



DEPARTMENT OF ENERGY

Energy Conservation Program: Energy Conservation Standards for Metal Halide Lamp Fixtures

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JAMES BROUGHEL

Program Manager, Regulatory Studies Program, Mercatus Center at George Mason University

Department of Energy, Office of Energy Efficiency and Renewable Energy

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INTRODUCTION

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge about the effects of regulation on society. As part of its mission, RSP conducts careful and independent analyses that employ contemporary economic scholarship to assess rulemaking proposals and their effects on the economic opportunities available to and social well-being of all members of American society.

This comment addresses the efficiency and efficacy of this proposed rule from an economic point of view. Specifically, it examines how the proposed rule may be improved by more closely examining the societal goals the rule intends to achieve and whether this proposed regulation will successfully achieve those goals. In many instances, regulations can be substantially improved by choosing more effective regulatory options or more carefully assessing the actual societal problem.

SUMMARY

The Department of Energy (DOE) is proposing to increase energy efficiency standards for metal halide lamp fixtures.¹ It is doing so under the authority granted it by the Energy Policy and Conservation Act of 1975² and the Energy Independence and Security Act of 2007.³ Under the more recent law, the DOE must review its existing energy efficiency standards for halide lamp fixtures by January 1, 2019. However, the DOE is under no obligation to amend its existing standards.

1. US Department of Energy, Office of Energy Efficiency and Renewable Energy, "Energy Conservation Program: Energy Conservation Standards for Metal Halide Lamp Fixtures; Proposed Rule," 78 Fed. Reg. 161 (August 20, 2013).
2. The Energy Policy and Conservation Act of 2007, Pub. L. No. 94-163, 42 U.S.C. § 6201 (2007).
3. Energy Independence and Security Act of 2007, Pub. L. No. 110-140 (2007).

For more information, contact:
Robin Bowen, 703-993-8582, rbowen@mercatus.gmu.edu
Mercatus Center at George Mason University
3351 Fairfax Drive, 4th Floor, Arlington, VA 22201

The proposed rule has several problems that should cause the DOE to reconsider it. First, the preponderance of the claimed benefits (known as “operating cost savings”) from the regulation are not benefits at all. They are estimated by assuming consumers behave irrationally and that regulators at the DOE know consumers’ own preferences better than consumers know themselves. But the DOE offers meager evidence that consumer preferences, as shown by their own purchasing decisions, are in fact irrational. Consumers may be interested in multiple attributes of lighting, initial cost, illumination, type of illumination, and finally, energy efficiency. By restricting consumer choice based on the interest of the DOE and depriving individuals of the ability to purchase less energy efficient products, the DOE is imposing a cost on consumers, not a benefit.

Second, somewhere between 77 and 93 percent of the benefits from reductions in CO₂ emissions resulting from this regulation will be captured by foreigners, not by Americans. These numbers are derived from the interagency working group report that generated the original estimate for the social cost of carbon (SCC) in 2010.⁴ While global benefits are useful general information, they should be excluded from the calculation of net benefits from the rule because these are not benefits to American taxpayers, whom the DOE is tasked to serve. The costs of this regulation vastly outweigh its benefits upon excluding “operating cost savings” and the benefits to foreigners.

Next, the DOE should refrain from using the most recent estimate of the social cost of carbon (SCC) until such time as the public has had a chance to comment on the technical support document that generated this new number. Evidence suggests that the interagency working group that arrived at this number left out important evidence from recent academic literature.⁵ Additionally, the DOE should begin to use an estimate of the SCC that is calculated using a seven percent discount rate in order to provide a more consistent and informative comparison of costs and benefits of its energy efficiency regulations. This is not done in the DOE’s current analysis.

Finally, the DOE’s analysis fails to adequately consider the impact of its proposed rule on employment and on human dignity. The DOE’s employment analysis is limited to the effect on jobs created or destroyed, not on longer-term effects of employment loss like lost earnings or effects on health from losing employer-provided health insurance.⁶ As mentioned previously, the DOE also fails to consider that, by restricting choices of consumers by banning less expensive, less energy efficient products, the DOE is essentially choosing for consumers what products they should and should not be allowed to purchase. The ability to make decisions about one’s own life, including basic decisions about what products will best fit one’s budget and needs, is a fundamental element of human dignity that is ignored in the DOE’s analysis.

As the DOE is not required to act at this time, the agency would be well advised to wait until the regulation can be conducted in an economically justifiable manner.

CONSUMER IRRATIONALITY

Recent regulations coming from the Department of Energy, the Department of Transportation, and the Environmental Protection Agency have been using alleged consumer irrationality as a justification for regulating.⁷ Consumers often choose to forgo savings in the form of lower energy or fuel bills in the future in order to pay a lower price for the product today. The DOE views this behavior as irrational and has chosen to ban less energy efficient products from the market.⁸ Since consumers could choose more energy efficient products without the regulation

4. Interagency Working Group on Social Cost of Carbon, “Technical Support Document, Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866,” February 2010.

5. See, for example, Patrick Michaels and Paul Knappenberger, Public Interest Comment on Energy Conservation Program for Consumer Products: Landmark Legal Foundation; Petition for Reconsideration, Cato Institute (September 13, 2013), http://object.cato.org/sites/cato.org/files/articles/michaels_knappenberger_cato_comments.pdf.

6. Keith Hall, “The Employment Costs of Regulation” (Working Paper No. 13-06, Mercatus Center at George Mason University, Arlington, VA, March 2013), <http://mercatus.org/publication/employment-costs-regulation>.

7. Ted Gayer and W. Kip Viscusi, “Overriding Consumer Preferences with Energy Regulations,” *Journal of Regulatory Economics* 43, no. 3 (June 2013): 248–264.

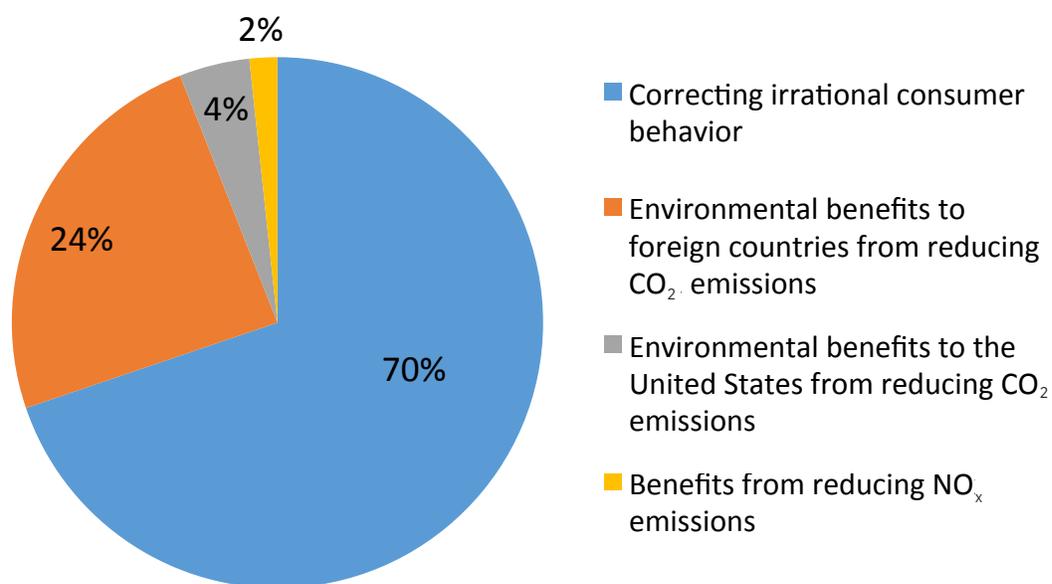
8. For a summary of how consumer and business irrationality is being used to justify regulations in many areas of American life, see Christopher Koopman and Nita Ghei, “Behavioral Economics, Consumer Choice, and Regulatory Agencies” (Economic Perspectives, Mercatus Center at

ever being implemented, these “operating cost savings” cannot be counted as a benefit of the regulation. Consumers who prefer these savings can capture the savings on their own. Additionally, some consumers who prefer the low upfront price of the less efficient halide lamp fixtures will have fewer options available to them following implementation of the regulation, and they cannot capture the benefits of whatever attributes the less efficient products may have had that the more energy efficient products lack. This is clearly a cost and it is not accounted for in the DOE’s cost estimates.

BENEFITS ESTIMATES

Using the Department’s primary estimate of the SCC (\$40.8/ton), estimated total benefits from reductions in CO₂ emissions resulting from the halide lamp rule are \$1,532 million (2012\$). This number is greatly exceeded by the claimed benefits resulting from correcting irrational consumer behavior, which are estimated at \$3,748 million (2012\$ at a 3 percent discount rate), implying that roughly 70 percent of the stated benefits from the regulation are due to correcting consumer irrationality. The chart below demonstrates the information.⁹

Claimed Benefits from 2013 DOE Halide Lamp Fixtures Regulation



Source: Department of Energy, Office of Energy Efficiency and Renewable Energy, “Energy Conservation Program: Energy Conservation Standards for Metal Halide Lamp Fixtures; Proposed Rule,” 78 Fed. Reg. 161 (Table 1.3) August 20, 2013.

Given that the 2013 interagency working group¹⁰ that calculated the new SCC the DOE uses in this regulation did not take comments from the public, and that the DOE has been petitioned to reconsider a rule that incorporated the new SCC elsewhere,¹¹ the DOE should continue to use the old SCC until such time as the public has had a chance to comment sufficiently on the methodology used in the interagency working group report and the report has been subjected to peer review. If the DOE had used the SCC from the 2010 interagency working group report

George Mason University, Arlington, VA, August 27, 2013).

9. Calculated using a 3 percent discount rate and a Social Cost of Carbon value of \$40.8/t (2012\$) in 2015. Assumes 15 percent of reductions in CO₂ emissions are attributed to the United States. This is the midpoint between 7 percent and 23 percent, the range estimated by the Interagency Working Group on Social Cost of Carbon, “Technical Support Document, Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866,” February 2010.

10. Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866,” (May 2013).

11. US Department of Energy, Office of Energy Efficiency and Renewable Energy, “Energy Conservation Program for Consumer Products: Landmark Legal Foundation; Petition for Reconsideration,” 78 Fed. Reg. 159 (August 16, 2013).

on the SCC, the global benefits from CO₂ reductions would have been approximately \$990 million (2012\$) instead of \$1,532 million (2012\$).¹² Even if the DOE were to include benefits to foreigners using this methodology, the global environmental benefits no longer pass a benefit-cost test using the old SCC since costs of the proposed rule are estimated at \$1,294 million (2012\$).

GLOBAL BENEFITS SHOULD BE EXCLUDED FROM BENEFITS AND NET BENEFITS CALCULATIONS

It is very likely that the vast majority of environmental benefits of this regulation will be captured by other countries, while the costs will fall predominantly on Americans. It is the job of Congressmen and Congresswomen to represent constituents in their districts. Similarly, government officials at the Department of Energy are public officials whose pay is financed by American taxpayers and who are tasked with serving the American public. Regulators at the DOE have not been tasked with distributing the resources of Americans to other countries, especially in instances where Americans will capture few benefits in return.

While the recent Technical Support Document (TSD) updating the social cost of carbon recommends that agencies include global benefits in their analyses, in spite of OMB recommendations to the contrary,¹³ that recommendation was made without taking comment from the public or submitting the report to outside peer review. Additionally, this recommendation does not eliminate the need to be transparent, which means the DOE should at the very least separate benefits and costs to foreigners from benefits and costs that will be captured by US citizens in its tables. The DOE presents some information on the global distribution of benefits in Tables 17.4.1-17.4.4;¹⁴ however, this information is buried deep within the agency's TSD and is not clearly presented in the agency's summary tables at the beginning of its notice of proposed rulemaking (NPRM). The Department should present this distributional information, along with any other information on the distribution of costs and benefits of the regulation, in these summary tables.

Even if the benefits to foreigners were displayed in a more transparent manner, they should not be counted in the overall net benefits calculation for the rule. This information is valuable to know, but it provides a misleading portrayal of the efficiency of the regulation to decision makers whose job it is to serve the American public. These benefits amount to a form of foreign aid. If Congress and the president want to authorize foreign aid to other countries to combat climate change, that should be an elaborated policy decision.

DISCOUNT RATES

The DOE has begun making a habit of adding costs and benefits that are calculated using different discount rates, and this is deeply problematic. For example, in Table 1.3 of the NPRM, the total benefits estimate labeled with a 7 percent discount rate actually includes carbon dioxide benefits calculated using a 3 percent discount rate, in addition to operating cost and NO_x benefits calculated using a 7 percent discount rate. Similarly, in Table 1.4 of the NPRM the DOE adds a range of estimated benefits from carbon dioxide reductions that are calculated using four different discount rates to other benefits calculated at the 3 and 7 percent discount rate.

A recent article in *Science* magazine written by Nobel laureate Kenneth Arrow and several coauthors explains why these types of calculations are problematic. The article cites a recent EPA/DOT regulation related to fuel efficiency standards for automobiles.¹⁵

12. Based on author's calculations. The 2010 interagency working group report estimated the 2015 SCC at \$23.8/ton (2007\$). Adjusting for inflation gives a 2015 SCC of \$26.35/ton (2012\$). The ratio of this latter number to the SCC used in the DOE's analysis of \$40.8/ton, multiplied by the global benefits from reductions in CO₂, gives the estimate of \$990 million stated above.

13. See Office of Management and Budget, *Circular A-4*, "Regulatory Analysis" (September 17, 2003). "Your analysis should focus on benefits and costs that accrue to citizens and residents of the United States. Where you choose to evaluate a regulation that is likely to have effects beyond the borders of the United States, these effects should be reported separately."

14. Department of Energy, "Notice of Proposed Rulemaking Technical Support Document: Energy Efficiency Program for Consumer Products and Certain Commercial and Industrial Equipment: Metal Halide Lamp Fixtures," (August 2013): 17-6-17-7.

15. US Environmental Protection Agency, *Final Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards: Regulatory Impact Analysis* (EPA420-R-10-009, EPA, Washington, DC, 2010).

In a recent regulatory impact analysis of Corporate Average Fuel Economy standards for motor vehicles, benefits associated with reduced GHG emissions were discounted at a lower rate than fuel savings associated with the proposed standards. This resulted in benefits occurring in the same year being discounted at different rates. **This is clearly inappropriate.** Consistency in decisionmaking requires that the same discount rate must be applied to all certain benefits and costs that occur in the same year, irrespective of whether the project has intra- or intergenerational consequences.¹⁶ (emphasis added)

The same criticism that applied to the above-mentioned fuel efficiency regulation also applies to the DOE's halide lamp fixture rule. The DOE is attempting to add benefits accruing in the same year that are calculated using different discount rates. As the statement above indicates, this is clearly inappropriate.

It should be noted that the calculations mentioned earlier in this comment use the cost and benefit information presented by the DOE that are calculated using a 3 percent discount rate. The author did this because 3 percent is the only discount rate by which all of the benefits and costs of the regulation can be compared to one another consistently. Given the inherent uncertainty surrounding the SCC and the fact that benefits and costs cannot be adequately compared when calculated at different discount rates, it would be helpful to have an estimate of the SCC calculated using a 7 percent discount rate such that a more plausible range of benefits and net benefits from the regulation can be calculated.

EMPLOYMENT IMPACTS

The DOE estimates employment impacts of its regulation using a combination of surveys of manufacturers and an input/output model estimating the number of indirect jobs lost or created from the regulation. The author applauds the DOE's efforts to measure employment impacts of its rule; however, several problems arise with the DOE's methodology.

First, the DOE notes that

By raising energy efficiency, the rule generally increases the purchase price of fixtures. This increase in expenditures causes an increase in employment in this sector.¹⁷

This assumption in the DOE's model seems unlikely. If the price of the product rises due to increased costs of production, sales should fall. It is unclear whether total revenues will rise or fall as a result. But unless the rule somehow changes the degree to which this sector is labor intensive—an idea that is not discussed in the analysis—it is difficult to explain why the production of fewer fixtures will require additional employment.

Additionally, the analysis argues that the long-run aggregate employment impact is negligible due to price and wage adjustments and responses to those adjustments. While this is a reasonable claim, there are significant costs associated with the adjustment process. Indeed, it is not the number of jobs created or destroyed that should be the focus. Rather, it is the human cost of lost employment opportunities. These include things like lost earnings, stress, job retraining, and health effects (due to stress or loss of health insurance).¹⁸ A more accurate reflection of the employment costs of regulation would include these factors in the analysis.

16. K. Arrow et al., "Environmental economics. Determining Benefits and Costs for Future Generations," *Science* 341, no. 6144 (July 2013): 349–50.

17. US Department of Energy, *Notice of Proposed Rulemaking Technical Support Document: Energy Efficiency Program for Consumer Products and Certain Commercial and Industrial Equipment: Metal Halide Lamp Fixtures*, (Washington, DC, August 2013): 14-2.

18. Keith Hall, "The Employment Costs of Regulation."

HUMAN DIGNITY

An important part of making one's own way in the world is the ability to make the choices that affect the directions our lives take. Some choices make us better off. Sometimes we make mistakes. But even mistakes give us an opportunity to learn and grow. Reducing choice without a legitimate reason is very dangerous because it reduces the ability of citizens to learn. Doing so certainly imposes a cost on those citizens and, consequently, on society. Agencies should only reduce choices of citizens when absolutely necessary, and only when there exists "material failures of private markets" or some other systemic problem, as required by presidential executive orders.¹⁹ Claiming consumers are irrational because they do not choose the lamp fixture the DOE would like does not qualify as a systemic failure of private markets or other public need.

President Obama's recent Executive Order is very clear that human dignity should be respected in the context of regulating.²⁰ It is not being respected here, as the DOE has decided to override consumer preferences and substitute the decisions of millions of Americans with the decisions of regulators at the Department of Energy.

CONCLUSION

In light of the above concerns, the DOE should make the following changes to any future analyses involving this or any other energy efficiency regulation:

First, the DOE should not count "operating cost savings" as benefits of the regulation. It is impossible for the DOE to know when consumers are behaving irrationally and when they are simply acting in accordance with their own preferences. As such, the DOE cannot claim to be bestowing a benefit upon citizens when it restricts their choice set.

Second, the DOE should not include benefits to foreigners as part of its benefits or net benefits calculations, though this information is useful to know and may be presented elsewhere in the analysis.

Third, the DOE should calculate the SCC using a 7 percent discount rate such that costs and benefits can be compared in a consistent manner. This will provide a clearer estimate of the range of net benefits of the regulation.

Fourth, the DOE should not add costs and benefits that accrue in the same year but that have been calculated using different discount rates.

Fifth, the DOE should cease using the SCC estimated in the 2013 interagency report on the SCC until such time as the report has been submitted to outside peer review and the public has had a chance to comment on report's methodology.

Lastly, the DOE should take into account the dignity people lose when their choice set is restricted by regulators and should more carefully consider the true costs on employment (not just jobs) of its regulations.

It seems unlikely the proposed regulation can be justified on economic grounds, as required by the Energy Policy and Conservation Act of 1975. As such, the DOE would be wise to delay regulating until such time as the benefits resulting from a stricter energy efficiency standard for metal halide lamp fixtures can justify the costs of the stricter standard.

19. Exec. Order 12866, "Regulatory Planning and Review," 58 Fed. Reg. 190 (Oct. 4, 1993).

20. Exec. Order 13563, "Improving Regulation and Regulatory Review," 76 Fed. Reg. 14 (January 21, 2011).