



The Un-SAFE Rule Update:
Weakening Fuel Economy and Emissions Standards Costs
Consumers Money in Every State

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Executive Summary:

This paper expands upon Consumer Reports' analysis titled "The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings and Does Not Improve Safety"¹ to estimate consumer impacts for a greater variety of potential rollback scenarios, look at the consumer impacts of the rollback in individual states, consider the range of outcomes with respect to state authority to set stricter emission standards, and evaluate California's voluntary framework with four automakers. The Department of Transportation (DOT) and Environmental Protection Agency (EPA) have not yet announced a final decision about which fuel economy and emissions standards will be chosen. We have identified a few plausible scenarios based on public statements and calculated how those decisions would affect consumers. Recent reporting indicates that a likely scenario is one in which annual fuel economy requirements increase at a rate of around 1.5% per year between 2021 and 2026.²

Table ES1: Summary of Consumer Impacts of Selected Scenarios

Percent Annual Improvement (assuming no change to existing credits)	MY 2026 Real World MPG	Net Costs Per New MY2026 Vehicle (\$2019) ³	Additional Fuel Cost for MY2026 Vehicle (\$2019)	Total Net Cost To Consumers MY2021-MY2035 (\$2019)
0% ⁴	29.1	\$3,300	\$5,200	\$460B
1.5% ⁴	31.8	\$2,100	\$3,200	\$300B
Existing Standards ⁵	37.5	Baseline	Baseline	Baseline

An extensive set of possible scenarios is also provided in this analysis.

¹ Consumer Reports, "The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings" (August 2019), Available at: <https://www.CR.org/UnSafeRule>.

² Reuters, "U.S. EPA to revise proposed freeze of vehicle fuel economy rules" (April 11, 2019), Available at:

<https://www.reuters.com/article/us-autos-emissions-epa/u-s-epa-to-revise-proposed-freeze-of-vehicle-fuel-economy-rules-idUSKCN1RN321>

³ Calculated as a net present value at 3 percent discount rate for the average MY 2026 vehicle, considering technology costs and lifetime fuel costs.

⁴ Percent annual improvement in real world fuel economy between MY 2021-2026, net of any additional credits. As a result, annual improvements claimed by regulators and automakers must be correct for any additional credits in the final standards before using these scenarios.

⁵ The MY 2017-2025 standards set in 2012 are the baseline. Relative to standards in place for MY2016, the existing standards will cumulatively save consumers \$660 billion through the lifetime of vehicles through MY2035.

Introduction

This paper expands upon Consumer Reports' analysis titled "The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings and Does Not Improve Safety."⁶ Since the publication of the original analysis, several state and federal agencies have taken action in ways that could affect how consumers are impacted by revised emissions standards. The federal administration has recently signaled that the final rules may include some small year over year increases to the stringency of fuel economy and greenhouse gas (GHG) emission standards, compared to a full freeze of the standards at 2020 levels. Environmental Protection Agency (EPA) Administrator Andrew Wheeler stated: "It's safe to say our final will not look exactly like the way we proposed it,"⁷ which was a zero-percent increase. Some media reports have speculated that the final rule may include a 1.5% year over year increase in standards.⁸

The National Highway Traffic Safety Administration (NHTSA) also issued regulations declaring that state greenhouse gas emission standards are preempted under the Energy Policy and Conservation Act and EPA partially withdrew the waiver granted to California for its current vehicle emissions standards. As the courts consider whether NHTSA's regulations are valid and whether EPA has the right to revoke California's waiver and whether the revocation was done lawfully, two additional states, Minnesota and New Mexico, announced the intention to join California and 13 other states in adopting stronger emissions standards as provided for under the Clean Air Act (these 14 states are often referred to as Clean Car states).⁹ A total of 23 states have filed a lawsuit against NHTSA challenging its preemption regulations.¹⁰ Furthermore, in July, the State of California and four automakers announced a voluntary framework to achieve greater nationwide fleet emissions reductions beyond those that would be required under the current federal rollback proposals.¹¹

⁶ Consumer Reports, "The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings" (August 2019), Available at: <https://www.CR.org/UnSafeRule>

⁷ Reuters, "U.S. EPA to revise proposed freeze of vehicle fuel economy rules" (April 11, 2019), Available at: <https://www.reuters.com/article/us-autos-emissions-epa/u-s-epa-to-revise-proposed-freeze-of-vehicle-fuel-economy-rules-idUSKCN1RN321>

⁸ Reuters, "GM, Toyota, Fiat Chrysler back Trump on California emissions challenge" (October 28, 2019), Available at: <https://www.reuters.com/article/us-autos-emissions-california/gm-toyota-fiat-chrysler-back-trump-on-california-emissions-challenge-idUSKBN1X728Y>

⁹ Clean Car states include: California, Colorado, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington

¹⁰ NPR, "23 States Sue Trump Administration In Escalating Battle Over Emissions Standards" (September 20, 2019), Available at: <https://www.npr.org/2019/09/20/762763138/23-states-sue-trump-administration-in-escalating-battle-over-emissions-standards>

¹¹ NPR, "California Signs Deal With Automakers To Produce Fuel-Efficient Cars" (July 25, 2019), Available at: <https://www.npr.org/2019/07/25/745389326/california-signs-deal-with-automakers-to-produce-fuel-efficient-cars>

Given these new developments, this report expands upon the previous analysis to do three things:

- Increase the number of scenarios presented to cover a wider range of potential final federal standards;
- Estimate the costs of the rollback scenarios to individual states; and
- Investigate the potential effects of California and the automakers' voluntary emission reduction framework.

Expanded Federal Emissions Standards Scenarios

In order to account for the wide range of potential fuel economy and emissions standards outside of the scenarios laid out in the administration's Preliminary Regulatory Impact Analysis (PRIA),¹² an additional set of scenarios were analyzed looking at standards that improved from 0% up to 3% per year between MY2021-MY2026 at 0.5% increments. It should be noted that all scenarios are based upon real world on-road fuel economy gains equivalent to the percentage indicated by the scenario. Importantly, a final rule that includes an extension or expansion of various credits and multipliers such as off-cycle credits, credits for transitioning to refrigerants that are less potent greenhouse gases, or advanced technology multipliers will result in lower real world on-road fuel economy improvements than the headline number and should be adjusted accordingly to square with these results.

For each scenario, the following metrics were calculated: the average fleet wide real world fuel economy required for MY2026 vehicles, the present value net increase in lifetime costs per new MY2026 vehicle, the increased fuel costs for the average MY2026 vehicle, the net costs converted into a gas tax equivalent, and the total nationwide net costs to consumers. All of these calculations were described in the original report,¹³ except for the additional fuel cost for MY2026 vehicles. This value is added for additional context and to differentiate from the present value net cost which is discounted and accounts for reduced upfront technology costs under lower standards. All values are relative to a baseline of the existing standards which are in place from MY2017-MY2025 and have been estimated to save consumers \$660 billion relative to the standards that were in place for MY2016. A summary of these results are shown in Table 1. The total nationwide net costs to consumers are graphed for each scenario in Figure 1.

¹² Environmental Protection Agency, National Highway Traffic Safety Administration, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021-2026 Passenger Cars and Light Trucks (July 2018). Available at <https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/ld-cafe-co2-nhtsa-2127-al76-epa-pria-180823.pdf>

¹³ Consumer Reports, "The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings" (August 2019), Available at: <https://www.CR.org/UnSafeRule>

Table 1. Summary of Consumer Impacts of Reduced National Emissions Standards

Percent Annual Improvement (assuming no change to existing credits)	MY 2026 Real World MPG	Net Costs Per New MY2026 Vehicle (\$2019) ¹⁴	Additional Fuel Cost for MY2026 Vehicle (\$2019)	Gas Tax Equivalent (cost per gallon)	Total Net Cost To Consumers MY2021-MY2035 (\$2019)
0% ¹⁵	29.1	\$3,300	\$5,200	\$0.63	\$460B
0.5% ¹⁵	30.0	\$2,900	\$4,600	\$0.55	\$410B
1% ¹⁵	30.9	\$2,500	\$3,900	\$0.47	\$360B
1.5% ¹⁵	31.8	\$2,100	\$3,200	\$0.39	\$300B
2% ¹⁵	32.8	\$1,700	\$2,700	\$0.32	\$250B
2.5% ¹⁵	33.8	\$1,300	\$2,100	\$0.25	\$200B
3% ¹⁵	34.9	\$900	\$1,500	\$0.17	\$150B
Existing Standards ¹⁶	37.5	Baseline	Baseline	Baseline	Baseline

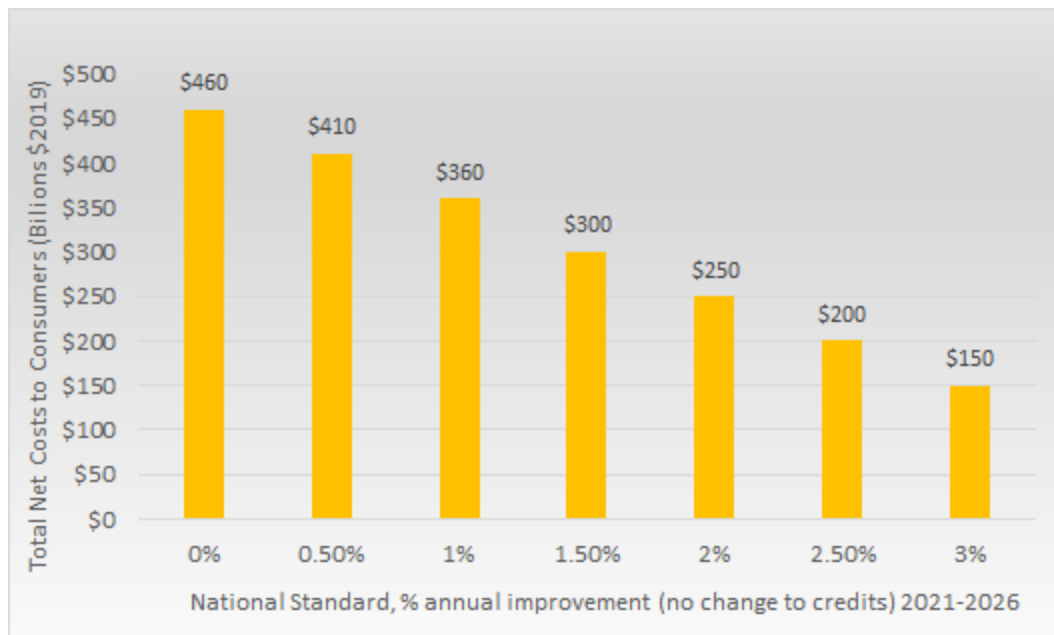


Figure 1. Total Net Costs to Consumers for MY2021-2035 Vehicles (Billions \$2019)

¹⁴ Calculated as a net present value at 3 percent discount rate for the average MY 2026 vehicle, considering technology costs and lifetime fuel costs.

¹⁵ Percent annual improvement in real world fuel economy between MY 2021-2026, net of any additional credits. As a result, annual improvements claimed by regulators and automakers must be correct for any additional credits in the final standards before using these scenarios.

¹⁶ This scenario is the baseline. Relative to standards in place for MY2016, the existing standards will cumulatively save consumers \$660 billion through MY2035.

State Impacts

Analysis of this expanded set of scenarios was extended further to look at the net costs to consumers in each individual state. To do this, the portion of the total net costs to consumers from Table 1 was apportioned to each state based upon U.S. Department of Energy Energy Information Administration data on annual motor gasoline consumption in each state.¹⁷ This approach accounts for both the number of miles driven and the fuel efficiency of vehicles owned by residents of each state. These results are shown in Table 2. The results for the 1.5% per year scenario, which matches the recent reporting on the likely final rule, are shown mapped in Figure 2. While the results generally track the state populations, states in which consumers drive more on average and states with higher numbers of less-efficient pickup trucks and SUVs are hit harder by weaker standards than similar sized states with more cars or where consumers drive fewer miles.

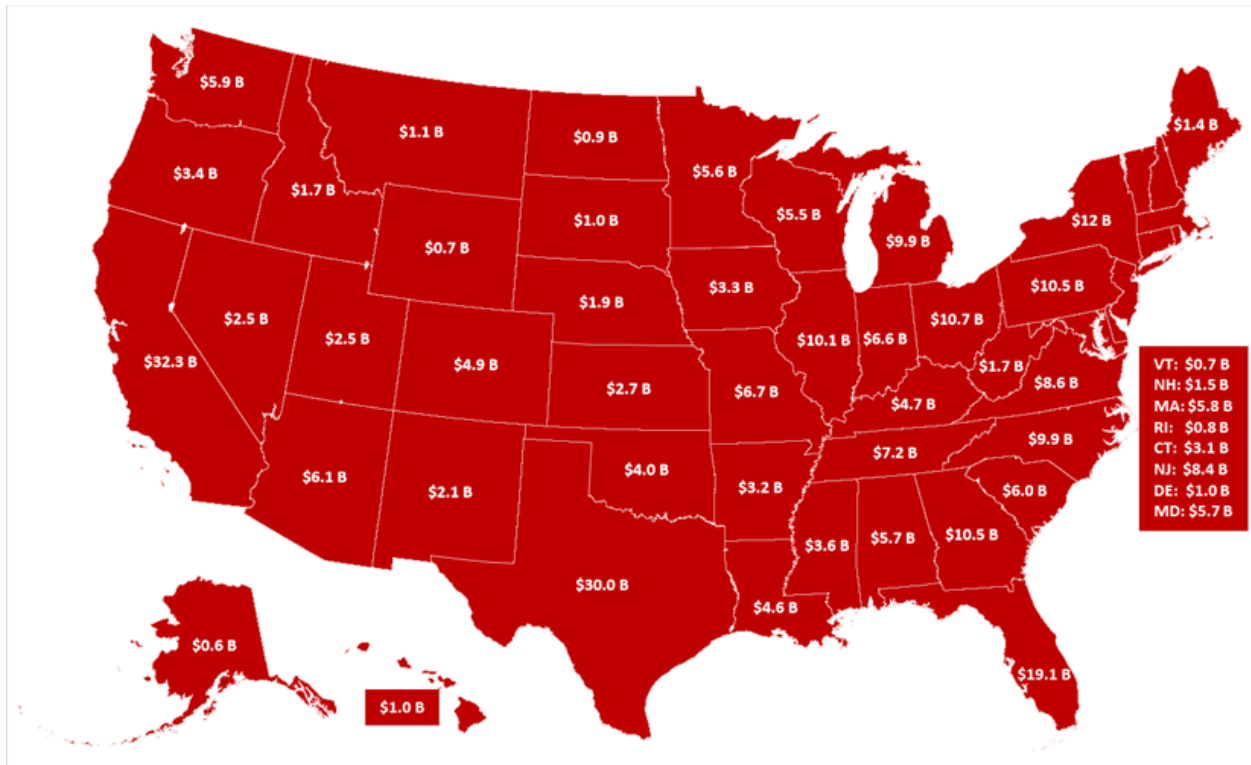


Figure 2. Map of Net Consumer Losses Under 1.5% per Year Improvement Scenario (\$2019)

¹⁷ U.S. Energy Information Agency, “Table C2: Energy Consumption Estimates for Major Energy Sources in Physical Units, 2017” Available at: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/sum_use_tot.html&sid=US

Table 2. Net Cost to Consumers MY2021-2035 by State (Billion \$2019)

State	Percent Annual Improvement in Fuel Economy of Final Rule Between MY2021-MY2026 ¹⁸						
	0%	0.5%	1%	1.5%	2%	2.5%	3%
Alabama	\$8.8	\$7.8	\$6.9	\$5.7	\$4.8	\$3.8	\$2.9
Alaska	\$0.9	\$0.8	\$0.7	\$0.6	\$0.5	\$0.4	\$0.3
Arizona	\$9.4	\$8.4	\$7.3	\$6.1	\$5.1	\$4.1	\$3.1
Arkansas	\$4.9	\$4.3	\$3.8	\$3.2	\$2.7	\$2.1	\$1.6
California	\$49.6	\$44.2	\$38.8	\$32.3	\$26.9	\$21.5	\$16.2
Colorado	\$7.5	\$6.7	\$5.9	\$4.9	\$4.1	\$3.3	\$2.5
Connecticut	\$4.8	\$4.3	\$3.8	\$3.1	\$2.6	\$2.1	\$1.6
Delaware	\$1.6	\$1.4	\$1.3	\$1.0	\$0.9	\$0.7	\$0.5
Florida	\$29.3	\$26.1	\$22.9	\$19.1	\$15.9	\$12.7	\$9.5
Georgia	\$16.1	\$14.4	\$12.6	\$10.5	\$8.8	\$7.0	\$5.3
Hawaii	\$1.5	\$1.3	\$1.2	\$1.0	\$0.8	\$0.7	\$0.5
Idaho	\$2.6	\$2.3	\$2.0	\$1.7	\$1.4	\$1.1	\$0.8
Illinois	\$15.5	\$13.8	\$12.2	\$10.1	\$8.4	\$6.8	\$5.1
Indiana	\$10.2	\$9.1	\$8.0	\$6.6	\$5.5	\$4.4	\$3.3
Iowa	\$5.1	\$4.5	\$4.0	\$3.3	\$2.8	\$2.2	\$1.7
Kansas	\$4.2	\$3.8	\$3.3	\$2.7	\$2.3	\$1.8	\$1.4
Kentucky	\$7.1	\$6.4	\$5.6	\$4.7	\$3.9	\$3.1	\$2.3
Louisiana	\$7.1	\$6.3	\$5.5	\$4.6	\$3.8	\$3.1	\$2.3
Maine	\$2.1	\$1.9	\$1.6	\$1.4	\$1.1	\$0.9	\$0.7
Maryland	\$8.7	\$7.8	\$6.8	\$5.7	\$4.7	\$3.8	\$2.8
Massachusetts	\$8.9	\$7.9	\$7.0	\$5.8	\$4.8	\$3.9	\$2.9
Michigan	\$15.2	\$13.5	\$11.9	\$9.9	\$8.2	\$6.6	\$4.9
Minnesota	\$8.6	\$7.6	\$6.7	\$5.6	\$4.7	\$3.7	\$2.8
Mississippi	\$5.5	\$4.9	\$4.3	\$3.6	\$3.0	\$2.4	\$1.8
Missouri	\$10.3	\$9.2	\$8.0	\$6.7	\$5.6	\$4.5	\$3.4
Montana	\$1.8	\$1.6	\$1.4	\$1.1	\$1.0	\$0.8	\$0.6

¹⁸ Percent annual improvement in real world fuel economy between MY 2021-2026, net of any additional loopholes or credits. As a result, annual improvements claimed by regulators and automakers must be correct for any additional credits or loopholes in the final standards before using these scenarios.

	Percent Annual Improvement in Fuel Economy of Final Rule Between MY2021-MY2026						
State	0%	0.5%	1%	1.5%	2%	2.5%	3%
Nebraska	\$2.9	\$2.6	\$2.3	\$1.9	\$1.6	\$1.3	\$0.9
Nevada	\$3.9	\$3.5	\$3.0	\$2.5	\$2.1	\$1.7	\$1.3
New Hampshire	\$2.3	\$2.1	\$1.8	\$1.5	\$1.3	\$1.0	\$0.8
New Jersey	\$12.9	\$11.5	\$10.1	\$8.4	\$7.0	\$5.6	\$4.2
New Mexico	\$3.3	\$2.9	\$2.6	\$2.1	\$1.8	\$1.4	\$1.1
New York	\$18.4	\$16.4	\$14.4	\$12.0	\$10.0	\$8.0	\$6.0
North Carolina	\$15.1	\$13.5	\$11.9	\$9.9	\$8.2	\$6.6	\$4.9
North Dakota	\$1.4	\$1.3	\$1.1	\$0.9	\$0.8	\$0.6	\$0.5
Ohio	\$16.5	\$14.7	\$12.9	\$10.7	\$9.0	\$7.2	\$5.4
Oklahoma	\$6.2	\$5.5	\$4.8	\$4.0	\$3.4	\$2.7	\$2.0
Oregon	\$5.2	\$4.6	\$4.1	\$3.4	\$2.8	\$2.3	\$1.7
Pennsylvania	\$16.1	\$14.3	\$12.6	\$10.5	\$8.7	\$7.0	\$5.2
Rhode Island	\$1.2	\$1.1	\$0.9	\$0.8	\$0.7	\$0.5	\$0.4
South Carolina	\$9.2	\$8.2	\$7.2	\$6.0	\$5.0	\$4.0	\$3.0
South Dakota	\$1.5	\$1.4	\$1.2	\$1.0	\$0.8	\$0.7	\$0.5
Tennessee	\$11.1	\$9.9	\$8.7	\$7.2	\$6.0	\$4.8	\$3.6
Texas	\$46.0	\$41.0	\$36.0	\$30.0	\$25.0	\$20.0	\$15.0
Utah	\$3.9	\$3.5	\$3.0	\$2.5	\$2.1	\$1.7	\$1.3
Vermont	\$1.0	\$0.9	\$0.8	\$0.7	\$0.5	\$0.4	\$0.3
Virginia	\$13.2	\$11.7	\$10.3	\$8.6	\$7.2	\$5.7	\$4.3
Washington	\$9.0	\$8.1	\$7.1	\$5.9	\$4.9	\$3.9	\$2.9
West Virginia	\$2.6	\$2.3	\$2.0	\$1.7	\$1.4	\$1.1	\$0.8
Wisconsin	\$8.4	\$7.5	\$6.6	\$5.5	\$4.6	\$3.6	\$2.7
Wyoming	\$1.1	\$1.0	\$0.9	\$0.7	\$0.6	\$0.5	\$0.4
All States Total	\$460	\$410	\$360	\$300	\$250	\$200	\$150
Clean Car States Total¹⁹	\$150	\$130	\$120	\$100	\$80	\$64	\$48

¹⁹ Clean Car states include: California, Colorado, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington

Clean Car States

These results show that Clean Car states can potentially experience significant savings if they are able to maintain their authority to keep the existing standards in place. Under a full freeze of the federal standards, if these 14 states maintain their authority to keep the existing standards, they would save about \$150 billion. Even under a possible 1.5% per year federal standard²⁰ these states would still save around \$100 billion by maintaining their authority to keep the existing standards. The states of Minnesota and New Mexico are in the process of trying to join the Clean Car states so they can adopt stronger standards than the federal government under the Clean Air Act waiver provisions, which could save these states \$9.6 billion and \$3.0 billion respectively under a full rollback of federal standards. Even under a federal 1.5% standard these states would still save \$6.3 and \$2.0 billion by joining the Clean Car states to maintain existing standards.

California Automaker Voluntary Framework

In July the State of California announced a voluntary framework along with four automakers: Ford, Honda, Volkswagen, and BMW, which account for approximately 30% of the US light duty vehicle market.²¹ The framework agreement states that:²²

- Starting in MY 2022, automakers will achieve nationwide GHG reduction targets that increase by 3.7 percent per year through MY 2026.;
- Up to 1 percent of the stringency can be offset by electric vehicle (EV) credits;
- Existing electric vehicle credits are extended through 2024 and phased out between 2025 and 2026;
- Accounting for upstream emissions from EVs is eliminated; and
- The cap on off-cycle emissions credits increases from 10 grams per mile to 15 grams per mile.

This voluntary framework reduces the stringency that automakers will have to achieve in California relative to the existing standards, but increases the required stringency nationwide relative to any likely final federal rule for MY 2021-2026. To analyze the potential effects of this voluntary framework, four scenarios were compared:

²⁰ Reuters, “GM, Toyota, Fiat Chrysler back Trump on California emissions challenge” (October 28, 2019), Available at:

<https://www.reuters.com/article/us-autos-emissions-california/gm-toyota-fiat-chrysler-back-trump-on-california-emissions-challenge-idUSKBN1X728Y>

²¹ Washington Post, “Major automakers strike climate deal with California, rebuffing Trump on proposed mileage freeze” (July 25, 2019), Available at:

<https://www.washingtonpost.com/climate-environment/2019/07/25/major-automakers-strike-climate-deal-with-california-rebuffing-trump-proposed-mileage-freeze/>

²² California Air Resources Board, “Terms for Light-Duty Greenhouse Gas Emissions Standards,” Available at: <https://ww2.arb.ca.gov/sites/default/files/2019-07/Auto%20Terms%20Signed.pdf>

- *No Clean Car Authority* - this scenario assumes that the revocation of the rights of Clean Car states to set GHG emission standards is upheld in court.
- *Clean Car Authority, No CA Framework* - this scenario assumes that Clean Car states retain their right to set GHG standards and they enforce the existing standards in their states while the automakers comply with the federal standards nationwide. It assumes that automakers will not reduce fuel economy of vehicles sold in non-Clean Car states below MY2020 levels due to market forces.²³
- *Clean Car Authority, CA Framework, 4 Automakers* - this scenario assumes that only the four automakers that have already announced the voluntary framework with California abide by it, and the remainder of automakers follow the *Clean Car Authority, No CA Framework* scenario. It also assumes all automakers maximize the use of EV credits so the effective stringency of the voluntary framework is 2.7% per year.
- *CA Framework, All Automakers* - assumes all automakers adopt the voluntary framework. It also assumes all automakers maximize the use of EV credits so the effective stringency is 2.7% per year.

The total net cost to consumers relative to the existing standards was calculated for each of these scenarios at each level of the potential national standards from Table 1 (0% to 3% per year). The results are shown in Figure 3 and Table 3.

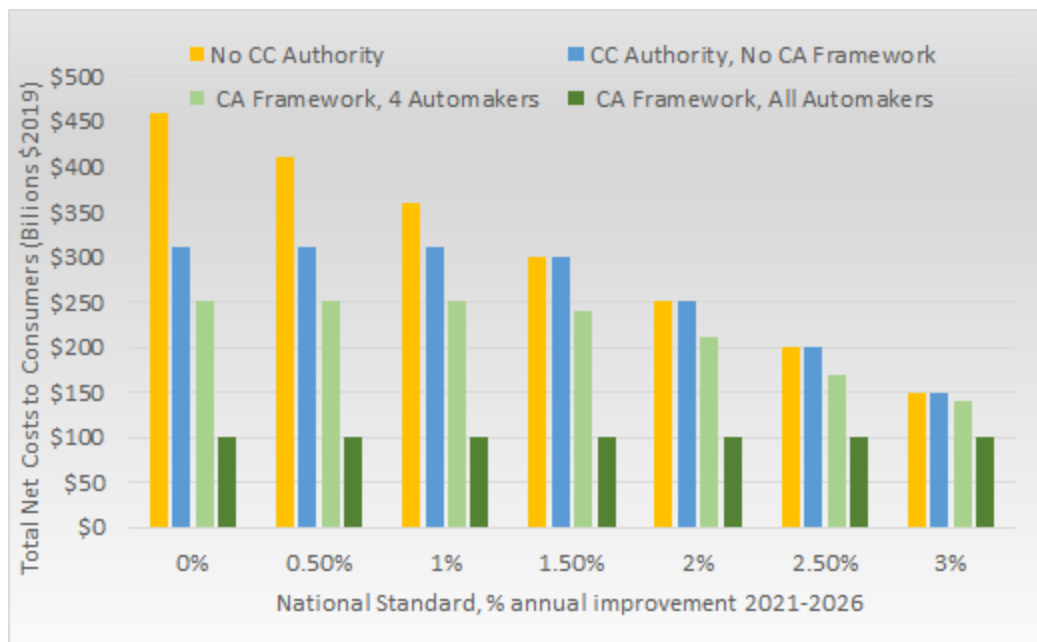


Figure 3. Effect of State Authority and the California Framework on Net Consumer Losses

²³ This assumption may not hold due to uncertainty over how automakers and consumers will respond under this scenario. It is possible that automakers could sell lots of inefficient and high-emitting trucks and SUVs in non-Clean Car states and lots of electric vehicles in Clean Car states, which would increase the consumer losses above those estimated from this scenario. Alternatively, automakers may find that increasing emissions from vehicles in some states significantly more than other states is untenable and thus would still have lower average national emissions than the federal standard.

Table 3. Effect of State Authority and California Framework on Net Cost to Consumers (\$2019)

National Standard	No Clean Car Authority	Clean Car Authority, No CA Framework	Clean Car Authority, CA Framework, 4 Automakers	CA Framework, All Automakers
0%	\$460B	\$310B	\$250B	\$100B
0.5%	\$410B	\$310B	\$250B	\$100B
1%	\$360B	\$310B	\$250B	\$100B
1.5%	\$300B	\$300B	\$240B	\$100B
2%	\$250B	\$250B	\$210B	\$100B
2.5%	\$200B	\$200B	\$170B	\$100B
3%	\$150B	\$150B	\$140B	\$100B

These results show that consumers are better off overall if the Clean Car states are able to maintain their authority under weak federal standards. However, the total net consumer losses are equal under higher federal standards. This result is due to the fact that while automakers will be required to meet higher standards in the Clean Car states, they can reduce the average GHG emission reductions achieved in other states while still meeting the federal standards. This results in savings experienced by Clean Car states being offset by greater losses in states without strong standards (which could be regained by joining the Clean Car states).

Under all iterations of the voluntary framework, consumers are better off on average, even if no other automakers adopt the voluntary framework. However, consumer losses from weaker federal standards are cut significantly more if all automakers adopt the voluntary framework. That said, while the voluntary framework is better than the federally proposed alternatives, it still results in significant losses to consumers of at least \$100B relative to the existing standards. This equates to around \$600 net loss for buyers of MY 2026 vehicles, compared to a \$3,300 net loss under a full rollback of standards. This analysis also assumes that under the existing federal and state standards, which are not yet set beyond MY2025, there would be no increase in standards for MY2026. While a necessary assumption from an analytical perspective (future changes are unknown and undefined), it is possible that standards would continue to increase over time beyond standards already in existence. Because of this possibility, this analysis may underestimate the real long-term consumer losses under all scenarios, which rely on a baseline that assumes no improvements after MY 2025.

Conclusions

An expanded suite of scenarios continue to show that any effort to weaken fuel economy and GHG standards result in significant harm to consumers. Preserving state authority to set higher GHG standards provides one avenue by which states can insulate their residents from the negative impacts of weak federal standards. Furthermore, the voluntary framework announced by the State of California and four automakers, although weaker than the existing standards, presents another path to reduce the consumer harms caused by changes to federal policy.

Methodology

This analysis is based upon the approach and methods used for “The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings and Does Not Improve Safety.”²⁴ It utilizes a total cost of ownership model developed by Synapse Energy Economics as described in the Methodology section (see pages 6-12) and Appendix A (see page 22) as well as per vehicle calculations performed by Consumer Reports (see pages 14-15).²⁵ It relies on scenarios originally run through the TCO model, but not included in the initial report. Note that a few of the scenarios (1.5% and 2%) were not previously run. The data from the scenarios that were run through the TCO model (0%, 0.5%, 1%, 2.5%, 3%, and the existing standard) were fit to 3 different polynomials with an average $R^2 = .9993$ and used to interpolate using the average of the 3 model fits. All per vehicle effects as well as the gas tax equivalent calculations were performed for all scenarios.

²⁴ Consumer Reports, “The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings” (August 2019), Available at: <https://www.CR.org/UnSafeRule>

²⁵ All page numbers from: Consumer Reports, “The Un-SAFE Rule: How a Fuel-Economy Rollback Costs Americans Billions in Fuel Savings” (August 2019), Available at: <https://www.CR.org/UnSafeRule>