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## Blinded by the Light

Crusade Against Energy Efficiency Initiatives Ignores Their Role in Saving Consumers Money

## **Acknowledgments**

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While his decision to withdraw from the Paris climate accord drew worldwide headlines, less attention has been paid to efforts by President Donald Trump and his allies to undermine energy efficiency standards, which are the most effective way to reduce emissions.

These actions are particularly shortsighted because efficiency standards have a lengthy record of providing significant financial benefits to consumers and businesses, meaning that they make sense even in the absence of concerns over pollution, dependence on foreign oil or global warming.

Critics of efficiency standards have regularly put forth gloomy forecasts that they will result in higher costs, reduced quality and fewer choices. But reality has differed, as the experience of the past 16 years illustrates.

In 2001, as parts of the country were facing rolling blackouts, a task force run by Vice President Dick Cheney forecast that the United States would need to increase electricity production by at least 45 percent over the ensuing 20 years to keep up with demand. “Conservation may be a sign of personal virtue,” Cheney famously said. “But it is not a sufficient basis for a sound, comprehensive energy policy.”<sup>1</sup>

In reality, efficiency measures are the most inexpensive way to offset increased demand for electricity, and the experience of the past 16 years has borne this out.<sup>2</sup> U.S. electricity consumption has increased by only 5 percent since 2001 while the nation’s gross domestic product has risen 75 percent. Improved energy efficiency is the primary explanation for the nation’s relatively flat consumption amid such significant economic growth. Meanwhile, auto mileage standards have been markedly increased in recent years while auto sales have hit record levels.

Despite these successes, Trump’s election has brought a new round of calls to repeal energy efficiency standards that would save consumers billions of dollars if left in place.

- The far-right U.S. House Freedom Caucus seeks to repeal 22 efficiency standards for appliances. The standards are projected to save consumers \$212 billion over the next 30 years if left intact. More broadly, the entire corpus of energy efficiency standards for appliances is projected to cumulatively save Americans \$2.4 trillion from 1987 to 2035, according to calculations by Appliance Standards Awareness Project and American Council for an Energy-Efficient Economy.<sup>3</sup>
- The Trump administration has proposed eliminating the Energy Star program, a voluntary initiative that certifies products that achieve significantly higher energy efficiency than others in their category. The Environmental Protection Agency calculates that the Energy

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<sup>1</sup> NATIONAL ENERGY POLICY: REPORT OF THE NATIONAL ENERGY POLICY DEVELOPMENT GROUP (May 2001), <http://bit.ly/2rpPugg>.

<sup>2</sup> See, e.g., MAGGIE MOLINA, AMERICAN COUNCIL FOR AN ENERGY EFFICIENT ECONOMY, THE BEST VALUE FOR AMERICA’S ENERGY DOLLAR: A NATIONAL REVIEW OF THE COST OF UTILITY ENERGY EFFICIENCY PROGRAMS (March 25, 2014), <http://bit.ly/2rNC89o>.

<sup>3</sup> ANDREW DELASKI AND JOANNA MAUER, APPLIANCE STANDARDS AWARENESS PROJECT AND AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, ENERGY-SAVING STATES OF AMERICA: HOW EVERY STATE BENEFITS FROM NATIONAL APPLIANCE STANDARDS (February 2017), <http://bit.ly/2sTP1uY>.

Star program saved consumers \$430 billion from 1990 to 2015, and \$34 billion in 2015, alone. The program costs about \$57 million a year to administer, which is to say that it saves about 600 times more money than it costs.

- The Trump administration's Environmental Protection Agency has ordered a review of fuel economy standards for vehicles to be sold in model years 2022 to 2025. Those standards are projected to save consumers \$56 billion.

The Trump administration also has proposed eliminating or severely curtailing programs that provide funding for research into clean energy initiatives that are credited, among other things, with helping to lower the costs of electricity produced by solar voltaic cells nearly to that of electricity produced by fossil fuels.

Some critics might object to efficiency initiatives because of the political persuasion of their champions. "The conservation rules are a part of the green agenda being pushed by the left," said a comment in a report by Freedom Caucus Chairman Mark Meadows (R-S.C.).<sup>4</sup> Other opposition might be rooted in hostility to government initiatives, in general. And other resistance may stem from a desire to win favor – and funding – from the fossil fuel industry.<sup>5</sup>

But opponents should see their way clear to letting their objections go. Government policies have repeatedly and unmistakably spawned innovations that simply would not have otherwise occurred, reducing emissions and saving Americans money without harming the economy.

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<sup>4</sup> SPECIAL REPORT FROM THE OFFICE OF CONGRESSMAN MARK MEADOWS, FIRST 100 DAYS: RULES, REGULATIONS AND EXECUTIVE ORDERS TO EXAMINE, REVOKE, AND ISSUE (Jan. 18, 2017), <http://bit.ly/2qh11ts>.

<sup>5</sup> See, e.g., Coral Davenport and Eric Lipton, *How G.O.P. Leaders Came to View Climate Change as Fake Science*, THE NEW YORK TIMES (June 3, 2017), <http://nyti.ms/2siQDI3>.

## I. Appliance Efficiency Standards Save Consumers Trillions of Dollars Over Time

Today, more than 60 appliances are covered by federal efficiency standards on household products. The federal program of setting standards for appliances has been an unqualified success. Compared to products purchased in 1990, when the first federal standards took effect, clothes washers use 70 percent less energy, air conditioners and refrigerator 50 percent less, and dishwashers 40 percent less.<sup>6</sup>

These gains in efficiency have not driven up the cost of products. For instance, a refrigerator purchased in 2010 costs about one-third as much (in inflation-adjusted dollars) as one purchased in 1975.<sup>7</sup> This is not to say that there is no cost to manufacturers to meet efficiency standards, but that other savings have more than covered those expenses.

Federal enactment of the appliance standards was halting. In the wake of the energy crisis of 1973, Congress in 1975 authorized the government to begin testing appliances – such as refrigerators, clothes washers and air conditioners – for efficiency performance.<sup>8</sup> In 1978, Congress instructed the U.S. Department of Energy to establish efficiency standards for 13 products. But regulations to implement the standards were not completed before President Ronald Reagan took office in 1981.<sup>9</sup>

Less than a month after assuming power, the Reagan Administration halted the rulemakings. The efficiency standards “would impose massive regulatory burdens on the private sector” and would have been “a nightmare to administer and enforce,” the administration said.<sup>10</sup>

In 1986, Reagan vetoed a bill that would have mandated the creation of efficiency standards, saying that the bill “intrudes unduly on the free market, limits the freedom of choice available to consumers who would be denied the opportunity to purchase low-cost appliances and constitutes a substantial intrusion into traditional state responsibilities and prerogatives.”<sup>11</sup>

By then, however, appliance manufacturers were lobbying for the national standards, in large part because states had begun filling the vacuum created by the federal government’s inaction. Manufacturers desired uniform rules. In 1987, Congress passed a standards-setting bill by a veto-proof majority, and Reagan signed it.<sup>12</sup>

Since then, the standards have enjoyed widespread, mainstream acceptance. Representatives of industry accept the standards in principle, even if they may quibble with some specifics. “These national standards have resulted in significant energy savings and, as we know from the past several years, have become the foundation for additional energy efficiency awareness and incentive

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<sup>6</sup> *Saving Energy and Money with Appliance and Equipment Standards in the United States*, U.S. DEPARTMENT OF ENERGY (Updated January 2017), <http://bit.ly/2rAcGRp>.

<sup>7</sup> Marianne DiMascio, *How Your Refrigerator Has Kept Its Cool Over 40 Years Of Efficiency Improvements*, AMERICAN COUNCIL FOR AN ENERGY EFFICIENT ECONOMY (Sept. 11, 2014), <http://bit.ly/2stGgYg>.

<sup>8</sup> Energy Policy and Conservation Act, 94th Congress (1975).

<sup>9</sup> *U.S. to Ease Some Energy-Saving Rules*, THE NEW YORK TIMES (Feb. 19, 1981).

<sup>10</sup> *Id.*

<sup>11</sup> Martin Tolchin, *An Industry Asks for Regulation*, THE NEW YORK TIMES (Feb. 17, 1987).

<sup>12</sup> *Id.*

policies that have generated additional energy savings,” Association of Home Appliance Manufacturers President Joseph M. McGuire testified to the U.S. House of Representatives in 2015.<sup>13</sup>

Against this backdrop, a small but vocal minority continues to rail against the standards. The conservative Heritage Foundation think tank – which was highly influential in shaping the Reagan administration and now the Trump administration – has beaten a steady drum.

“You have houseguests and you may not even know it. Indeed, they can be found in virtually every room of your home,” two Heritage Foundation scholars wrote in September 2016. “We’re referring to federal regulators. They’re determined to reduce your energy use, no matter how much it costs you or takes decisions out of your hands.”<sup>14</sup>

The right-wing’s antipathy toward efficiency standards was crystalized in a short-lived campaign to repeal a requirement in the 2007 energy bill on light bulb efficiency.

Conservative news outlets reported at least 40 times that the law banned the use of incandescent bulbs.<sup>15</sup> Rep. Michele Bachmann (R-Minn.) cast the requirement as an affront to Thomas Edison, inventor of the light bulb.<sup>16</sup> *The Wall Street Journal* ran an editorial under the banner “The Light Bulb Police. Americans Deserve Their Choice of Illumination.”<sup>17</sup> The article claimed that the law would force people to rely on dreaded compact fluorescent bulbs.

As it turned out, those who had looked to *The Wall Street Journal’s* editorial page for illumination were ill-served. The law did not, in fact, ban incandescent light bulbs. Meanwhile, the law spurred rapid innovation in LED bulbs, which emit light comparable to traditional bulbs, use a fraction of the energy and can last up to 25 years. LED bulbs were little more than a curiosity when the energy bill was signed in 2007. As recently as 2012, they cost \$40 to \$50 apiece.<sup>18</sup> Today, they cost less than \$4 each and are rapidly revolutionizing the lighting industry.<sup>19</sup>

The light bulb episode was emblematic of a repeated pattern on energy efficiency initiatives. Invariably, critics darkly warn of rising costs, declining quality and disappearing choices. Then, with remarkable consistency, industry applies its ingenuity and satisfies the efficiency requirement, without adverse effects.

Economists Arlan Brucal and Michael Roberts reached even more optimistic conclusions in a March 2017 paper reporting on the price and quality of major appliances sold in the United States

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<sup>13</sup> Testimony of Joseph M. McGuire President and Chief Executive Officer Association of Home Appliance Manufacturers Before the Subcommittee on Energy and Power U.S. House of Representatives (June 10, 2016), <http://bit.ly/2rAf2Qf>.

<sup>14</sup> Nicolas Loris and Katie Tubb, *Getting Sucker Punched by Energy Efficiency Regulations*, THE HERITAGE FOUNDATION (Sept. 21, 2016), <http://bit.ly/2saZkf2>.

<sup>15</sup> Stephen Moore, *Let There Be Light Bulbs*, THE WALL STREET JOURNAL (July 15, 2011), <http://on.wsj.com/2qFyFGr>

<sup>16</sup> Tim Murphy, *First They Came for the Lightbulbs...*, MOTHER JONES (Aug. 4, 2011), <http://bit.ly/2qh1v2Z>.

<sup>17</sup> *The Light Bulb Police: Americans Deserve Their Choice of Illumination*, THE WALL STREET JOURNAL (Editorial) (June 7, 2011), <http://on.wsj.com/2rtdjtz>.

<sup>18</sup> Daniel Gross, *Flicker On, Flicker Off*, SLATE (Feb. 5, 2016), <http://slate.me/2qFzbnR>.

<sup>19</sup> GE Lighting 25037 LED 11-Watt (60-watt replacement), 800-Lumen A19 Bulb with Medium Base, Soft White, 2-Pack, AMAZON.COM (viewed on May 19, 2017), <http://amzn.to/2qC1v1O>.

between 2001 and 2011. Brucal and Roberts reported that manufacturers' efforts to meet efficiency standards was associated with improved quality and reduced prices, on the whole.

"We find no evidence to suggest that more stringent energy efficiency standards hurt consumers by increasing price or lowering quality," they wrote. "Rather, we find evidence that price declines and quality improvements accelerate with stricter standards, which unambiguously improves consumer welfare, excluding external pollution-related benefits."<sup>20</sup>

***Standards Targeted by the Freedom Caucus Would Save Consumers \$212 Billion Over 30 Years***

In anticipation of the inauguration of Donald Trump, Rep. Mark Meadows (R-S.C.) issued two largely overlapping reports, both titled "First 100 Days: Rules, Regulations and Executive Orders to Examine, Revoke, and Issue." One of the reports was officially issued by Meadows' office; the other carried the logo of the far-right House Freedom Caucus, which Meadows chairs.<sup>21</sup> One of the reports included a table under the title "Recommended List of Regulations to Remove." The other report listed regulations under the title "Rules, Regulations, and Executive Orders to Examine, Revoke, and Issue."

Among the regulations targeted in the reports were 22 efficiency standards issued in recent years. One of the reports included brief comments next to each line item. "The conservation rules are a part of the green agenda being pushed by the left," read a comment next to a ceiling fan efficiency rule that the report listed for elimination. "They're costly and benefit only certain providers, and dramatically effect [sic] markets like real estate and construction."<sup>22</sup>

Each new efficiency standard results from an extensive rulemaking process in which the Department of Energy solicits input from industry and other stakeholders, and assesses the feasibility of potential efficiency improvements. The DOE also estimates the costs to meet the new standard and the expected savings to consumers in the form of decreased energy consumption.

The DOE expresses these costs and savings over a 30-year horizon adjusted for "present value" to account for the depreciating value of money over time. The result of subtracting expected costs from expected savings is known as the "net present value." This is the approximation of the overall cost or benefit to consumers in current dollars. The DOE also attempts to place a dollar value on the benefits to society from averted pollution and greenhouse gas emissions. This paper, however, is limited to reporting on the financial benefits from reduced utility bills.

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<sup>20</sup> ARLAN BRUCAL AND MICHAEL ROBERTS, DO ENERGY EFFICIENCY STANDARDS HURT CONSUMERS? EVIDENCE FROM HOUSEHOLD APPLIANCE SALES, CENTRE FOR CLIMATE CHANGE ECONOMICS AND POLICY WORKING PAPER No. 300 AND GRANTHAM RESEARCH INSTITUTE ON CLIMATE CHANGE AND THE ENVIRONMENT WORKING PAPER No. 266 (March 16, 2017), <http://bit.ly/2qXaMcN>.

<sup>21</sup> SPECIAL REPORT FROM THE OFFICE OF CONGRESSMAN MARK MEADOWS, FIRST 100 DAYS: RULES, REGULATIONS AND EXECUTIVE ORDERS TO EXAMINE, REVOKE, AND ISSUE (Dec. 14, 2016) [Carries Freedom Caucus logo], <http://bit.ly/2rw58hj> and SPECIAL REPORT FROM THE OFFICE OF CONGRESSMAN MARK MEADOWS, FIRST 100 DAYS: RULES, REGULATIONS AND EXECUTIVE ORDERS TO EXAMINE, REVOKE, AND ISSUE (Jan. 18, 2017), <http://bit.ly/2qh11ts>.

<sup>22</sup> SPECIAL REPORT FROM THE OFFICE OF CONGRESSMAN MARK MEADOWS, FIRST 100 DAYS: RULES, REGULATIONS AND EXECUTIVE ORDERS TO EXAMINE, REVOKE, AND ISSUE (Jan. 18, 2017), <http://bit.ly/2qh11ts>.

The DOE estimates that the net savings of the 22 rules targeted by Meadows and the Freedom Caucus will total \$212 billion over 30 years. [See Table 1]

**Table 1: Net Present Value of Efficiency Standards Targeted by Freedom Caucus for Elimination**

Rule	Net Present Value of Changes Required by Rule (in billions) <sup>23</sup>	Years Analyzed
Clothes Washer Energy Conservation Standards	\$31.29	2015–2044
Standards for Ceiling Fan Light Kits	\$0.66	2019-2048
Conservation Standards: Ceiling Fans	\$12.12	2020-2049
Conservation Standards: Central Air Conditioners	\$12.20	2023-2052
Efficiency Standards, power supplies	\$4.40	2019-2048
Efficiency Standards: Heating Equipment	\$6.75	2019-2048
Conservation Standards: Boilers	\$1.69	2019-2048
Conservation Standards: Ovens	\$6.24	2019-2048
Conservation Standards: Portable A/C	\$5.20	2021-2050
Conservation Standards: Gas Furnaces	\$21.70	2022-2051
Conservation Standards: Dishwashers	\$2.20	2019-2048
Conservation Standards: Hearth	\$3.12	2021-2050
Conservation Standards: Freezers	\$4.30	2020-2049
Energy Conservation Program: Energy Conservation Standards for Dehumidifiers	\$2.71	2019-2048
Energy Conservation Program: Energy Conservation Standards for Battery Chargers	\$1.20	2018-2047
Conservation Program for Consumer Products: Energy Conservation Standards for Residential Furnace Fans	\$28.80	2019-2048
Energy Conservation Standards for Commercial Refrigeration Equipment	\$11.74	2016-2047
Energy Conservation Program: Energy Conservation Standards for Metal Halide Lamp Fixtures	\$1.10	2017-2046
Energy Conservation Standards Manufactured Housing.	\$4.03	2017-2046
Energy Conservation Program for Certain Industrial Equipment: Energy Conservation Standards for Small, Large, and Very Large Air-Cooled Commercial Package Air Conditioning and Heating Equipment and Commercial Warm Air Furnaces	\$50.00	2018-2048
Standards for Refrigerated Bottled or Canned Beverage Vending Machines	\$0.51	2019-2048
Energy Conservation Program: Energy Conservation Standards for Miscellaneous Refrigeration Products	\$11.02	2019-2048
<b>Total</b>	<b>\$211.96</b>	

<sup>23</sup> The DOE evaluates the present value of future costs and savings using both a 3 percent and 7 percent discount rate. Rep. Mark Meadows and the Freedom Caucus used the 3 percent discount rate in their reports' accounting of the costs of regulations. This report, likewise, uses the 3 percent figure. A 3 percent discount rate yields higher estimated costs than a 7 percent rate because it assumes that today's dollar will more fully hold its value over a 30 year horizon. This lower discount rate yields higher estimated savings for the same reason.



### ***Net Savings for All Efficiency Standards Are on Course to Total \$2.4 Trillion Through 2035***

The expected savings from the rules targeted by the Freedom Caucus relate to only 22 of about 60 products covered by federal efficiency guidelines. Researchers for Appliance Standards Awareness Project and American Council for an Energy-Efficient Economy in February 2017 published a white paper that sought to estimate cumulative savings due to appliance efficiency standards from 1987 through 2035.<sup>24</sup>

Relying on data from the federal government and other researchers, they concluded that the efficiency standards will provide net cumulative savings to consumers of \$2.4 trillion through 2035 (in 2016 dollars, using a 5 percent discount rate).<sup>25</sup> As discussed above, net savings take into account increased costs to manufacturers to satisfy the efficiency standard.

## **II. The Trump Administration Seeks to Eliminate the Energy Star Program, Which Has Saved Americans \$430 Billion Over 25 years, According to the EPA**

In 1992, with bipartisan backing, the Environmental Protection Agency introduced a voluntary labeling initiative called Energy Star to recognize products that operated significantly more efficiently than others in their classes.<sup>26</sup>

Initially, the program covered computers and monitors, then office products, residential heating and cooling equipment and appliances. Today, it also covers entire residential, commercial and industrial buildings.

The EPA estimated in 2017 that the program had saved consumers and businesses about \$430 billion since 1992. The EPA credits the program with yielding \$34 billion in savings in 2015, the most recent year for which it provides an estimate.<sup>27</sup>

The EPA arrives at that estimate by comparing the minimum efficiency standards to be rated under the Energy Star program to those for similar products. In product classes for which no efficiency standards exist, the EPA compares the performance of the Energy Star-rated product to the average performance of products in that category.<sup>28</sup>

The EPA may overestimate its role in creating savings because it gives the program credit for unusually efficient products that manufacturers might have developed anyways. In some cases, the method might underestimate the role of Energy Star because it fails to take into account cases in which products exceed the Energy Star efficiency thresholds.

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<sup>24</sup> ANDREW DELASKI AND JOANNA MAUER, APPLIANCE STANDARDS AWARENESS PROJECT AND AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, *ENERGY-SAVING STATES OF AMERICA: HOW EVERY STATE BENEFITS FROM NATIONAL APPLIANCE STANDARDS* (February 2017), <http://bit.ly/2sTP1uY>

<sup>25</sup> *Id.*

<sup>26</sup> *Origins and Mission*, U.S. DEPARTMENT OF ENERGY Web site (viewed on June 2, 2017), [https://www.energystar.gov/about/origins\\_mission](https://www.energystar.gov/about/origins_mission).

<sup>27</sup> Press release, Environmental Protection Agency, *EPA Honors 2017 Energy Star Partners of the Year for Outstanding Achievements in Energy Efficiency* (April 6, 2017), <http://bit.ly/2siGaHn>.

<sup>28</sup> *Office of Atmospheric Programs Climate Protection Partnerships 2014 Annual Report*, U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF AIR AND RADIATION, <http://bit.ly/2qzlLjl>.

Nonetheless, even if savings from the program were only a fraction of the EPA's estimates, the program would still likely pay for itself many times over. In comparison to the EPA's estimate that the Energy Star program yielded \$34 billion in savings in 2015, the program cost the government about \$57 million to administer that year.<sup>29</sup> That means that the program's estimated savings are about 596 times greater than its cost.

The Trump administration's budget proposal for the remainder of fiscal year 2017 called for eliminating the Energy Star program completely.<sup>30</sup>

In April, more than 1,000 businesses and organizations signed a letter to the chairs and ranking members of the U.S. House and Senate appropriations committees urging them to retain the program.

"Energy Star is a model for successful collaboration between the public and private sectors. It enjoys a long track record of success and should be strengthened, not weakened, to ensure it continues providing these important benefits to the public while helping us meet our energy and environmental goals," the letter said. "We respectfully urge you to stand with us in support of Energy Star." Major corporations signing the letter included Johnson Controls, Intel and Philips Lighting.<sup>31</sup>

At the beginning of May, Congress passed a budget to fund the government through September. This short-term budget included only about a 1 percent cut to the EPA, in contrast to a 31 percent cut that the administration had proposed, and did not single out Energy Star.<sup>32</sup> A few weeks later, Trump released his 2018 budget proposal, which once again called for eliminating the program.<sup>33</sup>

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<sup>29</sup> Nives Dolsak and Aseem Prakash, *The Trump Administration Wants to Kill the Popular Energy Star Program Because It Combats Climate Change*, THE WASHINGTON POST (March 23, 2017), <http://wapo.st/2qlu1GT>.

<sup>30</sup> *America First: A Budget Blueprint to Make America Great Again*, U.S. OFFICE OF MANAGEMENT AND BUDGET (March 13, 2017), <http://bit.ly/2qzFnPU>.

<sup>31</sup> Letter signed by roughly 1,050 organizations and businesses to the chair and ranking member of the U.S. House of Representatives Committee on Appropriations Subcommittee on Interior, Environment, Subcommittee on Interior, Environment, and Related Agencies and U.S. Senate Committee on Appropriations, Subcommittee on Interior, Environment, Subcommittee on Interior, Environment, and Related Agencies (April 24, 2017), <http://bit.ly/2qOFnrU>.

<sup>32</sup> Trey Barrineau, *Budget Deal Keeps EPA Fully Funded — For Now*, DOOR AND WINDOW MARKET MAGAZINE (May 2, 2017), <http://bit.ly/2qCvgXb>.

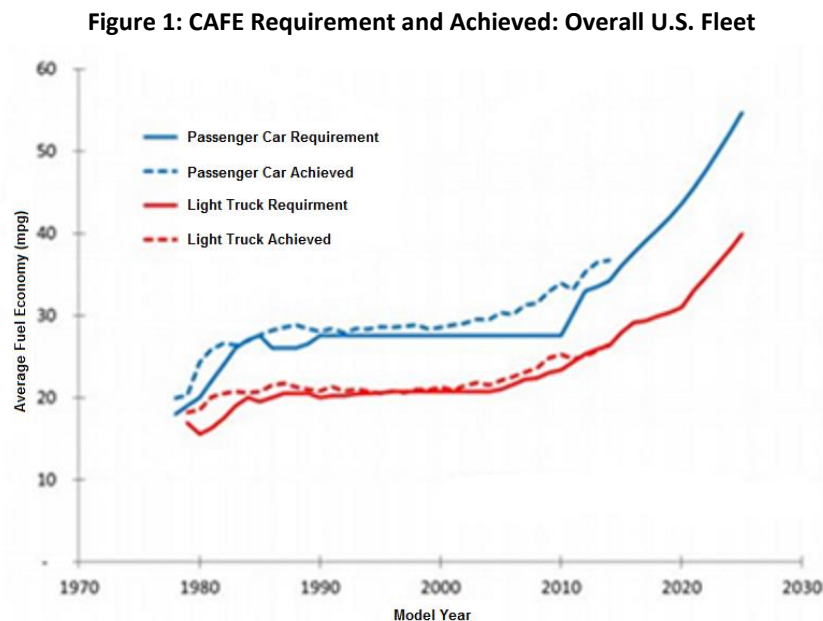
<sup>33</sup> U.S. ENVIRONMENTAL PROTECTION AGENCY FISCAL YEAR 2018 JUSTIFICATION OF APPROPRIATION ESTIMATES FOR THE COMMITTEE ON APPROPRIATIONS (May 2017), <http://bit.ly/2rO3Tyx>.

### III. The Trump Administration Is Reviewing Automobile Fuel Economy Standards That Would Save Consumers \$56.1 Billion for Cars Sold in Model Years 2022 to 2025 Alone

The Energy Policy and Conservation Act of 1975, a law passed in the wake of the 1973 oil crisis, called for fuel economy standards for new passenger cars starting with the 1978 model year. The policy was intended to nearly double the fuel economy of U.S. automobiles by 1985.<sup>34</sup>

The fuel economy of passenger cars did indeed roughly double, from about 13.1 miles per gallon (mpg) in 1975 to 27.6 mpg in 1985, although that accomplishment benefited from friendly scorekeeping, as the 1975 figure reflected actual performance and the 1985 figure reflected testing results from a government treadmill.<sup>35</sup> As a decline in gas prices reduced consumer demand for more efficient cars, the automakers asked the administration of President Ronald Reagan to ease standards, which are technically known as Corporate Average Fuel Economy (CAFE) rules. After peaking in 1985, the standard for passenger cards languished at 27.5 mpg more than two decades.

While the standards plateaued, so did increases in efficiency. In Figure 1 below, provided by the EPA, the solid lines reflect the requirements for passenger cars (blue) and trucks (red). The dotted lines reflect fleet-wide performance as measured by the government's tests. The figure shows that efficiency achievements tend to parallel requirements.

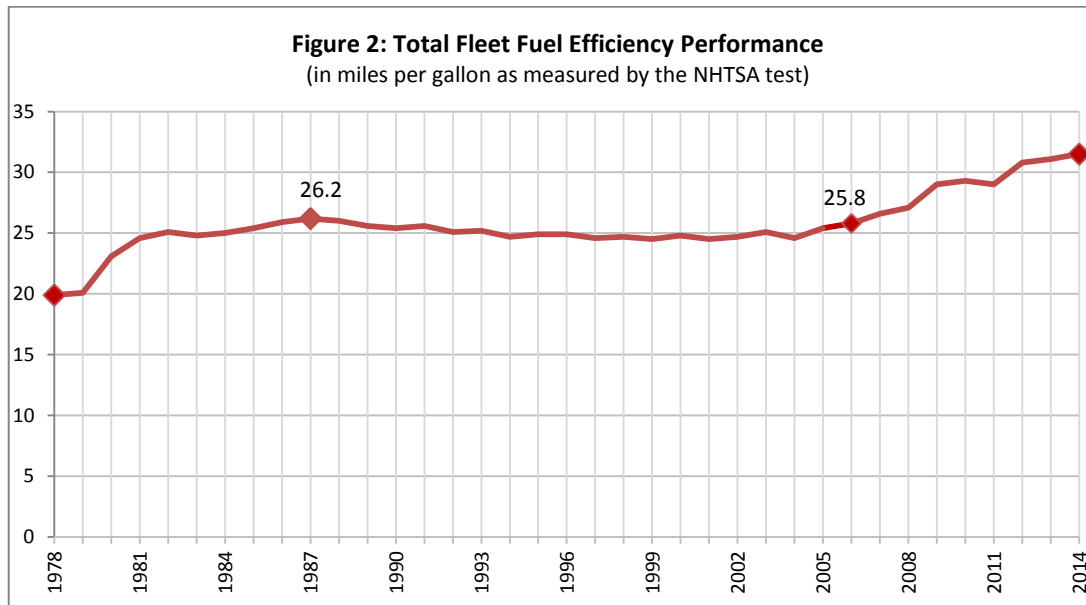


Source: Environmental Protection Agency. (Figure is slightly edited to remove extraneous information.)

<sup>34</sup> *A Brief History of U.S. Fuel Efficiency Standards*, UNION OF CONCERNED SCIENTISTS (viewed on May 19, 2017), <http://bit.ly/2rmpVal>.

<sup>35</sup> *Driving to 54.5 MPG: The History of Fuel Economy*, Pew Charitable Trusts (April 201, 2011), <http://bit.ly/2rzLemL> and *Summary Of Fuel Economy Performance ( Public Version )*, U.S. DEPARTMENT OF TRANSPORTATION (Dec. 15, 2014), <http://bit.ly/2rAHyQy>. Note: This is not an apples-to-apples comparison because the 1975 figure reflects mileage in actual driving conditions, whereas the 1985 figure reflects mileage according to the National Highway Transportation Safety Administration testing method, which inflates mileage by 20 to 25 percent. Thus, actual 1985 average mileage may have been as low as 22 mpg, which would still have represented a 64 percent improvement over 1975 performance.

This correlation between requirements and performance has been especially true for light trucks, a category that includes most SUVs. Because trucks have made up a steadily increasing share of vehicle sales, the stagnating fuel economy of trucks has brought down the national fleet's average. The fuel economy performance for the entire U.S. fleet was actually lower in 2007 than it had been 20 years earlier. [See Figure 2]



Source: National Highway Transportation Safety Administration.

The stagnating fuel economy was not due to an absence of technology advancements. Horsepower increased every year from 1981 to 2008, a streak of 28 straight years, while vehicle weight generally increased in that period, as well.<sup>36</sup> The automakers simply applied their technology advancements to squeezing out more power instead of greater distance.

Eventually, amid bipartisan concern over U.S. dependence on foreign oil, the federal government began to act.<sup>37</sup> In 2007, President George W. Bush signed the Energy Independence and Security Act of 2007, which called for fuel economy to rise to 35 miles per gallon by 2020. (These goals, as with other standards cited in this report, do not reflect real-world conditions. The EPA estimates that actual results are about 20 to 25 percent lower than the tests used to determine compliance.<sup>38</sup>)

Moreover, the law called for setting the “maximum feasible standard for each fleet” of vehicles for model years 2021 to 2030.<sup>39</sup> In 2009, President Barack Obama brokered a deal with the automakers and the state of California, which was threatening to set fuel efficiency requirements

<sup>36</sup> U.S. 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), at 3-8, <http://bit.ly/2rm4yXL>.

<sup>37</sup> Light Truck Average Fuel Economy Standards Model Years 2005–2007, 49 CFR Part 533, U.S. DEPARTMENT OF TRANSPORTATION, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (April 7, 2003), <http://bit.ly/2qGa0Qz>.

<sup>38</sup> Brad Plummer, *Can You Trust the Mileage Sticker on Your Car?* THE WASHINGTON POST (May 3, 2012), <http://wapo.st/2qCiyzE>.

<sup>39</sup> H.R. 6 - *Energy Independence and Security Act of 2007*, H.R. 6, 110th Cong. (Dec. 19, 2007), <http://bit.ly/2rzYMyE>.

that exceeded the federal standard. The agreement called for raising automakers' fleet-wide fuel economy standards to 35.5 miles per gallon (by NHTSA's test) by 2016.<sup>40</sup> The automakers did not object because they supported having a single national standard.<sup>41</sup>

Negotiations over that rulemaking occurred against a backdrop in which automakers General Motors and Chrysler were requesting federal bailout funds to survive in the wake of losses stemming from the Great Recession. In its request for federal support to the U.S. Senate, General Motors acknowledged that it had "made mistakes in the past," including "insufficient investment in smaller, more fuel-efficient vehicles for the U.S."<sup>42</sup>

In 2012, the Obama administration announced another round of new mileage goals, this time calling for fleet-wide mileage to rise to 54.5 mpg by 2025. At the request of the automakers, the new standards called for a midterm review in which the EPA and National Highway Traffic Safety Administration (NHTSA) would conduct in-depth studies of the automakers' progress and assess the feasibility of the meeting the requirements laid out for the 2022 to 2025 period. The regulation called on the EPA to reach a decision by April 2018 on whether to alter the requirements or maintain the status quo.

In recent years, the automakers have consistently exceeded the steadily increasing fuel economy requirements.<sup>43</sup> Meanwhile, auto sales in the United States set all-time records in 2015 and 2016.<sup>44</sup> General Motors and Ford Motor Company, the two largest U.S. automakers, earned records profits 2015.<sup>45</sup>

In July 2016, the EPA, NHTSA jointly released a 1,200 page technical assessment of progress on the fuel economy standards. "Manufacturers are adopting fuel economy technologies at unprecedented rates. Car makers and suppliers have developed far more innovative technologies to improve fuel economy and reduce [greenhouse gas] emissions than anticipated just a few years ago," the EPA said in summary of the technical report's findings.<sup>46</sup> "Manufacturers can meet the standards at

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<sup>40</sup> John M. Broder, *Obama to Toughen Rules on Emissions and Mileage*, THE NEW YORK TIMES (May 18, 2009), <http://nyti.ms/2rA8FfD>.

<sup>41</sup> *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards*, 49 CFR Parts 531, 533, 536, 537 and 538, U.S. ENVIRONMENTAL PROTECTION AGENCY AND NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (May 7, 2010), <http://bit.ly/2rw5h4h>.

<sup>42</sup> General Motors Restructuring Plan for Long-Term Viability Submitted to Senate Banking Committee & House of Representatives Financial Services Committee (Dec. 2, 2008), <http://bit.ly/2q1ijqB>.

<sup>43</sup> *Automakers Exceed EPA Fuel Economy Standards Again*, BUSINESS FLEET (Nov. 4, 2016), <http://bit.ly/2r18hd6>.

<sup>44</sup> Bill Vlasic, *Record 2016 for U.S. Auto Industry; Long Road Back May Be at End*, THE NEW YORK TIMES (Jan. 4, 2017), <http://nyti.ms/2qG21Ek>.

<sup>45</sup> Matthew Dolan, *Ford Reports \$4.6B Profit in 16 Despite Drop in Quarter*, DETROIT FREE PRESS (Jan. 26, 2017), <http://on.freep.com/2r19lhd>. Brent Snively, *GM Earns \$9.43 Billion in 2016; UAW Workers Get Record Profit Sharing*, DETROIT FREE PRESS (Feb. 7, 2017), <http://on.freep.com/2rAgWzh>.

<sup>46</sup> *Highlights of the Draft Technical Assessment Report*, U.S. ENVIRONMENTAL PROTECTION AGENCY (July 2016), <http://bit.ly/2rmeoIM>. See also, Sharon Silke Carty, *54.5 Mpg Target Is Off the Table, U.S. Regulators Say*, AUTOMOTIVE NEWS (July 18, 2016), <http://bit.ly/2qzKlfe>.

similar or even lower costs than what was anticipated in the 2012 rulemaking with substantial fuel savings payback to consumers.”<sup>47</sup>

The report evaluated numerous new technologies that automakers had developed, including advancements in engines, transmissions, tires, air conditioning and aerodynamics. The report also noted advances in electric cars and hybrid-electrics, which offer the potential for fuel economy equivalents far in excess of the 2025 standards. But the EPA concluded that the automakers could achieve the standards without selling large numbers of ultra-efficient hybrid and pure electric cars.<sup>48</sup>

John D. Graham, who ran the Office of Regulatory Affairs under President George W. Bush and helped coordinate the creation of updated standards for light trucks that took effect in 2007, called the report “one of the most complex and detailed regulatory documents I have ever read.”<sup>49</sup>

The automakers agreed with the report’s assessment that the standards could be met but claimed that meeting them would cause greater disruption than the government anticipated.

“There is no question that manufacturers are capable of developing and producing products that meet the [2022-2025] standards. However, the success of the program depends on customer purchase of those products, not the mere ability to produce them,” wrote the Alliance of Automobile Manufacturers, which represents 12 major automakers. “Rather than asking whether the auto industry can build a vehicle that achieves [2025] compliance, the Agencies should be asking whether the auto industry will be able to sell a fleet of vehicles that meet these future targets.”<sup>50</sup>

The Alliance of Automobile Manufacturers said that Americans’ preferences amid lower fuel prices would make it particularly difficult to meet the standards in an economically viable way. “Low consumer interest in high-mileage vehicles presents a serious challenge to these ambitious fuel economy and greenhouse gas targets,” a spokesman for the group said.<sup>51</sup>

The implication of the Alliance’s claim (and the version that is often summarized in press reports) is that lower fuel prices are prompting Americans to buy more pick up trucks and SUVs, thus making the national fuel efficiency goals unattainable. But that suggestion is misleading. The federal fuel efficiency requirements are based on the size, or “footprint,” of each vehicle, and each manufacturer’s overall standard is based on the mix of vehicles that it sells. The fuel economy requirements for larger vehicles are less than for smaller vehicle.

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<sup>47</sup> *Highlights of the Draft Technical Assessment Report*, U.S. ENVIRONMENTAL PROTECTION AGENCY (July 2016), <http://bit.ly/2rmeoIM>.

<sup>48</sup> *Id.*

<sup>49</sup> Testimony of John D. Graham, Joint Hearing of Subcommittee on Commerce, Manufacturing, and Trade and the Subcommittee on Energy and Power, U.S. House of Representatives House of Representatives (Sept. 22, 2016), <http://bit.ly/2rA81P8>.

<sup>50</sup> ALLIANCE OF AUTOMOBILE MANUFACTURERS COMMENTS ON DRAFT TECHNICAL ASSESSMENT REPORT: MIDTERM EVALUATION OF LIGHT-DUTY GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS FOR MODEL YEARS 2022-2025 (July 2016).

<sup>51</sup> Sam Ross-Brown, *Fighting Over Fuel*, AMERICAN PROSPECT (June 20, 2016), <http://bit.ly/2rMScrL>.

The government's estimate that the national fleet would achieve 54.5 mpg by 2025 was based on a forecast that passenger cars would outsell trucks by a ratio of 67 percent to 33 percent. By 2016, this projection was changed to assume a ratio of 53 percent to 47 percent. The shift in the expected car/truck ratio caused the government to recalculate its expectations. In its revised estimates, the government forecasts that compliance would result in average fuel economy of about 51 mpg (which would translate to about 36 miles per gallon in actual driving conditions) instead of 54.5 mpg (or 40 mpg in actual driving conditions).<sup>52</sup>

In more detailed comments, the Alliance of Automobile Manufacturers acknowledges that the standards adjust for the mix of vehicles sold. But it claims that lower fuel prices nonetheless hamper the industry's ability to meet that standards because consumers may not choose to pay for fuel economy features "within a particular vehicle footprint/platform."<sup>53</sup> In other words, the Alliance argues that lower fuel prices would both cause Americans to purchase large vehicles, and also less inefficient variations of those vehicles.

That challenge is easy enough to surmount, however. In short, the industry simply must limit its offerings to vehicles that offer impressive fuel efficiency performance. That would be consistent with the mandate in the 2007 energy bill for the government to set the "maximum feasible standard" for each fleet.

The automakers have claimed that pressing forward on efficiency will simply price buyers out of the market. But their recent strategy decisions combined with Americans' appetites for more expensive cars belie that claim. The automakers have steadily increased the number of standard and optional features in recent years, as automotive analysts Alan Baum and Dan Lauria wrote in late 2016.<sup>54</sup> The combination of these features combined and increased sales of larger vehicles caused the price of the average new vehicle sold in the United States to increase 22 percent between 2009 and 2015, to more than \$34,000.<sup>55</sup>

"Fuel economy standards are not free, but they are hardly a primary driver of why new vehicle prices have outpaced median income," Baum and Lauria wrote.<sup>56</sup>

In late November 2016, EPA administrator Gina McCarthy issued a "proposed determination" that the 2022 to 2025 fuel economy standards were feasible and, thus, should be maintained. The timing of this decision was a surprise because a final determination was not due for more than a year. On Jan. 12, 2017, with just more than a week remaining in the Obama administration, McCarthy

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<sup>52</sup> U.S. ENVIRONMENTAL PROTECTION AGENCY, PROPOSED DETERMINATION ON THE APPROPRIATENESS OF THE MODEL YEAR 2022-2025 LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSIONS STANDARDS UNDER THE MIDTERM EVALUATION: TECHNICAL SUPPORT DOCUMENT (November 2016), at p. 3-4, <http://bit.ly/2rziFML>.

<sup>53</sup> Mitch Bainwol, Statement of the Alliance of Automobile Manufacturers Before the Energy and Commerce Committee Subcommittee On Commerce, Manufacturing, And Trade and The Subcommittee On Energy And Power of the U.S. House of Representative (Sept. 22, 2016), <http://bit.ly/2sxCZXQ>.

<sup>54</sup> Alan Baum and Dan Lauria, *Fuel Economy Rules a Bogeyman for Long-Term Trends in Auto Industry*, THE HILL (Dec. 21, 2016), <http://bit.ly/2rzfsIX>.

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

followed up on her proposal by issuing a “final determination” that “automakers are well positioned to meet the standards at lower costs than previously estimated” and, therefore, the 2022 to 2025 standards would remain unchanged.<sup>57</sup>

But the final determination did not prove to be final. On March 15, 2017, incoming EPA administrator Scott Pruitt reversed McCarthy’s decision and reopened the evaluation period for the 2022 to 2025 standards, leaving their future in doubt.

***Standards for 2022-2025 Model Years Would Save Consumers \$56.1 Billion; Savings for the Entire Period Covered in the 2012 Rulemaking Were Projected to Save Consumers \$325 Billion***

The U.S. Environmental Protection Agency, National Highway Traffic Safety Administration and California Air Resources Board estimated in July 2016 that achievement of the standards for 2022 to 2025 will raise costs to consumers by \$35.5 billion while saving consumers \$91.6 billion in fuel costs over the life of the automobile (measured in present dollar values at a 3 percent discount rate).<sup>58</sup> [See Table 2] Note: As with appliance efficiency standards, government projections separately place a value on nonmonetary benefits, such as reductions in pollution and greenhouse gases. This paper, however, solely reports on the benefit of reduced fuel costs.

**Table 2: Costs and Benefits of Fuel Efficiency Standards Model Years 2022-2025**

<b>Costs*</b>	<b>Change</b>
Change in costs to vehicles	\$32.6 billion
Change in costs of vehicle maintenance	\$2.9 billion
<b>Benefits</b>	
Fuel savings	\$92 billion
<b>Net benefits</b>	<b>\$56.1 billion</b>

Source: U.S. Environmental Protection Agency (January 2017).

\*In 2015 dollars at 3 percent discount rate.

When the EPA established standards for 2017 to 2025, it estimated cumulative savings for the period at \$325 billion. [See Table 3]

**Table 3: Costs and Benefits of Fuel Efficiency Standards Model Years 2017-2025**

<b>Costs*</b>	<b>Change</b>
Change in costs to vehicles and other additional costs	\$150 billion
<b>Benefits</b>	
Fuel savings	\$475 billion
<b>Net benefits</b>	<b>\$325 billion</b>

Source: U.S. Environmental Protection Agency and National Highway Traffic Safety Administration (October 2012). \*In 2010 dollars at a 3 percent discount rate.

<sup>57</sup> FINAL DETERMINATION ON THE APPROPRIATENESS OF THE MODEL YEAR 2022-2025 LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSIONS STANDARDS UNDER THE MIDTERM EVALUATION, U.S. ENVIRONMENTAL PROTECTION AGENCY (JANUARY 2017), <http://bit.ly/2sB3uPI>.

<sup>58</sup> U.S. 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), at 3-8, <http://bit.ly/2rm4yXL>.



In its January 2017 update, the EPA forecast that a consumer purchasing a new vehicle during the 2022 to 2025 period would recoup the extra cost embedded in fuel efficient features in 5 years.<sup>59</sup> That period is somewhat longer than the 2012 forecast of 3.2 years. The expected payback period was extended because of lower anticipated fuel prices, thus resulting in slightly less savings as a reward for higher fuel economy.

The projected savings for the vehicles sold in the 2017 to 2025 period that the rulemaking encompassed will likely be somewhat lower than was projected in 2012. But the rulemaking will nonetheless yield net benefits to most purchasers of new vehicles, while boosting fuel economy performance remarkably. Most consumers would probably happily accept lower fuel prices even if it meant they would not save quite as much from high fuel economy performance.

#### **IV. Trump Administration Proposes to Severely Cut or Eliminate Programs That Seek Breakthroughs in Clean Energy**

Programs aimed at spurring clean energy innovations, particularly alternatives to fossil fuels, have enjoyed support in recent presidential administrations regardless of the political party controlling the White House. That streak has come to an end.

##### ***Office Energy Efficiency and Renewable Energy, Which Is Credited With Driving Down the Cost of Solar Energy, Would Be Gutted Under Trump Proposal***

The Office of Energy Efficiency and Renewable Energy (EERE) is a Department of Energy division with an annual budget of about \$2 billion that funds research into batteries, solar energy, wind energy, renewable energy, building technologies and other categories of efficiency and clean energy development.<sup>60</sup>

Experts credit the office with developing technologies that have caused the cost of solar cells to drop dramatically. The office in 2011 began an initiative that aimed at bringing the cost of utility scale solar-generated electricity into parity with other forms of electricity production by 2020. The costs of utility scale solar electricity declined 74 percent between 2010 and 2016, achieving 90 percent of the goal of cost parity. In November 2016, the office announced a new goal to cut the cost of solar-generated electricity an additional 50 percent between 2020 and 2030.<sup>61</sup>

“While it is difficult to say quantitatively how much of the cost reduction in photovoltaics modules have come from these programs in particular, all evidence suggests they have been critical,” said Jessika Trancik, an MIT researcher who studies clean energy policies, told the *Washington Post* in

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<sup>59</sup> U.S. ENVIRONMENTAL PROTECTION AGENCY, PROPOSED DETERMINATION ON THE APPROPRIATENESS OF THE MODEL YEAR 2022-2025 LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSIONS STANDARDS UNDER THE MIDTERM EVALUATION: TECHNICAL SUPPORT DOCUMENT (November 2016), at p. ES-7, <http://bit.ly/2s1PPkH>.

<sup>60</sup> EERE FY 2017 BUDGET REQUEST, U.S. DEPARTMENT OF ENERGY (Feb. 9, 2016), <http://bit.ly/2rAx18n>.

<sup>61</sup> *Energy Department Announces More than 90% Achievement of 2020 SunShot Goal, Sets Sights on 2030 Affordability Targets*, U.S. DEPARTMENT OF ENERGY (Nov. 16, 2016), <http://bit.ly/2q1quDf>.

reference to work by EERE and the National Renewable Energy Laboratory (NREL), which it funds.<sup>62</sup>

The Trump administration's 2017 budget proposal would cut funding for EERE by 70 percent, from \$2.1 billion to \$636 million. Trump also appointed as EERE's acting interim director a person who opposes government spending on renewable energy. The appointee, Daniel Simmons, arrived from the Institute for Energy Research, which *Mother Jones* once ranked as among the 12 loudest deniers of climate change.<sup>63</sup>

"We have to look at the track record of the oil and gas industry [which is] producing low-cost, reliable energy, particularly when the alternative is much, much higher prices," Simmons said in a 2016 statement that was not accurate but likely reflected his loyalties.<sup>64</sup>

Colorado Republican Sen. Cory Gardner criticized the proposal to cut EERE and, by proxy, NREL, which is based in Golden, Colo. "Cutting the research and development done at NREL, where for every \$1 of taxpayer money invested through the lab results in \$5 of private investment, is not the answer," Gardner said in a statement.<sup>65</sup> Gardner's defense of the program illustrates that clean energy initiatives retain bipartisan support.

#### ***Trump Budget Would Eliminate Program That Provides Seed Money to Develop Early-Stage Clean Energy Technologies***

ARPA-e, formerly known as the Advanced Research Projects Agency–energy, is a program that was created during the George W. Bush administration to foster early-state development of energy technologies that are not mature enough to attract commercial investment.<sup>66</sup>

The program was created at the suggestion of the National Academy of Sciences and is patterned after the Defense Advanced Research Projects Agency (DARPA), which was created by President Dwight D. Eisenhower in response to the Soviet Union's launch of the Sputnik satellite to pursue high-risk, high-potential projects. DARPA's communications network served as the forerunner to the Internet and DARPA was instrumental in developing modern global position satellite (GPS) technology.<sup>67</sup>

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<sup>62</sup> Chris Mooney, *Trump Aims Deep Cuts at Energy Agency That Helped Make Solar Power Affordable*, THE WASHINGTON POST (March 31, 2017), <http://wapo.st/2q17Slq>.

<sup>63</sup> Josh Harkinson, *No. 12: Institute For Energy Research (A.K.A. American Energy Alliance): Meet The 12 Loudest Members of the Chorus Claiming That Global Warming Is a Joke and That CO2 Emissions Are Actually Good For You*, MOTHER JONES (Dec. 4, 2009), <http://bit.ly/2qQQ0Lo>.

<sup>64</sup> Juliet Eilperin and Brady Dennis, *Trump Puts Critic of Renewable Energy in Charge of Renewable Energy Office*, THE WASHINGTON POST (May 2, 2017), <http://wapo.st/2s1ZoiH>.

<sup>65</sup> Chris Mooney, *Trump Aims Deep Cuts at Energy Agency That Helped Make Solar Power Affordable*, THE WASHINGTON POST (March 31, 2017), <http://wapo.st/2q17Slq>.

<sup>66</sup> *About, ARPA-E (web site)* (viewed on May 19, 2017), <http://bit.ly/2rN88dA>.

<sup>67</sup> *Navigation in the Palm of Your Hand*, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY (viewed on May 19, 2017), <http://bit.ly/2qzVv3I>

Projects sponsored by ARPA-e have led to the creation of private companies that have attracted \$1.8 billion in private sector funding, according to the program's acting director.<sup>68</sup> The program continues to enjoy bipartisan support. "We are reducing other spending to increase this spending. This is called setting priorities," said Sen. Lamar Alexander (R-Tenn.) said in 2016 while supporting an increase in the ARPA-e budget. "We should do more of this energy research."<sup>69</sup>

In March 2017, Secretary of Energy Rick Perry tweeted: "Innovators like the ones supported by our @ARPAE program are key to advancing America's energy economy."<sup>70</sup>

Five days after Perry sent out that tweet, the Trump administration's budget blueprint called for eliminating the ARPA-e program "because the private sector is better positioned to finance disruptive energy research and development and to commercialize innovative technologies."<sup>71</sup>

ARPA-e's budget actually ended up receiving a 5 percent increase in the bill Congress passed in May 2017 to fund the government through the end of September.<sup>72</sup> But the Trump administration's proposed 2018 budget again calls to eliminate the program.<sup>73</sup>

## V. Improved Energy Efficiency Has Caused National Electricity Consumption to Plateau

April 30, 2001, Vice President Dick Cheney delivered a speech outlining the George W. Bush administration's energy plan, which came to be known as Cheney's plan because he managed the task force that developed it. At the time, parts of the country were suffering from rolling blackouts and soaring electricity costs.

Cheney's spoke in the tone of a cold-eyed realist delivering a stern message. "Over the next 20 years, just meeting projected [electricity] demand will require between 1,300 and 1,900 new power plants," he said.<sup>74</sup> The accompanying report that his task force released forecast that Americans would use 45 percent more electricity in just 20 years – and even more if the trends of the 1990s continued.

Greater efficiency was categorically not the solution, according to the vice president.

"Already some groups are suggesting that government step in to force Americans to consume less energy, as if we could simply conserve or ration our way out of the situation we're in," Cheney said.

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<sup>68</sup> James Temple, *What's at Stake as Trump Takes Aim at Clean Energy Research: Defunding Programs Like ARPA-e and the Office of Energy Efficiency Would Stall Clean Energy Advances and Cost Jobs*, MIT TECHNOLOGY NEWS (Jan. 31, 2017), <http://bit.ly/2qOWpWX>.

<sup>69</sup> Justin Worland, *President Trump Wants to Kill This Clean Energy Program Even Though It Has Bipartisan Support*, TIME (March 16, 2017), <http://ti.me/2rAdCrij>.

<sup>70</sup> Tweet of U.S. Secretary of Energy Rick Perry (May 19, 2017), <http://bit.ly/2qzT4hq>.

<sup>71</sup> AMERICA FIRST: A BUDGET BLUEPRINT TO MAKE AMERICA GREAT AGAIN, U.S. OFFICE OF MANAGEMENT AND BUDGET (March 13, 2017), at 19-20, <http://bit.ly/2qzFnPU>.

<sup>72</sup> Randy Showstack, *Newly Signed Federal Budget Is Favorable to Science*, EARTH AND SPACE SCIENCE NEWS (May 5, 2017), <http://bit.ly/2rNSnDi>.

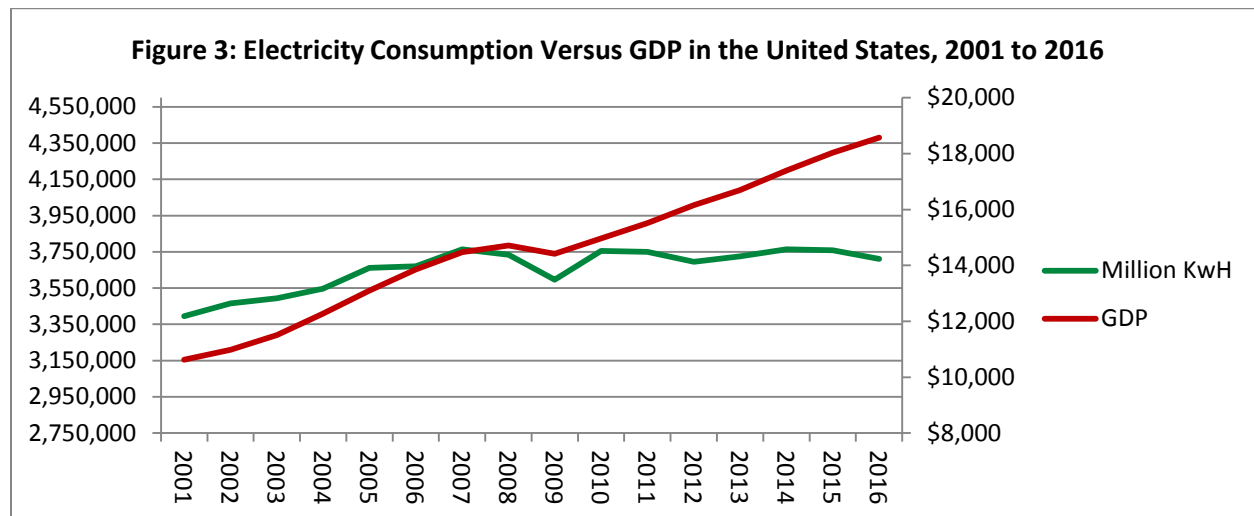
<sup>73</sup> Department of Energy FY 2018 Congressional Budget Request (May 2017), <http://bit.ly/2qKpg3s>.

<sup>74</sup> Speech of Vice President Dick Cheney before the annual meeting of the Associated Press in Toronto, Canada (April 30, 2001), <http://cs.pn/2rjWkOx>.

“To speak exclusively of conservation is to duck the tough issues. Conservation may be a sign of personal virtue, but it is not a sufficient basis for a sound, comprehensive energy policy.”<sup>75</sup>

The events of the 16 intervening years have proven Cheney wrong.

As it turned out, energy consumption has been mostly flat, even as the economy has grown markedly. Sales of electricity rose only 5.7 percent from 2001 to 2016 and none at all from 2007 to 2016.<sup>76</sup> Meanwhile, the nation’s gross domestic product has risen 75 percent.<sup>77</sup> This slow growth of electricity consumption is primarily due to increased efficiency.



Sources: U.S. Energy Information Administration and Federal Reserve Bank of St. Louis.

“Some improvements in energy efficiency have been market driven, reflecting the interest of consumers and businesses in reducing their electricity consumption and expenditures,” the Energy Information Agency (EIA) wrote in 2016. “Other improvements, mainly related to electricity use in homes and commercial buildings, have been driven by federal and state policies. Examples of policies at the federal level include energy efficiency standards for appliances and lighting equipment.”<sup>78</sup>

Use of electricity by the industrial sector has declined by an average of 0.7 percent per year since 2001. Some might hypothesize that is due to declining manufacturing in that time span, but the EIA credits efficiency. “Electricity-intensive industries have grown at about the same pace as the rest of

<sup>75</sup> *Id.*

<sup>76</sup> *Retail Sales of Electricity Annual* (2001 to 2016), U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION, <http://bit.ly/2sxSQ8M>.

<sup>77</sup> U.S. Gross Domestic Product (2001 to 2016), FEDERAL RESERVE BANK OF ST. LOUIS, <http://bit.ly/2rNrord>.

<sup>78</sup> *Total Electricity Sales Fell in 2015 For 5th Time in Past 8 Years*, U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION AGENCY (March 14, 2016), <http://bit.ly/2qKgmmF>.

the industrial sector, and efficiency improvements in these industries have contributed to declining electricity sales to industry,” the EIA wrote in 2016.<sup>79</sup>

The programs outlined in this report are not the only government initiatives that have driven down the demand for electricity. Other programs, such as those that provide incentives to utilities to help their customers conserve energy also have played a role, former Department of Energy official Joe Romm points out,<sup>80</sup> as have market-driven efforts, such as industry seeking to cut its energy use to save money.

Government initiatives to foster efficiency have undeniably reduced consumption, both saving consumers money and sparing the country the need to embark on massive capital projects to build new power plants.

## **VI. Conclusion: Trump’s Business Record Shows Why Efficiency Initiatives Are Needed**

President Trump’s record as a developer illustrates why efficiency initiatives are necessary. Trump has professed to care deeply about efficiency. But the efficiency ratings of his buildings are atrocious. A government incentives program helped Trump to see the light – at least once.

In 2012, Trump secured \$1 million in loans and incentives from the state of New York to retrofit a Westchester County, N.Y., tower that was branded in his name. The project involved installing technology that captured heat from electric generators and using it to warm the building and heat water. Other energy-saving measures were incorporated, such as motion-sensor lights.

“I strongly believe in clean energy, in conserving energy, all of that – more than anybody,” Trump said, according to the New York State Energy Research & Development Authority.<sup>81</sup>

The project cut the building’s energy consumption by 21 percent and paid for itself in three years. “It’s saved the building a fortune in energy costs,” the property’s manager told *The New York Times*, estimating the savings at \$300,000 per year.

But Trump’s record on efficiency does not reflect his professed enthusiasm. The 98-story Trump International Hotel & Tower ranks dead last on efficiency among Chicago’s 100 largest buildings.<sup>82</sup> That building, which opened in 2009, received an Energy Star rating of 9 on a scale of 1 to 100. Chicago’s 110-story Willis Tower (formerly Sears Tower), which is 35 years older, scored 55.<sup>83</sup>

Trump Tower, at 721 Fifth Avenue in New York City and completed in 1983, scored 69 percent worse than comparable buildings on energy efficiency, according to Metered New York, a project

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<sup>79</sup> *Id.*

<sup>80</sup> Joe Romm, *U.S. Economic Growth Decouples From Both Energy And Electricity Use*, THINK PROGRESS (Feb. 4, 2016), <http://bit.ly/2qOZdUc>.

<sup>81</sup> *Trump Tower: Generators Provide Building HVAC*, NEW YORK STATE ENERGY RESEARCH & DEVELOPMENT AUTHORITY (fact sheet, undated), <http://bit.ly/2rasGMC>.

<sup>82</sup> Alex Ruppenthal, *Trump’s Chicago Skyscraper at Bottom of City’s Energy Rankings*, WTTW (Jan. 9, 2017), <http://bit.ly/2qd9Qjn>.

<sup>83</sup> *Id.*

that tabulates buildings' energy consumption per square foot. Meanwhile, the Empire State Building, completed in 1930, scored 6 percent better than comparable buildings.<sup>84</sup>

Trump's record demonstrates that simply relying on the market to prompt energy efficiency efforts does not always work. The examples in this report illustrate that energy efficiency initiatives yield strong economic benefits. For that reason, policy makers from across the political spectrum should rest easy that they are doing no harm by insisting on common sense standards.

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<sup>84</sup> See, Metered New York, <http://metered.urbangreencouncil.org>.