



National Electrical Manufacturers Association

The Association of Electrical Equipment
and Medical Imaging Manufacturers
www.nema.org

Written Statement of
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Before the
Energy & Power Subcommittee
House Energy and Commerce Committee
On
Home Appliance Energy Efficiency Standards Under the
Department of Energy-Stakeholder Perspectives
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Chairman Whitfield and Ranking Member Rush:

Introduction:

Thank you for the opportunity to provide the following remarks on behalf of the National Electrical Manufacturers Association (NEMA) regarding the Energy Conservation Standards program implemented by the Department of Energy pursuant to the Energy Policy and Conservation Act (EPCA).

NEMA represents nearly 400 electrical equipment and medical imaging technology manufacturers. Our combined industries account for more than 400,000 American jobs and more than 7,000 facilities across the United States. Domestic production exceeds \$117 billion per year. Our industry Members are at the forefront of electrical safety, reliability, efficiency, and diagnostics.

Opening:

The Energy Policy and Conservation Act (EPCA), enacted over 40 years ago in response to the 1973 energy crisis, created the first comprehensive approach to federal energy policy. The primary goals of EPCA were to increase energy production and supply, reduce energy demand, provide energy efficiency, and give the executive branch additional powers to respond to disruptions in energy supply. Most notably, EPCA established the Strategic Petroleum Reserve, the Energy Conservation Standards Program for Consumer Products, and Corporate Average Fuel Economy regulations. The Act's provisions relevant to energy conservation standards have been amended several times since 1975.

Today's hearing concerning EPCA's Energy Conservation Standards program for Consumer and Commercial Products is timely given the current debate on the future of energy in America and energy conservation standards role in that future. NEMA is in a unique position in this debate given that 20 of the 63 covered products in the DOE program are products made by NEMA Members, with another 30

covered products containing NEMA Member- made components. In all, over eighty percent of the products covered by this program impact our Members.

Originally, EPCA's energy conservation standards program was directed at 13 home appliance products. Today, the Department of Energy (DOE) administered program has grown to cover over 60 products representing about 90% of home energy use, 60% of commercial building energy use, and approximately 29% of industrial energy use, according to DOE statistics. The program has now established efficiency standards for numerous covered products that have been regulated and re-regulated (by amendment of prior standards), such that consumers and manufacturers will see only diminishing returns from continuing rulemakings for many of these long-regulated products.

Key Points:

Diminishing Returns from Serial Rulemakings

EPCA was written 40 years ago and many of the covered products are now highly efficient. Several products have been through two or more different rulemakings with increased efficiency standards adopted by Congress and the DOE in that time. The EPCA statute requires DOE to conduct a rulemaking to determine whether higher standards are warranted on every single covered product no later than every six years, even for products that have already reached a stage of "regulatory maturity" in terms of ability to sustain cost-effective efficiency improvements. There are two components to this situation that warrant congressional attention and both must be addressed: (1) several of the "mature" covered products that have been through multiple iterations of energy conservation standards should be sunset from the program; and (2) the six-year review cycle in the law requires that DOE start a new rulemaking procedure for the same covered product barely after the regulated industry has begun to comply with the previous regulation does not enable the government and stakeholders to understand the impact of the previous regulation before a new rule is in the making. And this cycle does not contemplate just one rulemaking and one rule, but multiple rules because there are regulations not just for standards, but for test procedures and information.

Product versus Systems Regulatory Approach

The opportunity and challenge going forward is to determine how to build on the past EPCA product-oriented success that will yield declining or no marginal benefit in the future to achieve additional cost-effective energy savings. Another challenge to the current framework is that many of today's products and technologies are increasingly interconnected and operate as a system rather than as a single component. This new, smart and connected ecosystem was non-existent when Congress created the EPCA program 40 years ago. Starting today, Congress should start considering ideas on how to meet this challenge and work together to leverage the opportunity it creates. This new opportunity could also reduce burden for the agency by allowing them to focus on an entire system rather than the many components that make up the system. There are greater energy savings to be realized from deploying

the highly energy efficient products that are made today rather than continuing to squeeze diminishing benefits out of long-regulated products.

Regulation Impacts on Consumer Choice

With ever-growing demands from globalization, regulations, and consumer preferences, manufacturers are in a constant battle to balance these to remain competitive. While our Members are accustomed to managing this balance, we do fear that a regulatory environment that appears to know no end will hinder their ability to manage this balancing act in the coming years. One aspect of the EPCA regulatory program is that it eliminates less-efficient products from the market. At some point in the regulatory scheme, it means there will be fewer and fewer choices to offer consumers and users of regulated products. We would assert that markets should be relied upon to drive the energy efficient economy more than government action.

NEMA AND THE ENERGY EFFICIENT ECONOMY

Forty years ago, Congress set in motion a national policy aimed at reducing the consumption of electricity from home appliances as one component of the nation's effort to ensure a stable, reliable and diverse supply of all forms of energy that met the nation's demand. For its day, the congressional enactment was an "all of the above" energy strategy, not conceptually much different than the discussion occurring today for an "all of the above" energy approach. The 1975 Energy Policy and Conservation Act, enacted in the wake of the Arab Oil Embargo, spoke to both the supply and demand side of the energy equation: "increase the supply of fossil fuels in the United States through price incentives and production requirements; . . . reduce the demand for petroleum products and natural gas programs designed to provide greater availability and use of this Nation's abundant coal resources; . . . conserve energy supplies through energy conservation programs and, where necessary, the regulation of certain energy uses; . . . provide for improved energy efficiency of motor vehicles, major appliances, and certain consumer products." One difference between 1975 and today's energy economy is the growing penetration of renewable energy resources, many of which did not exist in 1975. Another difference is the substantial elimination of inefficient energy consuming products and the availability today of far more energy efficient products and the demands of consumers who want highly efficient products.

The effort to improve the energy efficiency of appliances became a political football within a few years after the Act was enacted, and efforts to regulate the efficiency of appliances stalled until a court challenge resolved legal differences among stakeholders. Congress amended the appliance efficiency portion of the law in 1986 and again in 1987 with the support of the Reagan Administration. Products manufactured by Members of the National Electrical Manufacturers Association (NEMA) were not included in the original 1975 law. That would change in 1987 with Congress' inclusion of efficiency standards for certain fluorescent lamp ballasts as a new part of the law, and the coverage of NEMA Member products within the law's scope would expand further in 1992 with the inclusion of certain types of fluorescent, incandescent and metal halide lighting products as well as electric motors and

distribution transformers. At about this time, the nation was just beginning to see the energy savings from appliances as less efficient versions of products were exiting the market in favor of more efficient products that met energy conservation metrics.

NEMA and its Members supported the national policy for energy conservation. The several benefits of the Act are real and are often extolled as follows: the less the nation spends on energy, the more the nation can spend (or save) on other products or investments; the less energy it takes to produce a particular product, the greater our productivity; the less energy we consume allows the nation to rely more heavily on domestic production of energy resources and avoid imported energy sources; the less energy we consume, we reduce or delay the need to invest in new energy sources and the nation can invest (or save) in other ways; the less energy we consume, we reduce negative externalities (*e.g.* pollution) associated with energy production.

As it implements the law, the Department of Energy estimates the amount of these benefits either in terms of British Thermal Units or kilowatt hours of energy that are projected to be saved over thirty years into the future and often analogizes the estimated 30-year savings to the amount of electricity consumed by a given number of homes in one year, taking a particular number of cars off the nation's highways, or avoiding the need to build new power plants. While thirty-years-into-the-future estimates are inherently imprecise and based on assumptions that may never prove true, and the accuracy of the estimates is not something anyone would want to place a bet on, that is not the entire point. Whatever the precise amount of savings may be from a regulation turns out to be, even if the projection is significantly lower than estimated, the magnitude of the energy savings still remains large and is a benefit to the nation. From that perspective and within limits, this law can be regarded as successful public policy choice by Congress.

Those benefits, as attractive as they may be, are not the sole concern of the Act. Congress recognized that in subsequent amendments to the Act. There are costs associated with achieving those benefits. Those costs fall on consumers and users of the regulated products, they fall on manufacturers of the regulated products, they fall on employees of the manufacturers and employees of the distributors and retailers of the regulated products, and they can fall on the component and raw material suppliers to manufacturers of regulated products.

Manufacturers of regulated products are the one stakeholder in this regulatory scheme who are sensitive to all of these impacts and they may be the only stakeholder speaking up for all who are impacted. Manufacturers of consumer and commercial/industrial products are extremely attuned to the requirements and needs of those who use and buy their products. Their relationships with their customers are important to them for obvious reasons. The law works by establishing a standard metric that limits the amount of energy --- electricity or gas --- that a regulated product can consume, reducing "losses" of energy that might occur during the product's normal operation. The metric eliminates versions of the product on the market that do not meet this standard and requires manufacturers to supply only versions of the regulated product that do meet the standard. For a variety of reasons, the more efficient products that remain on the market may have a higher cost (and price) than those versions that can no longer be made and sold. This higher price might be offset by the energy savings

experienced by the consumer over a reasonable period of time after purchase. It is not always easy for consumers to recognize and appreciate the total cost of owning a product as the sticker price on a store shelf is what they see. And even if the price of the more efficient product is not materially different, the new energy metric can impose costs on customers beyond the cost of the regulated product. For example, new standards for electric motors may require the motor manufacturer to build the more efficient motor in a larger frame size. Where a motor is incorporated into another piece of equipment, that larger motor may no longer fit and the user will have to source a replacement item to fit the larger, more efficient motor. That is a cost. Ultimately the question is whether the energy savings in the long-run are so substantial that this additional cost, and all other additional costs, can be economically justified? In the case of the new energy metric for electric motors, the energy savings were quite substantial. NEMA and its Members supported this rule, and we have supported improvements in the energy metrics for a number of other regulated products. It is a balancing act, and the law expressly recognizes that the benefits and costs must be objectively weighed against one another. To that end, as Congress evaluates the program and its future, we recommend that stakeholders and the public have full access to the models, assumptions, and analysis used during rulemakings.

There is another emerging perspective about the law that must now be acknowledged. The Act is now 40 years old. Despite a slow initial implementation, the regulatory scheme is now mature as many products have seen multiple regulatory actions --- either from Congress or the Department of Energy --- that have resulted in new energy metrics for those products increasing their efficiency or capping their energy use. Some products have seen two, three or four regulatory actions and there is at least one product --- dishwashers --- that is looking at round five of regulation. Congress has authorized these multiple regulatory actions directed at the same product. After forty years, it is now time for Congress to look at the continuing benefit of additional regulation of products that have been regulated multiple times. We are witnessing compulsory serial rulemaking and we are witnessing diminishing marginal returns to this effort. While NEMA does not agree with the clarion call of some to repeal all of this regulation and legislation, we do think it is time to explore other ways of saving energy that do not involve serial regulation of products and components in the face of demonstrably shrinking benefits.

Fluorescent lamp ballasts, the electrical driver for fluorescent tubes, has witnessed four rule changes --- some by Congress and some by DOE --- and faces a market in transition to LED lighting that makes it difficult to accept continuing regulation when the future is moving in a different direction. Last year, the Association of Home Appliance Manufacturers (AHAM) [highlighted](#) a proposed new water saving and energy saving metrics for dishwashers --- it would be the fifth energy metric for dishwashers since Congress first established a metric in 1986 --- will impair the dishwasher's ability to clean dishes. These types of facts in the context of a serial regulatory environment ought to give pause if not reconsideration to continuing raising of the bar of long-regulated products. The DOE has acknowledged recently in two regulatory actions that it could not justify higher energy metrics for incandescent reflector light bulbs and high intensity discharge lamps. In both cases, the incremental energy savings over a thirty year period were extremely small --- less than 0.01 quads of energy¹ over thirty years. A review of 42 DOE regulations since 2009 reveals a range of projected energy savings from individual DOE

¹ A "quad" of energy refers to a quadrillion British Thermal Units of energy.

rules from a low 0.01 “quads” of energy over thirty years to as high as 14.8 “quads” of energy savings over thirty years. At the high end, these savings are quite significant as is the cumulative savings of 75.75 “quads” over thirty years from all 42 regulations. And this figure does not include the energy savings from standards passed by Congress since 1986 and older DOE regulatory actions before 2009. The average projected energy savings per rule from the 42 regulations is 1.8 “quads” of energy. However, 16 of the 42 rules generated less than 0.4 quads of projected energy savings over thirty years, and cumulatively the total energy savings from these 16 regulations – each between 0.01 quads and 0.31 quads was well less than the average of all 42. Twelve of these regulations were under 0.2 quads of energy savings.

The point is one of diminishing returns in an increasing number of these regulatory cases. For example, higher energy conservation standards for distribution transformers, fluorescent ballasts, certain types of light bulbs (lamps), exit signs, and integral electric motors can no longer be justified. The regulatory end game for those products is in plain sight and should be greeted with a sense of accomplishment, not unmet expectations.

The cost of a higher energy metric to consumers and users of integral electric motors cannot be offset by future energy savings from a higher regulation. Distribution transformers are now required to be approximately 99% efficient. Are more efficient transformers available to utilities who want them? Yes, but the utilities should be making the choice now whether to buy a transformer that is a few tenths of a percent more efficient at a much higher cost. . There will be impacts on the domestic steel companies and their employees who currently supply the electrical steel used to make transformers today if only the most efficient transformer is available. At a higher energy metric for distribution transformers, utilities would have no alternative choices among products and the transformer would be effectively commoditized by government regulation. In these circumstances, the utilities and industrial customers would lose the choice as to which of the fewer available transformers, at different prices and efficiencies, are cost-effective for them.

One of the criteria that the Department of Energy examines when it evaluates whether a higher energy metric can be justified or not is the impact on the value of the industry that manufactures the particular regulated product. This analysis involves studying manufacturer cash flows as a result of the regulation and translating those estimates into a number that measures the change in the present value of the industry. Not surprisingly that change is almost always a negative. The important question is: how negative is the number? In comments to the Department of Energy, NEMA has pointed out that the U.S. lighting industry has been through multiple DOE regulatory actions with several of them resulting in the highest negative changes in industry values of all the DOE rulemakings. We have seen above-average declines in segments of the lighting industry’s value as a result of the regulatory actions ranging from minus 15% (2009 fluorescent lamps) to minus 36.7% (fluorescent lamp ballasts). In the case of fluorescent lamps, a subsequent 2015 regulation that estimated a minus 21.3% decline in industry value on top of the minus 15% decline only six years earlier. The lighting industry also experienced a minus 20.4% decline in the 2009 reflector lamp regulation, and a minus 26.7% decline in the case of metal halide lamp fixtures. Since many of the U.S. lighting product manufacturers are impacted by several or all of these rulemakings the cumulative impacts of multiple serial regulatory actions is substantial.

While NEMA and its Members have been supportive and continue to be supportive of an energy efficient economy, it is time for Congress to examine and consider changing the energy efficiency regulation scheme it created 40 years ago that focuses on components and products and move in another direction. The serial regulatory scheme is no longer making sense for many if not most regulated products. The burdens on manufacturers, their employees, and their customers are not sustainable when regulation repeatedly revisits the same components and products looking for more.

What Lies Ahead?

Should Congress scrap the Department of Energy's energy conservation standards program altogether? NEMA is not advocating for that outcome. We submit that there are certain products that are easily identified as no longer providing significant additional benefits to justify continuing regulatory action. From a regulatory perspective, these products have matured out of the program. Congress and States regularly sunset regulatory laws after a period of time; Congress should learn from this experience. If there are products that have not been investigated yet for their economically justified and significant energy savings potential, the DOE standards program can focus on those products.

What are the other programs to consider to promote energy conservation? There are several and many of them are already being utilized:

- Programs and incentives to encourage the adoption of the more energy efficient products available in the market. Industry and competition among manufacturers has created and brought to market energy saving product solutions. Congress and the DOE have eliminated the least efficacious products from the market. The focus of an energy efficient economy should be on promoting the installation of those efficient products that our Members have invented and commercialized. The EPA's ENERGY STAR program is one example of the type of program that works as long as it does not become a burdensome regulatory creature of its own.
- Tax incentives have also been effective in building more energy efficient buildings by incorporating energy saving components into them.
- State energy codes that establish performance-based requirements for the energy use of the entire building envelope without specifying particular technologies or products required to meet the goal can also be effective. These building codes can take a systems approach to energy consumption rather than a component or product approach.
- Ensuring that there is access to capital to finance energy saving investments through a tax code that rewards such investments.
- Use of Energy Savings Performance Contracts (ESPCs) whereby a contractor makes the investment in the installed set of energy savings equipment, products and management devices without cost to the owner and realizes the payback from the energy savings realized on that investment. ESPCs represent an important tool for reducing energy costs in the public sector.

As NEMA pointed out in its recent comments to DOE in connection with the pending light bulb rule, we can see how other approaches to promoting energy conservation can be successful without a product specific heavy regulatory hand. Ten years ago, Congress was inspired by new more efficient light bulb products developed by lighting manufacturers and was also inspired by growing manufacturer investment in even more lighting utilizing solid-state LED technology. The LED lighting products did not substantially exist in 2007, but there was promise in the research program. In the Energy Independence and Security Act of 2007 (EISA), Congress established a supportive environment for the development and commercialization of LED lighting. In addition to provisions containing incentives to develop a commercial LED lighting product quickly, encouraging federal procurement of LED lights when they became available on the market, Congress also asked the Federal Trade Commission to work with manufacturers to educate and inform consumers about the benefits of LED lights and label products so that the energy saving benefits were clearly explained. Manufacturers worked with their channel partners, who sell and install lighting products, to educate them as well as consumers about these energy saving benefits. The EPA's ENERGY STAR program for light bulbs has evolved to focus on LED lights and encourage customer recognition and adoption of LED lights. The Department of Energy's research mission supported projects aimed at reducing the cost of manufacturing LED lamps and improving quality. And manufacturers innovated, reduced cost, spurred by a healthy competitive environment in the lighting industry.

In just a few short years, we have watched the A-line LED light bulb enter the market at \$60.00 per bulb and fall to below \$5.00 per bulb currently, and prices are expected to fall further. Consumers are attracted to the LED product as well. The share of regulated A-line incandescent lamp shipments was close to 70% in 2011, and is now below 50%. Meanwhile, A-line LED lamp shipments have penetrated 26% of sales in the first quarter of 2016, up from virtually nothing two years ago. The penetration of LED lighting in commercial buildings is quite substantial, and presence of LED lighting on major retail store shelves is quite significant. The compact fluorescent lamp, formerly the energy saving alternative to the incandescent lamp, never experienced that market phenomenon so rapidly. And, these same fluorescent lamps are falling fast as a percentage of the market from 47% in the fourth quarter 2014 to 19 % in the first quarter 2016. Makes one wonder why they seem to need further regulation in the eyes of DOE.

And at the same time, we are calling on the Department of Energy to ensure that consumers have choices among competing technologies for lighting products. No one technology is appropriate for every lighting application. With choices, the market's drive to save energy will be enhanced.

Concluding Thoughts

NEMA's approach (and our manufacturer Members' approach) to our industry's contribution to the energy efficient economy has been consistent with the balancing act that is reflected in the law. We have made constructive proposals to both Congress and the DOE to advance energy efficiency where we believed it was justified and where the energy savings were significant. We have resisted regulation for the sake of "doing something more" where the benefits were not significant or the costs for our industry's customers was just too much.

The 40-year old model of regulating the energy use of components and products forever is witnessing diminishing marginal returns to our citizens --- employers, employees, customers and consumers --- and for those long-regulated products there are better ways to support energy conservation than that regulatory model. We have other concerns about the regulatory model, but the serial regulatory action that Congress has built into the law is seeing its limits and needs a legislative overhaul that builds on the success of the last 40 years rather than just perpetuating the same lock step approach.

Thank you for this opportunity to testify, and I look forward to your questions.