152.8				35.8	29.5	29.3	25.3							31.2
Mercedes	Car	All	2015		49.7	152.8				37.4	33.6	28.8	24.7	21.4						32.5
Mercedes	Car	All	2016			152.8	50.0			37.2	32.4	30.2	24.6	23.7						32.9
Mercedes	Car	All	2017				60.9			37.1	34.0	29.4	25.4	23.8						33.7



Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mercedes	Truck	Van	1975																	
Mercedes	Truck	Van	1976																	
Mercedes	Truck	Van	1977																	
Mercedes	Truck	Van	1978																	
Mercedes	Truck	Van	1979																	
Mercedes	Truck	Van	1980																	
Mercedes	Truck	Van	1981																	
Mercedes	Truck	Van	1982																	
Mercedes	Truck	Van	1983																	
Mercedes	Truck	Van	1984																	
Mercedes	Truck	Van	1985																	
Mercedes	Truck	Van	1986																	
Mercedes	Truck	Van	1987																	
Mercedes	Truck	Van	1988																	
Mercedes	Truck	Van	1989																	
Mercedes	Truck	Van	1990																	
Mercedes	Truck	Van	1991																	
Mercedes	Truck	Van	1992																	
Mercedes	Truck	Van	1993																	
Mercedes	Truck	Van	1994																	
Mercedes	Truck	Van	1995																	
Mercedes	Truck	Van	1996																	
Mercedes	Truck	Van	1997																	
Mercedes	Truck	Van	1998																	
Mercedes	Truck	Van	1999																	
Mercedes	Truck	Van	2000																	
Mercedes	Truck	Van	2001																	
Mercedes	Truck	Van	2002																	
Mercedes	Truck	Van	2003																	
Mercedes	Truck	Van	2004																	
Mercedes	Truck	Van	2005																	
Mercedes	Truck	Van	2006																	
Mercedes	Truck	Van	2007																	
Mercedes	Truck	Van	2008																	
Mercedes	Truck	Van	2009																	
Mercedes	Truck	Van	2010																	
Mercedes	Truck	Van	2011																	
Mercedes	Truck	Van	2012																	
Mercedes	Truck	Van	2013																	



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	Truck	Van	2014																	
Mercedes	Truck	Van	2015																	
Mercedes	Truck	Van	2016									30.2	29.4							29.8
Mercedes	Truck	Van	2017									30.2	29.4							29.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
Mercedes	Truck	Truck SUV	1975																	
Mercedes	Truck	Truck SUV	1976																	
Mercedes	Truck	Truck SUV	1977																	
Mercedes	Truck	Truck SUV	1978																	
Mercedes	Truck	Truck SUV	1979																	
Mercedes	Truck	Truck SUV	1980																	
Mercedes	Truck	Truck SUV	1981																	
Mercedes	Truck	Truck SUV	1982																	
Mercedes	Truck	Truck SUV	1983																	
Mercedes	Truck	Truck SUV	1984																	
Mercedes	Truck	Truck SUV	1985																	
Mercedes	Truck	Truck SUV	1986																	
Mercedes	Truck	Truck SUV	1987																	
Mercedes	Truck	Truck SUV	1988																	
Mercedes	Truck	Truck SUV	1989																	
Mercedes	Truck	Truck SUV	1990																	
Mercedes	Truck	Truck SUV	1991																	
Mercedes	Truck	Truck SUV	1992																	
Mercedes	Truck	Truck SUV	1993																	
Mercedes	Truck	Truck SUV	1994																	
Mercedes	Truck	Truck SUV	1995																	
Mercedes	Truck	Truck SUV	1996																	
Mercedes	Truck	Truck SUV	1997																	
Mercedes	Truck	Truck SUV	1998									21.3								21.3
Mercedes	Truck	Truck SUV	1999										20.3							20.3
Mercedes	Truck	Truck SUV	2000											20.4						20.4
Mercedes	Truck	Truck SUV	2001												20.8					20.8
Mercedes	Truck	Truck SUV	2002											19.1						19.1
Mercedes	Truck	Truck SUV	2003											19.4	17.4	17.0				18.8
Mercedes	Truck	Truck SUV	2004												19.0	15.9				18.8
Mercedes	Truck	Truck SUV	2005												19.0	15.7	15.1			18.7
Mercedes	Truck	Truck SUV	2006												21.0		15.3			20.9
Mercedes	Truck	Truck SUV	2007												22.0	18.7	21.8			20.2
Mercedes	Truck	Truck SUV	2008												22.4	18.2	19.5			20.8
Mercedes	Truck	Truck SUV	2009													22.1	18.0	19.4		20.8
Mercedes	Truck	Truck SUV	2010													22.5	22.4	21.0	19.2	21.4
Mercedes	Truck	Truck SUV	2011													23.2	22.2	20.6	19.3	21.1
Mercedes	Truck	Truck SUV	2012													23.1	25.7	26.9	19.6	23.1
Mercedes	Truck	Truck SUV	2013													28.2	25.8	26.2	20.9	24.4

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	Truck	Truck SUV	2014									28.8	25.6	26.0	20.8					24.5
Mercedes	Truck	Truck SUV	2015								32.0	28.2	25.7	31.3	21.9					25.9
Mercedes	Truck	Truck SUV	2016								31.8	30.0	25.7	25.8	22.1					25.8
Mercedes	Truck	Truck SUV	2017								34.3	30.6	25.8	24.8	22.7		14.2			25.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes								
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500							
Mercedes	Truck	All	1975																								
Mercedes	Truck	All	1976																								
Mercedes	Truck	All	1977																								
Mercedes	Truck	All	1978																								
Mercedes	Truck	All	1979																								
Mercedes	Truck	All	1980																								
Mercedes	Truck	All	1981																								
Mercedes	Truck	All	1982																								
Mercedes	Truck	All	1983																								
Mercedes	Truck	All	1984																								
Mercedes	Truck	All	1985																								
Mercedes	Truck	All	1986																								
Mercedes	Truck	All	1987																								
Mercedes	Truck	All	1988																								
Mercedes	Truck	All	1989																								
Mercedes	Truck	All	1990																								
Mercedes	Truck	All	1991																								
Mercedes	Truck	All	1992																								
Mercedes	Truck	All	1993																								
Mercedes	Truck	All	1994																								
Mercedes	Truck	All	1995																								
Mercedes	Truck	All	1996																								
Mercedes	Truck	All	1997																								
Mercedes	Truck	All	1998									21.3								21.3							
Mercedes	Truck	All	1999										20.3							20.3							
Mercedes	Truck	All	2000											20.4						20.4							
Mercedes	Truck	All	2001												20.8					20.8							
Mercedes	Truck	All	2002											19.1						19.1							
Mercedes	Truck	All	2003											19.4	17.4	17.0				18.8							
Mercedes	Truck	All	2004												19.0	15.9				18.8							
Mercedes	Truck	All	2005												19.0	15.7	15.1			18.7							
Mercedes	Truck	All	2006													21.0	15.3			20.9							
Mercedes	Truck	All	2007														22.0	18.7	21.8	20.2							
Mercedes	Truck	All	2008															22.4	18.2	19.5	20.8						
Mercedes	Truck	All	2009																22.1	18.0	19.4	20.8					
Mercedes	Truck	All	2010																	22.5	22.4	21.0	19.2	21.4			
Mercedes	Truck	All	2011																		23.2	22.2	20.6	19.3	21.1		
Mercedes	Truck	All	2012																			23.1	25.7	26.9	19.6	23.1	
Mercedes	Truck	All	2013																				28.2	25.8	26.2	20.9	24.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	Truck	All	2014									28.8	25.6	26.0	20.8					24.5
Mercedes	Truck	All	2015								32.0	28.2	25.7	31.3	21.9					25.9
Mercedes	Truck	All	2016								31.8	30.0	26.0	25.8	22.1					26.1
Mercedes	Truck	All	2017								34.3	30.5	25.9	24.8	22.7		14.2			26.0

**2017 FE Trends Report**  
**Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight**

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	All	All	1975							26.0	15.1	13.4								17.3
Mercedes	All	All	1976							25.0	17.9	13.4								18.6
Mercedes	All	All	1977							26.5	18.3	14.3								19.2
Mercedes	All	All	1978							27.3	18.3	13.9								18.7
Mercedes	All	All	1979							29.7	20.1	13.6								20.5
Mercedes	All	All	1980							26.1	22.5									23.9
Mercedes	All	All	1981							26.9	24.4									25.6
Mercedes	All	All	1982							28.9	25.6									26.3
Mercedes	All	All	1983						26.1	30.0	26.1									26.4
Mercedes	All	All	1984						26.8		24.5									26.0
Mercedes	All	All	1985						25.7		22.1									23.1
Mercedes	All	All	1986						25.6	23.1	19.3	16.8								21.1
Mercedes	All	All	1987						26.1	25.0	19.2									22.0
Mercedes	All	All	1988						26.5	23.4	18.5									21.1
Mercedes	All	All	1989							24.3	18.8									21.2
Mercedes	All	All	1990							23.6	20.2	17.5								21.2
Mercedes	All	All	1991						27.0	25.1	21.2	17.8								22.2
Mercedes	All	All	1992						27.1	25.5	21.2	18.8	17.3							21.8
Mercedes	All	All	1993						27.3	26.7	24.1	19.8	18.9	15.6						22.7
Mercedes	All	All	1994							26.7	24.4	20.1	20.4	16.1						23.6
Mercedes	All	All	1995							27.5	26.5	22.2	19.6							24.5
Mercedes	All	All	1996							27.7	26.6	22.6	19.9							25.2
Mercedes	All	All	1997							28.5	25.2	22.0	20.2							25.0
Mercedes	All	All	1998							29.5	27.6	21.4	20.2							25.3
Mercedes	All	All	1999						28.6	27.6	27.2	22.1	20.3							24.4
Mercedes	All	All	2000						28.6	27.7	26.1	21.9		20.4						23.6
Mercedes	All	All	2001						26.9	26.2	25.7	22.2	19.2	20.8						23.9
Mercedes	All	All	2002						27.3	25.9	24.8	22.0	19.1							23.2
Mercedes	All	All	2003							27.0	24.1	20.9	19.4	17.4	17.0					23.4
Mercedes	All	All	2004							28.5	23.9	21.4	17.0	19.0	15.9					23.7
Mercedes	All	All	2005							26.8	24.9	21.1	18.9	15.7	15.1					24.1
Mercedes	All	All	2006							25.4	24.9	21.7	20.9	20.3	15.3					23.4
Mercedes	All	All	2007							25.2	25.1	20.9	21.4	19.4	21.8					22.4
Mercedes	All	All	2008		49.5					25.2	25.5	20.9	21.5	20.2	19.5	15.3				24.0
Mercedes	All	All	2009		49.5					26.9	25.6	20.6	21.6	19.7	19.4	15.2				24.3
Mercedes	All	All	2010		49.1					27.4	25.7	22.9	21.9	20.8	19.2	15.2				23.6
Mercedes	All	All	2011		53.2					27.7	25.6	23.7	22.2	20.5	19.3	15.5				23.8
Mercedes	All	All	2012		49.5					32.3	26.5	26.6	25.2	26.8	19.6	15.5				26.3
Mercedes	All	All	2013		49.8	152.8				33.2	28.5	28.5	25.2	26.1	20.9					28.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
Mercedes	All	All	2014		49.7	152.8				35.8	29.5	29.3	25.5	26.0	20.8					29.2
Mercedes	All	All	2015		49.7	152.8				37.4	33.3	28.6	25.3	28.4	21.9					29.8
Mercedes	All	All	2016			152.8	50.0			37.2	32.4	30.2	25.6	25.5	22.1					30.3
Mercedes	All	All	2017				60.9			37.1	34.0	30.0	25.7	24.6	22.7		14.2			30.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)															All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000	8000		8500
All	Car	Car	1975		31.4	28.3	24.4	21.7	21.4	18.2	15.6	14.3	12.9	12.2						15.8
All	Car	Car	1976		32.6	29.6	26.2	24.5	23.5	19.4	17.7	15.7	14.6	13.3						17.5
All	Car	Car	1977		36.0	32.1	29.3	24.8	23.2	20.2	17.9	16.5	14.1	12.6						18.3
All	Car	Car	1978		34.9	31.9	27.9	24.8	22.5	20.2	18.0	16.3	14.6	12.8						19.9
All	Car	Car	1979		32.0	31.4	27.9	24.0	22.1	20.2	17.8	16.5	14.4	11.0						20.3
All	Car	Car	1980		33.0	32.4	28.0	26.1	23.6	20.7	18.8	19.0	12.5	10.7						23.5
All	Car	Car	1981		38.4	34.4	29.4	27.7	24.4	22.2	20.3	20.4	11.7	10.5						25.1
All	Car	Car	1982		40.3	35.6	31.2	28.8	25.7	22.4	20.6	21.0	11.2	10.1						26.0
All	Car	Car	1983		43.6	36.2	32.2	30.2	25.8	22.8	20.3	19.9	11.5	10.9						25.9
All	Car	Car	1984		44.3	37.1	32.7	30.1	26.4	22.9	20.6	20.2	11.2	11.0						26.3
All	Car	Car	1985	57.4	44.4	37.5	32.8	30.6	27.1	23.4	21.7	21.0	10.9	11.0	10.1					27.0
All	Car	Car	1986	55.9	36.6	38.5	33.7	30.6	27.5	24.4	22.1	21.5	10.7	11.0	10.1					27.9
All	Car	Car	1987	56.8	40.0	39.0	33.4	30.8	27.9	24.6	21.7	22.3	11.4	10.9	10.4					28.1
All	Car	Car	1988	51.6	43.6	38.9	34.1	31.5	28.4	25.4	22.2	22.6	12.3	12.2	11.8					28.6
All	Car	Car	1989	59.4	43.5	38.7	34.4	31.8	28.4	25.1	23.0	21.8	12.4	12.5						28.1
All	Car	Car	1990	65.3	47.5	39.6	35.1	31.9	28.6	25.5	23.0	20.3	10.9	13.1						27.8
All	Car	Car	1991	65.3	47.1	38.1	35.8	32.5	28.1	25.4	23.3	20.9		13.2						28.0
All	Car	Car	1992	65.3	47.3	39.7	35.9	32.6	28.4	25.6	23.4	22.1	17.3	14.1						27.6
All	Car	Car	1993	65.3	48.6	38.7	36.5	33.0	28.7	26.0	23.6	22.1	18.9	15.6	17.6					28.2
All	Car	Car	1994	65.8	48.9	39.6	36.0	33.6	29.1	26.1	23.5	22.4	20.4	17.7	13.9	13.6				28.0
All	Car	Car	1995		53.7	40.4	37.5	33.9	29.7	26.4	23.5	22.4	19.6	18.2	13.9	13.6				28.3
All	Car	Car	1996		52.3	38.9	37.4	33.9	29.9	26.5	23.9	22.9	19.9	17.8	14.9					28.3
All	Car	Car	1997		54.4	39.3	37.0	34.0	30.0	26.7	23.8	22.2	20.2	18.1	14.9	14.9				28.4
All	Car	Car	1998		53.6	39.0	37.3	34.5	30.1	27.1	23.8	22.0	20.2	17.0	14.9	13.8				28.5
All	Car	Car	1999		50.3	38.6	35.9	34.6	30.1	27.2	24.2	22.2	19.7	14.9	19.3					28.2
All	Car	Car	2000		61.6	39.6	36.7	34.3	30.6	27.1	24.4	21.9	18.3	18.1	15.0	15.2				28.2
All	Car	Car	2001		75.6	39.3	36.2	35.9	31.6	27.2	24.6	22.0	18.2	16.1	17.6	15.2				28.4
All	Car	Car	2002		75.3	51.5	37.3	36.3	31.4	27.7	24.8	22.3	19.1	16.1	17.6	15.2				28.6
All	Car	Car	2003		75.1	50.8	40.8	37.1	32.8	28.0	25.1	23.2	20.3		18.2	15.2				29.0
All	Car	Car	2004		73.8	64.5	40.8	36.9	33.5	28.1	25.4	22.9	21.7	18.8	18.5	18.9				28.9
All	Car	Car	2005		74.3	34.1	41.1	37.3	34.2	28.9	25.7	23.1	21.7	16.7	17.3					29.5
All	Car	Car	2006		73.8	34.3	41.6	37.8	34.9	29.2	26.0	22.6	21.5	19.9	15.4	17.9				29.2
All	Car	Car	2007			29.9	42.4	38.2	36.4	29.9	27.0	22.5	20.9	20.5	16.2	19.1				30.3
All	Car	Car	2008		49.5	29.9	42.1	37.9	37.5	30.6	26.9	22.4	20.2	21.6	16.4	16.6				30.5
All	Car	Car	2009		49.5	30.0	42.0	38.3	38.4	31.7	27.5	23.3	21.2	20.6	16.4	16.6				32.1
All	Car	Car	2010		49.1	29.8	42.0	39.0	38.2	34.6	27.7	24.1	21.6	18.7	17.1	14.5				33.2
All	Car	Car	2011		53.2	29.9	41.1	40.4	38.6	34.9	28.3	24.8	22.1	20.2	18.1	18.9				32.9
All	Car	Car	2012		49.5	52.3	42.9	44.4	40.2	36.0	29.4	25.7	22.7	31.7	17.9	15.5				35.4
All	Car	Car	2013		49.8	60.7	43.2	44.2	40.3	37.5	31.5	26.9	24.1	21.4	19.6	16.3				36.4



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Car	Car	2014		49.7	56.7	44.0	45.5	41.3	37.9	31.5	27.7	26.3	21.0	19.6	16.4				36.6
All	Car	Car	2015		49.7	56.2	44.9	45.5	41.8	39.2	32.0	26.4	32.2	21.1	20.3	16.7				37.5
All	Car	Car	2016			152.8	45.3	45.3	42.6	38.9	32.3	26.8	39.2	22.4	20.3	17.2				37.8
All	Car	Car	2017			54.9	48.7	45.7	43.9	40.4	34.3	26.4	34.4	22.1	19.8	17.2				39.1

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
All	Car	Car SUV	1975								13.1								13.1
All	Car	Car SUV	1976							14.3	12.3								12.4
All	Car	Car SUV	1977								14.3								14.3
All	Car	Car SUV	1978								13.6								13.6
All	Car	Car SUV	1979					20.8			13.3								16.8
All	Car	Car SUV	1980								17.2								17.2
All	Car	Car SUV	1981								17.3								17.3
All	Car	Car SUV	1982				23.6		25.8	16.6	19.3								23.4
All	Car	Car SUV	1983				23.2			25.1									24.3
All	Car	Car SUV	1984				22.6		28.3	23.5	16.7								22.6
All	Car	Car SUV	1985						23.4	23.5									23.5
All	Car	Car SUV	1986						25.7	22.1									22.3
All	Car	Car SUV	1987						26.4	22.8									22.9
All	Car	Car SUV	1988						26.3	22.7									22.7
All	Car	Car SUV	1989						24.9	22.7									22.7
All	Car	Car SUV	1990				32.2		25.0	22.4	20.9								22.5
All	Car	Car SUV	1991				30.7		23.3	21.8	21.2								21.8
All	Car	Car SUV	1992				29.6	29.2	24.8	20.9	20.9								21.4
All	Car	Car SUV	1993				29.3	29.1	25.2	20.3	20.1								20.4
All	Car	Car SUV	1994				29.0	28.0	25.6	21.4	21.1								21.8
All	Car	Car SUV	1995				29.7	27.7	27.9	20.1	21.0								21.5
All	Car	Car SUV	1996				29.3	28.8	28.7	21.6	21.4								22.4
All	Car	Car SUV	1997				28.4	29.6	28.0	22.2	21.1								23.5
All	Car	Car SUV	1998				28.5	29.3	29.7	24.0	21.4								22.3
All	Car	Car SUV	1999					31.0	29.9	24.3	21.9								22.7
All	Car	Car SUV	2000					31.1	29.7	24.0	21.3								22.0
All	Car	Car SUV	2001					31.0	29.7	24.6	22.1								23.3
All	Car	Car SUV	2002						30.6	25.5	22.5								24.0
All	Car	Car SUV	2003						29.9	26.5	23.1								24.8
All	Car	Car SUV	2004						30.9	27.0	24.2	21.0							24.9
All	Car	Car SUV	2005						30.9	27.2	24.8	21.7	19.1						25.4
All	Car	Car SUV	2006							28.3	25.0	21.5	20.7						25.7
All	Car	Car SUV	2007							29.0	25.3	23.4	20.6						25.9
All	Car	Car SUV	2008							28.9	26.3	23.7	20.9						26.6
All	Car	Car SUV	2009							29.9	27.2	24.0	19.2						27.8
All	Car	Car SUV	2010							30.8	30.4	25.6	33.6						29.1
All	Car	Car SUV	2011							31.3	30.2	26.5	32.3						29.9
All	Car	Car SUV	2012							31.7	29.9	25.7	40.3	88.5					29.6
All	Car	Car SUV	2013							34.0	31.8	26.8	40.4	89.9					31.1



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Car	Car SUV	2014							33.7	31.2	26.6	23.5	89.9						31.4
All	Car	Car SUV	2015							35.5	31.9	26.5	40.3							32.3
All	Car	Car SUV	2016						41.4	36.0	32.2	26.5	25.3	124.7	116.8					33.8
All	Car	Car SUV	2017						37.5	36.3	32.4	28.0		125.3	54.3					33.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Car	All	1975		31.4	28.3	24.4	21.7	21.4	18.2	15.6	14.3	12.9	12.2						15.8
All	Car	All	1976		32.6	29.6	26.2	24.5	23.5	19.4	17.6	15.7	14.6	13.3						17.5
All	Car	All	1977		36.0	32.1	29.3	24.8	23.2	20.2	17.9	16.5	14.1	12.6						18.3
All	Car	All	1978		34.9	31.9	27.9	24.8	22.5	20.2	17.9	16.3	14.6	12.8						19.9
All	Car	All	1979		32.0	31.4	27.9	23.9	22.1	20.2	17.7	16.5	14.4	11.0						20.2
All	Car	All	1980		33.0	32.4	28.0	26.1	23.6	20.7	18.8	19.0	12.5	10.7						23.5
All	Car	All	1981		38.4	34.4	29.4	27.7	24.4	22.2	20.3	20.4	11.7	10.5						25.1
All	Car	All	1982		40.3	35.6	31.1	28.8	25.7	22.4	20.6	21.0	11.2	10.1						26.0
All	Car	All	1983		43.6	36.2	32.0	30.2	25.8	22.9	20.3	19.9	11.5	10.9						25.9
All	Car	All	1984		44.3	37.1	32.6	30.1	26.4	22.9	20.5	20.2	11.2	11.0						26.3
All	Car	All	1985	57.4	44.4	37.5	32.8	30.6	27.1	23.4	21.7	21.0	10.9	11.0	10.1					26.9
All	Car	All	1986	55.9	36.6	38.5	33.7	30.6	27.5	24.4	22.1	21.5	10.7	11.0	10.1					27.9
All	Car	All	1987	56.8	40.0	39.0	33.4	30.8	27.9	24.5	21.7	22.3	11.4	10.9	10.4					28.0
All	Car	All	1988	51.6	43.6	38.9	34.1	31.5	28.4	25.2	22.2	22.6	12.3	12.2	11.8					28.5
All	Car	All	1989	59.4	43.5	38.7	34.4	31.8	28.4	25.0	23.0	21.8	12.4	12.5						28.1
All	Car	All	1990	65.3	47.5	39.6	35.1	31.9	28.6	25.4	23.0	20.3	10.9	13.1						27.7
All	Car	All	1991	65.3	47.1	38.1	35.7	32.5	28.1	25.2	23.1	20.9		13.2						27.8
All	Car	All	1992	65.3	47.3	39.7	35.6	32.6	28.4	25.4	23.1	22.1	17.3	14.1						27.4
All	Car	All	1993	65.3	48.6	38.7	36.2	33.0	28.7	25.8	22.6	22.1	18.9	15.6	17.6					27.6
All	Car	All	1994	65.8	48.9	39.6	35.5	33.6	29.1	25.9	23.1	22.4	20.4	17.7	13.9	13.6				27.7
All	Car	All	1995		53.7	40.4	37.2	33.9	29.7	26.3	23.2	22.4	19.6	18.2	13.9	13.6				28.1
All	Car	All	1996		52.3	38.9	37.3	33.8	29.9	26.4	23.5	22.9	19.9	17.8	14.9					28.0
All	Car	All	1997		54.4	39.3	36.9	34.0	29.8	26.6	23.5	22.2	20.2	18.1	14.9	14.9				28.2
All	Car	All	1998		53.6	39.0	36.9	34.5	30.1	27.0	23.1	22.0	20.2	17.0	14.9	13.8				28.1
All	Car	All	1999		50.3	38.6	35.9	34.6	30.1	27.1	23.6	22.2	19.7	14.9	19.3					27.8
All	Car	All	2000		61.6	39.6	36.7	34.3	30.6	27.1	23.5	21.9	18.3	18.1	15.0	15.2				27.7
All	Car	All	2001		75.6	39.3	36.2	35.9	31.5	27.1	23.9	22.0	18.2	16.1	17.6	15.2				27.9
All	Car	All	2002		75.3	51.5	37.3	36.3	31.4	27.6	24.2	22.3	19.1	16.1	17.6	15.2				28.3
All	Car	All	2003		75.1	50.8	40.8	37.1	32.8	27.9	24.6	23.2	20.3		18.2	15.2				28.7
All	Car	All	2004		73.8	64.5	40.8	36.9	33.4	28.1	25.1	22.6	21.7	18.8	18.5	18.9				28.5
All	Car	All	2005		74.3	34.1	41.1	37.3	34.1	28.8	25.5	23.0	21.3	16.7	17.3					29.1
All	Car	All	2006		73.8	34.3	41.6	37.8	34.9	29.1	25.9	22.5	21.2	19.9	15.4	17.9				28.9
All	Car	All	2007			29.9	42.4	38.2	36.4	29.9	26.6	22.8	20.8	20.5	16.2	19.1				29.8
All	Car	All	2008		49.5	29.9	42.1	37.9	37.5	30.4	26.8	22.8	20.5	21.6	16.4	16.6				30.1
All	Car	All	2009		49.5	30.0	42.0	38.3	38.4	31.5	27.5	23.5	20.8	20.6	16.4	16.6				31.6
All	Car	All	2010		49.1	29.8	42.0	39.0	38.2	34.0	28.1	24.9	23.8	18.7	17.1	14.5				32.6
All	Car	All	2011		53.2	29.9	41.1	40.4	38.6	34.3	28.7	25.5	23.2	20.2	18.1	18.9				32.3
All	Car	All	2012		49.5	52.3	42.9	44.4	40.2	35.5	29.6	25.7	23.4	31.7	17.9	15.5				34.4
All	Car	All	2013		49.8	60.7	43.2	44.2	40.3	37.1	31.6	26.9	25.5	21.8	19.6	16.3				35.5



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
All	Car	All	2014		49.7	56.7	44.0	45.5	41.3	37.1	31.4	27.3	25.3	21.7	19.6	16.4			35.6
All	Car	All	2015		49.7	56.2	44.9	45.5	41.8	38.5	32.0	26.4	32.6	21.1	20.3	16.7			36.5
All	Car	All	2016			152.8	45.3	45.3	42.5	38.2	32.3	26.7	37.4	74.3	23.3	17.2			36.9
All	Car	All	2017			54.9	48.7	45.7	43.9	39.7	33.6	27.0	34.4	81.7	34.3	17.2			37.9



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
All	Truck	Van	1975						21.2	19.0	14.0	11.6	12.0		11.1	10.6				13.1	
All	Truck	Van	1976							19.5	14.1	13.3	12.4	11.1	11.9	11.5					13.9
All	Truck	Van	1977							20.2	16.1	13.5	12.4		13.0	12.3					14.7
All	Truck	Van	1978							19.4	15.6	13.0	12.5		12.5	11.7					14.2
All	Truck	Van	1979							18.7	16.5	13.6	11.8	11.4	10.6						13.5
All	Truck	Van	1980							19.0	18.4	16.3	14.2	12.4	10.9						16.6
All	Truck	Van	1981							19.3	18.7	17.1	14.8	12.3							17.5
All	Truck	Van	1982							20.9	18.8	16.8	15.1	13.4	11.9						17.3
All	Truck	Van	1983			39.0				19.5	18.8	17.3	17.1	18.2	12.6						17.7
All	Truck	Van	1984			38.6		29.8	25.7	24.2	18.0	17.0	15.6	14.5	12.9						18.9
All	Truck	Van	1985					29.8	26.1	23.5	19.8	16.1	15.4	12.9	21.3						19.5
All	Truck	Van	1986					29.4	26.9	24.3	21.1	17.5	16.0	15.0	23.1						20.6
All	Truck	Van	1987					29.3	26.6	24.1	21.7	17.3	15.9	14.6	22.9						20.9
All	Truck	Van	1988						27.4	24.5	22.2	17.9	16.7	14.2	21.7						21.2
All	Truck	Van	1989						26.3	24.3	22.5	17.5	16.5	14.4	21.3						21.1
All	Truck	Van	1990						26.4	25.2	22.2	18.7	16.5	14.4	21.5						21.2
All	Truck	Van	1991						26.2	25.3	22.5	19.1	16.6	15.2	20.4						21.4
All	Truck	Van	1992						28.3	25.7	22.6	19.2	17.5	15.9	15.0						21.5
All	Truck	Van	1993						28.5	25.3	22.6	19.8	17.7	16.1	21.3						21.9
All	Truck	Van	1994						28.4	24.7	22.7	19.3	17.6	16.2	15.5						21.5
All	Truck	Van	1995						27.7	25.1	22.9	19.1	17.8	16.2	16.1						21.8
All	Truck	Van	1996						27.7	27.0	23.5	20.6	17.8	15.8	16.1						22.2
All	Truck	Van	1997							24.2	23.4	20.7	19.0	17.3	16.5						22.1
All	Truck	Van	1998							27.0	23.8	21.5	18.6	17.4	16.6						22.7
All	Truck	Van	1999							26.9	23.9	22.1	18.2	17.5	16.2						22.3
All	Truck	Van	2000								24.2	22.3	18.4	17.2	16.3						22.8
All	Truck	Van	2001								24.6	23.5	19.1	17.4	16.0						22.1
All	Truck	Van	2002								24.9	23.3	18.7	17.5	17.1						23.1
All	Truck	Van	2003								25.4	23.6	19.3	18.2	18.5						23.5
All	Truck	Van	2004								25.1	24.2	20.4	19.1	18.7						23.7
All	Truck	Van	2005								25.5	24.1	20.7	19.3	18.2						24.0
All	Truck	Van	2006								25.7	24.5	19.9	19.2	18.2						24.3
All	Truck	Van	2007								25.9	24.2	20.4	19.2	18.1						24.2
All	Truck	Van	2008								30.7		24.7	23.9	19.3	17.6					24.6
All	Truck	Van	2009								30.3		24.7	25.3	17.8	17.7					25.0
All	Truck	Van	2010								30.5		24.4	25.3	18.6	18.4					25.0
All	Truck	Van	2011								30.1		26.6	22.9	18.3	17.8	14.4	15.4			26.3
All	Truck	Van	2012								31.3		26.7	22.6	18.1	17.9	15.7	15.0	14.5		26.6
All	Truck	Van	2013								31.1		26.6	25.0	18.5	17.8	14.5	15.1			26.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Truck	Van	2014							32.6	30.3	26.8	22.7	18.5	18.0	15.5	15.2			26.6
All	Truck	Van	2015							33.6	30.6	27.0	24.3		20.8	16.5	15.4			27.4
All	Truck	Van	2016							32.3	29.5	27.0	25.1	20.1	20.0	16.0	17.4			27.2
All	Truck	Van	2017							33.1	29.7	28.3	30.3		20.1	15.9	15.5			28.9

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes			
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500	
All	Truck	Truck SUV	1975					16.8			13.2	13.5	11.1	10.5	10.3					13.0	
All	Truck	Truck SUV	1976					17.8	15.4		13.8	13.9	12.8	11.2	11.9					13.9	
All	Truck	Truck SUV	1977					18.6	16.8		14.7	15.4	13.6	11.7	11.9					15.1	
All	Truck	Truck SUV	1978					18.1	16.8		14.5	14.7	13.0	11.8	11.4					14.5	
All	Truck	Truck SUV	1979		25.7					17.2	15.6	15.7	12.9	11.4	10.6					12.4	
All	Truck	Truck SUV	1980		25.2					19.7	16.3	15.9	14.5	14.0	13.8	13.4				15.5	
All	Truck	Truck SUV	1981		25.2					20.9	17.2	16.9	15.8	15.3	14.1					16.8	
All	Truck	Truck SUV	1982		25.2	24.8				20.2		19.4	15.7	15.1	21.2					17.3	
All	Truck	Truck SUV	1983		25.2	24.8				20.5	23.4	21.9	15.7	15.7	20.2	20.8				18.5	
All	Truck	Truck SUV	1984			28.8				22.6	21.3	22.1	14.8	15.3	17.9	21.0				19.0	
All	Truck	Truck SUV	1985			28.8				24.5	21.8	22.0	15.0	15.7	16.1	21.4				19.4	
All	Truck	Truck SUV	1986			33.1		25.6		22.8	21.8	21.1	15.6	16.4	15.7	22.1				20.1	
All	Truck	Truck SUV	1987			33.1				22.4	22.2	20.4	14.6	15.7	16.8	20.9				20.4	
All	Truck	Truck SUV	1988			33.3				22.3	20.9	20.8	15.0	16.1	16.5	18.3				20.2	
All	Truck	Truck SUV	1989			33.4	31.3	29.3		22.1	20.3	21.2	14.9	15.9	17.5	15.8				19.7	
All	Truck	Truck SUV	1990				31.8	28.7		23.3	20.5	20.5	17.5	16.0	17.3	16.0				19.6	
All	Truck	Truck SUV	1991				33.5	28.9		27.1	19.8	20.8	19.8	15.8	17.2	15.7	20.2			20.0	
All	Truck	Truck SUV	1992				33.5	28.9		23.7	19.4	20.2	19.4	15.7	16.3	14.9				19.4	
All	Truck	Truck SUV	1993				33.5	29.0		24.0	19.6	21.3	19.7	16.1	16.8	15.8				19.6	
All	Truck	Truck SUV	1994				33.5	28.7		23.5	19.4	18.9	19.9	16.5	16.8	16.1				19.3	
All	Truck	Truck SUV	1995				30.5	28.4		23.3	19.8	19.0	19.9	17.0	16.9	15.7				19.3	
All	Truck	Truck SUV	1996					28.4		28.0	19.9	19.3	20.2	17.0	17.4	16.8				19.6	
All	Truck	Truck SUV	1997					28.3		27.8	22.7	19.9	19.8	18.0	17.4	16.7				19.6	
All	Truck	Truck SUV	1998					28.4		27.4	24.0	20.2	20.1	17.3	17.0	16.1				19.7	
All	Truck	Truck SUV	1999							28.3	25.7	20.8	19.7	17.4	17.5	16.5				19.6	
All	Truck	Truck SUV	2000							28.0	24.0	20.9	19.9	17.6	18.2	16.6				19.6	
All	Truck	Truck SUV	2001							27.7	24.8	21.3	20.4	17.1	18.5	16.8				20.2	
All	Truck	Truck SUV	2002							27.8	25.9	21.6	19.9	18.9	18.4	17.7				20.1	
All	Truck	Truck SUV	2003							27.8	26.0	22.8	20.7	19.3	18.3	17.4				20.3	
All	Truck	Truck SUV	2004							23.7	26.3	22.3	21.3	19.6	18.4	17.4				20.4	
All	Truck	Truck SUV	2005							23.5	26.9	23.2	21.6	19.5	18.6	18.2				20.8	
All	Truck	Truck SUV	2006								28.0	23.5	22.7	20.0	18.7	18.1				21.4	
All	Truck	Truck SUV	2007								28.8	25.5	22.5	20.4	19.0	19.8				22.0	
All	Truck	Truck SUV	2008								29.8	26.4	23.0	21.4	19.4	19.5	18.4			22.7	
All	Truck	Truck SUV	2009								29.2	27.5	23.5	22.6	21.1	19.8	18.3			24.1	
All	Truck	Truck SUV	2010								29.4	28.3	23.9	23.2	22.2	20.2	18.4			24.7	
All	Truck	Truck SUV	2011								30.7	28.8	24.4	24.0	21.6	20.7	18.6	15.4		16.4	24.9
All	Truck	Truck SUV	2012								30.8	29.1	24.7	24.3	21.6	20.7	18.6	15.4		16.4	25.1
All	Truck	Truck SUV	2013								32.6	31.0	25.7	24.7	21.7	21.0	18.5	16.2		16.4	26.3



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Truck	Truck SUV	2014							33.6	31.4	26.0	25.1	22.8	21.1	18.5	19.9		16.4	27.3
All	Truck	Truck SUV	2015							34.4	32.7	26.3	25.2	22.6	22.6	21.6	19.9			27.8
All	Truck	Truck SUV	2016							34.4	33.2	26.7	24.7	24.7	22.4	21.4				28.2
All	Truck	Truck SUV	2017							35.5	32.4	27.0	25.2	23.3	22.7	21.2	14.2			28.2

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Truck	Pickup	1975					22.7	20.7	15.1	14.1	11.8	11.0	10.0						14.0
All	Truck	Pickup	1976					24.1	22.3	16.5	15.3	12.6	11.7	11.4						14.6
All	Truck	Pickup	1977					25.7	28.6	17.1	16.7	13.7	12.9	11.8						16.0
All	Truck	Pickup	1978				27.2	25.8	27.5	18.5	16.1	13.6	12.8	12.1	12.6	11.8				15.7
All	Truck	Pickup	1979			25.0	27.5	22.7	23.9	18.9	15.9	14.2	12.9	11.3	10.9					15.5
All	Truck	Pickup	1980		25.2	32.0	25.8	25.2	23.6	18.7	18.7	15.7	15.9	13.3	9.9	12.0				19.4
All	Truck	Pickup	1981		25.2	41.5	28.4	27.9	27.1	21.3	19.2	16.8	16.9	13.3						21.0
All	Truck	Pickup	1982			43.1	29.7	28.3	26.4	22.3	18.7	17.1	18.9	22.4						21.7
All	Truck	Pickup	1983			39.2	32.6	28.8	26.4	23.4	18.5	17.0	18.0	22.1						22.2
All	Truck	Pickup	1984			28.8	28.1	28.2	26.6	22.7	18.5	16.8	17.4	21.9						21.5
All	Truck	Pickup	1985				29.6	29.9	26.3	23.3	18.5	16.8	16.3	21.1	19.6					21.4
All	Truck	Pickup	1986				30.0	29.5	26.8	23.2	19.2	17.4	16.3	21.1						22.2
All	Truck	Pickup	1987				29.8	29.7	27.0	22.9	19.1	17.2	16.0	21.1						22.5
All	Truck	Pickup	1988					27.8	27.4	22.8	19.7	17.8	16.4	16.9	19.6					21.5
All	Truck	Pickup	1989					27.6	27.6	22.6	20.1	17.8	16.0	19.2	21.2					21.2
All	Truck	Pickup	1990					26.0	28.2	23.1	20.2	18.0	16.4	18.6	20.5					20.7
All	Truck	Pickup	1991						27.5	23.9	20.4	18.1	16.2	17.5	19.5					21.7
All	Truck	Pickup	1992					28.2	27.1	24.7	20.4	18.4	16.7	16.3						20.9
All	Truck	Pickup	1993						27.4	24.5	20.5	19.0	16.9	17.0						21.1
All	Truck	Pickup	1994						28.0	25.3	20.9	18.7	17.0	16.9	18.1					21.0
All	Truck	Pickup	1995						27.3	26.3	20.9	18.6	16.8	15.9	18.1					20.4
All	Truck	Pickup	1996						27.2	26.3	21.6	18.9	17.3	15.3	18.7					20.8
All	Truck	Pickup	1997						26.6	27.0	21.5	19.8	18.2	17.0	18.7					20.4
All	Truck	Pickup	1998						27.3	26.1	21.3	19.8	17.6	16.4	15.6					20.7
All	Truck	Pickup	1999						27.2	24.9	20.7	19.9	18.1	16.3	16.8					19.9
All	Truck	Pickup	2000						26.7	24.9	20.8	20.0	18.4	16.3	15.8					20.5
All	Truck	Pickup	2001						27.1	24.5	20.7	20.0	18.6	16.3	15.8					19.6
All	Truck	Pickup	2002						27.7	24.9	20.9	19.8	18.7	17.0	17.5					19.5
All	Truck	Pickup	2003						27.7	25.7	21.4	20.2	18.9	17.2	17.6					19.9
All	Truck	Pickup	2004						27.6	25.9	21.8	20.5	19.2	17.9	18.1					19.6
All	Truck	Pickup	2005							25.9	23.1	20.8	19.4	18.3	18.0	16.3				19.7
All	Truck	Pickup	2006							26.1	23.4	21.3	19.9	18.7	17.6	15.2				20.1
All	Truck	Pickup	2007							26.0	22.8	21.4	20.0	19.5	18.5	15.1				20.1
All	Truck	Pickup	2008							26.7	23.2	21.5	20.3	20.1	18.7	16.0				20.5
All	Truck	Pickup	2009							27.9	24.2	22.1	20.8	20.4	19.2					21.0
All	Truck	Pickup	2010							27.7	23.9	22.0	20.9	20.8	19.5					20.9
All	Truck	Pickup	2011							27.7	23.5	21.9	21.4	21.1	20.3	16.2				21.4
All	Truck	Pickup	2012							27.5	25.8	22.3	21.5	21.0	20.4	16.7				21.3
All	Truck	Pickup	2013							29.3	25.9	22.9	22.3	21.5	20.9	16.7				21.7



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes	
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000
All	Truck	Pickup	2014							29.3	25.9	23.5	23.9	23.0	20.9	16.7			22.4
All	Truck	Pickup	2015								26.4	24.5	23.7	23.2	21.2				23.5
All	Truck	Pickup	2016								27.5	25.7	23.8	22.8	21.6				23.6
All	Truck	Pickup	2017								27.5	26.1	24.3	22.9	21.7				23.6

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Truck	All	1975					21.0	20.7	16.1	14.1	11.9	11.1	10.0	10.9	10.6				13.7
All	Truck	All	1976					22.5	21.0	16.9	15.0	12.9	12.1	11.4	11.9	11.5				14.4
All	Truck	All	1977					24.2	26.0	17.5	16.5	13.8	13.1	11.8	12.4	12.3				15.6
All	Truck	All	1978				27.2	23.5	25.2	18.6	15.9	13.5	12.8	12.1	11.8	11.7				15.3
All	Truck	All	1979		25.7	25.0	27.5	22.7	21.9	16.9	16.0	13.9	12.3	11.1	10.8					14.7
All	Truck	All	1980		25.2	32.0	25.8	25.2	22.7	18.3	18.6	15.7	15.1	13.1	12.3	12.0				18.6
All	Truck	All	1981		25.2	41.5	28.4	27.9	25.9	20.9	19.1	16.8	15.8	13.7						20.1
All	Truck	All	1982		25.2	39.1	29.7	28.3	25.9	22.1	18.7	16.8	17.0	21.5	21.1					20.5
All	Truck	All	1983		25.2	28.4	32.6	28.8	25.7	23.2	19.0	17.0	17.0	20.4	20.2					20.8
All	Truck	All	1984			31.1	28.1	28.3	26.0	22.7	18.9	16.7	16.0	17.9	20.4					20.4
All	Truck	All	1985			28.8	29.6	29.9	26.2	23.0	19.6	16.4	15.9	16.1	21.4					20.5
All	Truck	All	1986			33.1	30.0	29.5	26.8	23.1	20.1	17.3	16.3	16.0	22.2					21.4
All	Truck	All	1987			33.1	29.8	29.7	26.9	23.0	20.5	17.1	15.9	16.7	21.2					21.6
All	Truck	All	1988			33.3		27.8	27.4	22.6	21.1	17.7	16.4	16.2	18.7					21.1
All	Truck	All	1989			33.4	31.3	27.6	27.4	22.5	21.5	17.6	16.1	17.2	15.8					20.9
All	Truck	All	1990				31.8	26.8	27.8	23.0	21.3	18.2	16.4	16.8	16.0					20.7
All	Truck	All	1991				33.5	28.9	27.5	23.0	21.5	18.8	16.2	16.7	15.8	20.2				21.2
All	Truck	All	1992				33.5	28.6	26.9	23.6	21.6	18.9	16.8	16.2	14.9					20.8
All	Truck	All	1993				33.5	29.0	27.1	23.9	21.9	19.3	17.0	16.6	15.8					21.0
All	Truck	All	1994				33.5	28.7	27.2	24.4	21.3	19.3	17.0	16.7	16.1					20.7
All	Truck	All	1995				30.5	28.4	25.7	24.9	21.4	19.2	17.0	16.6	15.8					20.5
All	Truck	All	1996					28.4	27.5	24.8	22.1	19.8	17.4	16.6	16.7					20.8
All	Truck	All	1997					28.3	26.9	25.1	21.9	19.9	18.3	17.2	16.7					20.5
All	Truck	All	1998					28.4	27.3	25.4	22.3	20.2	17.7	16.9	15.9					20.8
All	Truck	All	1999						27.5	25.2	22.1	20.3	17.9	17.0	16.7					20.3
All	Truck	All	2000						27.0	24.5	22.4	20.5	18.2	17.8	16.6					20.7
All	Truck	All	2001						27.2	24.7	22.1	20.9	18.4	17.6	16.5					20.3
All	Truck	All	2002						27.7	25.6	22.4	20.6	18.7	17.7	17.7					20.3
All	Truck	All	2003						27.7	25.9	23.2	21.3	19.1	17.8	17.5					20.7
All	Truck	All	2004						27.5	26.2	22.5	21.9	19.4	18.2	17.7					20.5
All	Truck	All	2005						23.5	26.6	23.8	22.4	19.6	18.4	18.1	16.3				21.0
All	Truck	All	2006							27.4	23.8	23.2	20.0	18.7	17.9	15.2				21.4
All	Truck	All	2007							27.6	24.9	23.0	20.2	19.4	19.3	15.1				21.6
All	Truck	All	2008							28.7	25.6	23.4	21.2	20.0	19.1	18.4				22.2
All	Truck	All	2009							29.0	26.8	23.6	22.6	20.5	19.5	18.3				23.1
All	Truck	All	2010							29.3	27.6	23.8	23.2	21.0	19.7	18.4				23.4
All	Truck	All	2011							30.1	27.9	24.8	23.6	21.2	20.5	18.0	15.4		16.4	23.9
All	Truck	All	2012							30.7	28.6	25.1	23.8	21.1	20.5	18.2	15.3	14.5	16.4	24.1
All	Truck	All	2013							32.3	30.4	25.6	24.3	21.5	20.9	18.0	16.0		16.4	24.8

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	Truck	All	2014							33.5	31.0	26.1	24.8	23.0	20.9	18.0	16.9		16.4	25.5
All	Truck	All	2015							34.3	32.0	26.2	24.7	23.1	22.1	21.5	16.6			26.5
All	Truck	All	2016							34.3	32.7	26.6	24.3	23.2	21.9	21.4	17.4			26.8
All	Truck	All	2017							35.3	32.1	27.0	25.2	22.9	22.0	21.2	14.5			26.8
All	All	All	1975		31.4	28.3	24.4	21.4	21.4	18.1	14.8	13.8	12.6	12.0	10.9	10.6				15.3
All	All	All	1976		32.6	29.6	26.2	23.5	23.3	19.2	16.5	15.0	14.1	13.1	11.9	11.5				16.7
All	All	All	1977		36.0	32.1	29.3	24.5	23.6	19.9	17.5	15.9	13.9	12.4	12.4	12.3				17.7
All	All	All	1978		34.9	31.9	27.9	24.4	22.8	20.1	17.1	15.3	13.8	12.4	11.8	11.7				18.6
All	All	All	1979		32.0	31.4	27.9	23.5	22.1	20.1	17.3	15.4	12.7	11.1	10.8					18.7
All	All	All	1980		32.8	32.4	28.0	25.8	23.5	20.6	18.8	17.1	15.1	13.1	12.3	12.0				22.5
All	All	All	1981		38.3	34.5	29.3	27.8	24.6	22.1	19.9	18.3	15.8	13.5						24.1
All	All	All	1982		40.1	35.6	31.1	28.7	25.7	22.4	20.0	17.9	16.9	21.4	21.1					24.7
All	All	All	1983		43.1	36.2	32.0	29.8	25.8	22.9	20.0	17.6	16.9	20.3	20.2					24.6
All	All	All	1984		44.3	37.0	32.6	29.9	26.3	22.9	20.0	17.3	15.9	17.9	20.4					24.6
All	All	All	1985	57.4	44.4	37.4	32.8	30.5	26.9	23.3	21.0	16.8	15.8	16.1	21.3					25.0
All	All	All	1986	55.9	36.6	38.2	33.7	30.5	27.3	24.0	21.0	17.7	16.2	16.0	22.1					25.7
All	All	All	1987	56.8	40.0	38.2	33.4	30.7	27.7	24.0	21.1	17.6	15.8	16.6	21.0					25.9
All	All	All	1988	51.6	43.6	37.8	34.1	31.2	28.2	24.5	21.5	18.1	16.4	16.2	18.7					25.9
All	All	All	1989	59.4	43.5	38.6	34.3	31.5	28.2	24.4	22.0	17.9	16.1	17.1	15.8					25.4
All	All	All	1990	65.3	47.5	39.6	35.0	31.7	28.5	24.9	22.1	18.3	16.4	16.7	16.0					25.2
All	All	All	1991	65.3	47.1	38.1	35.7	32.4	28.0	24.7	22.2	18.9	16.2	16.6	15.8	20.2				25.4
All	All	All	1992	65.3	47.3	39.7	35.6	32.4	28.1	25.1	22.3	19.1	16.8	16.2	14.9					24.9
All	All	All	1993	65.3	48.6	38.7	36.2	32.9	28.4	25.4	22.2	19.5	17.1	16.6	15.9					25.1
All	All	All	1994	65.8	48.9	39.6	35.5	33.5	28.8	25.5	22.1	19.4	17.1	16.7	16.1	13.6				24.6
All	All	All	1995		53.7	40.4	37.1	33.8	29.1	26.0	22.2	19.3	17.1	16.7	15.8	13.6				24.7
All	All	All	1996		52.3	38.9	37.3	33.6	29.7	26.1	22.7	20.0	17.4	16.6	16.7					24.8
All	All	All	1997		54.4	39.3	36.9	34.0	29.7	26.3	22.6	20.0	18.3	17.2	16.7	14.9				24.5
All	All	All	1998		53.6	39.0	36.9	34.5	29.8	26.7	22.6	20.2	17.7	16.9	15.9	13.8				24.5
All	All	All	1999		50.3	38.6	35.9	34.6	29.9	26.8	22.7	20.3	17.9	17.0	16.7					24.1
All	All	All	2000		61.6	39.6	36.7	34.3	30.5	26.6	22.9	20.5	18.2	17.8	16.6	15.2				24.3
All	All	All	2001		75.6	39.3	36.2	35.9	31.4	26.7	23.1	21.0	18.4	17.6	16.6	15.2				24.2
All	All	All	2002		75.3	51.5	37.3	36.3	31.3	27.3	23.3	20.7	18.7	17.7	17.7	15.2				24.1
All	All	All	2003		75.1	50.8	40.8	37.1	32.7	27.6	23.8	21.5	19.1	17.8	17.5	15.2				24.3
All	All	All	2004		73.8	64.5	40.8	36.9	33.3	27.8	23.9	22.0	19.5	18.2	17.7	18.9				24.0
All	All	All	2005		74.3	34.1	41.1	37.3	34.1	28.6	24.8	22.5	19.6	18.4	18.1	16.3				24.8
All	All	All	2006		73.8	34.3	41.6	37.8	34.9	28.9	25.3	23.1	20.0	18.8	17.9	17.7				25.2
All	All	All	2007			29.9	42.4	38.2	36.4	29.7	26.2	22.9	20.2	19.5	19.2	18.7				25.8
All	All	All	2008		49.5	29.9	42.1	37.9	37.5	30.2	26.5	23.3	21.2	20.0	19.1	18.4				26.3
All	All	All	2009		49.5	30.0	42.0	38.3	38.4	31.3	27.3	23.6	22.5	20.5	19.4	18.2				28.2



2017 FE Trends Report

Appendix J: Laboratory 55/45 Fuel Economy (MPG) by Manufacturer, Vehicle Type, and Inertia Weight

Manufacturer	Car or Truck	Vehicle Type	Year	Weight Class (Pounds)														All Classes		
				1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000	6500	7000		8000	8500
All	All	All	2010		49.1	29.8	42.0	39.0	38.2	33.4	28.0	24.1	23.2	21.0	19.7	18.4				28.4
All	All	All	2011		53.2	29.9	41.1	40.4	38.6	33.8	28.5	25.0	23.5	21.2	20.5	18.0	15.4		16.4	28.1
All	All	All	2012		49.5	52.3	42.9	44.4	40.2	35.0	29.3	25.3	23.8	21.1	20.5	18.2	15.3	14.5	16.4	29.9
All	All	All	2013		49.8	60.7	43.2	44.2	40.3	36.5	31.3	26.0	24.3	21.5	20.9	18.0	16.0		16.4	30.7
All	All	All	2014		49.7	56.7	44.0	45.5	41.3	36.6	31.3	26.4	24.8	23.0	20.9	18.0	16.9		16.4	30.7
All	All	All	2015		49.7	56.2	44.9	45.5	41.8	37.8	32.0	26.2	25.0	23.1	22.1	21.5	16.6			31.4
All	All	All	2016			152.8	45.3	45.3	42.5	37.5	32.5	26.6	24.7	23.7	21.9	21.4	17.4			31.6
All	All	All	2017			54.9	48.7	45.7	43.9	39.0	33.1	27.0	25.5	23.8	22.1	21.2	14.5			32.3































































































































































































Manufacturer	Car or Truck	Vehicle Type	Model Year	Fuel Economy (MPG)			Weight (lb)	Volume (Cu-Ft)	Engine CID	HP	0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu Ft-MPG	Cu Ft-Ton MPG	Drivetrain					Transmission					Fuel Metering					Vehicle Size						
				Lab 55/45	Adj City	Adj Hwy											Adj Comb	Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel	Multi-Valve	VVT	Hybrid	Small	Mid	Large		
Mercedes	All	All	1975	17.3	13.5	16.5	14.7	3934	205	124		0.587	0.0306	36.2				100.0%	9.5%	90.5%				26.9%	38.4%		34.7%							76.1%	23.9%			
Mercedes	All	All	1976	18.6	14.7	17.6	15.9	3924	196	140		0.550	0.0277	39.0				100.0%	5.3%	94.7%				23.6%	26.9%		49.5%							89.3%	10.7%			
Mercedes	All	All	1977	19.2	15.4	17.5	16.3	3931	199	117		0.571	0.0291	40.1				100.0%	9.6%	90.4%				27.8%	48.1%		49.2%							87.1%	12.9%			
Mercedes	All	All	1978	18.7	14.7	17.6	15.9	3971	208	128	15.5	0.606	0.0319	39.8				100.0%	6.3%	93.7%			1.2%	48.9%		34.7%								88.8%	11.2%			
Mercedes	All	All	1979	20.5	16.4	18.9	17.4	3950	203	119	16.6	0.569	0.0296	43.7				100.0%	8.1%	91.9%					34.7%										85.4%	14.6%		
Mercedes	All	All	1980	23.9	19.5	21.4	20.3	3781	195	102	17.8	0.512	0.0266	46.4				100.0%	9.2%	90.8%					25.3%										89.0%	11.0%		
Mercedes	All	All	1981	23.6	21.1	22.5	21.7	3747	184	103	17.4	0.551	0.0272	49.3				100.0%	10.5%	89.5%					23.1%										92.3%	7.7%		
Mercedes	All	All	1982	26.3	21.5	23.3	22.3	3890	185	115	17.5	0.613	0.0294	52.6				100.0%	9.0%	91.0%					20.4%										89.9%	10.1%		
Mercedes	All	All	1983	26.4	21.4	23.9	22.4	3478	167	107	15.7	0.638	0.0308	46.7			47.8%	52.2%	3.6%	96.4%				28.9%											46.5%	53.5%		
Mercedes	All	All	1984	26.0	20.9	23.8	22.1	3330	166	114	14.5	0.694	0.0343	44.0			54.4%	45.6%	2.8%	97.2%				33.1%											42.0%	58.0%		
Mercedes	All	All	1985	23.1	18.6	21.1	19.6	3700	195	134	13.4	0.703	0.0364	43.8				100.0%	3.2%	96.8%					61.4%											86.7%	13.3%	
Mercedes	All	All	1986	21.1	16.6	19.8	17.9	3686	226	180	10.5	0.830	0.0484	39.5				100.0%	3.9%	96.1%					92.2%											9.8%	1.5%	
Mercedes	All	All	1987	22.0	17.3	20.5	18.6	3648	218	176	10.7	0.839	0.0481	41.3				100.0%	1.2%	98.8%					79.0%											66.8%	33.2%	
Mercedes	All	All	1988	21.1	16.3	19.7	17.8	3650	218	182	10.6	0.875	0.0496	38.9				100.0%	0.5%	99.5%					99.2%											72.8%	27.2%	
Mercedes	All	All	1989	21.2	16.4	19.8	17.8	3743	215	186	10.2	0.901	0.0495	40.2				100.0%	0.4%	99.6%					99.6%											73.9%	26.1%	
Mercedes	All	All	1990	21.2	16.1	20.1	17.8	3820	204	190	9.6	0.952	0.0493	41.0				0.9%	99.1%	0.6%	99.4%					96.5%										5.5%	13.2%	
Mercedes	All	All	1991	22.2	16.5	21.3	18.6	3836	204	188	9.9	0.937	0.0484	43.1				1.6%	98.4%	2.8%	97.2%					91.8%										76.3%	23.7%	
Mercedes	All	All	1992	21.8	16.1	21.0	18.2	3996	206	213	9.3	1.023	0.0524	43.9				3.3%	96.7%	0.4%	99.6%					93.9%										6.1%	35.9%	
Mercedes	All	All	1993	22.7	16.7	21.9	18.9	4147	206	216	8.7	1.043	0.0515	47.4				1.1%	98.9%	1.6%	98.4%					100.0%											65.6%	27.6%
Mercedes	All	All	1994	23.6	17.1	22.8	19.6	4099	210	228	8.2	1.095	0.0555	48.5				100.0%		100.0%					98.8%												1.2%	98.8%
Mercedes	All	All	1995	24.5	17.7	23.7	20.3	4082	203	218	8.8	1.080	0.0539	50.6				100.0%		100.0%					94.4%												5.6%	99.6%
Mercedes	All	All	1996	25.2	17.8	24.7	20.8	4016	194	200	9.6	1.027	0.0489	50.9				100.0%		83.5%	16.5%				95.7%											4.3%	100.0%	
Mercedes	All	All	1997	25.0	17.4	24.9	20.6	4014	208	225	8.5	1.082	0.0557	50.4				100.0%		100.0%					97.4%											2.6%	100.0%	
Mercedes	All	All	1998	25.3	17.7	24.4	20.7	4040	192	213	9.1	1.118	0.0526	51.5				100.0%		100.0%					97.8%											2.2%	100.0%	
Mercedes	All	All	1999	24.4	17.1	23.3	20.0	4171	202	224	8.8	1.132	0.0545	51.2				8.2%	91.8%	1.4%	98.6%					97.6%											7.0%	100.0%
Mercedes	All	All	2000	23.6	16.5	22.5	19.3	4390	219	239	8.4	1.113	0.0555	51.8				6.3%	93.7%	0.4%	99.6%					100.0%											100.0%	0.2%
Mercedes	All	All	2001	23.9	16.5	22.8	19.4	4266	221	239	8.2	1.091	0.0569	50.8				36.1%	73.9%	1.7%	98.3%					100.0%											100.0%	3.4%
Mercedes	All	All	2002	23.2	16.1	21.7	18.8	4120	212	231	8.4	1.109	0.0563	47.9				25.4%	74.6%	2.4%	97.6%					100.0%											100.0%	10.4%
Mercedes	All	All	2003	23.4	16.0	22.0	18.9	4098	223	247	7.9	1.141	0.0604	48.3				17.0%	83.0%	0.6%	99.4%					100.0%											100.0%	9.2%
Mercedes	All	All	2004	23.7	16.1	22.3	19.1	4131	217	241	8.0	1.166	0.0591	49.2				37.8%	72.2%	0.9%	99.1%					100.0%											100.0%	14.4%
Mercedes	All	All	2005	24.1	16.3	22.5	19.3	4001	207	241	7.9	1.231	0.0600	48.7				27.1%	72.9%	0.6%	99.4%					96.5%											3.5%	100.0%
Mercedes	All	All	2006	23.4	15.7	22.1	18.8	4323	226	269	7.4	1.206	0.0627	50.8				38.9%	61.1%	0.9%	99.1%					97.9%											2.1%	100.0%
Mercedes	All	All	2007	22.4	15.1	21.3	18.1	4516	244	297	7.2	1.229	0.0659	50.8				42.8%	57.2%	0.4%	99.6%					96.5%											3.5%	100.0%
Mercedes	All	All	2008	24.0	16.2	22.6	19.3	4351	226	273	7.8	1.221	0.0626	52.3				45.9%	54.1%	0.2%	7.5%					92.3%											94.4%	5.6%
Mercedes	All	All	2009	24.3	16.3	23.0	19.5	4263	220	269	7.7	1.226	0.0623	51.9				43.0%	57.0%	0.1%	8.0%					91.9%											95.9%	4.1%
Mercedes	All	All	2010	23.6	15.9	22.1	18.9	4474	225	277	7.5	1.235	0.0619	52.8				53.0%	47.0%	0.2%	1.4%					97.5%											2.5%	100.0%
Mercedes	All	All	2011	23.8	16.1	22.3	19.1	4495	224	275	7.5	1.235	0.0614	53.7				0.0%	44.5%	55.4%	0.1%	1.5%				98.4%											0.5%	94.2%
Mercedes	All	All	2012	26.3	17.6	24.5	21.0	4450	204	282	7.4	1.417	0.0625	59.0				0.0%	54.1%	45.9%	0.0%	2.0%				98.0%											59.8%	33.5%
Mercedes	All	All	2013	28.1	18.7	25.9	22.2	4346	200	284	7.4	1.452	0.0646	61.3				48.2%	51.8%	0.1%	4.8%					90.1%											4.6%	99.7%
Mercedes	All	All	2014	29.2	19.4	26.8	23.1	4369	199	287	7.2	1.487	0.0652	65.3				9.0%	46.9%	44.1%	0.0%	2.4%				89.1%											4.7%	99.0%
Mercedes	All	All	2015	29.8	20.0	26.8	23.4	4358	177	285	7.2	1.667	0.0648	66.2				8.0%	58.2%	33.8%	0.0%	3.0%				92.7%											3.5%	99.2%
Mercedes	All	All	2016	30.3	20.4	27.0	23.7	4327	169	281	7.1	1.723	0.0646	66.4				6.7%	51.8%	41.5%	0.2%	2.3%				97.7%											1.4%	99.6%
Mercedes	All	All	2017	30.9	20.7	27.8	24.2	4335	157	281	7.0	1.833	0.0642	68.5				9.1%	53.7%	37.3%	0.0%	2.7%				97.3%											98.5%	0.6%

Manufacturer	Car or Truck	Vehicle Type	Model Year	Fuel Economy (MPG)			Weight (lb)	Volume (Cu-Ft)	Engine CID	HP	0-60 Time	HP/CID	HP/WT	Ton-MPG	Cu Ft-MPG	Transmission							Fuel Metering					Vehicle Size										
				Lab 55/45	Adj City	Adj Hwy										Adj Comb	Front	4WD	Rear	Manual	Automatic	Lockup	CVT	Other	Carb	GDI	Port	TBI	Diesel	Multi-Valve	VVT	Hybrid	Small	Mid	Large			
All	Car	Car	1975	15.8	12.3	15.2	13.5	4058	288	136		0.515	0.0321	32.3			6.5%		93.5%	19.6%	80.1%	0.3%			94.6%	5.1%		0.2%				55.4%	23.3%	21.3%				
All	Car	Car	1976	17.5	13.7	16.6	14.9	4059	287	134		0.502	0.0324	35.5			5.8%		94.2%	17.1%	82.9%				96.6%	3.2%		0.3%				55.4%	25.2%	19.4%				
All	Car	Car	1977	18.3	14.4	17.4	15.6	3944	110.4	270	133		0.516	0.0335	36.4	2091	4021	6.8%		93.2%	16.8%	83.2%				95.3%	4.2%		0.5%				51.9%	24.5%	23.5%			
All	Car	Car	1978	19.9	15.5	19.1	16.6	3588	109.0	251	124		0.538	0.0342	35.9	2240	3926	9.6%		90.4%	19.8%	73.1%	7.1%			94.0%	5.1%		0.9%				44.7%	34.4%	21.0%			
All	Car	Car	1979	20.3	15.9	19.2	17.2	3485	108.9	238	119		0.545	0.0338	35.4	2258	3878	11.9%	0.3%	87.8%	21.1%	69.7%	8.8%	0.5%	93.2%	4.7%		2.1%				43.7%	34.2%	22.1%				
All	Car	Car	1980	23.5	18.3	22.6	20.0	3101	104.2	188	100		0.583	0.0322	36.6	2507	3841	29.7%	0.9%	69.4%	30.9%	51.6%	16.8%	0.6%	88.7%	6.2%	0.7%	4.4%				54.4%	34.4%	11.3%				
All	Car	Car	1981	25.1	19.6	24.2	21.4	3076	106.5	182	99		0.594	0.0330	38.9	2744	4161	37.0%	0.7%	62.2%	29.9%	36.2%				6.1%	2.6%	5.9%					51.5%	36.6%	17.2%			
All	Car	Car	1982	26.0	20.1	25.5	22.2	3054	106.1	175	99		0.609	0.0330	40.1	2836	4273	45.6%	0.8%	53.6%	29.2%	18.9%	51.4%	0.5%	78.4%		7.2%	9.8%	4.7%				56.5%	31.0%	12.5%			
All	Car	Car	1983	25.9	19.9	25.5	22.1	3112	108.7	182	104		0.615	0.0330	40.7	2904	4426	47.3%	3.1%	49.6%	26.1%	16.8%	56.7%			9.5%	18.9%	2.1%					53.1%	31.8%	15.1%			
All	Car	Car	1984	26.3	20.2	26.0	22.4	3099	107.5	179	106		0.637	0.0339	41.1	2910	4425	53.7%	1.0%	45.3%	24.1%	17.5%	58.3%		0.0%	58.9%		15.0%	24.4%	1.7%				57.4%	29.4%	13.2%		
All	Car	Car	1985	27.0	20.7	26.8	23.0	3093	108.2	177	111		0.671	0.0355	42.0	2992	4551	61.6%	2.1%	36.3%	22.8%	18.5%	58.7%			21.4%	32.0%	0.9%					55.7%	28.9%	15.4%			
All	Car	Car	1986	27.9	21.2	27.6	23.7	3041	107.3	167	111		0.701	0.0360	42.6	3057	4585	71.1%	1.1%	27.9%	24.8%	17.2%	58.0%			34.5%	36.7%	38.4%	0.3%	4.8%				59.5%	27.9%	15.6%		
All	Car	Car	1987	28.1	21.2	27.7	23.8	3031	106.6	162	112		0.732	0.0365	42.8	3051	4569	77.0%	1.1%	21.9%	24.9%	15.6%	59.5%			36.8%	42.5%	30.5%	0.3%	14.7%				63.5%	24.3%	12.2%		
All	Car	Car	1988	28.6	21.4	28.2	24.1	3047	107.0	160	116		0.739	0.0375	43.7	3119	4693	81.7%	0.8%	17.3%	24.3%	9.6%	66.1%			16.3%	53.7%	30.0%	0.0%	19.9%				64.8%	22.3%	12.8%		
All	Car	Car	1989	28.1	20.9	27.9	23.7	3099	107.7	163	121		0.783	0.0387	43.8	3080	4725	82.5%	1.0%	16.5%	21.0%	9.6%	69.3%	0.1%		9.7%	62.4%	27.8%	0.0%	21.4%				58.3%	28.2%	13.5%		
All	Car	Car	1990	27.8	20.5	27.5	23.3	3176	107.1	163	120	114		0.829	0.0401	44.2	3014	4746	84.6%	1.0%	14.4%	19.6%	7.4%	72.9%	0.0%	1.4%	77.5%	21.1%	0.0%	33.0%				58.6%	28.7%	12.8%		
All	Car	Car	1991	28.0	20.5	27.6	23.4	3154	106.8	163	132	113		0.851	0.0413	44.3	3040	4746	85.2%	1.4%	15.4%	20.5%	5.9%	73.6%	0.0%	0.0%	78.0%	21.9%	0.1%	34.1%	2.4%				61.5%	26.2%	12.3%	
All	Car	Car	1992	27.6	20.0	27.5	23.1	3240	108.4	170	141	107		0.868	0.0428	44.9	3040	4877	80.8%	1.1%	18.1%	17.4%	6.2%	76.4%	0.0%	0.0%	89.5%	10.4%	0.1%	35.0%	4.6%				56.5%	27.8%	15.6%	
All	Car	Car	1993	28.2	20.3	27.9	23.5	3207	108.4	166	138	101		0.865	0.0425	45.4	3107	4929	85.1%	1.2%	13.7%	17.8%	5.2%	77.0%	0.0%		91.6%	8.4%		36.7%	4.8%				57.2%	29.5%	13.3%	
All	Car	Car	1994	28.0	20.0	27.7	23.3	3250	108.2	168	143	99		0.884	0.0432	45.7	3086	4955	84.4%	0.4%	15.1%	16.7%	4.0%	79.3%			94.9%	5.1%	0.0%	41.0%	8.0%				58.5%	26.1%	15.4%	
All	Car	Car	1995	28.3	20.0	28.1	23.4	3261	108.7	167	152	98		0.945	0.0460	46.4	3150	5045	85.0%	1.2%	16.9%	16.5%	1.8%	81.9%			98.8%	1.2%	0.1%	52.2%	9.8%				57.3%	28.6%	14.0%	
All	Car	Car	1996	28.3	19.8	28.0	23.3	3282	109.0	165	154	101		0.958	0.0464	46.5	3125	5080	86.5%	1.5%	11.9%	14.9%	1.6%	83.6%	0.0%		98.8%	1.1%	0.1%	57.3%	11.7%				54.3%	32.0%	13.6%	
All	Car	Car	1997	28.4	19.8	28.0	23.4	3274	108.7	164	156	100		0.974	0.0469	46.7	3127	5076	86.5%	1.7%	11.7%	13.5%	0.6%	85.8%	0.1%		99.1%	0.8%	0.1%	58.6%	11.3%				55.1%	30.6%	14.3%	
All	Car	Car	1998	28.5	19.7	28.0	23.4	3306	108.6	164	150	102		0.993	0.0475	47.3	3138	5145	87.0%	2.3%	10.7%	12.3%	0.4%	87.3%	0.1%		99.7%	0.1%	0.2%	61.4%	18.4%				49.4%	39.1%	11.4%	
All	Car	Car	1999	28.2	19.4	27.5	23.0	3365	109.1	166	164	101		1.009	0.0481	47.5	3106	5191	87.2%	2.2%	10.6%	10.9%	0.6%	88.4%	0.0%		99.7%	0.1%	0.2%	64.7%	17.1%				47.7%	39.7%	12.6%	
All	Car	Car	2000	28.2	19.3	27.3	22.9	3369	109.6	165	168	95		1.032	0.0492	47.6	3121	5224	84.9%	2.1%	13.0%	11.2%	1.1%	87.7%	0.0%		99.7%	0.1%	0.2%	65.1%	23.4%	0.1%			47.5%	34.3%	18.2%	
All	Car	Car	2001	28.4	19.4	27.3	23.0	3380	109.3	165	168	93		1.042	0.0492	48.4	3159	5292	84.1%	3.2%	12.6%	11.4%	0.9%	87.5%	0.2%		99.7%		0.3%	67.3%	28.3%	0.2%			50.8%	32.3%	16.8%	
All	Car	Car	2002	28.6	19.4	27.2	23.1	3391	110.0	166	173	93		1.066	0.0504	48.9	3200	5382	84.9%	3.8%	11.2%	11.2%	0.7%	88.2%	0.4%		99.6%		0.4%	69.9%	33.9%	0.3%			48.6%	36.3%	15.1%	
All	Car	Car	2003	29.0	19.5	27.5	23.3	3447	109.6	165	176	91		1.087	0.0510	49.9	3257	5481	82.0%	3.5%	14.5%	11.2%		87.9%	0.9%		99.6%		0.4%	73.8%	41.3%	0.6%			50.6%	33.5%	15.9%	
All	Car	Car	2004	28.9	19.5	27.4	23.1	3462	110.4	168	183	90		1.106	0.0521	50.5	3261	5587	80.8%	5.4%	13.7%	10.2%	0.5%	88.2%	1.4%		99.7%		0.3%	77.3%	44.2%	0.9%			47.4%	35.6%	17.0%	
All	Car	Car	2005	29.5	19.6	27.6	23.5	3463	111.4	166	182	89		1.115	0.0518	51.8	3384	5790	79.8%	5.8%	14.5%	9.3%	0.1%	88.0%	2.6%		99.6%		0.4%	78.2%	51.6%	2.1%			44.2%	38.9%	16.9%	
All	Car	Car	2006	29.2	19.4	27.5	23.3	3534	111.5	172	194	87		1.146	0.0540	52.4	3351	5855	75.8%	5.8%	18.5%	9.4%	0.1%	88.1%	2.4%		99.4%		0.6%	80.8%	60.6%	5.5%			46.2%	32.9%	20.9%	
All	Car	Car	2007	30.3	20.1	28.3	24.1	3507	110.2	165	189	88		1.157	0.0521	54.2	3468	5994	80.5%	5.7%	13.8%	8.5%	0.0%	81.1%	10.4%		0.3%	99.6%		0.0%	84.8%	65.2%	3.4%			44.0%	15.4%	
All	Car	Car	2008	30.5	20.2	28.5	24.3	3527	109.9	165	193	88		1.178	0.0536	54.9	3490	6056	77.7%	7.3%	15.0%	8.0%	0.3%	80.2%	11.5%		3.2%	96.8%		0.1%	87.8%	63.5%	3.4%			44.6%	35.8%	19.5%
All	Car	Car	2009	32.1	21.3	29.6	25.3	3464	110.0	155	184	89		1.190	0.0520	56.5	3645	6238	82.6%	6.7%	10.7%	6.8%	0.4%	82.0%	10.8%		4.5%	94.8%		0.7%	92.0%	79.7%	3.0%			47.6%	35.4%	17.0%
All	Car	Car	2010	33.2	22.0	30.5	26.2	3474	110.5	156	187	88		1.197	0.0527	59.8	3864	6632	81.6%	5.9%	12.5%	5.7%	1.9%	77.6%	14.8%		6.6%	92.4%		1.0%	92.9%	90.5%	6.2%			48.8%	37.4%	13.7%
All	Car	Car	2011	32.9	21.6	30.3	25.8	3559	111.1	159	199	85		1.252	0.0547	60.3	3824	6717	78.3%	8.4%	13.4%	5.4%	0.6%	81.2%	12.8%		16.4%	92.3%		1.1%	93.4%	93.7%	4.0%			38.5%	43.4%	18.1%
All	Car	Car	2012	35.4	23.2	32.1	27.6	3452	110.6	148	189	86		1.279	0.0536	63.3	4111	7018	84.1%	6.2%	9.6%	5.6%	2.1%	76.7%	15.7%		25.4%	73.2%		1.2%	98.0%	97.4%	5.8%					
All	Car	Car	2013	36.4	24.0	32.9	28.4	3465	110.3	145	194	84		1.343	0.0548	66.4	4273	7351	81.6%	7.7%	10.7%	5.6%	2.6%	72.2%	19.6%		35.3%	62.8%		1.3%	97.6%	97.2%	6.9%					
All	Car	Car	2014	36.6	24.0	32.9	28.4	3497	110.9	146	197	84		1.353	0.0551	67.0	4307	7452</																				













