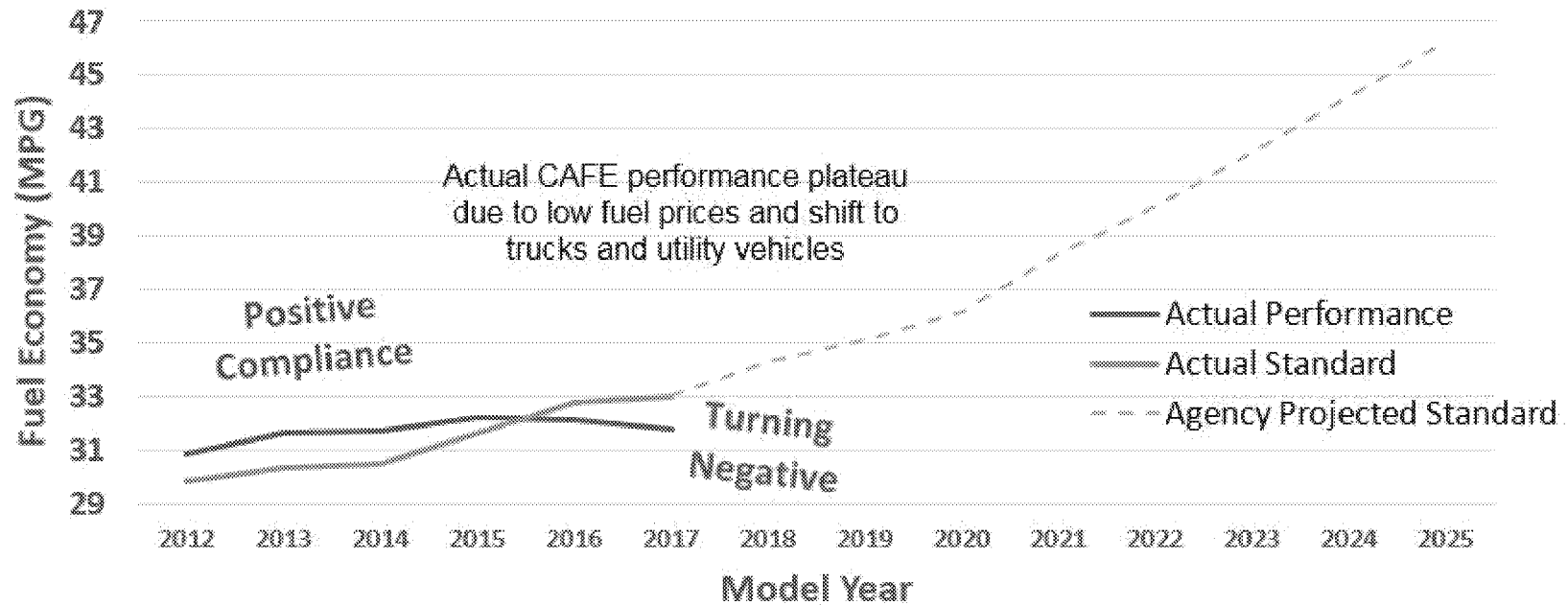


# Industry Corporate Average Fuel Economy Status



- 2016 MY NHTSA CAFE performance trend is a cause for concern.
- EPA GHG performance trend is similar.
- Better than standard performance has shifted to lower than standard performance.
- Low gasoline prices, muted demand for hybrids and other advanced vehicles, increasing shift to trucks and utility vehicles affecting performance and standards.

Source: 2012-2015MY: [https://one.nhtsa.gov/cape\\_pic/CAFE\\_PIC\\_fleet\\_LIVE.html](https://one.nhtsa.gov/cape_pic/CAFE_PIC_fleet_LIVE.html)  
 2016-2017MY: [NHTSA MYs 2016 and 2017 Projected Fuel Economy Performance Report](#)  
 2018-2025MY: [Draft TAR Volpe model compliance report for regulatory standards](#)

# Rational Consumer's Perspective on Fuel Savings

	2017 → 2021		2021 → 2025	
Average CAFE Fuel Economy	32 mpg	36 mpg	36 mpg	43 mpg
Annual Fuel Cost	\$1032	\$917	\$917	\$768
Weekly Savings*	\$2.20		\$2.90	
				

- 2017-21 and 2021-25 MY Fuel Economy Standard improvement is worth a cup of coffee per week to the average consumer, yet cost \$\$ thousands up front.
- This could be a reason for the less than 3% consumer take rate of electrification in the market place.

\*Assumptions: 15,000 miles per year from EPA fuel economy label for annual fuel cost and savings, \$2.20 per gallon, Draft TAR CAFE predicted fuel economy standards.

# Rational Consumer's Perspective on Fuel Savings Battery Electric Vehicle (BEV) vs. Gasoline

Despite fuel cost opportunities offered by BEVs over their gasoline equivalents, current depreciation costs far outweigh the fuel savings, even with federal tax incentive.

Vehicle	Powertrain	Fuel Economy	3 Year Fuel Costs		Purchase Price	Value after 3 Years	3 Year Depreciation Costs		Depreciation + Fuel Costs Weekly
			Total	Weekly			Total	Weekly	
 Ford Focus	Gasoline	31 mpg	\$3,600	\$23	\$20,400	\$8,600	\$11,800	\$76	\$99
	Electric (BEV) <i>with \$7,500 tax credit</i>	107 mpge	\$1,800	\$12	\$29,100 <i>\$21,600</i>	\$5,200	\$23,900 <i>\$16,400</i>	\$153 <i>\$105</i>	\$165 <i>\$117</i>
	<b>Better / (Worse)</b> <i>with \$7,500 tax credit</i>	76 mpg	\$1,800	<b>\$11</b>	<b>(\$8,700)</b> <i>(\$1,200)</i>	<b>(\$3,400)</b>	<b>(\$12,100)</b> <i>(\$4,800)</i>	<b>(\$77)</b> <i>(\$29)</i>	<b>(\$66)</b> <i>(\$18)</i>
 Kia Soul	Gasoline	27 mpg	\$4,200	\$27	\$19,500	\$9,200	\$10,300	\$66	\$93
	Electric (BEV) <i>with \$7,500 tax credit</i>	105 mpge	\$1,800	\$12	\$34,100 <i>\$26,600</i>	\$8,500	\$25,600 <i>\$18,100</i>	\$164 <i>\$116</i>	\$176 <i>\$128</i>
	<b>Better / (Worse)</b> <i>with \$7,500 tax credit</i>	78 mpg	\$2,400	<b>\$15</b>	<b>(\$14,600)</b> <i>(\$7,100)</i>	<b>(\$700)</b>	<b>(\$15,300)</b> <i>(\$7,800)</i>	<b>(\$98)</b> <i>(\$30)</i>	<b>(\$83)</b> <i>(\$35)</i>
 Fiat 500	Gasoline	29 mpg	\$4,500	\$29	\$16,800	\$5,500	\$11,300	\$72	\$101
	Electric (BEV) <i>with \$7,500 tax credit</i>	112 mpge	\$1,800	\$12	\$31,800 <i>\$24,300</i>	\$7,600	\$24,200 <i>\$16,700</i>	\$155 <i>\$107</i>	\$167 <i>\$119</i>
	<b>Better / (Worse)</b> <i>with \$7,500 tax credit</i>	83 mpg	\$2,700	<b>\$17</b>	<b>(\$15,000)</b> <i>(\$7,500)</i>	<b>\$2,100</b>	<b>(\$12,900)</b> <i>(\$5,500)</i>	<b>(\$83)</b> <i>(\$35)</i>	<b>(\$66)</b> <i>(\$18)</i>

Source: Fuel / Specs / Pricing - US Dept. of Energy -- Fuel (2017MY) <https://www.fueleconomy.gov/feg/Find.do?action=sbsSelect>, Residual -- ALG 36 Month / 15,000 Mile (July - August 2017 Edition), Federal Tax Incentive (range dependent) -- US Dept. of Energy - <https://www.fueleconomy.gov/feg/taxevb.shtml>. Calculations assume maintenance and insurance costs comparable

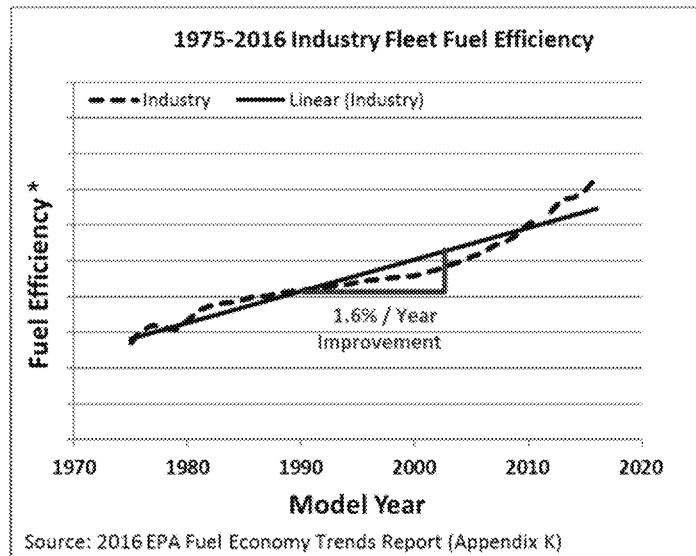
# Rational Consumer's Perspective on Fuel Savings Plug-In Hybrid Electric Vehicle (PHEV) vs. Gasoline

Despite fuel cost opportunities offered by PHEVs over their gasoline equivalents, current depreciation costs can far outweigh the fuel savings, even with federal tax incentive.

Vehicle	Powertrain	Fuel Economy	3 Year Fuel Costs		Purchase Price	Value after 3 Years	3 Year Depreciation Costs		Depreciation + Fuel Costs Weekly
			Total	Weekly			Total	Weekly	
 Ford Fusion	Gasoline	25 mpg	\$4,500	\$29	\$29,700	\$12,500	\$17,200	\$110	\$139
	Electric (PHEV) with \$4,000 tax credit	97 mpge	\$2,400	\$15	\$37,100 \$33,100	\$12,600	\$24,500 \$20,500	\$157 \$131	\$172 \$146
	Better / (Worse) with \$4,000 tax credit	72 mpg	\$2,100	\$14	(\$7,400) (\$3,400)	\$100	(\$7,300) (\$3,300)	(\$47) (\$21)	(\$33) (\$7)
 Hyundai Sonata	Gasoline	30 mpg	\$3,800	\$24	\$22,400	\$9,600	\$12,800	\$82	\$106
	Electric (PHEV) with \$4,900 tax credit	99 mpge	\$2,400	\$15	\$36,600 \$31,700	\$14,600	\$22,000 \$17,100	\$141 \$110	\$156 \$125
	Better / (Worse) with \$4,900 tax credit	69 mpg	\$1,400	\$9	(\$14,200) (\$9,300)	\$5,000	(\$9,200) (\$4,300)	(\$59) (\$28)	(\$50) (\$19)
 Chrysler Pacifica	Gasoline	22 mpg	\$5,100	\$33	\$35,900	\$17,200	\$18,700	\$120	\$153
	Electric (PHEV) with \$7,500 tax credit	84 mpge	\$2,900	\$19	\$43,500 \$36,000	\$19,100	\$24,400 \$16,900	\$156 \$108	\$175 \$127
	Better / (Worse) with \$7,500 tax credit	62 mpg	\$2,200	\$14	(\$7,600) (\$100)	\$1,900	(5,700) \$1,800	(\$36) \$12	(\$22) \$26

Source: Fuel / Specs / Pricing - US Dept. of Energy -- Fuel (2017MY) <https://www.fueleconomy.gov/feg/Find.do?action=sbsSelect>, Residual -- ALG 36 Month / 15,000 Mile (July - August 2017 Edition), Federal Tax Incentive (range dependent) -- US Dept. of Energy - <https://www.fueleconomy.gov/feg/taxevb.shtml>. Calculations assume maintenance and insurance costs comparable

# Market Demand for Fuel Economy Technology



\* Ton-MPG is an EPA metric used to normalize fuel economy for weight differences. It is the number of miles one ton of mass can be moved using one gallon of gas.

## Historical Demand for Fuel Efficiency

- Agency data shows industry fuel efficiency has improved 1.6% per year from 1975-2016.
- Achieving current standards require 4-5% per year for 2012-2025.

Revisions are needed in the program that would allow time for:

- Continued innovation to lower the costs of technology.
- Implementing methods to promote technology:
  - Financial and non-financial incentives (e.g., HOV Lanes etc.).
  - Put needed infrastructure in place.
- Demand for electrification to develop in the market versus OEMs forcing electrification.

# Industry Comments on Revised Determination

---

## 1. Appropriateness of 2022-25MY Standards

- The level of technology modeled by the Agencies is insufficient to meet the standards.
- More technology is needed for compliance and this level of technology is misaligned with market realities.
- A fully informed rulemaking is needed for 2022-25MY standards.

## 2. Consideration of 2021MY Standards

- Assuming 2021MY compliance ignores that industry is challenged in 2016-17MY despite implementing many of the agency-suggested technologies.
- Reexamination of 2021MY requirements is appropriate to determine if amendment of those standards could achieve the goals of harmonization.

## 3. Use of Alternative Methodologies and Modeling by EPA

- DOT's modeling system of Autonomie full vehicle simulations and CAFE Compliance and Effects (Volpe) model is more transparent and better accounts for real world factors than EPA's models.
- Ensuring that the Volpe and Autonomie models contain the most accurate inputs and analyses would be a more cost-efficient use of resources rather than creating yet another model.