Consumer Federation of America

Department of Energy:
Energy Conservation Program:
Energy Conservation Standards for General Service Incandescent Lamps
Comments on Notice of Proposed Determination
EERE–2019–BT–STD–0022, RIN 1904–AE76

November 4, 2019

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I. INTRODUCTION AND OVERVIEW

THE CONSUMER FEDERATION OF AMERICA

The Consumer Federation of America (CFA)[1] submits these comments in strong opposition to the Department of Energy's Sept. 5, 2019 Notice of Proposed Determination[2] in which the agency concludes that energy conservation standards for General Service Incandescent Lamps (GSILs) do not need to be amended.

CFA believes that the Department of Energy's (DOE) Proposed Determination not to amend the standards for GSILs is so fundamentally flawed that the agency should withdraw it. It is riddled with errors, many of which were pointed out in our earlier comments in a prior proceeding[3] and in our comments in the Department's broad docket on Regulatory Reform,[4] and all of which are correctible.

SUMMARY

Qualitative Description of the Flaws in the DOE Analysis

U.S. energy policy has long sought to increase the efficiency of energy using consumer durables, like refrigerators, air conditioners, etc.[5] The current proceeding involves lightbulbs, an important consumer good used in residences and commercial establishments. Amendments to the Energy Policy Conservation Act[6] in 2007,[7] required the DOE to adopt standards for general service lamps, although it exempted many products from the standard. The law went farther to require the agency to consider higher standards and set a backstop level in case the DOE failed to adopt a new standard. It also required DOE to examine whether the exemptions were appropriate. If a rulemaking was not completed by January 1, 2017, the backstop standard would be triggered, and the standard Congress had set would apply to all covered products.

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[1] The Consumer Federation of America is a federation of over 250 national, state and local organizations that was established in 1968 to advance the consumer interest through advocacy, research and education.

[2] Department of Energy, Energy Conservation Program: Energy Conservation Standards for General Service Incandescent Lamps, Office of Energy Efficiency and Renewable Energy, Department of Energy, *Notice of proposed determination and request for comment*,, 10 CFR Part 430, EERE–2019–BT–STD–0022], RIN 1904–AE76, Federal Register / Vol. 84, No. 172 / September 5, 2019, pp. 46830-46862 (Hereafter, DOE NOPD)

[3] Comments of the Consumer Federation of America before the Department of Energy, In the matter of Request for Information on Reducing Regulation and Controlling Regulatory Costs, before the Department of Energy, E.O. 13771, 13777, 13783, July 14, 2017;

[4] Comments on "Energy Conservation Program: General Service Incandescent Lamps and Other Incandescent Lamps Request for Data," Docket Number: EERE- 2017–BT–NOA–0052, October 16;

[5] Having demonstrated over the course of several decades that energy efficiency standards yield large and highly beneficial consumer pocketbook savings and enjoy widespread public support, the Consumer Federation of America has a long commitment to and involvement in the energy efficiency standards affecting consumer durables. CFA's 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. Much of this work was captured in an academic paper entitled *Energy Efficiency Performance Standards: Driving Consumer and Energy Savings in California*, California Energy Commission's Energy Academy, February 20, 2014.

[6] DOE NOPD, cited at 46830.

[7] Id., Energy Independence Security Act,

The Obama administration focused on the exemption issue and concluded in January 2017, that the standard should apply to most of the exempted products. In essence, by rulemakings completed to define exemptions, and not completed to establish a new level, the backstop was triggered and now applies to all lightbulbs (with a few exceptions).

In the current proceeding, the DOE attempts to reverse that legislative/administrative outcome, claiming to show that no standard, which means the backstop legislated by Congress, would be in the public interest. Our analysis in these comments show that DOE's Proposed Determination and its "no standard" conclusion are wrong and would be harmful to consumers because the methodology used, and analysis provided are seriously flawed.

As the consumer impact is CFA's primary focus, we first address the economic impact of the Proposed Determination and show how the agency's faulty approach led it to a very incorrect conclusion which results in harm to consumers' pocketbooks through lost energy savings which in the aggregate are substantial. We will then lay out the proper and necessary steps the agency should have taken to reach the correct conclusion, that the standards for GSILs should indeed be amended. A proper analysis would reveal that efficiency standards for GSILs have a high benefit-cost ratio and are in the public interest, and we will provide our analysis of what savings to consumers would be.

We believe the agency has acted improperly and should have used more than one efficacy level (EL) to assess whether or not the standards need to be amended, and the EL/lamp technology selected for the base case to compare to the more efficient lighting products was not representative of what realistically should have been used. And, in its assessment of the higher efficiency technology, the agency used a cost figure that was inordinately high and not representative of what is really going on in the marketplace. We look at the benefits in terms of lifecycle costs and payback period of the most efficient technology and calculate the savings over a ten-year period. We believe these results are compelling and that the agency has done an egregious disservice in not performing this analysis.

The single technology DOE chose to analyze and on which it concluded that no standard is a better choice is extremely and unjustifiably high in cost ($7.00/bulb), low in efficiency (only 34.5 lumens/watt) and has a very short lifespan (1,000 hours). The best alternative available in the market is less than half the cost ($3.00/bulb), almost three times more efficient (88.9 lumens/watt) and lasts fifteen times as long (15,000 hours).

DOE fails to recognize the much more attractive alternative for the purpose of evaluating the merits of amending the standards. Needless to say, if the DOE had analyzed additional technologies that are feasible and available, rather than the high cost, low efficiency, short-life option, it would have concluded that a reasonable, performance based standard yields substantial positive value to consumers and is in the public interest.

In a second, key analysis assessing the impact of the single inferior technology, DOE assumes over one-third of consumers would switch bulbs under the only standard examined and behave irrationally by purchasing a dramatically inferior technology, instead of a superior technology that is available in the marketplace. If only one out-of-twenty of those consumers

behave rationally and buy the most efficient available technology, DOE would have to conclude that the standard would lower total cost and, therefore, is in the public interest.

Quantitative Estimate of The Harm to Consumers and the Economy Caused by The DOE's Proposed Determination

Based on the cost and efficiency data available in the Proposed Determination, we estimate that the consumer pocketbook savings per bulb, would be over $20 over a 10-year time period.

CFA analyzed the macroeconomic impact of DOE's Proposed Determination.

In the aggregate, taking a thirty-year time horizon, we estimate the following costs would be imposed on consumers:

- Consumer pocketbook spending would be over $80 billion more.
- Environmental/public health cost would be almost $20 billion.
- Macroeconomic losses would be about $73 billion.
- The total harm resulting from the DOE decision is $173 billion over 30 years.

CONCLUSION

DOE analyzed a very bad standard – a single, high cost, low efficiency product – and refused to count the positive impact of the changes in behavior (i.e. increased adoption of lower cost, high efficiency technologies). While it refused to count those positive impacts of its bad standard, it did count the negative effects of that standard – consumers being "forced" (either through irrationality or market distortion.

DOE's result is entirely a function of its unrealistic and erroneous assumptions. There is significant economic benefit for consumers. The benefits along with reasonable, if not low, lifecycle costs and a short payback period more than justify amending the energy efficiency standards for general service incandescent lamps. DOE's Proposed Determination contradicts four decades of strong political consensus on the goals of standards, as expressed by Congress in the original legislation (the Energy Policy Conservation Act) and the most recent amendments to that underlying law (the Energy Independence and Security Act).

On a broader level, it is important to note that the agency has violated executive branch regulatory guidance issued over almost 40 years by presidents of both parties that lays out the requirements by which regulations are to be considered and adopted. The failure to conduct sound benefit/cost analysis as part of the regulatory review is so egregious it has led the DOE to violate the underling statue, as amended.

The primary purpose of the underling statute (EPCA) is to ensure DOE adopts standards that achieve maximum, significant, technological feasible, economically beneficial energy conservation and reductions in consumption of energy. This primary purpose is subject to certain conditions and balancing considerations. Those conditions and balancing considerations were not the reason DOE reached the erroneous conclusion that no standard is necessary. To the

contrary, the flaws in the DOE analysis combine to support the conclusion that **DOE failed to implement the statute as Congress intended.**

But DOE's affront to the statute, as amended by EISA, is even more profound. In EISA, Congress mandated a specific performance standard as a backstop, if DOE failed to adopt a higher standard. **DOE never evaluated the backstop performance in reaching its conclusion. If DOE had evaluated the specific performance standard explicitly enacted by Congress, it would have found that the backstop is clearly in the public interest, yielding significant energy savings at very low cost.**

If DOE had counted all of the changes brought about by the standard, it would have concluded that a standard is in the public interest.

If DOE had assumed a more reasonable cost level, which has existed in the marketplace, based upon a thorough review of available information and evidence, **DOE would have concluded that a standard is in the public interest**.

If DOE had analyzed multiple alternative standards, instead of considering only the highly questionable cost of a single specific technology DOE would have been compelled to reach a different conclusion and found that a standard is justified.

If DOE had conducted a breakeven analysis, which demonstrates how fragile is DOE's conclusion that no standard is in the public interest, it would have been forced to consider alternatives.

If DOE had proposed a performance standard, rather than considering a specific mandate of a bad technology, it would have found that a standard is in the public interest.

DOE should withdraw this Proposed Determination and expand the coverage of standards for lighting products and faithfully enforce the backstop performance standard of 45 lumens/watt as enacted by Congress.

OUTLINE

Section I discusses the economic analysis which we believe to be inferior and erroneous. Looking at consumer pocketbook impacts, we find that the Proposed Determination robs consumers and the economy of significant economic benefits.

Section II examines other benefits and offers an overall estimate of the cost of this erroneous Proposed Determination.

1I. CONSUMER POCKETBOOK ANALYSIS

Figure 1 and the accompanying Table 1 present the technical and economic characteristics of the technologies the DOE considered and several technologies and standards that DOE should have considered but chose not to. Figure 1 includes that backstop technology, as do the other figures and tables. This approach will be discussed below.

The upper graph of Figure1 highlights DOE's failure to consider the full range of technologies that are feasible and available in making its Proposed Determination. In the upper graph, four lightbulb technologies are available in the marketplace – incandescent, Halogen, CFL and LEDs. The DOE not only states the efficiencies and costs of these technologies, as shown in Figure 1, it also estimates their market shares.[8] The HIR technology is a "hypothetical" that the DOE uses as the only technology considered in this rulemaking. We include the backstop in the upper graph because it is the level Congress legislated to be applied, should the DOE miss the requisite rulemakings for a future standard. In the lower graph, we show DOE's estimates of the economics of each of the technologies that are incorporated in the analysis.

Figure 1 emphasizes three points. First, the base case includes significant progress in efficiency of light bulbs in the market. Second, the improvement in efficiency in and caused by the single alternative technology analyzed by DOE is very small, while the cost of that technology is very high. Third, the technologies ruled out of scope by DOE (CFLs and LEDs) have much higher levels of efficiency and much lower cost than the HIR standard DOE chose to analyze.

The No-Standard Base Case

The upper graph of Figure 1 shows that DOE assumes significant progress in the market, without a standard. This assumption can be questioned. It uses the behavior of the market with standards to project what market behavior would be without standards. Historic analysis shows that markets behave very differently when standards are introduced. Standards have had a strong effect in driving greater energy efficiency technology into appliances, including lightbulbs. This effect occurs for at least four reasons.

- Standards help the producers develop high efficiency products.

    1. First, standards have given manufacturers of inferior products (those not meeting the standards) a reason to improve their products. Products that some assumed would die in the presence of a standard, like incandescent lightbulbs have proven surprisingly capable of surviving by improving their efficiency.[9]

[8] DOE NOPD, Table IV.12

[9] https://www.techbriefs.com/component/content/article/lighting-technology/lighting-technology/15641, http://business.time.com/2013/05/09/long-live-the-lightbulb/

FIGURE 1: DOE'S UNECONOMIC RESTRICTION OF TECHNOLOGY OPTIONS CONSIDERED

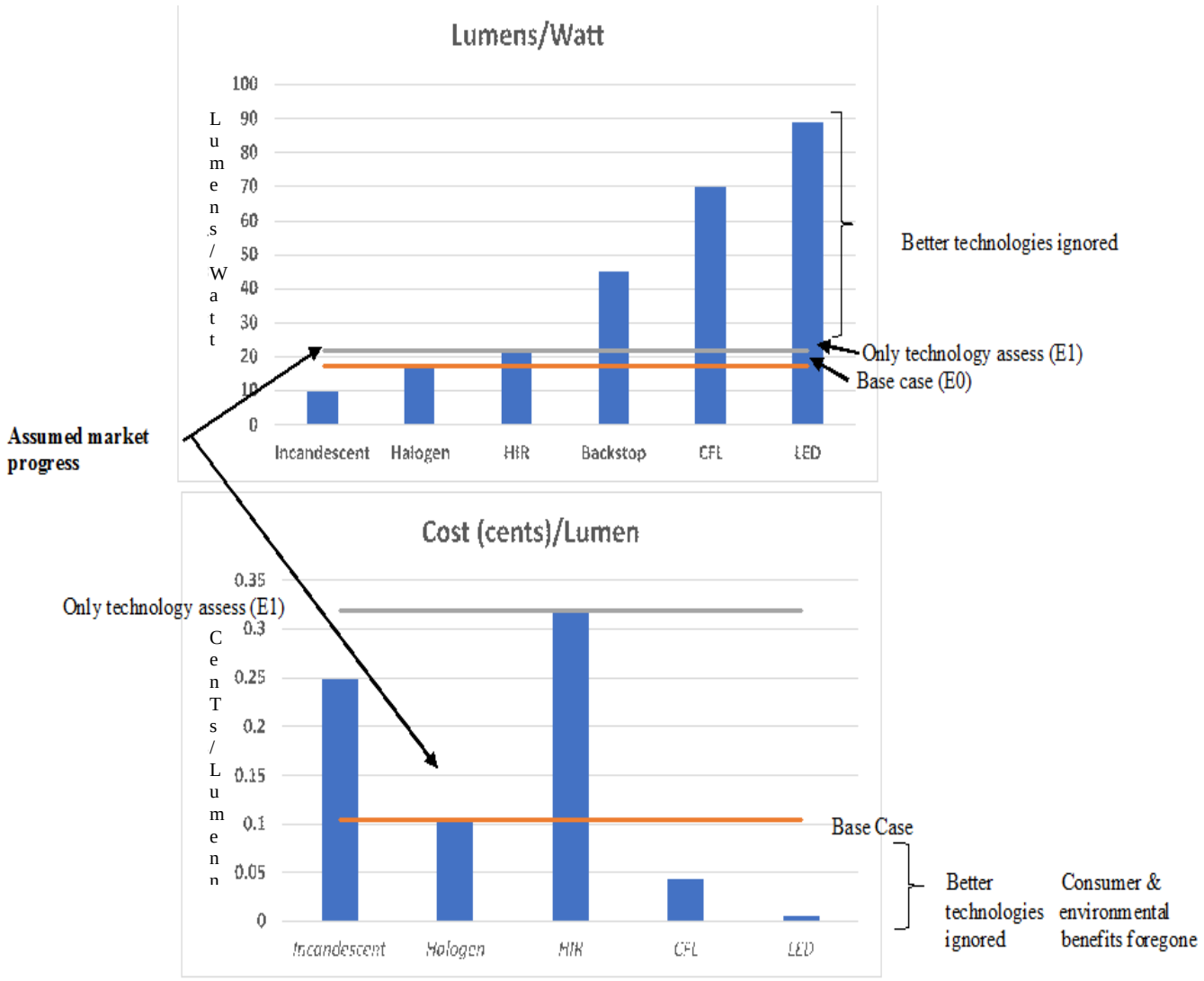

TABLE 1: TECHNOLOGY CHARACTERISTICS DEFINING CONSUMER POCKETBOOK IMPACTS

Cost Cat.	Incandescent	Halogen	HIR (DOE)	CFL	LED	Backstop CFL	Capped LED	Realistic HIR
Cost	$2.15	$1.82	$7.00	$2.94	$3.00	$2.94	$3.00	$3.50
1st Year Op. Cost	$10.06	$4.50	$3.59	$1.42	$1.11	$1.74	$1.74	$2.93
1st Year Tot. Cost	$12.21	$6.31	$10.09	$4.36	$4.11	$4.68	$4.74	$6.43
Payback Years	na	na	6	0.57	0.54	0.69	0.75	2.22

Source: DOE, NOPD, Tables IV.7, IV.8, pp. 46841, 46842., Realistic HIR from Vybrant 2X, thread, (http://www.candlepowerforums.com/vb/showthread.php?363165-REVIEW-vybrant-50w-1600-lumen-(100w-equivalent)-A-19-incandescent-bulb&s=3903b6ff3c74e3920ee1ba032b2be6c6)

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2. Second, standards remove the risk that manufacturers of superior products face from "cheap inferior" products so that their investments in efficiency will be not be undercut by low-ball advertising and sales.

- The absence of standards will harm the development of high efficiency products.

3. There will be less shelf space in stores devoted to efficient light bulbs to make room for the inefficient ones. That could mean the stock of efficient light bulbs is depleted more often, that it's more difficult for consumers to locate the efficient product that best meets their needs, that there will be less room on the shelves for efficient light bulbs in other, less-common form factors (e.g., reflectors, candelabra), or that there will be less pressure on manufacturers and retailers to offer ultra-high efficiency LEDs because even run-of-the-mill LEDs will seem sufficiently differentiated from the low end of the market halogen incandescent lamps.

4. Preserving halogen incandescent lightbulbs in the market will impact the price of LEDs. LED prices have come down rapidly but avoiding the backstop standard will slow the progress of LEDs in gaining market share and diminish the extent to which economies of scale continue to bring down the purchase price of LEDs.

The DOE did not consider the impact of its "no standard" decision on the rest of the market, which it should have. The unjustified assumption of a dramatic increase in the baseline must be questioned.

If all technologies had been considered, and the decision were a close call, which it is not, with the only flaw in the analysis being an overly aggressive assumption about market behavior absent the standard, the assumption about that behavior would be a very important point of debate. Here, however, that is not the case, since, including all technologies makes it overwhelmingly clear that a standard which continued to drive the market is in the public interest. That is why Congress adopted a backstop, to keep the market moving in a positive direction. There will be less shelf space in stores devoted to efficient light bulbs to make room for the inefficient ones.

The Single Technology Standard Considered

Having chosen a base (no-standard) level that assumes questionable market progress, DOE the uses one, and only one, technology level to reach its determination. As shown in the upper graph of Figure 1, this single technology entails very little progress – an improvement of slightly less than 26%. Other technologies could and should have been considered because they are feasible and available – CFL technology represents a 300% improvement; LED technology represents a 410% improvement.

As shown in the lower graph of Figure 1, the single technology evaluated by DOE in making its Proposed Determination is not only inferior in the level of efficiency achieved, it is abysmal in terms of price. It costs 286% more than the base technology.

The much more efficient technologies involve much smaller increases in cost. CFL technology involves an increase of 62%, while LED technology involves an increase of 65%. Thus, the single technology examined by DOE involves very little improvement at a very high cost, while the other technologies that DOE did not consider involve much larger efficiency improvements at much lower cost.

Table 2 uses the economic characteristics of technologies to calculate key aggregate level impacts of the alternative technologies. While the individual level impacts are the focal point of analysis, these aggregate measures add considerable depth to picture of the choice of technologies. Table 2 presents a 10-year view, since that would cover one full "lifespan" of one of the more efficient technologies (CFLs) which DOE did not analyze in detail.

TABLE 2: Economic Measures of Alternative Standards (10-Year period)

Cost Cat.	Incandescent	Halogen	HIR (DOE)	CFL	LED	Backstop CFL	Capped LED	Realistic HIR
LCC NPV	na	na	-$40.75	$20.60	$21.80	$19.14	$18.90	$18.25
Benefit/Cost Ratio	na	na	Neg.	8-to-1	8.3-to-1	7.5-to-1	7.3-to-1	5.2-to-1

Source: DOE, DOE, NOPD, Tables IV.7, IV.8, pp. 46841, 46842. Backstop efficiency impact assumed to be proportional to lumens/watt, Realistic HIR from Vybrant 2X, thread, with efficiency impact assumed to be proportional to lumens/watt.
(http://www.candlepowerforums.com/vb/showthread.php?363165-REVIEW-vybrant-50w-1600-lumen-(100w-equivalent)-A-19-incandescent-bulb&s=3903b6ff3c74e3920ee1ba032b2be6c6)

Table 2 shows two traditional measures of the performance of the products – levelized cost and the benefit/cost ratio. To calculate this, we have used a ten-year period of a single high intensity bulb. Both the technologies DOE has myopically focused on have a 1,000-hour life and they are estimated to last two years. In contrast, the CFL life is 10,000 hours, ten times as long. The LED life is 15,000 hours. Therefore, over 10 years, the consumer would need to use five of the bulbs DOE analyzed, but only one of the high efficiency bulbs. We stop the analysis at 10-years because we are extrapolating from discounted results. Discounting has a bigger effect on the later years. Thus, stopping the analysis at year ten is very conservative.

The single technology on which DOE based its decision has a negative net present value and therefore a negative benefit-cost ratio. All of the technologies DOE excluded have positive net present values and very attractive benefit-cost ratios.

Given the failure to consider those technologies, it is not surprising that DOE found a very bad standard was not in the public interest. **The obvious conclusion of an analysis that includes all the options is that virtually everyone is better off with a standard that drives the market toward good options.**

Evaluating the Backstop

The folly of the DOE approach to the Proposed Determination can be seen if we evaluate the backstop standard. Congress legislated the backstop in an effort to ensure that steady progress would be made in the lighting sector. We believe the backstop has been triggered. DOE could have evaluated the backstop.

In theory, the backstop could stimulate producers of less efficient products to up their game and come into compliance. That has been the experience in other product segments. Conceivably, the manufacturers of products that exceed the standard could have developed less costly versions that just meet the backstop standard, while they maintained production of their "superior" products. This would be consistent the principle of expanding consumer choice.

However, to evaluate whether the backstop is in the public interest, although this is not required since the statute mandates it, the DOE could have conducted a very demanding test of the backstop. It could have recognized the cost of the current technology, but capped the benefits derived at the backstop level. The results of such analysis are shown in the two Capped Backstop columns of Table 1 and are presented in Figure 2 in a manner similar to Figure 1.

Using the full cost of the current technologies that DOE ignored but only attributing benefits to them up to the backstop, we still find that such a standard and outcome is overwhelmingly in the public interest. The statute has a presumption that any technology with a payback of three years or less is in the public interest. This demanding test of the backstop shows it beats that threshold by a mile – payback in less than one year.

Product Level

Over a 10-year period, the high-performance bulbs yield a net present value of just over $20 per lightbulb and a benefit/cost ratio about 8-to-1.[10] Thus, the high efficiency lightbulbs deliver a cost of about $2 per light bulb per year. That is the basis on which the analysis should have been conducted, which thoroughly contradicts the DOE's analysis and conclusion.

In the capped backstop analysis, the 10-year benefit is about $19 and the benefit/cost ratio is just over 7-to-1. The realistic halogen example has a 10-year benefit of about $18 and a benefit/cost ratio over 5-to-1.[11] All of these are quite attractive investments from the consumer point of view. Keeping in mind that the cost and benefit stream are discounted at 3%, this is the surplus delivered to consumers.

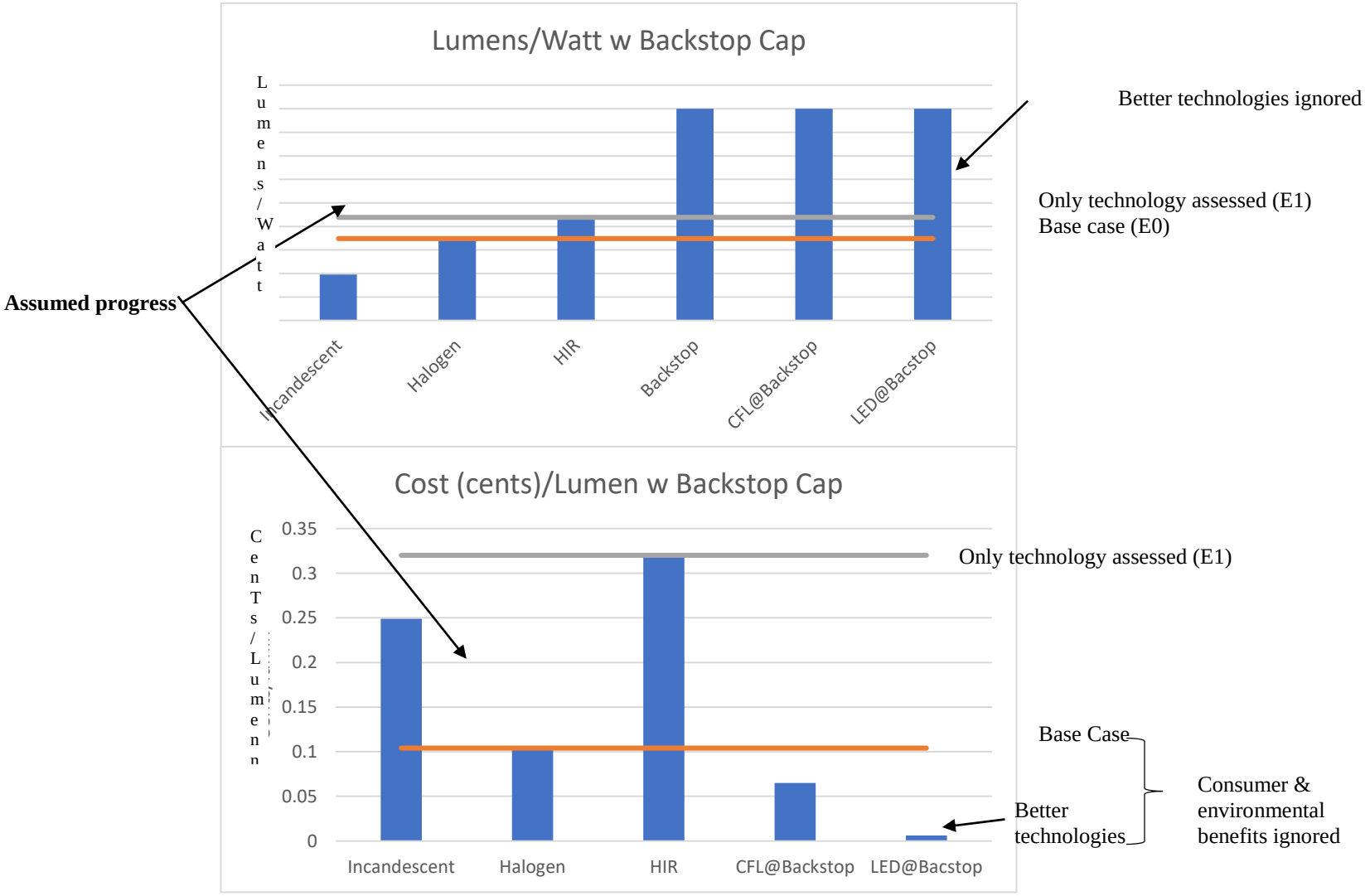
A Real-World Halogen Alternative

As argued above, the DOE should have considered the full range of technologies available. It could have evaluated the backstop in a rigorous approach. Ultimately, even if it was determined to take a narrow myopic view and consider only the halogen alternative, it should have taken a real-world view. The single efficiency/cost alternative is not the only one it should have considered. Indeed, as shown in the final column of Table 1, the available technologies yield very different results.

[10] This conclusion is consistent with the DOE data, which shows that a CFL saves consumers 24.7Kwh per year. At a national average electricity cost of 13.3 cents/Kwh, the savings are about $22. (https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a)

[11] Vybrant thread.

Figure 2: DOE'S UNECONOMIC RESTRICTION OF TECHNOLOGY OPTIONS CONSIDERED WITH THE BACK-STOP CAP



Source: DOE, NOPD, Tables IV.7, IV.8, pp. 46841, 46842. Backstop efficiency impact assumed to be proportional to lumens/watt.

With costs 50% below and efficiencies 25% above DOE's assumptions, even this low efficiency alternative has positive results. The payback is well below the threshold that Congress has set for presuming the standard would be in the public interest.

The conclusion of this consumer pocketbook analysis is crystal clear. The DOE Proposed Determination is wrong. If the agency had: 1) considered the full range of alternative technologies available; 2) asked whether the backstop is in the public interest, or 3) used a reasonable, real world, low efficiency alternative, it would have been compelled to reach the opposite conclusion in the Proposed Determination, that being higher standards, including the backstop that has been triggered, are in the public interest.

Break-Even Analysis

Because of the unjustified and unrealistic assumptions in the DOE analysis, nearly every consumer (over 97%), who buys an HIR under the standard is worse off. That result is entirely a function of DOE's assumption. DOE assumes that almost all consumers purchase an HIR a less efficient product at higher cost, when lower cost, higher efficiency products are available. This outcome requires massive irrationality, or a very substantial impact on the market for high efficiency light bulbs.

DOE did not engage in a break-even analysis. Given the unrealistic DOE assumptions, it is difficult to figure what to model for a break-even analysis. Why a consumer would irrationally shift to the totally product (spending over $5 more in technology cost and $3.70 more in first year costs) instead of an LED (with only $1.18 more in technology cost and first net cost reduction of $2.20), is hard to fathom.

A break-even analysis could consider different scenarios.

For example, one could ask, what percentage of consumers who are assumed (or forced) to buy high cost inefficient bulbs would have to behave rationally (not be disadvantaged by the standard), to achieve a "positive" outcome? Using the 10-year analysis from Table 1, we find that it would take a remarkably small number. Fewer than one in twenty of those who use HIRs (0.2%) would have to resist an HIR and shift to an LED to change the conclusion. An even smaller number (0.1%) of those who stick with incandescent bulbs would have to switch to LEDs to change the conclusion from a "negative" on standards (support for no standard) "to a "positive" finding in favor of a standard, Given the extreme and unrealistic assumptions of the DOE analysis, this break-even analysis suggests that it should not have reached the conclusion that it did.

The DOE assumed that the shift of consumers to HIR bulbs would have no effect on the sale of LEDs. Under the no standard case, every consumer who does not buy an LED for any one of the reasons given above, is worse off. In other words, the no standards case hurts consumers, solely because of the assumption of irrational consumer behavior or the market distorting (forcing expensive, inefficient lightbulbs into the market) effect of the standard,

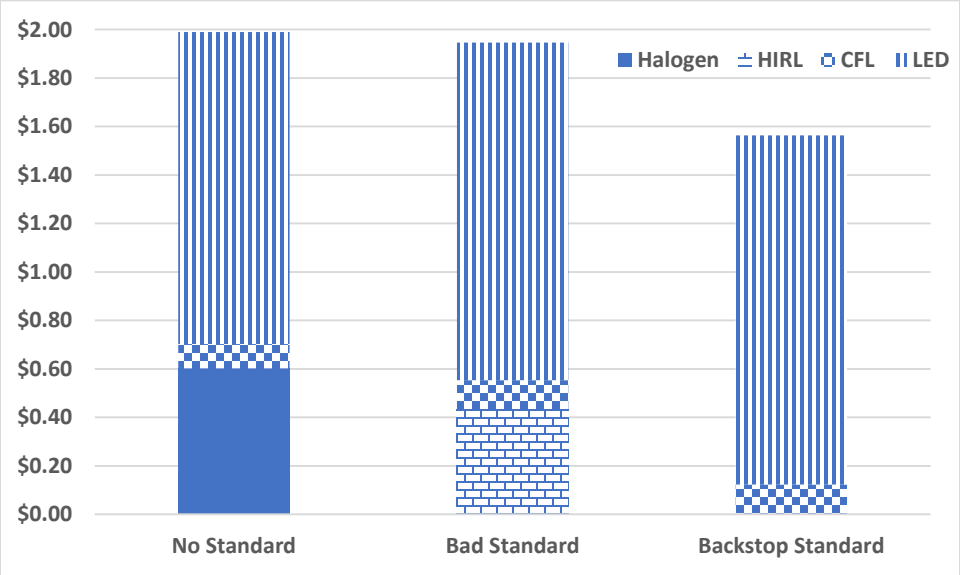
Conclusion

Figure 3 makes the unrealistic, irrational basis for DOE's analysis and conclusion crystal clear. It shows that even the bad standard is superior to no standard, when we calculated the average cost per lightbulb. This calculation uses the technology efficiency and cost as identified by DOE. It also uses the market shares for each technology with and without the standard utilized by DOE. The only reason DOE concluded that no standard was better is that it refused to count the savings of consumers who moved to lower cost, higher efficiency lightbulbs than the single lightbulb DOE chose to mandate.

We focus on the residential sector here because, in the commercial sector, the DOE's proposed standard is clearly in the public interest. In the commercial sector, the payback period is two years, well below the level (3-years) at which the legislation presumes the standard is in the public interest.[12]

The obvious conclusion of an analysis that includes all the options is that virtually everyone is better off with a standard that drives the market toward good options. Given the very small price increase associated with much more efficient lightbulbs and the rapid payback, not to mention the large lifecycle cost savings, there are likely to be few, if any consumers negatively affected.[13]

FIGURE 3: WEIGHTED AVERAGE ANNUAL LEVELIZED CONSUMER POCKETBOOK COST



Source: DOE NOPD, Table V.2, p. 46852, with market shares from Table IV.11, p. 46846 and CFL and LED economic extrapolated from Table 1.

[12] DOE NOPD, Table V.2, p. 46852.

[13] DOE shows that the case of a substitution effect – i.e. where the standard based on inferior technology dries people away, only 4% of residential users and 1% of commercial consumers suffer a negative impact. A positive model where the market pulls consumers toward better technologies is likely to perform even better.

III. A COMPREHENSIVE EVALUATION

OTHER ECONOMIC MEASURES

The above analysis focuses on the payback period. Congress did so as well, using the simple payback period as the measure to set the threshold of the rebuttable presumption. This is ironic from one point of view since the payback period is not generally deemed to be the best economic measure of a standard or an investment. From another point of view, it makes perfect sense since the consumer pocketbook impact of a standard is a key criterion. The direct cost of the standard is the increase in the consumer durable caused by the inclusion of energy saving technology. The overwhelming majority of the benefits are the consumer pocketbook savings that result from the reduction in energy consumption. The law and reality of energy efficiency standards are in perfect agreement on this point. Consumer savings is the focal point of the analysis and the DOE conclusion is entirely based on indefensible assumptions about technology efficiencies and costs and irrational consumer behavior or harmful market effects of imposing a bad standard. This observation on the consumer pocketbook impact should not be taken to imply that there are no other important impacts that should be considered. Indeed, there are other inevitable impacts of standards that must be considered, and Congress has also identified these.

The environmental benefits of reduced energy consumption are an inevitable law of nature when electricity (or fossil fuels) are being saved. By reducing consumption of energy, the emissions of pollution are reduced. This reduction in pollutants has public health benefits.

Similarly, when the total cost of using a consumer durable declines, consumers have more resources to spend on other activities. While this may only be a law of economics, not nature, it is binding, nonetheless. Numerous economic analyses find this relationship to be very strong. To be cautious, based on those studies, we have argued that everyone dollar of net pocketbook savings generates $0.90 of macroeconomic benefit.

There have long been national security benefits assumed to flow from reduced energy consumption. While the focal point for many years was dependence on oil, the current concern is about climate change. The Defense Department and other agencies have identified national security threats associated with climate change.

In our earlier analysis submitted to the agency and included in the Attachment, we found that the stimulation of the economy resulting from the consumer pocketbook savings is roughly equal to the direct pocketbook savings. We took the cautious approach of assuming that the macroeconomic benefit was equal to 90% of the net (of technology cost) savings. In this case, that would put the total economic benefit per high efficient lightbulb at about $38 dollars.

OTHER BENEFITS

Ironically, although DOE refused to do the economic analysis of the available high efficiency lightbulbs, they did evaluate their impact on reducing energy consumption. The DOE analysis shows clear energy savings. These reductions in energy consumption are the result of a substitution effect, in which consumers priced out of the market for halogens were “driven” to the lower cost, more efficient alternatives available. Additional purchases of more efficient,

lower cost light bulbs (beyond the substitution) were actually subtracted from the energy savings. Although they were certainly real, the DOE refused to count them. The environmental impact and resulting public health benefits are in addition to the consumer pocketbook and macroeconomic benefits.

OTHER COSTS

Given that the DOE does not challenge the technological feasibility of the high efficiency lightbulbs and their well-documented price in the marketplace, it is highly unlikely that they will impose an unbearable burden on the industry. Could there be some manufacturers who cannot meet the standard, perhaps, but the purpose of this provision is not to protect each and every producer, it is to move the market to a higher level of efficiency. The public interest balance is between the broad body of consumers and the broad body of producers. There is no doubt that the balance favors a higher standard. Congress understood this when it adopted the backstop, which we believe has been triggered, and we have shown is clearly in the public interest.

THE BROADER POLICY CONTEXT

The above results on product economics and adoption are very similar to the results CFA obtained earlier and presented to the DOE as part of its Regulatory Reform proceeding.[14] The

[14] Soon after the Trump administration appointed the officials who oversee energy efficiency for consumer durables (automobiles (household appliances, e.g. the Department of energy (DOE), and automobiles the Environmental Protection Agency (EPA), and the Department of Transportation (DOT, including the National Highway Traffic Safety Administration (NHTSA)) and articulated the policies affecting these products, the Consumer Federation of America commenced a project to consider the implications for future consumer energy bills. Over the course of 2017, we filed these analyses in proceedings launched by these three agencies – testifying 9 times in 10 months. (Comments of the Consumer Federation of America on *the California Air Resources Board Mid-Term Review*, before the California Air Resources Board, March 24, 2017; Comments of the Consumer Federation of America before the Department of Energy, In the matter of Request for Information on Reducing Regulation and Controlling Regulatory Costs, before the Department of Energy, E.O. 13771, 13777, 13783, July 14, 2017; Comments of the Consumer Federation of America, in the Matter of Transportation Infrastructure: Notice of Review of Policy, Guidance and Regulation, Before the Department of Transportation, Docket No. OST-2017-0057, Appendix B, July 24, 2017; Statement of Jack Gillis, U.S. Environmental Protection Agency on the Reconsideration of the Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Years 2022-2025 Light-duty Vehicles, Environmental Protection Public Hearing, Washington DC, September 6, 2017; Consumer Federation of America, 2017, Comments and Letter to Commissioner McAllister California Energy Commission, Phase II Pre-rulemaking for general service lamps (GSL) Docket No. 17-AAER-07, June 16, September 18 ;Comments of the Consumer Federation of America, *Notice of Intent to Prepare an Environmental Impact Statement; Request for Scoping Comments*, before the National Highway Transportation Safety Administration, Department of Transportation, Docket No. NHTSA-2017-0069, September 25, 2017; Comments of the Consumer Federation of America Mark Cooper, Director of Research Jack Gillis Director of Public Affairs The Department of Transportation National Highway Traffic Safety Administration 49 CFR Parts 523, 531, 533, 536 & 537 [NHTSA–2016–0068] Environmental Protection Agency 40 CFR Part 86 [EPA–HQ–OAR–2015–0827; FRL–9966–62– OAR] Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards October 5, 2017; Comments of the Consumer Federation of America, 2017, Comments on "Energy Conservation Program: General Service Incandescent Lamps and Other Incandescent Lamps Request for Data," Docket Number: EERE-2017–BT–NOA–0052, October 16; 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,

evidence overwhelmingly and broadly supported appliance efficiency standards and, as Table 3 shows, the lightbulb standards are particularly beneficial. Table 3 includes not only appliances, but the broader set of energy consuming durables covered by standards. We include automobiles and trucks to make that point.

The attack on lightbulbs, based up an unrealistic, narrow view of products, is part and parcel of the broad attack by the current administration. In a sense, the attack on lightbulbs is very much a rollback and freeze of standards that parallels the rollback and freeze on fuel economy standards. The DOE is attempting to "rollback" the lightbulb standard by refusing to recognize the value, validity and triggering of the backstop standard. The approach taken of narrowly focusing on the wrong technology and then concluding on that erroneous basis that increases in standards are not necessary is a "freeze."

Table 3 shows that the results discussed above are consistent with the historical analysis of efficiency standards. First, across more than a dozen standards and consumer durables, lightbulbs have the highest benefit-cost ratio, when we focus on consumer pocketbook savings. The high pocketbook savings lead to high macroeconomic benefits. The benefit-cost ratios for lightbulbs calculated above (8-to-1) are similar to the recent history (9.2-to-1).

Second, placing the projections for the future into this historical perspective gives them much more force. The backward-looking studies involve actual market performance. They compare the efficiency and price of products in the market to the adoption of standards. They use econometric techniques to rule out alternative hypotheses. Our study of DOE programs used this approach to show the reduction of energy use associated with standards and price changes.

Third, the final column of the table points to a strong historic process that we showed for appliances. There has been a consistent tendency across many products for costs to be much lower than the agencies projected. We argue that this is a result of the "command-but-not-control" approach of standards. That is, the standards set a performance level, but do not dictate the technologies that must be used. The firms producing the goods are free to meet the standard in the manner that suits them best. In a competitive market they are driven to innovate around the standard, producing the lowest possible cost product for the specified level of efficiency. Appliances that have relatively short lives exhibit this cost reducing tendency.

This market context is the reality in which standards are set, particularly after the Energy Independence Act of 2007 (EISA). It is the real-world framework in which standards combined with the conditions placed on them in the law and the legal/executive branch guidance on the procedure for adopting standards places strong constraints on standards.

December 1, 2017. CFA published two major reports quantifying the impact on consumers of freezing and rolling back efficiency standards, as is the goal of this NOPD – *Pocketbook Savings, Macroeconomic Growth and Other Public Benefits of Energy Efficiency Appliance Standards: Benefit-Cost Analysis of Four Decades of Rules Shows they have Delivered Trillions of Dollars of Economic Value to Consumer and the Nation*, July 2017; Trump's $2 Trillion Mistake, The "War on Energy Efficiency: *The "command-but-not-control" approach of fuel economy and energy efficiency performance standards delivers consumer pocketbook savings, grows the economy and protects public health,* Version 1.1 December 1, 2017.)

TABLE 3: EVALUATION OF ENERGY EFFICIENCY/EMISSION STANDARDS

Consumer Durable	Period (Source)	Cost & Benefit	2016$ Billion at 3% discount	b/c Ratio	IRR	Cost of Saved Energy $/Gal.	Enviromental Billion at 3%	b/c	Traditional Pocket + Enviro b/c	IRR	Pure Extern. Macro + Enviro b/c	IRR	Total Pocket+Extern b/c	IRR	Adjuste *Total b/c @ 70% of Cost*
Light Duty															
Past	1980-2014	TechCost	$499			$0.58									
	(Greene & Walsh)	Pocketbook	$2,121	4.25	13.88%		$697	1.40	5.65	18.72%					
	at 6% discount	Macroconomic	$1,622	3.25							4.65	15.28%			
		Total Economic	$3,743	7.50	24.97%								8.90	29.66%	
Present	2008-2011	TechCost	$9			$1.11									
	(NHTSA, TSD)	Pocketbook	$27	3.00	9.31%		$6	0.67	3.67	11.80%					
		Macroconomic	$18	2.00							2.67	8.10%			
		Total Economic	$45	5.00	16.50%								5.67	18.78%	*8.81*
	2012-2016	TechCost	62												
	(EPA/NHTSA, TSD)	Pocketbook	$182	2.94	9.06%		$41	0.66	3.60	11.55%					
		Macroconomic	$120	1.94							2.60	7.07%			
		Total Economic	$302	4.87	16.05%								5.53	18.32%	*8.60*
Near Future	2017-2021	TechCost	$47			$0.88									
	(National	Pocketbook	$192	4.09	13.30%		$48	1.02	5.11	16.87%					
	Program)	Macroconomic	$131	2.78							3.80	12.27%			
		Total Economic	$323	6.86	22.82%								7.88	26.25%	*12.24*
	2022-2025	TechCost	$36			$0.75									
	(EPA	Pocketbook	$92	2.56	7.56%		$41	1.14	3.69	11.88%					
	Determination,)	Macroconomic	$56	1.56							2.69	8.12%			
		Total Economic	$148	4.11	13.39%								5.25	17.36%	*8.09*
Far Future	2025-2030	TechCost	$39												
	(ICCT Adapted)	Pocketbook	$117	3.00	9.31%		$52	1.33	4.33	14.05%					
		Macroconomic	$78	2.00							3.33	9.01%			
Heavy Duty		Total Economic	$195	5.00	15.07%								4.59	15.07%	*7.27*
Trucks															
Present	Phase I	TechCost	$9			$1.07									
	(EPA, NHTSA)	Pocketbook	$56	6.22	19.35%		$6	0.67	6.89	22.94%					
		Macroconomic	$47	5.22							5.89	18.28%			
		Total Economic	$103	11.44	35.76%								12.11	37.84%	*18.94*
Near Future	Phase II	TechCost	$29												
	(EPA, NHTSA	Pocketbook	$163	5.62	17.42%	$0.33	$66	2.28	7.90	24.67%					
	CFA Supporting)	Macroconomic	$134	4.62							6.90	21.49%			
		Total Economic	$297	10.24	32.00%								12.52	39.13%	*19.34*
Far Future	Alt. 5 Increment	TechCost	$24												
	(EPA, NHTSA)	Pocketbook	$66	2.75	5.82%	$0.33	$27	1.13	3.88	11.71%					
		Macroconomic	$42	1.75							2.88	6.95%			
		Total Economic	$108	4.50	11.74%								5.63	17.40%	*8.68*
Appliance						Billion $/ Quad									
Past	1988-2007	TechCost	$179			$2.29									
	(Meyers, et al.)	Pocketbook	$488	2.73	16.28		156	0.87	3.60	16.08%					
	3% to 2007	Macroconomic	$309	1.73							2.60	15.26%			
	7% to 2040	Total Economic	$797	1.60	29.03								5.32	33.83%	*7.83*
Present	2007-2040	TechCost	$23												
	Light Bulbs	Pocketbook	$212	9.22	61.40		42	1.84	11.06	73.71%					
	\ ACEEE	Macroconomic	$189	8.22							10.06	54.70%			
	\	Total Economic	$401	17.43	116.23								17.4	110.67%	*27.40*
	2007-2040	TechCost	$39												
	ACEEE assorted	Pocketbook	$166	4.26	27.65		33	0.85	5.11	33.63%					
		Macroconomic	$127	3.26							4.11	20.36%			
		Total Economic	$293	7.51	49.97								7.51	47.76%	*11.81*
	2014-2044	TechCost	$26			$1.29									
	DOE TSD	Pocketbook	$62	2.38	13.53		11	0.42	2.81	19.69%					
	Refrigerator	Macroconomic	$36	1.38							1.81	8.51%			
		Total Economic	$98	3.77	24.15								4.19	26.65%	*6.53*
Near Future	CFA Supported	TechCost	$56												
		Pocketbook	$370	6.61	20.15		18	0.32	6.93	23.94%					
		Macroconomic	$314	5.61							5.93	16.42%			
		Total Economic	$684	12.21	49.97								12.54	79.76%	*19.65*
Far Future	ACEEE	TechCost	$202												
Appliances	(assume b/c=3,	Pocketbook	$607	3.00	18.42		121	0.60	3.60	22.29%					
	no water savings)	Macroconomic	$405	2.00							2.60	15.28%	5.60	35.62%	*8.29*
		Total Economic	$1,012	5.00	32.86										

Sources and Notes:

Light Duty

Past: This estimate is based on 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, Howard Baker Center for Public Policy, January 2017. A slight period of overlap between past and present is subtracted based on the NHTSA estimate of 208-2012.

Present: These are from the Technical Support Documents. Here we use the Federal Register Notice with the EPA economic analysis, since EPA separated out pocketbook (fuel) and other benefits. The inflator to bring the estimates to 2016 is 1.1.

2008-2011: https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/2006_friapublic.pdf
2012-2016: https://nepis.epa.gov/Exe/ZyPDF.cgi/P1006V2V.PDF?Dockey=P1006V2V.PDF
2017-2025: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100F1E5.PDF?Dockey=P100F1E5.PDF

Near Future: These are from the Technical Support Documents in the mid-term review. TAR: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF Final Determination:

Far Future: Light Duty Vehicles: This is based on a comparison of the ICCT projections for the five years between 2025-2030 to the analysis of the 2022-2025 period in the mid-term review. We use a 4.5% improvement scenario (the average of the ICCT 4% and 5% scenarios) because EPA discusses a 4.5% scenario for going forward in the mid-term review. The ICCT cost numbers are 10% higher and the savings rate 10% lower, compared to the EPA analysis, which seems reasonable given the movement up the supply curve for efficiency technology and the short period of time covered. ICCT: Nic Lutsey, et al., *Efficiency Technology and Cost Assessment of U.S. 2025-2030 Light Duty Vehicles*, March 2017.

Heavy Duty Trucks:

Present: The first standard for heavy duty trucks adopted as a result of the Energy Independence and Security Act. Taken from the Technical Support Document: Phase I: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EG9C.PDF?Dockey=P100EG9C.PDF, In the Technical Assessment Report (TAR) and the Final Determination, EPA projects substantial cost reductions from the original Technical Support Document for the National Program. The current incremental cost estimate is almost 20% lower than the original incremental cost for 2022-2025. Taking a cautious approach for this analysis, we assume that the cost decline represents a 10% decline in the 2025 costs (assuming no cost overestimation in the 2017-2021).

Near Future These are from the Technical Support Documents: Phase II: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf

Far Future: This is based on the Regulatory Impact Assessment of the Phase II Heavy Duty Truck Rule. We use the difference between the most stringent alternative considered and the final rule.

Appliances

Past: Stephen Meyers, James McMahon and Barbara Atkinson, *Realized and Projected Impact of U.S. Energy Efficiency Standards for Residential and Commercial Appliances*, LBNL, March 2008. Converted from $2006 and a benefit-cost ratio of 2.7-to-1 (p. 2). The study used a split discount rate, 3% for backward looking estimates and 7% for forward looking.

Present: (2008- 2014) is subtracted from the past. All adjustments to quantities are made to preserve the benefit-cost ratios in the original. Lowell Unger, et al., *Bending the Curve: Implementation of the Energy Independence and Security Act of 2007*, ACEEE, October 2015. Dollars inflated from 2013 to 2016. Discount rate adjusted from 5% to 3%. Costs are derived from net benefits and benefit-cost ratio after adjustment to preserve the original benefit-cost ratio.

Near Future: These are based on a small number of rules that were on the cusp of being adopted and have been delayed, for which CFA has taken action to secure the consumer benefits. , these estimates are for the 50% holdout scenario analyzed by Lawrence Berkeley National Laboratory (LBNL Report Impact of the EISA 2007 Energy Efficiency Standard on General Service Lamps (see Table 3: Representative Lamp Options and Properties), which was cited in our letter to DOE (Appliance Standards Awareness Project, et al., Docket No. EERE-2017-BT-NOA-0052, October 16, 2016). Small rules include portable air conditioners, uninterruptible power supplies, air compressors, commercial packaged boilers, ceiling fans and walk-in coolers and freezers.

Far Future: This is based on the ACEEE estimate that identifies opportunities for further increases in appliance efficiency consistent with the statutory mandates for updating standards (Appliances in general: http://aceee.org/research-report/a1604). They project dollar value savings. We inflate to 2016$ and discount the total. We assume the benefit-cost ratio will be slightly lower than the near future ratio of 3-to-1 to estimate costs.

A $175 BILLION MISTAKE

This broader context allows us to estimate the huge impact of the DOE's illegal and faulty analysis on consumers and the economy. In the above analysis we have estimated a savings of over $20 per light bulb for consumers who adopt the higher efficiency products that would be protected by the backstop, which has already been triggered. In fact, the most efficient lightbulbs save consumers almost $22 over a 10-year period. To be cautious, as shown in Table 3, we assume an average of $21 savings.[15] If we assume five lightbulbs per household replaced (with the typical household having 50 bulbs), the value per household is $105.

[15] Here we note that DOE (Fed. Reg. 46852) calculates the life cycle savings for consumers at $1.23 per year as the result of the substitution of more efficient lightbulbs for current products (equal to about 7% of the market) under the "negative" push of bad standard. This number appears to be undiscounted. Discounting at 3% which

TABLE 3: THE BOTTOM LINE ON SAVINGS AND BENEFITS

	Per Household 2018 $		All Households (130 million) (Billion $ 2018 $)	
	Low	High	Low	High
Pocketbook				
Residential	$105	210	$14	$27
Commercial	88	176	$11	$23
Total	193	386	$25	$50
Macroeconomic Multiplier	174	347	$23	$45
Total Economic	367	733	$48	$95
Environmental @ 24.6% of Net Pocketbook	48	95	$6	$12
Total Benefit (10-years)			$54	$108
Total Benefits (30-years)			$117	$233

Source: Pocketbook benefits per lightbulb fromTable1. The result is similar if 100% replace 10% of bulbs or 10% of households replace 100% of bulbs. Number of households is from the Bureau of the Census.

However, this is for a "negative" approach to standards that only causes "out of scope" substitution by 7% of households. We believe that a "positive" standard would drive much greater sales of high efficiency products. To be cautious, we assume a standard that is twice as effective. The savings would be twice as large, about $210.

DOE estimates that for every dollar saved in the residential sector about $0.84 is saved in the commercial sector. The question is, who pays bills of the commercial sector. We have answered, not the tooth fairy. Consumers pay these bills in the price of the goods and services they purchase. Thus, over a 10-year period, at the low end, households would save about $88 for lighting in the commercial sector. At the high end, the savings would be $176. Combining the two, we have consumer pocketbook savings of between $193 and $386 over a ten-year period.

To arrive at the total savings, we start with the residential pocketbook impact and add the commercial impact as shown in the first column of Table 3. We then include the macroeconomic multipliers to arrive at the total economic impact. Finally, we add the environmental benefit, assuming the same ratio as for the most recent lightbulb standards as reported in Table 3. The first column is low estimate of benefit from the standard. The second column is the high estimate, as discussed above.

The first two columns are the individual per household savings, assuming between 5 and 10 bulbs being replaced (on average) across all households. To arrive at the national level estimate, we multiply by the total number of households, assumed to be 130 million. The resulting national benefit is close to that calculated by others[16]

is the figure we use for consumers, although we argue it should be lower, the savings is $1.08 per year, or $10.80 dollars or 10 years. This is slightly higher than the figure we use.

[16] ASAP, put the figure at $14 billion. Earlier we estimated $100 per household, close to the low estimate here.

The total economic benefits are between $48 and $95 billion. The total benefits including environmental impacts are between $54 and $108 billion. The midpoint of this range is about $70 billion.

With discounting at 3%, the 30-year benefits are in the range of $117 to $233 billion. The midpoint of the range is $175 billion. Considering that lighting represents a small part of electricity consumption, this estimate may make our earlier estimate of the $1 trillion dollars of benefits that would be lost by the effort to roll back and freeze appliance efficiency standard seem low.[17] However, because, as we have noted lightbulb standards have the highest benefit-cost ratio among appliances, this estimate is actually consistent with our earlier conclusion that the attack on efficiency standards puts about $1 trillion at risk.

DOE'S ANALYSIS IS SO DEEPLY FLAWED IT VIOLATES THE LAWS GOVERNING ENERGY EFFICIENCY AND ADMINISTRATIVE PROCEDURE.

The agency's decision is so deeply flawed in so many ways that it violates the clear Executive Office guidance on how regulatory analysis should be undertaken. The methodological choices are so bad, from the point of view of regulatory practice, that it fails to comply with the legislation mandating efficiency standards. The DOE NOPD violates underlying statutes that established the standards and a specific standard level set by Congress. It violates the Administrative Procedure Act (APA) and four decades of the Office of Management and Budget guidance on how regulations should be determined. Not only has DOE ignored OMB guidance, the proposal has relied on assumptions and methods that no reasonable analyst would utilize, which makes them arbitrary and capricious under the APA.

While the lawyers are likely to have a field day with this remarkably flawed effort to avoid the clear intent of Congress in the Energy Policy Conservation Act and the very recent amendments in the Energy Independence and Security Act of 2007 (EISA), our focal point, as always, is on the consumer pocketbook and economic impact of the decision to adopt a rule, or not. Nevertheless, after we describe the pervasive flaws in the economic analysis, we will briefly explain how these flaws have led it to violate the statutes and executive branch guidance on rulemaking.

In these comments we have shown that DOE has invented an approach that bears no relationship to either the underlying statutes or the dictates of administrative process defined by

[17] Many have estimated the impact of the backstop in the statute. They are all large, but vary considerably depending on the assumptions about how to model the impact. For example, an LBL study (Colleen L.S. Kantner, et al., An Impact of the EISA 2007 Energy Efficiency Standard on General Service Lamps, Energy Analysis and Environmental Impacts Division Lawrence Berkeley National Laboratory, Energy Efficiency Standards Group, LBNL-1007090 REV, January 2017) found a consumer pocketbook impact of failing to expand the definition of covered GSL products over30-years to be $120 billion (in 2013 dollars). This is a much larger number for pocketbook benefits of higher standards than we have estimated here. At a 3% discount rate, as we use here, the figure would be almost $188 billion. Adding the macroeconomic impact would put the total over $350 billion. However, the base case assumptions are different as are the technology costs. While we have accepted the DOE base case and technology costs to demonstrate that a standard is in the public interest, one can question the underlying assumptions. Suffices it to say that the direct pocketbook impacts are many billions and the total impact is hundreds of billions.

strong bipartisan action over our decades, in an attempt to stop the progress of efficiency that Congress clearly intended. The DOE action in this case turns available high efficiency/low cost technologies into a negative, violates the mandate to achieve maximum feasible energy conservation. It frustrates Congress' decision to use a backstop, which has already been triggered and is clearly in the public interest, to achieve a large improvement in energy efficiency.

To reiterate, as explained in greater detail in the attached document, the DOE Proposed Determination violates many of the key principles of regulatory benefit-cost analysis. Four of the six key principles are violated in the Proposed Determination. By ignoring superior technologies, like CFLs and especially LEDs, DOE also runs afoul of the APA. The result is arbitrary and capricious because it clearly violates the sound guidance that four presidents have given in executive orders.[18] It violated 4 of the 6 broad principles governing rulemaking we identified in our earlier analysis,[19] summarized in Table 1 to ensure that regulations are in the public interest. The results of the DOE analysis are not reasonable because they fail to achieve maximum efficiency at minimum cost. The agency does not consider multiple technologies. It considers one and only one inferior technology, (Halogen Incandescent Reflector Lamps, HIRs).[20] It chose a single technology as the basis for their decision, which essentially "mandates" that technology, rather than consider a performance standard for products in the market. Taking the performance-based approach in the OMB guidance, DOE would have concluded that the backstop is in the public interest.

For the following reasons, the DOE fails to implement the clear purposes of EPCA, as amended by EISA. The DOE violates clear executive branch guidance on the administrative process that governs the setting of regulations. To summarize briefly:

What the agency should have done: When considering a standard, the agency must remain within and be faithful to the mandate from Congress. It should gather the best scientific information about the need and consequences of the standard and reach a reasoned determination that potential benefits exceed costs. It should choose a standard that maximizes net benefits. It should choose the alternative with the least cost, among multiple alternatives considered, preferring performance-based approaches rather than mandating specific behaviors. Where there are certainties about effects, it can conduct a break-even analysis along with multiple scenarios.

What the agency did: The DOE chose a single product, based on highly uncertain (and questionable) assumptions, without a review of alternatives or a "breakeven" analysis. The determination it reached that no standard was in the public interest is not based on sound scientific information or a reasonable basis. It constitutes a technology mandate, rather than a performance standard. It fails to achieve the maximum feasible efficiency at the least cost, with the highest net benefit to society. It ignores the clear Congressional mandate.

If the agency withdraws the Proposed Determination or the courts vacate it, GSL efficiency would be set at the backstop level that the Energy Independence and Security Act (EISA) established. There is more at stake in this proceeding than whether the efficiency of

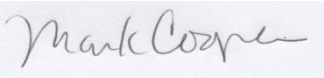
[18] E.O. 12291 (Reagan, 1981), E.O. 12866 (Clinton, 1993) OMB Circular A-4 (Bush,2003): E.O. 13563 (Obama, 2011)
[19] *Two Trillion Dollar Mistake*, Chapter II and Appendix A.
[20] DOE, GSL Final Determination, pp. 46836-43838, and Table IV.4, p. 46840.

GSLs should be at the backstop level. Congress set the backstop as a minimum level in the public interest, but it did not assume that this level was the most that could be achieved. We firmly believe the flaws in DOE's NOPD are so egregious that they would undermine future standards that could well be in the public interest.

CONCLUSION

For the foregoing reasons, the DOE should withdraw its Proposed Determination. It should faithfully enforce the Congressionally mandated backstop performance standard. This will save consumers hundreds of billions of dollars and leave undisturbed the strong 40-year history of policy for energy efficiency legislated by Congress, the clear bipartisan guidance on the administrative procedure governing rulemakings, and the rigorous principles of benefit-cost analysis that ensures standards are in the public interest.

Respectfully submitted,



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