Consumer Federation of America

BEFORE THE
ENVIRONMENTAL PROTECTION AGENCY

In the Matter of Proposed Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026	**)**	**EPA-HQ-OAR-2021-0208**

COMMENTS OF THE CONSUMER FEDERATION OF AMERICA

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EXECUTIVE SUMMARY

The Consumer Federation of America (CFA) greatly appreciates the opportunity to provide comments to the Environmental Protection Agency on the Proposed Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026.[1] For more than two decades, CFA has been a vigorous and continuous participant in the standards setting process to improve the efficiency of energy-using consumer durables and lower the cost of energy borne by consumers.[1] Transportation fuels, the sources of energy most directly affected by EPA emission regulations are a major household expenditure, representing over 3 percent of total expenditures, one of the 6 largest subcategories listed in the consumer expenditure survey.[2]

Below is a summary of our comments which provide our analysis of key aspects and reasons for supporting the EPA's proposed revisions to the SAFE 2 rule:

- The Trump administration, reintroduced over two dozen (28) errors in its SAFE 2 rule which had previously been corrected. By reintroducing these errors into the rule, the benefit-cost ratio calculated by CFA of the standard in place before SAFE 2 to be 5-to-1, but subsequently has been reduced to a mere 1.1-to-1. By reversing many of these errors through this proposed rulemaking and taking into account key changes, the benefit ratio has risen to 2.2-to-1.

[1] The CFA website (http://consumerfed.org/issues/energy/) provides links to 140 pieces of testimony and reports published in the past ten years dealing with the efficiency of energy-using consumer durables divided roughly equally between appliances and vehicles.
[2] https://www.bls.gov/cex/22016/midyear/quintile.pdf. Adding in fuel economy standards, which are governed by a structure of legal authority and administrative rules similar to that affecting appliances doubles the level of household expenditures and makes regulatory reform one of the largest consumer pocketbook issues for the Trump or any administration.

- The Trump administration unjustly rolled back the previous 2011 standard, which was in good compliance with both the Administrative Procedures Act principles and required by Congressional statute. In fact, the continuous advancement of standards, which the Trump administration rejected, was mandated by the statutes.

- In the EPA's proposed revision to the SAFE 2 rule, it has corrected numerous errors made by the Trump administration. These corrections include fixing the valuation of greenhouse gases and other pollutants, returning the rebound rate to 10 percent, lowering the discount rate and updating the availability of technologies.

- One of the largest changes from the current SAFE 2 rule involves vehicle safety. By irrationally doubling the rebound rate, the Trump administration projected increased fatalities by 75 lives. The Administration also underestimated the increasing crashworthiness of vehicles. While the proposed SAFE 2 rule revisions do correctly establish that vehicles are becoming lighter to meet the standards, the rule rightly points out that vehicles are more crashworthy compared to just a decade ago when the standards went into effect.

While the EPA's proposed rule has made strides in correcting the dozens of fundamental errors made by the Trump administration, CFA urges the current administration to vigorously support the transition to electric vehicles (EVs). Given the current trajectory of fuel economy standards, over 100 million gasoline vehicles will still be sold before the full transition to EV's. Stronger fuel economy standards are just one way to help spur the transition, as setting high standards on the gasoline part of the fleet will speed the adoption of electric vehicles. Additionally, with a significant amount of the gain in efficiency seen in traditional internal combustion (ICE) vehicles – both in vehicle design and operation – these may be applicable to the electric portion of the fleet as well.

Second, it is critical to close the remaining loopholes, especially those that could allow the automakers to "use" the electric vehicle part of their fleet to "relax" the efficiency of the gasoline-powered part. This trade-off must not be allowed.

Establishing a national goal of transitioning to an all-electric fleet while simultaneously accelerating the transition of the electrical grid to cleaner renewable sources is essential. It is clear the current administration has recognized this and is working hard to move the country in this direction.

As our economic analysis shows, and the agency seems to agree, that these additional changes can be made with a net positive benefit-cost ratio. The total cost of driving for consumers will go down, measured by the pocketbook savings. Public health and environmental benefits will further increase an already positive benefit-cost ratio. By fully embracing the transition to EVs, Americans of all income levels will be better off at the end of the changeover.

1. Setting the Record Straight

We must begin by applauding the agency for taking the time to lay out a process to do it right. It would have been easier to say that the rule adopted by the previous administration made no sense, but much more challenging to reverse the rule in a manner that would withstand scrutiny by the courts under the Administrative Procedure Act. We believe that the Environmental Protection Agency has risen to the challenge placed before it.

The Energy Independence and Security Act (EISA) of 2007 rebooted the effort to reduce pollution and increase the fuel efficiency of light-duty vehicles in America. Signed by President Bush on December 19, 2007, EISA marked a turning point in efficiency policy. As we noted in many comments to all of the agencies that regulate the consumption of fuel and the emission of pollutants from vehicles, it represented a dramatic improvement in the way regulations are written. However, although President Bush drew a great deal of attention to his comments about the American addiction to oil in his State of the Union address, less than three months after he signed EISA, it was a long slow process to correct flaws in the rulemaking on efficiency/emissions.

In comments CFA[2] has submitted to the agencies previously, we noted over three dozen (41) errors that took more than a decade to correct, as shown below in Table 1.1. The Table also shows that the Trump administration, in its SAFE 2 rule, reintroduced over two dozen (28) of these errors. The impact of reintroducing these errors into the standards was dramatic. A benefit-cost ratio calculated by CFA shows the standards in place before the Trump administration to be 5-to-1, but subsequently has been reduced to a mere 1.1-to-1. Reversing many of these errors through this proposed rulemaking and taking into account key changes (like the projected price of gasoline) has restored the cost-benefit ratio to about 2.2-to-1.

TABLE 1.1:
A DECADE OF EVOLUTION YIELDS A RATIONAL, LEGAL APPROACH TO STANDARDS SETTING IN THE POST-EISA ERA[3]

ISSUES	2008	2010	2012	TAR	2018	Impact on
(correctable errors)	Post-EISA	Transition	Full	Approach	Old/New	B,C = Δ %
	Errors	Correction	Correction	Affirmed	Errors	TAR v. 2018
Underestimnating Benefits						
Truncating Benefits					*43314*	**B= + > 30**
Rebound Effect Pocketbook	*2,8,10,59-60; ,8,28*	*10,27*	***12,53***	***5,6***	*43099-108*	**B= + 10 to 15**
Gasoline Prices	*2,8,44,49;2a*		*53*		*4299343070*	**B= + 3**
Include All Benefits	*2.8.57-58;a6*	*27,71,* ***2,16,27***	***14***	**2**		**B= + 50**
Macroeconomic	*22*	**8**	***14***	***4,6,69-72, App.G***	*43068*	**B= + 60**
Public Health Co-Benefits	*9*	***3,29,33***	**7,33**	**App.H,a4**		**B= + 33**
Non-enviro externalities	*2,8*	**3,6-7,** *33-37*	***7,14,33***			**B= +**
Discount rate (3% v. ~~7%~~)	*2,40,52-55*		**55**	**APP.E**	*42306*	**B= + 34**
Overestimaing Cost						
Technology Cost	*3,4,57*	**1,5,12**	**8,35,42-43**	**2,3,APP.D**	*42993*	**C= - 50**
Tecnology Feasiblity	*3,10,11,17, 20-21*		**8,41,*12***	**14,b8**	*42991*	
Payback	*53-54,56;a51*		**29,72**	***4,59***	*43255*	
emerging technology	*9,21`*	**7**		**2**		
Refresh and redesign cycle	*11*			?		
Misrepresenting safety					*43231*	
Rebound effect	*10*					**C= - >75**
Light-weighting trucks						**C = - ?**
Technology						**C = - ?**
Broad Market Issues						
Low income households			**12,51**	**6-7**	*43227*	**B = + ?**
Pocketbook			**12,51**	**6-7**	*43105*	**B = + ?**
Public Health				**6-7**		**B = + ?**
Clean Cars States					*43306-16*	
Federalism	**Econ. Anal**		**Federalism**	**3,4,15,a4**	*43235-53*	**B = + ?**
Hybrids aand Evs		*35*		**3,15,APP.I,a8-9**	*43217-22*	
Conceptual & Legal Frame						
Economic Assumptions	*36,39,65*	**2,4,21,40-45**				
Efficiency Gap/Diffusion	*22,33-37,41-42*	**2,3,22,23 38,39,50,56**	**12-13,15,54**	**8,APP.B,C,F, b6-7**	*43071*	**B = + ?**
Behavioral Economics	*36,39,38,41*	**22-23,31-32,45-46**				**B = + ?**
Legal Balancing Post-EISA	*2-3,8,11-13,17;a3-4*	**3,5,7-8, 19-21, 34,35, 64-66,109**	**8,15**	**2-4,12-13, APP. A,G;C6,ATT.SII**	*43206-16,43309*	
Modelling Flaws		**5,** *19, 110*		**4,5**		
Failure to vet, peer review						
Outdated data	*10,11*					
Internal inconsistencies	*57, 10 VMT*				*xx scrappage*	
Real World Behavior						
Consumers		**6,68,70**			*43070-74*	
Attitudes	*18;a2,5*	**76,77**				
Support for Stnadards						
Interest in Fuel Economyu		**78-79**			*435216-17*	
Payback Periods				**5**	*43255*	
Behavior	*18,69;a7,30*	*68,* ***86-88,96-98***	**27-29**			
marginal value of driving					*42991-92*	**B = + ?**
WTP Critique	*42*	**24,** *68*			*43071*	**B = + ?**
Monthly Loan Payment			**29**	***2,4***		**B = + ?**
Automaker behavior	*a2,7*	***71,73-75,91-95***	**46**	**2,16, APP.D,b10**		
Misrepresenting Consumers	*36, 39;a5*	*71,* **58-64**	**5,20**	**9,,10,11,a10,12**	*42993*	
preferences			**4**	**3,10**		**B = + ?**
payback	*53,60,61*	1		**2**		**B = + ?**
Advertising (manipulation)						**B = + ?**
Strategies & Pricing	*61, a11*	**9,** *70,* **81**			*42993-4*	
Plans & Refresh Cycle	*10,11,17, 33,38,41;a3,*	**81**	**48**			**C = - ?**
Fines, credits	*33,35,41,59*	*20*				**C = - ?**
Compliance	*12,33;a11*			**3-4,12**		**C = - ?**
Market Performance	*4,9,11*	**15**	**10**	**2,17,a4,6**	*43809-94,43099*	
Prices	*11*			**51,7**	*42993*	
Auto sales total	*9,43*	**81-90,99-102**		**2,b11-13**	*42995*	
Sales of efficient vehicles	*11a,*			**2,b11-13**		
Overall Impact of Rollback & Freeze	*2,8,14,25,36, 39,65*	**4,9,17,30,39-41,** *70*	**5,6,8,11**	**2,5,17,b6**	*43419*	**TAR v. CFA = + 10% to 30%**

Doubling the benefit-cost ratio is an important step in justifying the rule, but there are a number of areas we think EPA could have gone further with superior assumptions and methods for modeling the impact of standards. Before we turn to those points of difference, it is important to stress what EPA has gotten right. In the next section, we discuss three ways in which the Trump Administration got the big picture wrong and EPA got it right: compliance with broad statutes governing energy efficiency/emissions, the Administrative Procedure Act, and the overall approach to regulation.

2. Qualitative Controls on Rulemaking

Decisions that Follow the Law

The contemporary, substantive requirements for setting standards began in 1975 in the Energy Policy Conservation Act (EPCA), which established the Corporate Average Fuel Economy (CAFE) standards for automobiles.[4] Congress designated the initial targets for three years. The Secretary of Transportation is then authorized to set standards that achieve the maximum feasible average fuel economy. For the first decade, this took place but in 1985, it came to a halt. The Energy Independence and Security Act of 2007 (EISA) restarted the CAFE program and added a key requirement for attribute-based standards. EPCA also legislated activity with regards to appliance efficiency. Soon after, the Department of Energy Act (1977) added language that reinforced the EPCA language.

In amending the underlying statute (EPCA) with the Energy Independence and Security Act, Congress emphasized the energy-saving goal by referring to energy independence and security. Because of the need to consider environmental impacts, take other regulations into account and the agreement to cooperate with EPA, then a second set of goals and considerations came into play, the Clean Air Act.

As we noted in our 2009 comments,[5] the mandates in the organic legislation make it clear that there is a nexus of considerations with maximum energy efficiency or savings and reduction in emissions at the center (see Table 2.1). Technology, economics, cost-effectiveness and other considerations enter, but they are "subservient" to the primary goal. The OMB Guidance to consider ancillary effects and all benefits and costs is consistent with and reinforces this structure of obligations under the organic statutes. Nevertheless, the goals are very similar, particularly given the environmental and economic convergence (virtual identicality) of the physical relationship between fuel use and emissions discussed below.

The California Air Resources Board, which joined in the cooperative effort to adopt a National Program for fuel economy, is charged with maximum feasible reductions in emissions that are cost-effective.[6] The National Program effectively harmonized the different goals into a consensus within the legal constraints, a harmonization that enjoyed widespread support.

TABLE 2.1:
PRIMARY GOALS AND BALANCING FACTORS IN ENERGY EFFICIENCY STANDARDS[7]

	NHTSA/DOT	EPA	DOE
Goal	Maximum feasible average Fuel economy needed to conserve petroleum addressing energy independence and security by reducing U.S. reliance on foreign oil	Maximum feasible energy savings and reduction in emissions	Maximum improvement in energy efficiency & possible energy conservation measures, Promote the interest of consumers, Assure incorporation of national environmental goals
Balancing Factors			
Technological	Feasibility	Feasible	Feasible,
Economic	Practicability	Practicable	Economically justified,
Other	Consider other standards	Cost-effective	Benefits exceed cost, lost Functionality, Harm to competition

THE ADMINISTRATIVE PROCEDURE ACT

Wikipedia describes the Administrative Procedure Act (APA) as "one of the most important pieces of U.S. administrative law, and serves as a sort of "constitution" for U.S. Administrative Law."[8] Enacted shortly after WWII by a Republican congress to check the growth of executive branch power over the past decade, "it governs the way in which administrative agencies of the federal government may propose regulations and grant U.S. federal courts oversight over all agency action."

The original intent of the statute was procedural, to ensure that an open and fair process was applied to all rules, and as Wikipedia put it:

> According to the *Attorney General's Manual on the Administrative Procedure Act*, drafted after the 1946 enactment of the APA, the basic purposes of the APA are the following:
>
> to require agencies to keep the public informed of their organization, procedures and rules;
>
> to provide for public participation in the rulemaking process, for instance, through public commenting;
>
> to establish uniform standards for the conduct of formal rulemaking and adjudication;
>
> to define the scope of judicial review.

The law governs how the courts can set aside agency actions of two types. If not subject to trial-like procedures, "the court must conclude that the regulation is "arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with the law." Judicial review can be

further limited if Congress includes "language in the organic statute." Where formal rulemaking or adjudication is trial-like, "a different standard of review allows courts to question agency actions more strongly." Here "agency decisions must be supported by "substantial evidence" after the court reads the "whole record… substantial evidence review gives the courts leeway to consider whether an agency's factual and policy determinations were warranted in light of all the information before the agency at the time of decision."

Given the importance of the APA, it is not surprising that recent presidents (particularly Reagan, Clinton, Bush and Obama) have written executive orders telling agencies how to adopt rules so that they comply with the Act. As shown in Table 2.2, they have established guidelines for the substance on which the agency must base its decisions, emphasizing benefit-cost analysis based on up-to-date accurate and scientific data. This executive branch guidance describes both the process that must be followed and the substantive basis on which rules stand. This brief table is taken from CFA's lengthy 2017 report, where a much more detailed account is given.

The substance of rulemaking can be summarized in six broad categories that incorporate a dozen principles:

- **Overall Goals**
  - Identify specific authority
  - Market failures (or other goals) addressed
- **Scientific Basis**
  - Reasonably obtainable scientific, technical, economic and other information
  - Quantify likely benefits and costs of each regulatory alternative
- **Benefit-Cost Principles**
  - Potential benefits to society outweigh the costs
  - Use the best, most innovative and least burdensome tools for achieving ends
- **Maximum Net Benefit**
  - Maximum net benefit, least net cost
  - Including potential economic, environmental, public health and safety and other
  - advantages, distributive impact and equity.
- **Regulatory Design**
  - Performance standards, rather than specifying behaviors regulated entities must adopt
  - Total and incremental, direct and ancillary benefits and risks.
- **Full Range of Effects**
  - Costs and savings of private sector, government administrative bodies
  - Consumers and producers' surplus, discomfort or inconvenience, gains or losses in time of work, leisure, commuting/traveling

TABLE 2.2
EXECUTIVE BRANCH GUIDANCE ON BENEFIT-COST ANALYSIS[9]

Overall goal: Bush: A statement of the need for the regulatory action: Agencies should explain whether the action is intended to address a market failure or to promote some other goal, such as improving governmental processes, protecting privacy, or combating discrimination. If the action is compelled by statute or judicial directive, agencies should describe the specific authority and the extent of discretion permitted.

Scientific Basis: Bush: The agency should use the best reasonably obtainable scientific, technical, economic, and other information to quantify the likely benefits and costs of each regulatory alternative. Presenting benefits and costs in physical units in addition to monetary units will improve the transparency of the analysis.

Benefit-Cost Principles: Reagan: Regulatory action shall not be undertaken unless the potential benefits to society from the regulation outweigh the potential costs to society; **Bush**: Regulatory analysis is a tool regulatory agencies use to anticipate and evaluate the likely consequences of rules. It provides a formal way of organizing the evidence on the key effects, both good and bad, of the various alternatives that should be considered in developing regulations. The motivation is to (1) learn if the benefits of an action are likely to justify the costs or (2) discover which of various possible alternatives would be the most cost-effective; **Obama:** propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify) … It must identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends.

Maximize Net Benefits: Reagan: Regulatory objectives shall be chosen to maximize the net benefits to society; Among alternative approaches to any given regulatory objective, the alternative involving the least net cost to society shall be chosen; **Clinton:** When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective; **Obama:** select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity).

Regulatory Design: Bush: To the extent feasible, agencies should specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt. It may be useful to identify the benefits and costs in the following manner: Benefits and costs that can be monetized, and their timing; Benefits and costs that can be quantified, but not monetized, and their timing; Benefits and costs that cannot be quantified. Whenever you report the benefits and costs of alternative options, you should present both total and incremental benefits and costs. In addition to the direct benefits and costs of each alternative, the list should include any important ancillary benefits and countervailing risks. **Obama:** to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.

Full Range of Effects: Bush: Agencies should include the following effects, where relevant, in their analysis and provide estimates of their monetary values: Private-sector compliance costs and savings; Government administrative costs and savings; Gains or losses in consumers' or producers' surpluses; Discomfort or inconvenience benefits and costs; and Gains or losses of time in work, leisure, and/or commuting/travel settings. When quantification and monetization are not possible, many agencies have found it both useful and informative to engage in threshold or "breakeven" analysis. This approach answers the question, "How large would the value of the non-quantified benefits have to be for the rule to yield positive net benefits?"

The Trump administration did not issue an order changing these principles and the only order it issued was, itself, arbitrary and capricious. The mandate to remove two rules for every one issued made no sense in light of these principles[10]. Well-crafted rules that comport with these principles cannot be abandoned, and new rules that comply with these principles should be adopted. If the agency cannot find two rules that do not comply with these principles, it cannot adopt a rule that does mean them. Two-out, one-in, is nonsensical (arbitrary and capricious) in the context of the APA. The regulatory review conducted by all three agencies involved in setting efficiency standards was distorted by the nonsensical two-out, one-in guidance. The Administration froze or rolled back rules that were in good compliance with the principles and required by the statute. In fact, the continuous advancement of standards, which the Trump administration rejected, was mandated by the statutes.

We demonstrated extensively in previous comments, and will briefly reiterate in this analysis that the most recent SAFE 2 rule rolling back fuel economy standards violates each of these principles in critical ways.

- It does not comport with the specific goals and authorities granted by Congress.
- It vastly underestimated the market failures the standards address. Its conclusion lacks a reasonable scientific basis in the record before the agency.
- It does not maximize net benefits or include reasonable estimates of economic, environmental, and public health impacts, and it ignores ancillary benefits.
- Its discussion of distributive and equity impacts (i.e., low-income households) is incorrect and misses the fundamental nature of the impact.
- It vastly underestimates consumer benefits (surplus) and overestimates private sector costs.

COMMAND-BUT-NOT-CONTROL REGULATION

The key for CFA was the new approach, which we termed a "*command-but-not-control approach.* As we described it (see Table 2.3), there are six key attributes to this approach to standards-setting.

The result is to give consumers the maximum range of choices possible among the consumer durables that comply with the standards. This approach also ensures that the rule is technically feasible. To the extent that there is some "restriction of choice", i.e., the elimination of products that fail to meet the goals, that is governed by the broader principles that the overall rule must be beneficial, least cost, foster innovation, and address specific market failures.

TABLE 2.3
ELEMENTS OF THE COMMAND-BUT-NOT-CONTROL APPROACH[11]

- **Long-Term:** Setting a progressively rising standard that targets a high long-term goal over the course of a decade or more will foster and support a long-term perspective for the auto manufacturers, transportation companies and public, by reducing the marketplace risk of investing in new technologies. The long-term view gives the automakers time to re-orient their thinking, retool their plants and help re-educate the transportation industry. It also gives the industry and consumers buying and using these vehicles time to adjust.

- **Technology Neutral:** Taking a technology-neutral approach to a long-term standard unleashes competition around the standard that ensures that consumers will get a wide range of choices at the lowest cost possible.

- **Product Neutral:** The new attribute-based approach to standards accommodates buyer preferences; it does not try to supplant them. This levels the playing field between auto and truck makers and removes any pressure to push inappropriate vehicles into the market.

- **Responsive to Automotive Industry Needs:** When establishing a long-term performance standard, the process needs to keep the standards in touch with reality. The standards can be set at a moderately aggressive level that is clearly beneficial and achievable. With thoughtful cost estimates consistent with the results of independent analyses of technology costs, a long-term performance standard will contribute to the significant reduction of the most significant cost in the manufacturers.

- **Responsive to Consumer Needs:** The approach to standards should be consumer-friendly and facilitate compliance. The attribute-based approach ensures that the standards do not require radical changes in the available products or the product features that will be available to consumers. The setting of a coordinated national standard that lays out a steady rate of increase over a long-time period giving the market and the industry certainty and time to adapt to change.

- **Pro-Competitive:** All of the above characteristics make the standards pro-competitive. Producers have strong incentives to compete around the standard and to achieve them in the least cost manner, while targeting the market segments they prefer to serve.

3. Errors in the SAFE 2 Rule Analysis Corrected by EPA's Current Proposal

Table 3.1 presents EPA's summary of changes in its analysis compared to the Trump administration's SAFE 2 Rule. We have highlighted the major changes that EPA correctly concluded the Trump administration failed to justify. The references in the Table are to the chapters in the Regulatory Impact Assessment.

The first three items involve the valuation of greenhouse gases and other pollutants. At one level, this is just an updating of the values used, although the cost of carbon is considerably large, consistent with international analyses and consensus, and the cost of methane is included. At another level, it represents a symbolically and quantitatively significant return to the treatment of externalities. Since climate change is a global problem, it takes into account the full global value of reducing emissions.

The fourth item is a significant change that affects the economics of the proposed standard in two ways. EPA returns to a 10 percent rebound rate, which it had justified before the Trump administration doubled it. Increasing the rebound rate reduces the estimate of fuel savings and assumes a much larger increase in driving than is justified, which affects the 7th item, congestion. EPA has once again justified its use of a 10 percent discount rate. CFA has argued that a lower discount rate can be justified today and certainly will be more appropriate in the future.

Items 5, 6, 7 and 9, involve updates of values that increase the net benefit slightly. As discussed below, CFA believes a lower discount rate (1% to 2%) should be included to set the result in perspective. Because climate change is a long-term, global phenomenon, the 3 percent discount rate undervalues the impact on future generations. In fact, EPA uses a lower and more narrow range to assess the value of greenhouse gas reduction (2.5% to 5%).

Items 11 and 12 involve the availability of technologies, which has been updated and involves a very significant impact on the estimation of costs and net benefits. As discussed below, the Trump administration had inappropriately doubled the projected cost of the technologies. The EPA justified a much lower number in the earlier Technical Assessment Review (TAR) and did so again here. Item 13 involves the modeling of credits, which lowers the projected fuel and emission savings somewhat.

TABLE 3.1:
CORRECTING THE TRUMP ADMINISTRATION'S UNREALISTIC AND UNJUSTIFIED ASSUMPTIONS[12]

Input file		Changes
Parameters file	1	Global social cost of GHG $/ton values used in place of domestic values (see Chapter 3.3).
	2	Inclusion of global social cost of methane (CH_4) and nitrous oxide (N_2O) $/ton values (see Chapter 3.3).
	3	Updated $PM_{2.5}$ cost factors (benefit per ton values, see Chapter 7)
	4	Rebound effect of -0.10 rather than -0.20 (see Chapter 3.1).
	5	AEO2021 fuel prices (expressed in 2018 dollars) rather than AEO2019.
	6	
	7	Update energy security cost per gallon factors (see Chapter 3.2).
	8	Congestion cost factors of 6.34/6.34/5.66 (car/van-SUV/truck) cents/mile rather than 15.4/15/4/13.75 (see Chapter 3.4).
	9	Discounting values to calendar year 2021 rather than calendar year 2019.
	10	The following fuel import and refining inputs have been changed based on AEO2021 (see Chapter 3.2): Share of fuel savings leading to lower fuel imports: Gasoline 7%; E85 19%; Diesel 7% rather than 50%; 7.5%; 50% Share of fuel savings leading to reduced domestic fuel refining: Gasoline 93%; E85 25.1%; Diesel 93% rather than 50%; 7.5%; 50% Share of reduced domestic refining from domestic crude: Gasoline 9%; E85 2.4%; Diesel 9% rather than 10%; 1.5%; 10% Share of reduced domestic refining from imported crude: Gasoline 91%; E85 24.6%; Diesel 91% rather than 90%; 13.5%; 90%
Technology file	11	High Compression Ratio level 2 (HCR2, sometimes referred to as Atkinson level 2) technology allowance set to TRUE for all engines beginning in 2018 (see Chapter 2).
Market file	12	On the Engines sheet, we allow HCR1 and HCR2 technology on all 6-cylinder and smaller engines rather than allowing it on no engines (see Chapter 2).
	13	Change the off-cycle credit values on the Credits and Adjustments sheet to 15 grams/mile for 2020 through 2026 (for the CARB-OEM framework) or to 15 gram/mile for 2023 through 2026 (for the proposed option) depending on the model run.

Conclusion

These corrections to the flawed SAFE 2 rule account for the bulk of the difference in the benefit-cost ratio. They are well justified in the proposed rule and address the "third-party" criticisms of the SAFE 2 rule.

Table 3.2 presents a summary of the CFA criticism of the SAFE 2 rule compared to other third-party evaluations. The CFA column identifies over a dozen mistakes that the Trump administration had reintroduced into its analysis. We then provide three critical articles, as well as references to other evaluations, showing the type of error. Finally, we estimate the impact of the errors on our calculation of the benefit/cost ratio.

TABLE 3.2:
MAJOR FLAWS IN THE DOT/EPA/NHTSA FINAL RULE ANALYSIS

	CFA	ICCT page #	Energy Policy page#	Science	3rd Party (cited in ICCT/ Energy Policy)	$Value of Corrections CFA/ICCT billions $2018 NHTSA Net Benefit
Critical Analytic Errors						
1. Evaluation of Stds.	x	2-4	2-3, 12-13	1119	Other	= -16
2. Critique of Agencies	x		3-6, 6-8	1119	Other	
Over Estimating Cost	x	6	8-9	1121	Self-Contradict, Other	+51 to +60
3. Mark-up x		8			Self-Contradict, Other	
4. Downsize/Turbocharge	x	6			Self-Contradict, Other	
5. EV	x	7	12	1120	Other	
Under Estimating Benefit	x	7-8	12-13		Other	
6. Macroeconomic	x				Self-contradict, other	+92
7. Credits		7		1120	Self-contradict	
8. Pollution	x	5,12			Self-contradict	
Public Health				1120		+14
Emissions				1121		+21
Value of Driving	x		6-8	1120	Other	
9. Discount Rate	x		12			+45 to +52
10. Rebound	x	8-9	9-10	1120	Self-contradict	+26
11. Sales and Scrappage	x	9-10	11-12	1120	Self-contradict, other	+20
12. Congestion and noise						+17
13. Safety	x	10-11	10-11	1120	Self-contradict, other	+3
Gross Benefit (compared to TAR)						
w/o cost or macro		+185				+185 to +201
w/o cost w macro						+277 to +293
Net benefit w/ Macro (benefit minus actual costs)				+264 to +297		+202 to +218
Benefit Cost ratio (w/ Macro)						
NHTSA (final)						.9-to 1
CFA						2.7-to-1 to 2.9-to-1

Sourrces

CFA = Mark Cooper, Trump's $2 Trillion Mistake: the "War on Energy Efficiency," attached to Comments of the Consumer Federation of America, Before the Department of Transportation, In Re Notification of Regulatory Review: 14 CFR Chapters I, II, and III, 23 CFR Chapters I, II, and III, 46 CFR Chapter II, 48, CFR Chapter 12, 49 CFR Chapters I, II, III, V, VI, VII, VIII, X, and XI, December 1, 2017. Where CFA has only a qualitative estimate, we rely on the ICCT. The higher estimate for cost reflects ICCT's continued decline in costs. The higher estimate for the discount rate reflects our analysis of the benefits of a 1% discount rate to center the 3%-7% on a more relevant range.

ICCT= Aaron Isenstadt and Nic Lutsey, *Summary of the Trump Administration's fatally flawed U.S. light-duty vehicle efficiency standards,* August, 2020,

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Many of the elements in Table 3.2 track with the differences EPA noted in Table 3.1 for its modeling of the benefits and costs. The three broad categories, overestimation of costs, underestimation of benefits, and the value of driving, summarize the individual elements.

4. The Cost of Increasing Fuel Economy

In the remainder of this analysis, we briefly describe three "big ticket" items that EPA corrected, with which we agree: cost, rebound effect, safety, and one crucial issue that it has not dealt with: macroeconomic impacts, but should.

Estimating the cost of increasing fuel economy has been a matter of great debate for decades. As noted above, empirical analyses that look at actual costs show that regulators overestimate the cost by a factor of two, and automakers overestimate it by much more than that.

David Greene, one of the leading experts on fuel economy, recently conducted a review of the literature. He concluded that an estimate of 27 percent of increased auto costs, or about $150 for every mile per gallon improvement, was too high. He gave two reasons for this.[13] First, backward-looking analysis of cost increases that included used vehicles (as his analysis did), were double-counting the cost of increasing fuel economy because the sellers of vehicles were capturing a significant part of the capitalized value of better fuel economy equal to about 20 percent of the estimated cost of efficiency) in their sales price. This factor alone would lower the estimate to 21.6 percent of the increase in price or about $120 for each 1-mile improvement in the MPG. Second, real-world experience showed that there was a learning process in which costs fell as automakers gained more experience with increasing fuel economy. Over the redesign cycle of vehicles (e.g., five years) this learning rate would lower the cost by about 10 percent. Thus, one might argue that the appropriate numbers would be about 20 percent per year and $108 per MPG, as shown in Table 4.1

TABLE 4.1:
HISTORICAL AND ENGINEERING ESTIMATES OF THE COST OF INCREASING MILEAGE

	Greene Literature Review	Simple Adjustment Approach	Greene Direct	EPA Final 2017- 2025	ICCT Estimate for 2025-2030 4.5%/year
Annual Cost	$213	na	$141	$97	$110
% of Total Cost Increase	27%	20%	18%	na	na
$/MPG	$150	$108	$99	$97	$86

Sources: David Greene and Jilleah G. Welch, *The Impact of Increased Fuel Economy for Light-Duty Vehicles on the Distribution of Income in the United States*, Oak Ridge National Laboratory and the Energy Foundation, September 2016; David Greene and Jilleah G. Welch, *The Impact of Increased Fuel Economy for Light-Duty Vehicles on the Distribution of Income in the United States*: *A Retrospective and Prospective Analysis* Oak Ridge National Laboratory and the Energy Foundation, March 2017; Environmental Protection Agency and National Highway Traffic Safety Administration, *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards; Final Rule*, Federal Register, 77: 199, October 15, 2012, Table I-128. Environmental Protection Agency, *Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Emission Standards under the Midterm Evaluation,* January 2017, Table ES-1. International Council on Clean Transportation, *Efficiency Technology and Cost Assessment for U.S. 2025-2030 Light-Duty Vehicles,* March 1017, Table 2.

There is a third factor that is implicit in Greene's analysis. The distribution of the cost of vehicles is skewed. The much more expensive vehicles purchased by upper-income households are likely to include a larger amount of costs incurred to upscale the vehicles, rather than for fuel economy. In a subsequent analysis, Greene estimated the cost of improving fuel economy directly with an econometric model that corroborated the above concerns. The simple adjustment to a constant 20 percent of total cost moves the estimate much closer to the empirical evidence offered by Greene, which suggests that costs are about two-thirds of what was found in the literature review—about 18 percent or $99/MPG.

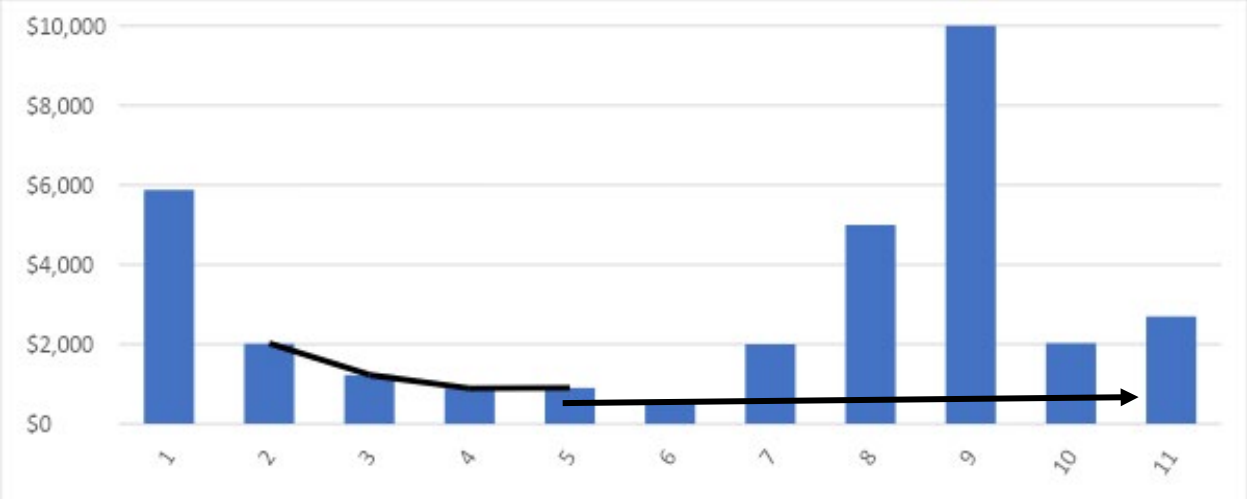
EPA's analysis of the cost of the National Program currently yields an estimate in fuel savings that is similar, $97/MPG. This estimate reflects considerable technological progress over the early years of the National Program, which is consistent with the historical pattern. A recent study by the ICCT offers an estimate of going forward costs of improvement close to the rate of the national program (national program = 3.3%, ICCT = 4% per year). The ICCT study also includes continuing technological progress.

Cost Whiplash

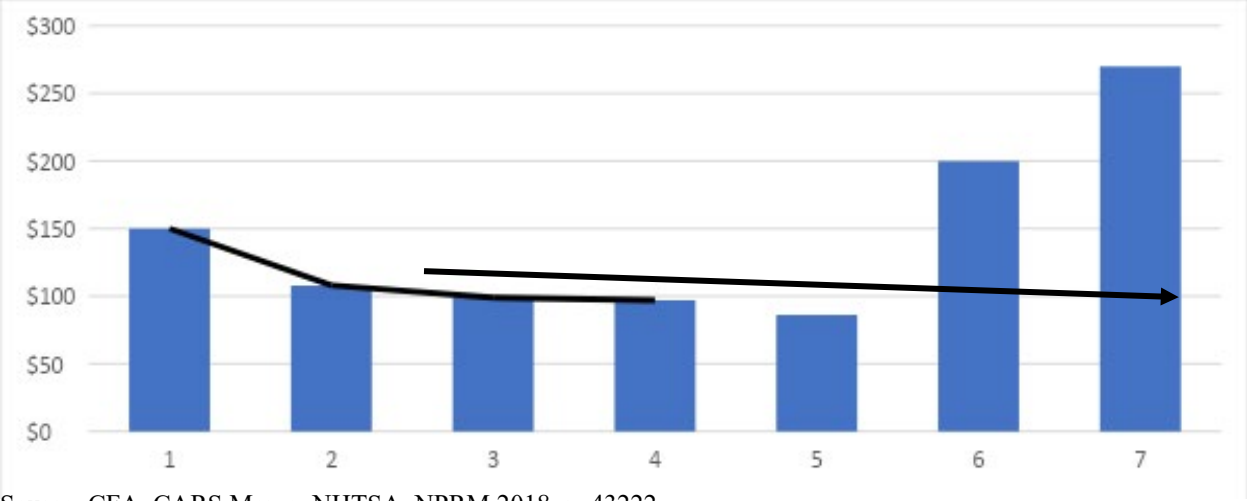
The whiplash of the current rule is depicted in Figure 4.1. The reasons for the whiplash are the severe constraint on technology choices imposed by the model and the very high markup assumed. By imposing constraints on the use of technologies, ignoring emerging technologies and assuming many more electric vehicles would be necessary, NHTSA has adopted a price that is far above EPA's estimates and those of independent third parties, as shown in the upper graph of Figure 4.1. Greene's analysis suggested that a 2 percent per year was a reasonable cost estimate. Over the redesign cycle of vehicles (e.g., five years) this learning rate would lower the cost by about 10 percent. Thus, one might argue that the appropriate numbers would be about 20 percent per year and $108 per MPG.

FIGURE 4.1:
THE COST WHIPLASH: PER VEHICLE COST OF MEETING THE 2025 STANDARD

Cost per Vehicle



Cost Per MPG Increase



Source: CFA, CARS Memo, NHTSA, NPRM 2018, p. 43222

Automakers also regularly state that compliance costs are higher than what regulators estimate, when in fact, they comply with efficiency standards at a lower cost than the regulators' estimates. New car prices, for the most part, have since the Great Recession failed to match the rate of inflation, all the while increasing in fuel economy. While new vehicle prices are indeed rising, this is due to the switch from cars to trucks and SUVs, which have a higher MSRP.

CFA analysis has further shown that after factoring in inflation, a full 27 percent of the "all-new" 2017 vehicles went down in price and increased their fuel economy by 1 to 10 MPG compared to their 2011 counterpart[14]. This is without considering that fuel economy technology is only one of the many different improvements that increase a vehicle's MSRP, such as safety

technology, convenience items, and design changes that are equal or higher drivers to increased vehicle costs. When using historically supported evidence, the best estimate of fuel economy technology costs is about $100 per MPG of improvement. Using this estimate, 94 percent of the "all-new" 2017 saw a net positive benefit for the drivers, as the fuel savings exceeded the cost of fuel efficiency technology over the first five years of ownership defined and defended by the TAR.

5. Overestimation of Driving and Loss of Safety

Rebound Rate

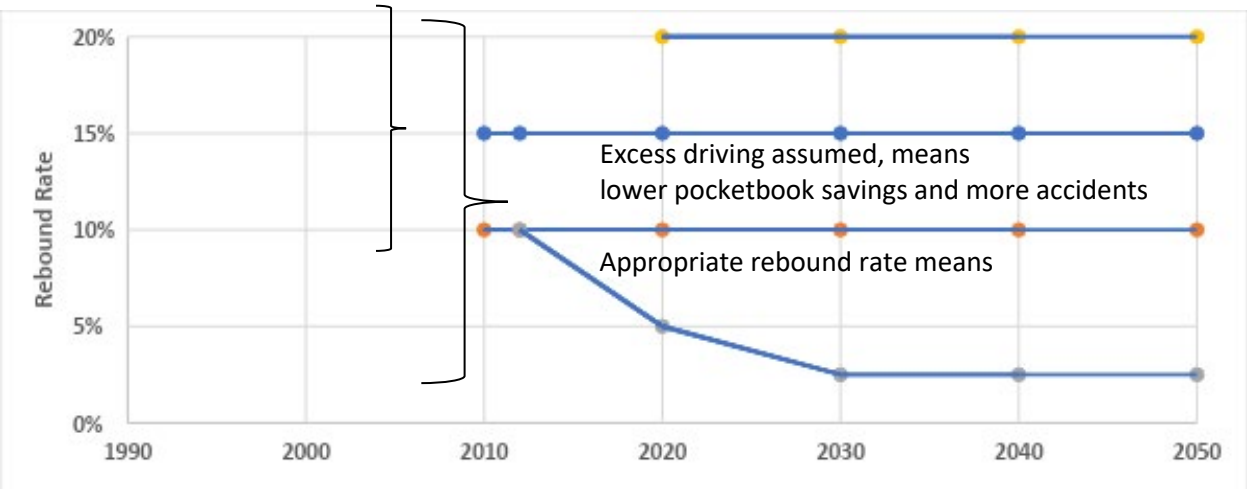
Above, we identified an unsupported and unsupportable assumption about the rebound effect as having an impact on the pocketbook benefits of a higher standard. Rebound is part and parcel, the tip of the iceberg, for a much larger issue–unrealistic assumptions about driving, and new vehicle safety (see Figure 5.1). By claiming to avoid a slew of fatalities due to consumers driving less because of increased annual fuel costs and driving in safer vehicles, the Trump rule claimed to avoid a significant negative impact on congestion, noise, and safety.

Correcting the significant flaws in the NHTSA/EPA framework, including the rebound effect and the failure to recognize technological flexibility for automakers, dramatically reduces the assumed safety benefits of the Trump SAFE 2 rule. As shown in Figure 3, these adjustments eliminate over 80 percent of the claimed reduction in accidents. We believe other technological improvements, introduced along with higher fuel economy, further reduce the impact of increased accidents.

Vehicle Safety

By far, the largest change from previous analyses in connection with safety is the change in the rebound rate. By irrationally doubling the rebound rate, the agencies projected increased fatalities by 75. The agencies also underestimate the increasing crashworthiness of vehicles. While the agencies correctly point out that vehicles are becoming lighter to meet the standards, vehicles are also more crashworthy compared to just seven years ago when the standards went into effect. An analysis[15] of all 2018 crash tests showed that 71 percent of vehicles weigh less and had better fuel economy than its previously crash-tested version. Of these vehicles, 47 percent had a better crash test rating, while the other 53 percent had the same rating. Not a single vehicle in the analysis had a worse crash test rating than its previous version. Outside of the passive nature of crashworthiness, the amount of added safety features that actively help to prevent a crash[16] have increased by 60 percent since 2011. These facts can be proven by real-world driving experiences as well. The percentage of crashes that result in a fatality has steadily been decreasing with a full tenth of a percentage decline from 0.61 percent to 0.51 percent from 2011, when the standards were enacted, to 2016.[17]

FIGURE 5.1:
EXTREMELY HIGH, EXCESSIVE ASSUMED REBOUND RATE
More Driving and Accidents, Smaller Pocketbook Savings Macroeconomic Benefits

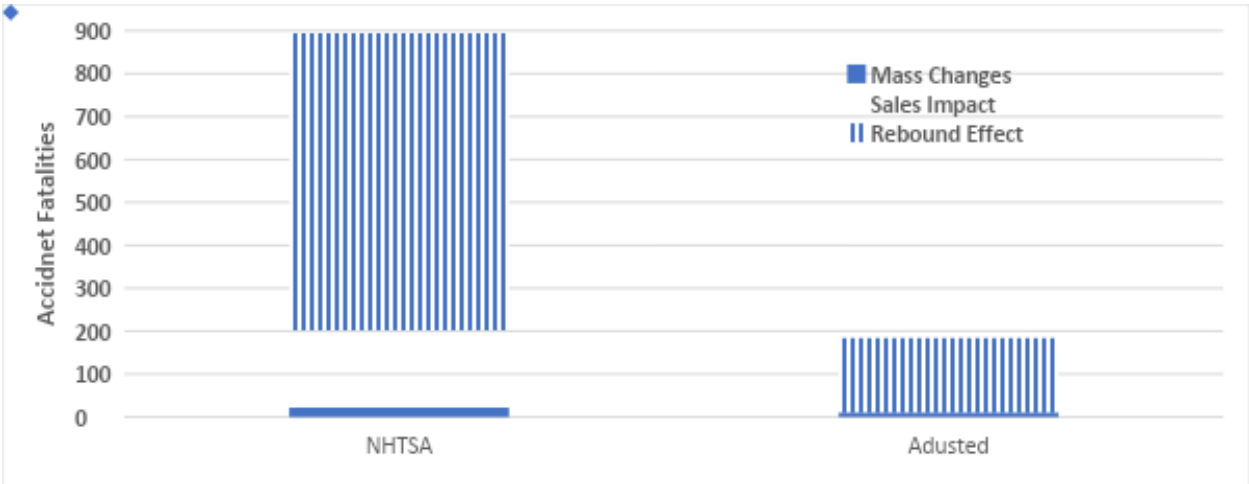


Another argument the Trump administration put forward to roll back the standards is that due to the increased cost of vehicles, the turnover rate would decrease, meaning there would be more, older, less safe vehicles on the road. The Administration ignored the fact that each year from 2014 to 2018, an average of 16.9 million new, safer and more fuel-efficient vehicles were added to the fleet, while an average of 13 million older, less safe, and less fuel-efficient vehicles were retired[18].

And our national survey conducted in August 2018 revealed that over three quarters (76 percent) of Americans reject the assertion that increasing fuel economy standards would lead to more accidents.[19] This rejection is widely bipartisan, with 60 percent of Republicans, 80 percent of independents, and a plurality of 90 percent among Democrats rejecting the argument.

FIGURE 5.2:
OVERESTIMATING SAFE 2 INCREASES IN ACCIDENT FATALITIES

Overestimating the Rebound Effect and the Impact of Standards on Sales Overstates the Increase in Accident Fatalities by 80 percent



Source: See table 3.2 above for sources on safety.

6. MACROECONOMIC BENEFITS

Importance

In our earlier comments to the EPA, we demonstrated that the benefits of reduced emissions achieved through greater efficiency have substantial macroeconomic benefits that are inextricably linked to the reduction in the cost of driving. EPA considers the macroeconomic benefit of improved energy security, but not the benefits that flow from consumer pocketbook savings. The social cost of carbon reflects some of the benefits foregone by reducing emissions, but not all. In fact, a 2010 agency memo placed in the record calculated a substantial macroeconomic benefit which roughly equaled the consumer pocketbook savings.[20]

We again call on the agency to recognize this benefit, which is as measurable and certain as many of the other benefits it counts. The need to acknowledge these benefits is more significant than ever.

First, the Biden administration has correctly made the case that a vigorous response to climate change based on efficiency and a shift in power sources (from petroleum to low-emissions electricity) will be good for the economy. The benefits come directly from the jobs needed to create the new technologies and indirectly from the re-spending of the energy savings. These are precisely the same benefits that are identified in the general literature on energy efficiency savings. It is inconsistent to claim the external benefit of emissions reductions for security or public health purposes and not for macroeconomic purposes.

Second, over time, the macroeconomic benefits may become the single largest category of benefit, embodied in an industrial revolution – a shift from coal and oil to clean electricity – as large as the last such revolution (from wind and water to fossil fuels). From the consumer/economic point of view, the decarbonization of the economy may become the "secondary' benefit.

Increasing the benefit-cost ratio dramatically makes the case for the proposed rule all the more compelling. Therefore, we will repeat the earlier argument.

Econometric models that use general flows of resources between economic activities have been used to assess the impact of increasing efficiency. In a sense, the coefficients in the macro models are representations of the relationships in the economy through which the micro-level effects flow. Simply put, when the cost of driving declines, consumers have more money to spend on other things. These other things tend to be much less energy-intensive than driving. This flows through the economy and stimulates economic growth and increases job creation. No matter the level or approach, the evidence strongly supports the conclusion that there is a positive impact.

Increasingly, research shows that energy savings from energy efficiency improvements can deliver more comprehensive benefits across the whole economy, such as increases in employment, GDP, trade balances, energy security, etc.…

> One way to look at the macroeconomic impacts is to separate them into:
>
> The cost and effects derived from investing in energy-efficient goods and services, and the effects derived from the energy savings (or reduced costs) from realizing an improvement in energy efficiency…
>
> Increased energy efficiency can lead to more competitive production for 'business consumers" or energy, while for final consumers, increased efficiency mainly leads to a demand shift from energy consumption to other goods. For the consuming sectors, it is relatively straightforward to observe how investment in energy efficiency and energy savings can lead to increased spending and economic activity with second-round effects such as employment, government revenue, and price effects (if other investment and spending is not crowded out). There are likely to be positive income effects, unless household wage demand increases as the labor supply becomes more competitive.[21]

One way to gain an appreciation of the impact of energy costs is to consider how transportation costs are dealt with in the economy and models of the economy. The economic reality of the flow through to consumers of transportation fuel costs is reflected in the way econometric models describe the growth of the economy. Such models are built on input/output tables, and transportation costs are a significant input in the models. In building these models, the pass-through of transportation costs is assumed since transportation plays a fundamental role in the overall cost of production.

> Transportation is an economic factor of production of goods and services, implying that relatively small changes can have substantial impacts on costs, locations and performance…
>
> Transport also contributes to economic development through job creation and its derived economic activities. Accordingly, a large number of direct (freighters, managers, shippers) and indirect (insurance, finance, packaging, handling, travel agencies, transit operators) employment are associated with transport. Producers and consumers make economic decisions on products, markets, costs, location, prices which are themselves based on transport services, their availability, costs and capacity.[22]

Typically, the more places that are touched by a sector, the larger its multiplier. Because most economic models are built on the flow of goods and services through the economy, they depend on the geographic scope and nature of activity within the economy being modeled. Transportation is generally seen as a central input to measuring broader economic activity. In modeling the impact of higher fuel economy with these econometric models, it is important to understand certain market factors. As the cost of transportation declines, demand for transportation increases because the demand for goods and services increases due to their lower costs. In addition, as the population and economy grow, the need for commercial transportation increases as well. Nevertheless, the fuel savings from greater efficiency are much larger than the increase in consumption. The net effect is to reduce expenditures on fuel as a percent of total output. In fact, the reduction in energy consumption may be so large that the absolute level of consumption is lowered. This has a positive effect on the economy.

In 2010, NHTSA noted one of the important externalities of reduced consumption, the downward pressure on prices, is a consumption externality. [23] Derived from an auto standard, it provides a comprehensive discussion of the macroeconomic benefits that we find in all efforts to apply these models. "Lower prices allow for additional purchase of investment goods, which, in turn, lead to a more comprehensive capital stock. These price reductions also allow higher levels of government spending while improving U.S. competitiveness, thus promoting increased exports relative to the growth-driven increase in imports. As a result, GDP is expected to increase because of this rule.[24]

The EPA reviewed the literature on the macroeconomic impact of reduced energy consumption.[25] It ran econometric models driven by pocketbook savings. The analysis models three effects on impacts of the rule that trigger adjustments in the economy – increased cost for vehicles, decreased consumption of gasoline, and a reduction in the price of petroleum. It does not model the impact of reduced pollutants (carbon and non-carbon) or other changes (like reduced fueling time). It found a very substantial multiplier effect increasing the GDP by just under 1 percent, or $340 billion, by 2050. Discounting the incremental growth of the economy at 3 percent, which is the discount rate used as the base case in this paper, the total is just under

$100 billion, and it is reached by 2030. This is slightly larger than the total consumer pocketbook savings.

> This combination of effects—price increases for vehicles and lower demand and world oil prices—would impact all sectors of the economy that use light-duty vehicles and fuels as intermediate inputs (e.g., delivery vehicles) to produce final goods. Households would also be impacted indirectly as consumers of final goods and directly as consumers of fuels and light-duty vehicles.
>
> However, it is important to note that these potential impacts do not represent additional benefits or costs from the regulation. Instead, they represent the effects on the U.S. economy as its direct benefits and costs are transmitted through changes in prices in the affected markets, including those for vehicles and their components, fuel, and the various resources used to supply them.[26]

Estimating the Size of the Macroeconomic Benefit

These impacts, as discussed in the EPA memo, are an indirect effect of the rule, a genuine externality. This approach has become quite common with detailed analyses of energy efficiency across a range of activities (autos, appliances, buildings, industries),[27] sectors (e.g. energy, manufacturing, service, particularly as it impacts the use of labor),[28] and with a variety of analytic approaches (qualitative, econometric).[29] These efforts to model the economic impact of energy efficiency have proliferated with different models[30] being applied to other geographic units, including states[31] and nations.[32] The results differ across studies because the models are different, the impact varies according to the size of the geographic unit studied and because the assumptions about the level and cost of energy savings differ. These differences are not an indication that the approach is wrong. On the contrary, all the analyses conclude that there will be increases in economic activity and employment. Given that different regions and different policies are being evaluated, we should expect different results.

The rule of thumb – an approximate doubling of the economic impact – that emerges in the literature reflects the observation on jobs.[33] Similarly, in a study of 52 examples of increases in industrial productivity, where the benefit was monetized, the productivity savings were 1.25 times as large as the energy savings.[34] Table 6.1 shows examples of the multiplier, with the GDP impact expressed as a multiplier of the value of net pocketbook savings.

TABLE 6.1
MACROECONOMIC MULTIPLIERS AS A MULTIPLE OF NET POCKETBOOK SAVINGS

Modeler	Model	Date	Policy Assessed	Region	GDP/$ of Net Savings Base Case
Roland-Holst	DEAR		Computer Standard	California	1.8
ENE	REMI		Utility Efficiency	Northeast	2.2
Cadmus	REMI		Utility Efficiency	Wisconsin	2.5
Arcadia	REMI		Utility Efficiency	Canada	2.7

Sources:
David Roland-Holst, 2016, *Revised Standardized Regulatory Impact Assessment: Computers, Computer Monitors, and Signage Displays,* prepared for the California Energy Commission, June. ENE, *Energy Efficiency: Engine of Economic Growth: A Macroeconomic Modeling Assessment*, October 2008. Cadmus, 2015, *Focus on Energy, Economic Impacts 2011–2014*, December. Arcadia Center, 2014, *Energy Efficiency: Engine of Economic Growth in Canada: A Macroeconomic Modeling & Tax Revenue Impact Assessment,* October 30,

In this analysis, we take a very cautious approach to estimating the induced macroeconomic benefits of efficiency. We apply the multiplier to 90 percent of the pocketbook savings. The benefits excluded from the multiplier effect (10 percent of pocketbook, other values, such as driving, reduced fueling time, public health, and environmental) are 25 percent larger than the total of the technology costs. This ensures that we do not double count the indirect effect, although that might have an induced multiplier effect of its own.

We also do not include a separate impact of the consumption externality, the effect that U.S. consumption has on lowering the market price of energy. In petroleum, this number is substantial. Agencies have estimated it but have not included it in their cost-benefit analysis. Where they have presented the calculations, it is equal to about one-fifth of what we call the macroeconomic multiplier.[35] In the appliance sector, this effect has been modeled by considering the impact of reduced electricity demand on the price of natural gas.[36]

We do not apply the multiplier to the value of environmental, public health, and other externalities. Although these have been monetized in the traditional cost-benefit analysis, that monetization does not generally include macroeconomic multipliers. Since it could be argued that these costs are reflected in the model coefficients that are a representation of empirically observed real-world relationships, out of an abundance of caution, we do not apply the multiplier to these benefits, which is the traditional approach.

While we have chosen to add the rebound effect back into the pocketbook savings, we do not add it into the macroeconomic effect since the rebound effect spends the money on consumption, meaning no change in the multiplier. To err on the side of caution, we assume the lowest value in the table and set the multiplier equal to the net pocketbook savings. Macroeconomic models measuring the outcome in the change in GDP yield a "re-spending" effect that clusters around 90 percent.[37]

7. Conclusion

In addition to including macroeconomic benefits and all environmental/public health benefits, the EPA faces three other challenges to ensure the future of an effective, pro-consumer revision to the SAFE 2 rule.

Fortunately, the agency has continued with the approach to regulation that we call "command-but-not-control," which was very much at the core of EISA. One challenge here is that the agency must accelerate a transition in technology to an all-electric fleet, a transformation to which many of the automakers have already committed. Therefore, the agency is not "mandating" a technology; it is seeking to smooth and accelerate its adoption.

Two other features of the transition are also important.

First, there are likely to be at least 100 million gasoline vehicles sold before the transition is complete. They are likely to be on the road for a quarter of a century. Therefore, it is important to make sure that they are as efficient as possible. Doing so can "help" the transition because setting high standards on the gasoline part of the fleet will speed the adoption of electric vehicles, and a significant amount of the gain in efficiency – vehicle design and operation – may be applicable to the electric portion of the fleet.

Second, it is important to close the loopholes, especially those that might allow the automakers to "use" the electric vehicle part of the fleet to "relax" the efficiency of the gasoline-powered part. That trade-off must not be allowed.

Establishing the goal of an all-electric fleet and speeding the transition will require changes in infrastructure beyond the setting of efficiency standards, which the administration has recognized and is working hard to launch in the near term.

Our economic analysis shows, and the agency seems to agree that this can all be done with a net positive benefit-cost ratio. The total cost of driving will go down, measured by the pocketbook saving consumers. Public health and environmental benefits increase an already positive benefit-cost ratio. Given that finding and the already demonstrated commitment to infrastructure, all Americans of all income levels will be better off at the end of the transition.

Consumer Federation of America appreciates the opportunity to present its analyses and views on the proposed revisions to the SAFE 2 Rule.

The Consumer Federation of America is an association of more than 250 nonprofit consumer and cooperative groups that was founded in 1968 to advance the consumer interest through research, advocacy, and education.

APPENDIX A:
CFA FILINGS AND OFFICIAL APPEARANCES ON ENERGY EFFICIENCY DURING THE TRUMP ADMINISTRATION

Date	Recipient	Subject Matter
Appliance Standards		
2/15/2017	Department of Energy	DFR on Misc. Refrigeration Products
4/26/2017	Department of Energy	DFR on Central ACs & Heat Pumps
5/5/2017	Department of Energy	DFR Dedicated-Purpose Pool Pumps
7/14/2017	Department of Energy	DOE Regulatory Process RFI Comments (Cooper), ASAP
9/5/2017	Department of Energy	CFA Signs on—RFI re-test procedures for Room ACs
10/16/2017	Department of Energy	Lighting Efficiency Standards Request for Data—Sign-on letter
2/20/2018	Department of Energy	CFA Joins in Comments to DOE on Test Procedures for Microwaves
7/25/2018	Department of Energy	Opposition to (CEI) Petition for Separate class for short cycle dishwashers
8/14/2018	Department of Energy	DFR for Pool Pump Motor efficiency standards (Sign-on)
10/23/2018	Department of Energy	Dedicated Pool Pump Motors letter
1/14/2019	Department of Energy	CFA and NCLC File Comments with DOE Responding to Industry Petition to Weaken Furnace Standards
3/1/2019	Department of Energy	Joint letter to the DOE in opposition of a gas industry petition that would separate furnaces by their technology
5/3/2019	Department of Energy	Comments to the DOE on proposed lamp rollback
5/10/2019	Department of Energy	Letter requesting a public hearing on its proposal to change the way requests for a temporary test procedure waivers on the energy efficiency of products
8/6/2019	Department of Energy	Expressing concern over a proposal to change interim test procedure waiver process
9/9/2019	Department of Energy	Letter opposing agency's proposed interpretive rule affecting furnace efficiency standards
11/4/2019	Department of Energy	Opposing DOE NPRM on incandescent light bulbs
2/14/2020	Department of Energy	Comment letter supporting long-standing refrigerator and freezer standards
3/16/2020	Department of Energy	Letter opposing proposed changes to energy efficiency standards-setting process

4/6/2020	Department of Energy	Encouraging improvements to proposed test procedures for refrigerators and freezers (Docket Number EERE–2017–BT–TP–0004/RIN 1904-AD84)
5/15/2020	Department of Energy	Addressing the Department's statutory obligations to review standards and test procedures
5/15/2020	Department of Energy	Calling on the department to complete work required by Congress
8/10/2020	Department of Energy	Providing a 60-day notice that the groups will sue if DOE doesn't fulfill legal obligations around updating standards
Vehicle Standards		
12/30/2016	EPA	CFA Comments to EPA in Support of Continued Implementation of Fuel Economy Standards Program
2/23/2017	Trump	CFA and CU Letter Calling on Trump to Keep Then Current Fuel Economy Standards
3/24/2017	California Air Resources Board	CFA Comments on the California Air Resources Board Mid-Term Review
7/24/2017	Department of Transportation	CFA Comments to Department of Transportation on Its Efforts to Improve the Regulatory Process
9/6/2017	EPA	Jack Gillis Testifies Before EPA on Final Determination of the Mid-term Evaluation
9/25/2017	NHTSA	CFA Provides Guidance to NHTSA on Environmental Impact Statement for Proposed Fuel Economy Standards, 2022 -2025
9/29/2017	EPA	CFA Submits Comments to EPA Regarding Possible Reconsideration of the 2022-2025 Model Year Gas Emission Standards
11/1/2017	Department of Transportation	CFA submitted Mark Cooper's $2 Trillion Mistake report in a larger filing regarding regulatory reform at the Department of Transportation
1/5/2018	EPA	CFA Comments on Proposed Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits Rule
3/29/2020	EPA	Multi-Group Letter to EPA on Maintaining the Current National Passenger Vehicle Fuel Economy and Emissions Standards
9/26/2018	EPA	Mel Hall-Crawford testified at EPA field hearings on the proposed withdrawal of Final Determination
9/27/2018	EPA	Jack Gillis testified at EPA field hearings on the proposed withdrawal of Final Determination
10/26/2018	EPA and NHTSA	CFA, with 32 Other Groups Respond to Administration's Proposal to Roll Back and Freeze Fuel Economy Standards
6/20/2019	House Subcommittees on Consumer Protection, Commerce; Environment and Climate Change	Testified Before House on EPA and NHTSA's Plan to Rollback and Freeze Fuel Economy Standards

ENDNOTES

[1] Environmental Protection Agency, In the Matter of Proposed Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026 EPA-HQ-OAR-2021-0208.

[2] Appendix A lists over two dozen comments CFA filed with regulators responsible for energy efficiency. In this analysis, we rely on the most recent filings submitted by CFA.

[3] Comments of Consumer Groups: In The Matter Of The Safer Affordable Fuel-Efficient 49 Cfr Parts 523, 531, 533, 536, And (SAFE 2) Vehicles Rule For Model Years 2021–2026; Passenger Cars And Light Department Of Transportation National Highway Traffic Safety Administration and the Environmental Protection Agency 537, 40 Cfr Parts 85 [Nhtsa–2018–0067; Epa–Hq–Oar–2018– Trucks 0283; Frl–9981–74–Oar] Rin 2127–Al76; Rin 2060–Au09 (hereafter Consumer Group Comments), Table 1.

[4] 42 U.S.C. Part A of Title III of the Energy Policy Conservation Act EPCA.

[5] Comments of the Consumer Federation of America, *Proposed Rulemaking to Establish Emission Standards and Corporate Average Fuel Economy Standards Environmental Protection Agency Light-Duty Vehicle Greenhouse Gas) 40 CFR Parts 86 and 600; Department of Transportation 49 CFR Parts 531,633, 537, et al.,* November 27, 2009, pp. 2-3. (Hereafter CFA National Program, 2009)

[6] Environmental Protection Agency, California Air Resources Board, National Highway Traffic Safety Administration, *Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025,* July 2016, p. 1-3, (hereafter, TAR).

[7] Id. For general consideration.

[8] Wikipedia, *Administrative Procedure Act,* The following quotes are from this source.

[9] As described in Appendix B of Cooper, Mark. 2017, Trump's $2 Trillion Mistake, The "War on Energy Efficiency. (Hereafter $2 Trillion)

[10] Executive Order 13771

[11] $2 Trillion, Table 3.2.

[12] Environmental Protection Agency, In the Matter of Proposed Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026 EPA-HQ-OAR-2021-0208, Regulatory Impact Assessment (hereafter, EPA, NPRM, RIA). Table 4.1

[13] David Greene and Jilleah G. Welch, The Impact of Increased Fuel Economy for Light-Duty Vehicles on the Distribution of Income in the United States, Oak Ridge National Laboratory and the Energy Foundation, September 2016, pp. 60- 62; David Greene and Jilleah G. Welch, *The Impact of Increased Fuel Economy for Light-Duty Vehicles on the Distribution of Income in* the *United States*: *A Retrospective and Prospective Analysis,* Oak Ridge National Laboratory and the Energy Foundation, March 2017, section 5.2.

[14] Jack Gillis and Richard Eckman, entitled, *An Analysis of Consumer Savings and Automaker Progress On the Road to 2025 CAFE Standards Increasing Fuel Economy Saves Consumers Money, Sells Vehicles, Keeps American Companies Competitive and, Most Importantly, is Achievable,* July 24, 2017

[15] Jack Gillis, entitled, Trump, Wheeler and Chao Mislead America On Fuel Efficiency and Auto Safety, October 25, 2018

[16] Crash Imminent Braking, Dynamic Brake Support, Lane Keeping Assist, Blind Spot Detection, and Pedestrian Crash Avoidance.

[17] Based on NHTSA's 2016 Motor Vehicle Crashes: Overview.

[18] Jack Gillis, entitled, Fuel Economy Standards: There Is No Tradeoff With Safety, Cost, And Fleet Turnover, July 24, 2018

[19] Jack Gillis and Mark Cooper, entitled, Report On Consumer Attitudes Toward Fuel Economy Standards, September 25, 2018

[20] Memorandum To: Docket EPA-HQ-OAR-2009-0472, Subject: Economy-Wide Impacts of Greenhouse Gas Tailpipe Standards, March 4, 2010.

[21] Lisa Ryan, and Nina Campbell, 2012, *Spreading the Net: The Multiple Benefits of Energy Efficiency Improvements.* Insight Series. Paris, France: International Energy Agency, pp. 1…2 …3.

[22] Transportation and Economic Development Authors: Dr. Jean-Paul Rodriguez and Dr. Theo Notteboom, http://people.hofstra.edu/geotrans/eng/ch7en/conc7en/ch7c1en.html. A regional analysis reinforces this observation, Oregon, Transportation, Plan Update, Transportation and the Economy Manufacturing is dependent on transportation to receive raw materials and to deliver its products. Manufacturing is usually a

highly competitive activity. Unless an area has other low-cost attributes, high transportation costs will cause manufacturers to leave or avoid that area.

[23] Memorandum To: Docket EPA-HQ-OAR-2009-0472, Subject: Economy-Wide Impacts of Greenhouse Gas Tailpipe Standards, March 4, 2010.

[24] U.S. EPA, 2010, pp. 3-4.

[25] Memorandum To: Docket EPA-HQ-OAR-2009-0472, Subject: Economy-Wide Impacts of Greenhouse Gas Tailpipe Standards, March 4, 2010.

[26] Id., p. 1.

[27] The Institute for European Environmental Policy, Review of Costs and Benefits of Energy Savings: Task 1 Report 'Energy Savings 2030, May 2013, review of studies lists seven studies covering the residential building and the industrial sectors covering a handful of European nations in 2010-2013. The effects studies were primarily employment, cost of saved energy and competitiveness. Worrel, Ernst, et al., 2003, "Productivity Benefits of Industrial Energy Efficiency Measures," Energy, 28(11),, et al., identified 70 industrial case studies, with 52 that monetized the benefits.

[28] Max Wei, Shana Patadia, and Daniel Kammen, 2010, "Putting Renewables and Energy Efficiency to Work: How Many Jobs Can the Clean Energy Industry Generate in the US?" *Energy Policy* 38.

[29] Ryan and Campbell, 2012. identify a dozen partial equilibrium models that have been applied to regions within nations, individual nations, groups of nations and the global economy. The effects analyze include GDP, employment by sector, public budgets, trade, distribution, and investment.

[30] For example, EPA, 2010, IGEM; Rachel Gold, et al., 2011, *Appliance and Equipment Efficiency Standards: A Money Maker and Job Creator,* American Council for an Energy Efficient Economy, January 2011, p. 9, based on the IMPLAN Model, 2009. Jamie Howland, et al., 2009, *Energy Efficiency: Engine of Economic Growth.* Rockport, ME: Environment Northeast; New York State Energy Research & Development Authority, 2011, *Macro-Economic Impact Analysis of New York's Energy Efficiency Programs: Using REMI Software.* Albany NY: NYSERDA, August 4; Holmes Ingrid and Rohan Mohanty, 2012, *The Macroeconomic Benefits of Energy Efficiency: The Case for Pubic Action,* E3G, April; Cambridge Centre for Climate Change Mitigation Research, 2006, *The Macro-Economic Rebound Effect and the UK Economy.* Cambridge, U.K.: Cambridge Econometrics and Policy Studies Institute, May; .

[31] For example, New York (NYSERDA, 2011), New England (Howland and Murrow), California (David Roland-Holst, 2016)

[32] For example, U.S. (Gold, et al., 2011, Warr, Ayres and Williams, 2009) and UK (Cambridge Center, 2006),

[33] Gold, et al., "In our experience modeling efficiency investments, we find that re-spending the energy savings typically creates an equivalent number of jobs as implementing the investment." (p. 2)

[34] Worrell, 2003, p. 5.

[35] EPA, 2012-2016,

[36] Ryan Wiser, Mark Bolinger and Matt St. Clair, 2005. *Easing the Natural Gas Crisis: Reducing Natural Gas Prices through Increased Deployment of Renewable Energy and Energy Efficiency,* Lawrence Berkeley Laboratory, January.

[37] Id., p. 5., Howland, et al., 2009.