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DEPARTMENT OF ENERGY

10 CFR Part 431

[Docket No. EE–DET–03–001]

RIN 1904–AA86

Energy Conservation Program for Consumer Products and Certain Commercial and Industrial Equipment: Final Determination Concerning the Potential for Energy Conservation Standards for High-Intensity Discharge (HID) Lamps

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Final determination.

SUMMARY: Based on the best available information, the U.S. Department of Energy (DOE) has determined that energy conservation standards for certain high-intensity discharge (HID) lamps are technologically feasible and economically justified, and would likely result in significant energy savings. By notice and comment rulemaking, this final determination initiates the process of establishing test procedures and potential energy conservation standards for this equipment. Pursuant to court order, this final determination must be made by June 30, 2010.

DATES: This rule is effective August 2, 2010.

ADDRESSES: For access to the docket (EE–DET–03–001) to reach background documents, the technical support document (TSD), or comments received, go to the U.S. Department of Energy, Resource Room of the Building Technologies Program, Sixth Floor, 950 L'Enfant Plaza, SW., Washington, DC 20024, (202) 586–2945, between 9 a.m. and 4 p.m., Monday through Friday, except Federal holidays. Please call Ms. Brenda Edwards at the above telephone number for additional information about visiting the Resource Room. Copies of certain documents in this proceeding may be obtained from the Office of Energy Efficiency and Renewable Energy's Web site at *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/high_intensity_discharge_lamps.html.*

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I. Summary of the Determination

The Energy Policy and Conservation Act (EPCA or the Act; 42 U.S.C. 6291 *et seq.*) requires DOE to issue a final determination regarding whether energy conservation standards for HID lamps would be technologically feasible, economically justified, and would likely result in significant energy savings. DOE has determined that such standards are technologically feasible, economically justified, and would likely result in significant energy savings. Thus, DOE issues a positive final determination today.

In its analysis for this final determination, DOE evaluated potential standards for HID that would lead to a migration from less efficient probe-start metal halide (MH) lamps to more efficient pulse-start MH (PMH) lamps and high-pressure sodium (HPS) lamps. Both PMH and HPS lamps are existing HID technologies that are technically feasible. Further, based on this analysis, DOE has determined that a potential standard setting a level that eliminates inefficient probe-start MH lamps likely would be economically justified and likely would result in significant energy savings. DOE received comments from three different interested parties regarding the April 27, 2010, notice of proposed determination (NOPD). Without exception, the commenters were supportive of the proposed positive determination and of establishing energy conservation standards for HID lamps.

DOE has determined that standards for HID lamps would be expected to be economically justified from the perspective of an individual consumer. According to DOE's analysis, there is at least one set of standard levels for HID lamps that would reduce the life-cycle cost (LCC) of ownership for the typical consumer (*i.e.,* the increase in equipment cost resulting from a standard would be more than offset by energy cost savings over the life of the lamp-and-ballast system). In response to the NOPD, DOE received comments regarding the LCC analysis, with two of the commenters stating that cost inputs

and resulting LCC values for baseline and substitute HID lighting systems were too high. (ACEE, No. 22 at p. 2; SDG&E No. 23 at p. 3) [1] DOE examined a large set of cost data in estimating HID lighting system costs for the proposed determination, and did not collect additional data as a result of these comments. If DOE had collected more data and found that its cost estimates were, in fact, too high, this finding would not have changed DOE's conclusion that energy conservation standards for HID lamps would potentially be economically justified. However, DOE will conduct a more in-depth evaluation of equipment cost inputs for the LCC analysis in an upcoming energy conservation standards rulemaking.

DOE also concludes that standards would be cost-effective from a national perspective. The national net present value (NPV) from standards could be as much as $30.0 billion in 2010$ for products purchased during the 30-year analysis period (2017 to 2046), assuming an annual real discount rate of 3 percent. This forecast considers only the direct financial costs and benefits of standards to consumers, specifically the increased equipment costs of HID lamps and the associated energy cost savings. In its determination analysis, DOE did not monetize or otherwise characterize any other potential costs and benefits of standards, such as manufacturer impacts or power plant emission reductions. Additional effects will be examined in a future analysis of the economic justification of particular standard levels in the context of a standards rulemaking that would set specific energy conservation requirements.

DOE's analysis also indicates that standards would likely result in significant cumulative energy savings over the 30-year analysis period (2017–2046) of at least 11.4 quads. These savings are equivalent to the electricity consumption of approximately 57 million U.S. homes during 1 year. This is a much higher estimate than that announced by DOE in the NOPD. For the NOPD analysis, DOE presented a full range of potential energy savings in chapter 6 of the TSD (section 6.2), and reported the lowest of these results in the notice, which was the initial 2.8 quads estimate that represented the physical energy savings discounted at a 7-percent discount rate. 75 FR 22031, 22032 (April 27, 2010). However, DOE refined its analyses during the comment period—which included a correction to a technical error in the spreadsheet calculation—and is now highlighting the *undiscounted* physical energy savings of 11.4 quads, in an effort to be more consistent with other DOE determinations [2]. (*See, e.g.,* the non-class A external power supplies rule, 75 FR 27179 (May 14, 2010).) Further documentation supporting the analyses described in this notice is contained in a separate TSD, available from the Office of Energy Efficiency and Renewable Energy's Web site at *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/high_intensity_discharge_lamps.html.*

A. Legal Authority

The National Energy Conservation Policy Act of 1978 amended EPCA to add a Part C to Title III of EPCA,[3] which established an energy conservation program for certain industrial equipment. (42 U.S.C. 6311–6317) The Energy Policy Act of 1992 (EPACT 1992), Public Law 102–486, 106 Stat. 2776, also amended EPCA and expanded Title III to include HID lamps. Specifically, EPACT 1992 amended section 346 of EPCA (42 U.S.C. 6317) to provide that the Secretary of Energy (the Secretary) must prescribe testing requirements and energy conservation standards for those HID lamps for which the Secretary determines that energy conservation standards "would be technologically feasible and economically justified, and would likely result in significant energy savings." (42 U.S.C. 6317(a)(1).)

Pursuant to these requirements of EPCA, because DOE has made a positive final determination, DOE must proceed to establish testing requirements for those HID lamps to which today's final determination applies. (42 U.S.C. 6317(a)(1).) Subsequently, DOE will conduct a rulemaking to establish appropriate energy conservation standards. During the standards rulemaking, DOE will decide whether and at what level(s) to promulgate energy conservation standards. The decision will be based on an in-depth consideration, with the assistance of public participation, of the technological feasibility, economic justification, and energy savings of specific potential standard levels in the context of the criteria and procedures for prescribing new or amended standards established by section 325(o) and (p) of EPCA. (42 U.S.C. 6295(o)(p).)

B. Background

DOE conducted previous analyses estimating the likely range of energy savings and economic benefits that would result from energy conservation standards for HID lamps, and published draft reports describing its analyses in 2003 [4] and 2004.[5] The draft reports and their corresponding technical support documents (referred to as the 2003 TSD and 2004 TSD in today's notice) were made available for public comment on the Office of Energy Efficiency and Renewable Energy's Web site at *http;//www1.eere.energy.gov/buildings/appliance_standards/commercial/high_intensity_discharge_lamps.html.* The reports made no recommendation concerning the determination that DOE should make. Parties that submitted comments after the 2003 draft report included the American Council for an Energy-Efficient Economy (ACEEE), the California Department of Transportation (Caltrans), Delta Power Supply (Delta), Edison Electric Institute, National Electrical Manufacturers Association (NEMA), the Pennsylvania Department of Transportation (PennDOT), and Ms. Lucinda Seigel. DOE received comments after the 2004 draft report from ACEEE, Benya Lighting Design (Benya), and NEMA. Those comments were discussed where applicable in the NOPD.

In advance of today's final determination, DOE published a TSD on the aforementioned web site in conjunction with the NOPD, which was published in the **Federal Register** on April 27, 2010 (75 FR 22031). In response to the NOPD, DOE received comments from ACEEE, NEMA, and San Diego Gas & Electric Company (SDG&E). All three interested parties were supportive of the proposed positive

[1] A notation in the form "ACEE, No. 22 at p. 2" refers to (1) a statement that was submitted by the American Council for an Energy-Efficient Economy and is recorded in the docket "Energy Conservation Program for Commercial and Industrial Equipment: High-Intensity Discharge (HID) Lamps," Docket Number EERE–2006–DET–0112 as comment number 22; and (2) a passage that appears on page 2 of that document.

[2] Discounting is an economic and financial concept that reflects the fact that often the value of a quantity in the future is less than the value today. For financial estimates, DOE highlights discounted values to reflect the time value of money, while for non-financial physical quantities, DOE highlights undiscounted sums and calculates the discounted sums as a sensitivity.

[3] For editorial reasons, Part C, Certain Industrial Equipment, was redesignated as Part A–1 in the U.S. Code.

[4] In June of 2003, DOE published the *Draft Framework for Determination Analysis of Energy Conservation Standards for High-Intensity Discharge Lamps.* This report can be found at: *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/high_intensity_discharge_lamps.html.*

[5] In December of 2004, DOE published the *High-Intensity Discharge Lamps Analysis of Potential Energy Savings.* This report can be found at: *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/high_intensity_discharge_lamps.html.*

determination and of the establishment of energy conservation standards for HID lamps. Where specific comments were received, they are addressed below.

1. Scope of Coverage

For purposes of today's final determination, DOE limited its analyses to HID technologies. DOE received comments in response to its previous draft reports regarding alternative non-HID technologies including induction and fluorescent lamps. 75 FR 22031, 22033 (April 27, 2010). In comments submitted in response to the NOPD, both ACEEE and SDG&E recommended considering non-HID sources that compete with HID lighting systems. (ACEEE, No. 22 at p. 2) SDG&E specifically identified light-emitting diodes (LEDs) and electronic HID ballasts. (SDG&E, No. 23 at p. 3) However, as stated in the NOPD, non-HID lamp technologies (including electronic HID ballasts) are outside the scope of the determination process 75 FR 22031, 22033 (April 27, 2010). DOE will consider the effects of non-HID lamp technologies (*e.g.,* the penetration of LED products in the HID lighting market, and their effects on future HID lamp shipments) as part of the future energy conservation standards rulemaking.

2. Definitions

In the NOPD, DOE listed the already codified definitions applicable to the determination, including those for "HID lamp," "mercury vapor (MV) lamp," and "MH lamp." DOE also proposed a definition for HPS lamp, to be inserted into Title 10 of the Code of Federal Regulations (10 CFR) 431.452, and included the definition in the list of items for comment. 75 FR 22031, 22033 (April 27, 2010) In comments on the NOPD, NEMA recommended a definition for "HPS lamps" from American National Standard Institute (ANSI) C82.9–1996, "American National Standard for High-Intensity Discharge and Low-Pressure Sodium Lamps, Ballasts and Transformers." (NEMA, No. 21 at p. 3) Under subsection 3.27, "Definitions," ANSIC82.9–1996 defines "HPS lamp" as "[a] high-intensity discharge (HID) lamp in which the major portion of the light is produced from radiation from sodium vapor operating at a partial pressure of about 6.67×10^3 pascals (50 torr) or greater." DOE will consider this proposed definition when developing test procedures and potential energy conservation standards for HID lamps.

3. Effects on Small Businesses

In the NOPD, DOE requested comment on the possible effect of energy conservation standards for HID lamps on small businesses. NEMA commented that the full cost of all the components involved (*e.g.,* lamp, ballast, or new fixture) would need to be cost effective for large and small businesses alike. Further, NEMA indicated that the energy savings from a required replacement HID system under new standards should pay for the new equipment in less than 3 years, and that payback periods (PBPs) exceeding 3 years would have negative effects on small businesses. NEMA also noted that the color quality of replacement HID systems must be appropriate for their intended lighting applications, and that eliminating cost-effective lamp types with desired color qualities would also negatively affect small businesses. (NEMA, No. 21 at p. 3) In the upcoming energy conservation standards rulemaking, DOE will consider the comments from NEMA in developing both HID lamp equipment classes and detailed inputs for its LCC analysis, and in identifying potentially affected consumer types for its LCC subgroup analysis.

II. Discussion of the Analysis of High-Intensity Discharge Lamps

A. Purpose and Content

DOE analyzed the feasibility of achieving significant energy savings from energy conservation standards for HID lamps, and presents the results of the related market and technology assessments, engineering analysis, and economic analyses in a TSD for this final determination. In subsequent analyses for the energy conservation standards rulemaking, DOE will perform the analyses required by EPCA. These analyses will involve more precise and detailed information that DOE will develop during the standards rulemaking process and will detail the effects of proposed energy conservation standards for HID lamps.

B. Methodology

To address EPCA requirements that DOE determine whether energy conservation standards for HID lamps would be technologically feasible, economically justified, and would likely result in significant energy savings (42 U.S.C. 6317(b)(1)), DOE's analysis consisted of five component analyses: (1) A market and technology assessment to characterize where and how HID lamps are used; (2) an engineering analysis to estimate the relationship between product costs and energy use; (3) an LCC analysis to estimate the costs and benefits to users from increased efficacy [6] in HID lamps; (4) a national energy savings analysis to estimate the potential energy savings on a national scale; and (5) a national consumer impacts analysis to estimate potential economic costs and benefits that would result from improving energy efficacy in the considered HID lamps. These separate analyses are briefly addressed below.

1. Market and Technology Assessment

In support of today's final determination, DOE conducted research into the market for considered HID lamps, including national annual shipments, the current range of lamp efficacies, lamp applications and utilization, market structure, and distribution channels. In the NOPD, DOE requested data and comments on several analysis inputs. 75 FR 22031, 22042 (April, 27, 2010). NEMA responded that it would work with DOE during the rulemaking process for an energy conservation standard to provide additional data for the following analysis inputs:

- Equipment (including lamp, ballast, and fixture) lifetimes;
- Present-year shipments estimates;
- Present-year efficiency distributions;
- Market-growth forecasts; and
- Usage profiles. (NEMA, No. 21 at p. 3)

NEMA also provided specific comments regarding a single efficacy metric (*i.e.,* lumens per watt) for HID lamps, and technology options for increasing HID lighting system efficiency. NEMA commented that factors such as lamp operating position, arc tube shielding for open-fixture operation, and directional (*i.e.,* reflector) lamp designs will affect lamp efficacies and should be considered in an energy conservation standard. In particular, NEMA suggested that lumens per watt is not an appropriate efficacy metric for directional lamps, and that an appropriate metric has not yet been developed. DOE will consider these factors in developing test procedures and equipment classes in the upcoming energy conservation standards rulemaking. With respect to HID lamp-and-ballast system efficacy, NEMA referenced its whitepaper LSD 54–2010, "The Strengths and Potentials of Metal

[6] "Efficacy," expressed in units of lumens per watt, is used here to characterize the efficiency with which a lamp or lamp-and-ballast system produces light. "Efficiency" is unitless, and is used as a general term (*e.g.,* "energy efficiency") or to characterize lamp ballasts, which do not produce light (*e.g.,* "higher efficiency ballast designs").

Halide Lighting Systems," as a possible resource for information about HID system efficacy improvements. (NEMA, No. 21 at pp. 2–4) DOE evaluated the whitepaper and found that it does not contain additional data that would substantially affect the analytical results of the preliminary determination analysis.

For today's final determination, in response to DOE's request, NEMA provided data on HID lamp shipments, subcategorized by HPS, MV, and MH lamp data from its member manufacturers, for the 5-year period from 2003 to 2008. NEMA provided data for 1990 to 2002 to DOE in previous efforts related to today's final determination. Based on its market research, DOE found that HID lamps are typically used in commercial, industrial, and municipal applications with differing electricity tariffs. DOE estimates that, on average, HID lamps are used in applications (*e.g.,* municipal (exterior) and industrial) that typically operate 12 hours per day or more.

DOE has concluded, as stated in the NOPD, that dimming of HID lamps is not common. 75 FR 22031, 22034 (April 27, 2010). DOE examined NEMA's Lighting Systems Division Document LSD 14–2002, "Guidelines on the Application of Dimming High Intensity Discharge Lamps," to evaluate typical practices for HID dimming. LSD 14–2002 notes the four applicable dimming issues related to this final determination: (1) That that dimming ballasts are relatively new to the HID lighting market (having only been commercially available since the 1990s); (2) that HID lamps should not be dimmed below 50 percent of the rated lamp wattage; (3) that color, life and efficacy are negatively affected by dimming; and (4) that few standards exist for dimming of HID lamp-and-ballast systems (NEMA recommends that users evaluate dimming systems in the field to ensure adequate performance.) Given these barriers to the dimming of HID lamps in typical applications, DOE has assumed that HID lamps are operating at full power for the purpose of the analysis supporting this final determination. NEMA commented that these statements about dimming are true, but that dimming is becoming increasingly important and that legislation (both adopted and pending) features HID dimming. (NEMA, No. 21 at p. 2) As addressed in chapter 2 of the TSD (section 2.4), California requires that indoor metal halide luminaires manufactured after January 1, 2010 comply with at least one enhanced efficiency option (including more efficient ballasts or a dimming ballast)[7]; and draft legislation before Congress would require that certain outdoor luminaires (including those using HID sources) manufactured after January 1, 2016 be dimmable. DOE acknowledges that dimming is becoming more prevalent with HID systems, but has decided that consideration of dimming at this time would not substantially alter the results of the determination analysis because of its currently small market share. DOE will consider relevant aspects of dimming in the test procedure and energy conservation standards rulemaking process.

Several comments provided in response to the 2004 draft report addressed elements of the HID lamp market and how standards promulgated by DOE might affect the market. Specifically, Benya commented that standards that effectively banned MV lamps could be warranted and beneficial. (Benya, No. 14 at p. 1) ACEEE commented that DOE should focus on replacing probe-start MH with pulse-start MH, in addition to possibly introducing standards for MV lamps. (ACEEE, No. 16 at p. 1)

Pursuant to EPCA, MV ballasts, except for those with specialty applications (*e.g.,* reprographics), can no longer be manufactured or imported as of January 1, 2008. (42 U.S.C. 6295(ee); 10 CFR 431.286) Consequently, the analysis for this final determination assumes that any MV lamp shipments will service existing MV ballasts only, and that MV lamp shipments will decline as a result.

Moreover, regulations currently in effect in six states (Arizona, California, New York, Oregon, Rhode Island, and Washington) limit the use of probe-start MH technologies by banning fixtures in the wattage range of 150–500 from having probe-start ballasts. DOE's analysis for today's final determination includes information regarding the impact of State regulations, and considers market trends in both MV and probe-start MH technologies. In light of this background, DOE agrees with ACEEE's comment that pulse-start MH lamps should be considered as a substitute for both MV and probe-start MH lamps, and addressed this option in its analysis.

A key factor in the relative performance of different HID lamp technologies is the lamp lifetime. Manufacturers publish the life rating for HID lamps known as B50 (*i.e.,* the point at which 50 percent of a population of lamps is still operating). DOE received information regarding lamp and ballast lifetimes in comments received in response to the 2003 draft report. Specifically, DOE received comments that MV and HPS lamps were typically relamped (*i.e.,* replaced) every 4 years, and MH lamps typically every 2 years. Allegheny further suggested that the lamp life is generally the rated lamp life by the manufacturer. (Caltrans, No. 8 at p. 2; Allegheny, No. 12 at p. 1) Typical life of HID lamps varies with lamp type and wattage, and ranges from 8,000 to greater than 24,000 hours, according to the manufacturer catalog data surveyed and included in chapter 3 of the TSD (sections 3.3–3.5). In determining annual maintenance costs, DOE used median rated lamp lifetime as the basis for relamping schedules.

DOE used the industry-accepted, widely-cited life of magnetic ballasts of 50,000 hours. After the 2003 draft report, Allegheny noted that MV ballast lifetimes are 12 years or greater. (Allegheny, No. 12 at p. 1) Allegheny did not provide the corresponding typical annual operating hours for the MV ballast, however. In the 2003 draft report, DOE assumed that MV lamps were used primarily for fixed (stationary) outdoor lighting (see chapter 2 of the 2003 TSD). DOE retains this assumption for today's final determination, and assumes an average daily operation of 12 hours (a typical "dusk to dawn" operating scenario), or annual operation of 4,380 hours for MV systems (see TSD chapter 2, section 2.2). By extension, 12 years of dusk-to-dawn operation would total 52,560 hours; therefore, Allegheny's 12-year ballast lifetime is consistent with DOE's assumed lifetime of 50,000 hours.

The life of the light fixture (also known as a luminaire) varies but generally lasts as long as the ballast. After reviewing the NOPD, ACEEE recommended additional research on the frequency of ballast replacement versus fixture replacement to inform the analysis. (ACEEE, No. 22 at p. 2) During the MH lamp fixture public meeting on January 26, 2010, interested parties commented that, for an exterior fixture the ballast would routinely be replaced many times before the fixture would be replaced. (Philips, Metal Halide Lamp Fixture Energy Conservation Standard (EERE–2009–BT–STD–0018, RIN 1904–AC00), Framework Document Public Meeting Transcript, No. 1.2.005 at p. 92) DOE agrees with the commenters that the collection of more lifetime data will be useful for the evaluation of relevant standards, and DOE will more fully evaluate replacement frequencies for lamps, ballasts, and fixtures in the test procedure and energy conservation standards rulemaking.

[7] CAL. CODE REGS title 20, § 1605.3(n)(2) (2010).

Another factor that can affect the energy usage of an HID lighting system is the energy usage of the ballast. DOE analyzed the system (lamp and ballast) power since particular lamp technologies are usually associated with a technology-specific ballast design. DOE evaluated manufacturer data, across multiple manufacturers, on ballast performance for multiple HID ballast designs, including constant-wattage autotransformer, constant-wattage isolated, high-reactance autotransformer, and magnetically regulated electronic ballasts. Based on its evaluation, DOE determined that the variation in ballast input power across ballast designs for a given lamp wattage is relatively small when compared to the variation in energy use among different HID lighting system technologies.

For this final determination, DOE analyzed a range of lamp capacities. At least two conventions exist for characterizing HID lamp capacity: (1) Input power and (2) lumen (*i.e.,* light) output. DOE categorized representative HID lamps based on the lumen output (measured in mean lumens) of the analyzed baseline lamp types because as lamps become more efficient, the input power should decrease as the user service (*i.e.,* lumen output) stays the same or increases. Lamp lumen output directly correlates with illumination levels produced by lighting equipment and is, therefore, a more relevant measure for lighting applications than wattage, which does not predict illumination levels. The analyzed equipment classes correspond with medium-wattage HID lamps (defined as between 150 and 500 watts (W)), which was the primary wattage range considered in the 2004 draft report. However, because DOE considers lumen output instead of wattage as a more appropriate measure of lamp utility from a consumer perspective, it uses lumen output as the basis for categorization in today's final determination as shown in Table II.1 of this notice, which provides the engineering analysis results.

2. Engineering Analysis

In the engineering analysis, DOE identified representative baseline HID lighting systems and energy-efficient substitutes within each lumen output category. Both the baseline system and the energy-efficient substitutes have different input power ratings (*i.e.,* the wattage required by the lamp-and-ballast system), with the input power rating decreasing with the increased efficacy of the substitute. The engineering analysis outputs of cost and energy consumption are critical inputs to subsequent financial cost-benefit calculations for individual consumers, performed in the LCC and the national impacts analysis. DOE developed end-user prices, including a contractor mark-up rate and average national sales tax for analyzed lamp, lamp-and-ballast, and luminaire designs.

DOE did not include MV lamps in the engineering analysis for today's final determination. DOE forecasts that MV lamp shipments will decline to zero by the compliance date of a potential HID lamps standard, assumed as 2017, because of the statutory ban on the importation and manufacture of MV ballasts after January 1, 2008. (42 U.S.C. 6295(ee)) Consequently, DOE did not analyze MV baseline lamps in its LCC analysis because MV fixtures are no longer a viable purchase option. However, DOE did consider the existing MV fixtures in the existing HID installed base when it performed its national energy savings/national consumer benefits analysis. This installed base of MV systems will age and is expected to be replaced with other HID technologies over time.

DOE has examined other currently available commercial equipment for replacing the least efficacious (baseline) HID sources—MV and probe-start MH lamps. ACEEE noted, in response to the 2003 draft report, that any potential standard should address the replacement of probe-start MH lamps with pulse-start MH lamps. (ACEEE, No. 11 at p. 2) Typical substitutes used to replace both MV or probe-start MH technologies include HPS and pulse-start MH lamps. HPS lamps are among the most efficacious electric light sources, and are a viable substitute in applications where energy efficiency and/or lower first cost is considered more important than color quality. Pulse-start MH is the most efficient broad spectrum ("white light") HID technology and has a higher first cost than both MV and HPS. In response to the NOPD, ACEEE commented that further analysis should include accounting for savings gained from eliminating the least efficacious pulse-start MH and HPS lamps. (ACEEE, No. 22 at p. 2) DOE acknowledges that elimination of these lamp types may provide additional energy savings, but notes that an exhaustive exploration of all possible standards is not required for a positive final determination today. During an energy conservation standards analysis, DOE will examine equipment classes for all HID lamps, not just the representative set of lamps considered in today's notice. NEMA commented that DOE should not assume that HPS is a suitable substitute for MH in all applications due to color quality. (NEMA, No. 21 at p. 2) DOE agrees with NEMA and does not assume that HPS lamps are suitable for all applications. When evaluating potential energy conservation standards, DOE divides covered equipment into classes by the energy used, capacity, or other performance-related features that impact efficiency, and other factors such as the utility of the product to users. (42 U.S.C. 6295(q)) DOE typically establishes different energy conservation standards for different equipment classes, and will evaluate the efficacy and utility of different MH and HPS lamp designs in developing proposed equipment classes. For the determination analysis, DOE assumed that lower efficacy MH lamps are replaced by a combination of higher efficiency MH and HPS lighting systems.

DOE assumes in the analysis supporting the final determination that changes in lamp technology will lead to changes in the entire lamp system. DOE therefore used a systems approach in analyzing the representative equipment types because both lamps and ballasts determine a system's energy use and lumen output. Accordingly, the analysis paired lamps with corresponding ballasts to develop representative lamp-and-ballast systems, in order to estimate the actual energy usage and lumen output of operating lamps. In response to the NOPD, NEMA commented that they agreed with this approach. (NEMA, No. 21 at p. 4)

In the engineering analysis, DOE considered only magnetic ballasts because they are the most common ballast used in HID lighting systems. DOE estimated that magnetic ballasts constitute over 90 percent of HID ballasts currently sold, and an even higher percentage of the installed HID ballast stock. Electronic ballasts entered the market at the end of the 1990s and still occupy less than a 10-percent market share because of a variety of technical and operational barriers that are discussed in some detail in chapter 3 of the TSD (section 3.7). In its comments, NEMA stated that greater savings will result from the application of electronic HID ballasts and/or intelligent controls rather than from increasing lamp efficacies. (NEMA, No. 21 at p. 4) While DOE appreciates NEMA's comment, EPCA specifically directs DOE to prescribe energy conservation standards for HID lamps, and does not provide DOE with the authority to regulate HID ballasts. (42 U.S.C. 6317(a)(2).) DOE notes that it is currently developing energy conservation standards for MH lamp

fixtures that focus on MH lamp ballast efficiency and other performance elements in the context of a separate rulemaking. (EERE–2009–BT–STD–0018, RIN 1904–AC00) Additionally, the Energy Independence Security Act of 2007 (EISA 2007) mandates minimum ballast efficiencies for MH fixtures sold after January 1, 2009. (42 U.S.C. 6295(hh)(1).) Further, as noted above, MV ballasts can no longer be manufactured or imported. (42 U.S.C. 6295(ee); 10 CFR 431.286)

In summary, DOE acknowledges that HID lamp efficacy is in part a function of lamp-and-ballast system design, and identified representative HID systems for its analysis. DOE specifically excluded MV systems from its analysis due to the aforementioned existing EPCA ban on MV ballasts and the anticipated resulting disappearance of MV lamps from the market. Although DOE acknowledges the effects of HID ballast design on overall system efficacy, DOE is only required by EPCA to address potential HID lamp efficacy standards. DOE will consider relevant aspects of ballast design (*e.g.,* electrical characteristics, magnetic versus electronic design, dimming capability) and their impacts on HID lamps in the test procedure and energy conservation rulemaking process.

3. Life-Cycle Cost Analysis

DOE conducted an initial LCC analysis to estimate the net financial benefit to users from potential energy conservation standards that would increase the efficacy of HID lamps. The LCC analysis compared the additional initial cost of a more efficacious lamp and related fixture to the discounted value of electricity savings over the life of the fixture ballast. DOE's LCC analysis used the following five inputs: (1) Estimated average annual operating hours and lamp lifetimes, (2) estimated average prices for lamps and fixtures, (3) representative maintenance costs, (4) electricity prices paid by users of HID lamps, and (5) the discount rate. For the purpose of today's final determination, DOE used current national average electricity prices for commercial and industrial applications, obtained from the Energy Information Administration's (EIA) *Annual Energy Outlook 2010 AEO 2010*)" [8] to calculate impacts on the average HID lamp user. The LCC analysis does not include MV lamps because MV ballasts can no longer be imported or manufactured after January 1, 2008 (see TSD chapter 2, section 2.4 and chapter 5, section 5.2). Accordingly, DOE assumed that when MV ballasts fail, consumers will have to switch to another HID technology.

The LCC analysis not only evaluated the replacement of the HID lamp but also those cases in which the whole system would need to be replaced. Given the specificity of HID lamp-and-ballast combinations, DOE assumed that replacement of baseline HID systems with energy-efficient substitutes would, at a minimum, require a new lamp-and-ballast system. In some cases, the physical and operational characteristics of the replacement lamp-and-ballast system may also require replacement of the entire fixture. Consequently, DOE treated lamp-and-ballast and fixture replacement as economic issues in the LCC analysis, which considered the installed cost of the lamp, lamp-and-ballast system, and fixture. In analyzing the lighting system, the ballast has the longer lifetime and therefore represents the lifetime of the system (which may have the lamp replaced several times before the ballast is replaced). DOE therefore set the LCC analysis period equal to the lifetime of the fixture ballast in years (*i.e.,* 50,000 hours divided by the assumed annual operating hours, which equals approximately 9 years and 12 years for interior and exterior applications, respectively). This approach is consistent with the LCC methodology that DOE used in the 2003 draft report (see 2003 TSD chapter 5, section 5.4).

DOE assigned annual operating hours to representative equipment based on two alternative operating scenarios. Exterior lighting applications (*e.g.,* parking lot lighting) were assumed for the commercial operating scenario, where HID lamps with poorer color quality (*e.g.,* HPS) are a viable substitute for lamps with better color quality, depending on energy efficiency and/or first cost requirements. Interior lighting applications were assumed for the industrial operating scenario, where "white light" substitutes with higher color quality (*e.g.,* pulse-start MH) are assumed to be mandatory.

DOE obtained information on hours of operation for the different scenarios from industry publications that provide guidance for installers and lighting engineers. Based upon these sources, DOE estimated 4,200 hours per year of operation for exterior applications and 5,840 hours per year for interior applications. A more detailed discussion of the data sources and the derivation of these estimates are provided in chapter 5 of the TSD (section 5.1).

In the LCC analysis, DOE also included maintenance costs in the estimation of the LCC of HID lighting systems. DOE assumed $225 for each exterior relamping and $74 for each interior relamping, and requested comment on these values in the NOPD. Chapter 5 of the TSD provides the rationale for how both the exterior and interior maintenance costs were derived. No substantive comments were received; therefore, DOE will consider using these maintenance values in the energy conservation standards rulemaking.

For the LCC analysis, DOE estimated average commercial and industrial electricity prices using the 2017 to 2030 forecasts set forth in EIA's *AEO 2010.* DOE used the average price for the relevant end-use sector (*i.e.,* commercial or industrial) over the course of the 30-year analysis period (2017–2046). In the NOPD, DOE requested comment as to whether, in the energy conservation standards rulemaking analysis, DOE's analysis should include the minimum, mean, and maximum energy tariffs for the relevant end use sectors. DOE did not receive any comments relating to this issue, and will consider evaluating minimum, mean, and maximum energy tariffs in the energy conservation standards rulemaking.

In the LCC analysis, the discount rate determines the relative value of future energy savings compared to increases in first costs that may arise from a potential energy conservation standard. DOE estimates the cost of capital for commercial and industrial companies by examining both debt and equity capital, and develops an appropriately weighted average of the cost to the company of equity and debt financing. The resulting average discounted industrial and commercial discount rates used in the LCC analysis are 7.6 percent and 7.0 percent, respectively (*see* TSD chapter 5, section 5.1). DOE did not receive any comments on the use of the discount rates in response to the NOPD. DOE notes that these commercial and industrial sector discount rates are the same as those used in the final rule for general service fluorescent and incandescent reflector lamps. 74 FR 34080, 34113 (July 14, 2009). In the energy conservation standards rulemaking for HID lamps, DOE will review current economic data in developing updated discount rates, as applicable.

In the 2003 draft report, DOE used available retail catalog pricing for HID lamp and fixture prices. In response, NEMA commented that retail price catalogs are not a good source of actual cost information, and recommended hiring an energy service company to solicit bids on prices. (NEMA, No. 6 at

[8] All AEO publications are available online at *http://www.eia.doe.gov/oiaf/aeo/.*

p. 4) DOE considered this comment, but concludes that although that there may be inaccuracies in list prices, there is a greater risk that there may be distortions in bid prices that would create data that are unrepresentative of future costs. Currently, the country is experiencing a deep recession in which bid prices are likely to be deflated substantially when compared to average economic conditions. This situation is likely to distort any bid price data that DOE would solicit. For the purposes of today's final determination, DOE therefore assumes that catalog price data are more representative than bid price data, and used recent catalog data (accessed online between August 2009 and April 2010) for its LCC analysis (see TSD chapter 5, section 5.1). In a future energy conservation standards rulemaking, DOE will consider multiple sources for pricing data.

For today's final determination, DOE estimated the base purchase price of representative HID lamps, ballasts, and fixtures using current prices available on both the W.W. Grainger, Inc. and Goodmart Web sites [9] [10]. DOE notes that it also used this approach for estimating base pricing in the Small Electric Motor Determination. 71 FR 38799, 38803 (July 10, 2006). These online retailer price catalogs were selected because they offer a wide range of products (*i.e.,* lamps, ballasts, and fixtures) for multiple types of HID lamps and wattages. The referenced Web sites are also publicly available (requiring no special log in to access the data) and offer product information that can be applied to the full range of HID lighting system technologies and components. DOE considered using both municipal and State procurement contracts as sources of pricing data, but eliminated these data from consideration in the determination analysis. Specifically, municipal procurement contracts for HID lamps can provide price data, but do not contain price data for other components of the lamp system needed for the analysis. DOE also evaluated State procurement contracts for fixtures but found them to be too highly variable to be useful. Chapter 5 of the TSD (section 5.1) presents the price data that DOE obtained from all sources, including *RS–Means,* State procurement contracts, Grainger, and Goodmart.

In its analysis, DOE observed that HID prices vary by region, manufacturer, quantity, type, and quality (and that end users pay different prices). Therefore, DOE attempted to select price data for different lighting system options that were directly comparable. DOE also added a contractor mark-up of 13 percent and a sales tax of 7 percent in calculating equipment prices (*see* TSD chapter 5, section 5.1). As stated in the NOPD, the contractor markup value was recommended by ACEEE in response to the 2003 draft report, and DOE found the value consistent with other lighting rules. 75 FR 22031, 22037 (April 27, 2010). DOE proposed using an average national sales tax of 7 percent in the NOPD. 75 FR 22031, 22037 (April 27, 2010) DOE received no comments regarding this proposal. A 7-percent sales tax is consistent with the rate used in the recent non-class A external power supplies final determination. 75 FR 27170, 271741 (May 14, 2010). In the NOPD, DOE invited comment on its selection and analysis of the available HID lighting system price data. ACEEE and SDG&E recommended that DOE revisit the product price assumptions in the LCC because the prices presented in chapter 5 of the NOPD TSD (section 5.1) were high. (ACEEE, No. 22 at p. 2; SDG&E No. 23 at p. 3) DOE will conduct a more in-depth evaluation of equipment pricing in an energy conservation standards rulemaking, as a refined analysis would not change the outcome of today's positive final determination.

Depending on when different parts of an HID lighting system are replaced, the costs of switching to improved efficacy lamps can involve lamp-and-ballast replacement, or replacement of the entire fixture. For example, an original fixture may not physically accommodate the new ballast required by an improved efficacy lamp, thereby necessitating fixture replacement. The analysis underlying today's final determination includes lamp-and-ballast and fixture replacement costs when calculating the LCC for HID lamps. In the NOPD, DOE also requested comment regarding equipment costs related to increasing lamp efficacy. NEMA responded that the lighting industry anticipates higher lamp costs with increasing efficacy. (NEMA, No. 21 at p. 4) DOE acknowledges this general cost-efficacy relationship, as illustrated in chapter 5 of the TSD, with higher prices for pulse-start MH lamps compared with probe-start MH lamps.

4. National Energy Savings Analysis

To estimate national energy savings for HID lamps sold from 2017 through 2046, DOE calculated the estimated energy usage of the analyzed lamp-and-ballast systems in a base case (absent a standard) and a standards case. As discussed in chapter 6 of the TSD (section 6.1), DOE calculated the installed base of HID lamps using historical lamp shipments data provided by NEMA. Projected shipments were based on the lamp lifetimes, system energy use, and operating scenarios developed for the LCC analysis, as well as estimated market and substitution trends in the base case and standards case. For this initial analysis, DOE did not address the effects of emerging, non-HID lighting technologies (*e.g.,* LEDs) on HID lamp shipments, but notes that an exhaustive shipments analysis is not required for a positive determination. DOE intends to address emerging technologies in its more robust shipments analysis as part of the energy conservation standards rulemaking process.

In response to the NOPD, DOE received a comment from SDG&E regarding shipment projections starting in 2017. SDG&E recommended that DOE "revise the assumption that new MH fixtures sold in 2017 will contain probe-start ballasts." (SDG&E, No. 23 at p. 2) ACEEE also recommended that DOE revise its assumptions for MH lamp shipments. (ACEEE, No. 22 at p. 2) DOE acknowledges that both existing Federal and State legislation, as discussed in the TSD, will affect the installation of probe-start MH fixtures (*see* NOPD TSD chapter 2, section 2.4). The State bans on ballasts for probe-start MH lamps, as well as more stringent Federal ballast efficiency requirements for probe-start MH lamps, will affect shipments of fixtures containing probe-start MH lamps. However, DOE's shipment projections were not based on new probe-start MH fixtures being sold in 2017. As discussed in chapter 2 of the NOPD TSD (section 2.1), the majority of existing installed MH fixtures (estimated at 35 million as of 2002) contain probe-start ballasts. These legacy fixtures will require replacement lamps even without replacement of the ballast. Such replacement shipments are reflected in DOE's shipment projections in the analysis for this determination.[11] DOE will further refine the lamp shipment projections as part of the energy conservation standards rulemaking process, consulting fixture shipments data gathered in the MH lamp fixture rulemaking as appropriate.

To estimate potential energy savings from the proposed energy conservation standards case, DOE used a spreadsheet model that calculated total end-use electricity savings in each year of the 30-year analysis period (2017–2046). The model features an equipment-retirement function to calculate the

[9] *http://www.grainger.com* (last accessed April 16, 2010).

[10] *http://www.goodmart.com* (last accessed April 16, 2010).

[11] Shipment projections presented in National Energy Savings/Net Present Value spreadsheet at *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/hid_analytical_spreadsheet_tools.html.*

number of units sold in a given year, or vintage, which would still be in operation in future years. For example, some of the HID lamps sold in 2030 will operate through 2035. DOE calculated primary energy (*i.e.,* energy used by the power plant) savings associated with end-use electricity (*i.e.,* site energy used by the lamp-and-ballast system) savings using data from EIA's *AEO 2010.* These data provided a factor, or an average multiplier, for relating end-use electricity to primary energy use for each year from 2017 to 2030. DOE extrapolated the trend in these years to derive factors for 2031 to 2046. Energy use in both the potential standards case and base case are calculated for all equipment categories and converted to quads. The difference in energy use between every equipment category in these two cases is summed across all years of the analysis period. A more detailed discussion of the national energy savings model, data sources, and results is provided in chapter 6 of the TSD (section 6.1).

5. National Consumer Impacts Analysis

DOE estimated the national economic effect on end-users in terms of the NPV of cumulative benefits during the 30-year analysis period (2017–2046). It considered the effects under the same range of scenarios as it did for estimating national energy savings. It also used the new equipment costs and energy savings for each energy efficiency level that it applied in the LCC analysis. To simplify the analysis, DOE estimated the value of energy savings using the average *AEO 2010* forecast electricity price from 2017 to 2030. To estimate the trend in electricity prices after 2030, DOE extrapolated its forecasted electricity prices for 2031 to 2046 by applying the average rate of price change during 2020–2030. As discussed in chapter 6 of the TSD (section 6.1), DOE discounted future costs and benefits by using a 3-percent and 7-percent discount rate, respectively, according to the "Guidelines and Discount Rates for Benefit Analysis of Federal Programs" issued by the Office of Management and Budget (OMB). (Circular No. A–94, September 2003).

C. Analytical Results

1. Engineering Analysis

As described above, DOE conducted separate analyses examining ten representative HID lamp types: Probe-start MH (175, 250, 360, and 400-watt), PMH (150, 175, and 320-watt), and HPS (100, 150, and 250-watt). These lamp types are categorized by mean lumen output in Table II.1, with some PMH and HPS lamp types appearing in more than one lumen output category.

TABLE II.1—REPRESENTATIVE SUBSTITUTES FOR BASELINE PROBE-START METAL HALIDE LAMPS

Approximate lumen output *mean lumens**	Baseline probe-start MH *W*	Energy efficient option 1, PMH *W*	Energy efficient option 2, HPS *W*
8,800	175	150	100
13,700	250	175	150
23,500	360	320	250
25,200	400	320	250

In the engineering analysis, for a lamp to be considered a suitable option, its replacement had to produce at least 90 percent of the mean lumen output of the baseline system and draw less power than the baseline lamp-and-ballast system. As detailed in chapter 4 of the TSD (section 4.3), power was determined by the lamp-and-ballast input, based in part on the representative ballast type chosen for each option.

2. Life-Cycle Cost and Payback Period Analysis

Table II.2 to Table II.5 present the results for medium wattage probe-start MH lamps and higher-efficiency substitute HID lamps in a lamp-only replacement scenario. In this scenario, a failed baseline lamp is replaced either with an identical baseline lamp, or with a substitute lamp-and-ballast system. These analyses were based on representative, incremental lamp and fixture prices as well as maintenance costs. The upcoming energy conservation standards rulemaking will yield more detailed results than did the representative analyses conducted. Generally, the LCC of a high-efficiency lamp and ballast replacement is higher than the LCC of an inefficient lamp-only replacement.

TABLE II.2 175-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 175 W MH *$*	Substitute 1 150 W PMH *$*	Baseline 175 W MH *$*	Substitute 2 100 W HPS *$*
Ballast Price		190.22		234.10
Lamp Price	49.58	64.09	49.58	49.23
Total First Cost	49.58	254.31	49.58	283.33
Incremental First Cost		204.73		233.75
Annual Operating Cost	149.23	141.02	297.28	263.26
Annual Operating Cost Differential		8.21		34.02
LCC (7% Discount Rate)	1,234.57	1,436.01	2,537.89	2,420.47
LCC Savings		−201.43		117.42
PBP (years)		24.94		6.87

TABLE II.3 250-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 250 W MH $	Substitute 1 175 W PMH $	Baseline 250 W MH $	Substitute 2 150 W HPS $
Ballast Price		195.54		260.18
Lamp Price	53.08	68.76	53.08	60.91
Total First Cost	53.08	264.30	53.08	321.09
Incremental First Cost		211.22		268.01
Annual Operating Cost	178.85	149.59	330.11	288.18
Annual Operating Cost Differential		29.26		41.93
LCC (7% Discount Rate)	1,445.34	1,421.98	2,795.06	2,655.59
LCC Savings		23.36		139.4
PBP (years)		7.22		6.39

TABLE II.4 360-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 360 W MH $	Substitute 1 320 W PMH $	Baseline 360 W MH $	Substitute 2 250 W HPS $
Ballast Price		226.43		211.52
Lamp Price	56.92	90.54	56.92	79.64
Total First Cost	56.92	316.97	56.92	291.16
Incremental First Cost		260.05		234.24
Annual Operating Cost	217.75	205.97	373.22	331.69
Annual Operating Cost Differential		11.78		41.53
LCC (7% Discount Rate)	1,598.68	1,827.86	3,021.94	2,968.38
LCC Savings		−229.18		53.56
PBP (years)		22.08		5.64

TABLE II.5 400-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 400 W MH $	Substitute 1 320 W PMH $	Baseline 400 W MH $	Substitute 2 250 W HPS $
Ballast Price		226.43		211.52
Lamp Price	58.08	90.54	58.08	79.64
Total First Cost	58.08	316.97	58.08	291.16
Incremental First Cost		258.89		233.08
Annual Operating Cost	237.74	205.97	395.37	331.69
Annual Operating Cost Differential		31.77		63.68
LCC (7% Discount Rate)	1,733.03	1,827.86	3,188.30	2,968.38
LCC Savings		−94.83		219.92
PBP (years)		8.15		3.66

Table II.6 through Table II.9 present the results for medium wattage probe-start MH lamps and higher-efficiency substitute HID lamps in a new construction or fixture replacement scenario. In this scenario, a consumer selects either a baseline or substitute fixture and lamp. In the exterior lighting cases, the HPS substitutes have a lower LCC. These analyses were based on representative and incremental lamp and fixture prices as well as maintenance costs.

TABLE II.6 175-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 175 W MH $	Substitute 1 150 W PMH $	Baseline 175 W MH $	Substitute 2 100 W HPS $
Fixture Price (incl. ballast)	260.51	310.10	356.51	376.34
Lamp Price	49.58	64.09	49.58	49.23
Total First Cost	310.09	374.19	406.09	425.57
Incremental First Cost	.....	64.10	.....	19.73
Annual Operating Cost	149.23	141.02	297.28	263.26

TABLE II.6 175-W PROBE-START METAL HALIDE BASELINE—Continued

	Industrial/interior		Commercial/exterior	
	Baseline 175 W MH $	Substitute 1 150 W PMH $	Baseline 175 W MH $	Substitute 2 100 W HPS $
Annual Operating Cost Differential		8.21		34.02
LCC (7% Discount Rate)	1,495.08	1,555.89	2,894.40	2,562.72
LCC Savings		−60.80		331.69
PBP (years)		7.81		0.57

TABLE II.7 250-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 250 W MH $	Substitute 1 175 W PMH $	Baseline 250 W MH $	Substitute 2 150 W HPS $
Fixture Price (incl. ballast)	297.77	325.63	393.77	382.01
Lamp Price	53.08	68.76	53.08	60.91
Total First Cost	350.85	394.39	446.85	442.92
Incremental First Cost		43.54		−3.93
Annual Operating Cost	178.85	149.59	330.11	288.18
Annual Operating Cost Differential		29.26		41.93
LCC (7% Discount Rate)	1,552.07	1,743.11	3,188.83	2,777.42
LCC Savings		191.05		411.40
PBP (years)		1.49		−0.09

TABLE II.8 360-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 360 W MH $	Substitute 1 320 W PMH $	Baseline 360 W MH $	Substitute 2 250 W HPS $
Fixture Price (incl. ballast)	352.43	415.69	448.43	393.34
Lamp Price	56.92	90.54	56.92	79.64
Total First Cost	409.35	506.23	505.35	472.98
Incremental First Cost		96.88		−32.37
Annual Operating Cost	217.75	205.97	373.22	331.69
Annual Operating Cost Differential		11.78		41.53
LCC (7% Discount Rate)	1,951.11	2,017.12	3,470.37	3,150.20
LCC Savings		−66.01		320.17
PBP (years)		8.23		−0.78

TABLE II.9 400-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 400 W MH $	Substitute 1 320 W PMH $	Baseline 400 W MH $	Substitute 2 250 W HPS $
Fixture Price (incl. ballast)	372.31	415.69	468.31	393.34
Lamp Price	58.08	90.54	58.08	79.64
Total First Cost	430.39	506.23	526.39	472.98
Incremental First Cost		75.84		−53.41
Annual Operating Cost	237.74	205.97	395.37	331.69
Annual Operating Cost Differential		31.77		63.68
LCC (7% Discount Rate)	2,105.34	2,017.12	3,656.61	3,150.20
LCC Savings		88.22		506.40
PBP (years)		2.39		−0.84

NEMA requested a third set of tables showing the LCC when a lamp in an existing fixture must be replaced, but the more efficacious lamp (with ballast) cannot be installed in the existing fixture. This scenario requires purchase of an entirely new fixture, not just a lamp and ballast. (NEMA, No. 21 at p. 4) DOE acknowledges that, in some cases, the ballast for a more efficacious lamp might not fit either mechanically or electrically in the existing fixture, and that a new fixture containing the more efficacious lamp be installed. DOE refers the reader to the tables below.

Table II.10 through II.13 present the results for medium wattage probe-start MH lamps and higher-efficiency substitute HID lamps where the lamp has failed and a lamp and ballast cannot be retrofitted into the existing fixture. In this scenario, a consumer either replaces the baseline lamp in the fixture or replaces the fixture with a new substitute fixture and lamp. In this case, the LCC savings is less than in the alternative scenarios presented in previous tables. DOE gave this replacement scenario its proportional weight in the national impact analysis, which aggregated consumer impacts from all cases into national cost and benefit estimates.

TABLE II.10 175-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 175 W MH $	Substitute 1 150 W PMH $	Baseline 175 W MH $	Substitute 2 100 W HPS $
Fixture Price (incl. ballast)	.....	310.10	.....	376.34
Lamp Price	49.58	64.09	49.58	49.23
Total First Cost	49.58	374.19	49.58	425.57
Incremental First Cost	.....	324.61	.....	375.99
Annual Operating Cost	149.23	141.02	297.28	263.26
Annual Operating Cost Differential	.....	8.21	.....	34.02
LCC (7% Discount Rate)	1,234.57	1,555.89	2,537.89	2,562.72
LCC Savings	.....	−321.32	.....	−24.82
PBP (years)	.....	39.55	.....	11.05

TABLE II.11 250-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 250 W MH $	Substitute 1 150 W PMH $	Baseline 250 W MH $	Substitute 2 150 W HPS $
Fixture Price (incl. ballast)	.....	325.63	.....	382.01
Lamp Price	53.08	68.76	53.08	60.91
Total First Cost	53.08	394.39	53.08	442.92
Incremental First Cost	.....	341.31	.....	389.84
Annual Operating Cost	178.85	149.59	330.11	288.18
Annual Operating Cost Differential	.....	29.26	.....	41.93
LCC (7% Discount Rate)	1,445.34	1,552.07	2,795.06	2,777.42
LCC Savings	.....	−106.72	.....	17.63
PBP (years)	.....	11.66	.....	9.30

TABLE II.12 360-W PROBE-START METAL HALIDE BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 360 W MH $	Substitute 1 320 W PMH $	Baseline 360 W MH $	Substitute 2 250 W HPS $
Fixture Price (incl. ballast)	.....	415.69	.....	393.34
Lamp Price	56.92	90.54	56.92	79.64
Total First Cost	56.92	506.23	56.92	472.98
Incremental First Cost	.....	409.35	.....	416.06
Annual Operating Cost	217.75	205.97	373.22	331.69
Annual Operating Cost Differential	.....	11.78	.....	41.53
LCC (7% Discount Rate)	1,598.68	2,017.12	3,021.94	3,150.20
LCC Savings	.....	−418.44	.....	−128.26
PBP (years)	.....	38.15	.....	10.02

TABLE II.13 400-W PROBE-START MH BASELINE

	Industrial/interior		Commercial/exterior	
	Baseline 400 W MH $	Substitute 1 320 W PMH $	Baseline 400 W MH $	Substitute 2 250 W HPS $
Fixture Price (incl. ballast)	.....	415.69	.....	393.34
Lamp Price	58.08	90.54	58.08	79.64
Total First Cost	58.08	506.23	58.08	472.98
Incremental First Cost	.....	448.15	.....	414.90
Annual Operating Cost	237.74	205.97	395.37	331.69

TABLE II.13 400-W PROBE-START MH BASELINE—Continued

	Industrial/interior		Commercial/exterior	
	Baseline 400 W MH $	Substitute 1 320 W PMH $	Baseline 400 W MH $	Substitute 2 250 W HPS $
Annual Operating Cost Differential		31.77		63.68
LCC (7% Discount Rate)	1,733.03	2,017.12	3,188.30	3,150.20
LCC Savings		−284.09		38.09
PBP (years)		14.11		6.51

DOE concluded that whether or not there are net LCC savings from a potential HID lamp standard depends on the details of the lamp capacity and the installation scenario. Given the widely varying results that depend on specific installation details, DOE evaluated the total net consumer impact of the standard based on the national impact analysis which proportionally weighed the different installation cases based on two factors: (1) The fraction of lamp sales subject to each type of installation and (2) the relative frequency of each specific lamp substitution scenario. Although some replacements would have negative LCC, today's final determination indicates that standards for HID lamps would likely result in positive total net consumer impacts and cumulative energy savings.

3. National Energy Savings and Consumer Impacts

DOE estimated national energy savings and consumer effects of energy conservation standards for the considered HID lamps using its own initial engineering analysis data. DOE assumed that energy conservation standards would take effect in 2017, and estimated the cumulative energy savings and NPV impacts relative to a base case and a standards case.

As summarized in chapter 6 of the TSD (section 6.2), the results using DOE's analysis of design options indicate cumulative energy savings for medium-wattage HID lamps of 11.4 quads (undiscounted), and a corresponding NPV of $30.0 billion (2010$) at a 3-percent discount rate, and $13.7 billion at a 7-percent discount rate over the 30-year analysis period (2017–2046).

In estimating the NPV, DOE estimated the fractions of replacements that would employ the different technologies and would be either a lamp-only or a total fixture replacement. While some replacements would have negative LCC, on a national scale these replacements are outweighed by those lamp and fixture replacements that would have positive economic impacts on consumers.

In response to the NOPD, SDG&E commented that the magnitude of the savings of 2.8 quads seemed large in relation to the two other determinations (Small Electric Motors 71 FR 38799, 38806 (July 10, 2006) and Non-Class A External Power Supplies 74 FR 56928, 56929 (November 3, 2009)) mentioned in the NOPD. (SDG&E, No. 23 at p. 3; 75 FR 22031, 22040 (April 27, 2010)). DOE agrees that the potential savings from an HID lamps rulemaking is large in comparison with the Small Electric Motors and External Power Supplies determinations. Yet, as previously indicated, the potential energy savings could be as great as 11.4 quads when not factoring in a discount rate, as opposed to the 2.8 quads originally published. DOE has carefully considered publishing this higher revised number and, based upon the data available, DOE believes that, over 30 years, 11.4 quads is a reasonable initial (undiscounted) estimate. For purposes of comparison, the general service fluorescent and incandescent reflector lamp final rule found undiscounted energy savings of as much as 12 quads over a 30 year analysis period. 74 FR 34080, 34083 (July 14, 2009). Neither ACEEE nor NEMA commented on the magnitude of potential energy savings for today's final determination.

D. Discussion

1. Technological Feasibility

Section 346(a)(1) of EPCA (42 U.S.C. 6317(a)(1)) mandates that DOE determine whether energy conservation standards for HID lamps would be "technologically feasible." DOE determines that energy conservation standards for HID lamps are technologically feasible because they can be satisfied with HID lighting systems that are currently available on the market.

2. Significance of Energy Savings

Section 346(a)(1) of EPCA mandates that DOE determine whether energy conservation standards for HID lamps would result in "significant energy savings." (42 U.S.C. 6317(a)(1)) The term "significant" is not defined in the Act. However, the U.S. Court of Appeals for the District of Columbia in *Natural Resources Defense Council* v. *Herrington,* 768 F.2d 1355, 1373 (DC Cir. 1985), indicated that Congress intended "significant" energy savings to be interpreted in a manner consistent with section 325 of the Act (42 U.S.C. 6295(o)(3)(B)) as savings that were not "genuinely trivial." Applying this test, DOE found in its 2010 final determination for Non-Class A External Power Supplies that an energy conservation standard for the product that would save as much as 0.14 quad of energy over a 30-year period (2013–2042) amounted to "significant energy savings" within the meaning of EPCA. In this previous determination, DOE noted that these savings were equivalent to the annual electricity needs of 1.1 million U.S. homes. 75 FR 27170, 27179 (May 14, 2010). In today's final determination, DOE finds that the estimated energy savings of 11.4 quads over 30 years for the considered HID lamps are equivalent to the annual electricity needs of 57 million U.S. homes. As a result, DOE concludes that the potential savings are not "genuinely trivial," and thus determines that potential energy conservation standards for HID lamps would result in significant energy savings under EPCA.

3. Economic Justification

Section 346(b)(1) of EPCA requires that energy conservation standards for HID lamps be economically justified. (42 U.S.C. 6317(b)(1)) In the NOPD, DOE aggregated the results from the LCC analyses to estimate national energy savings and national economic impacts. DOE estimated that the NPV of the consumer costs and benefits from a potential standard are $30.0 billion and $13.7 billion at 3-percent and 7-percent discount rates, respectively. As noted above, both ACEEE and SDG&E commented that the prices used in the LCC analyses seemed high. (ACEEE, No. 22 at p. 2; SDG&E, No. 23 at p. 3)

However, this does not negate the fact that potential energy conservation standards would be economically justified. If lower prices were used in the LCC analyses, NPV savings would only be expected to be greater. DOE will review component prices in the energy conservation standards rulemaking; however, the use of prices that may be at the high end of the range of possible price estimates is prudent for a determination analysis, and helps ensure that the conclusion regarding the positive economic justification has a high degree of certainty. Therefore, DOE has determined that potential energy conservation standards for HID lamps would be expected to be economically justified.

III. Conclusion

A. Final Determination

Based on its analysis of the available information, DOE has determined that energy conservation standards for certain HID lamps appear to be technologically feasible and economically justified, and would likely result in significant energy savings. Consequently, DOE will initiate the development of energy efficiency test procedures and energy conservation standards for certain HID lamps.

All of the design options addressed in this final determination document are technologically feasible. DOE's data and available manufacturer data show that the considered HID lamp technologies are available to all manufacturers. These technologies include different methods of starting the lamps (*e.g.,* pulse versus probe-start) and different lamp components (*e.g.,* arc tube composition and design for HPS versus MH). The lamp manufacturers that DOE consulted produce at least one or more types of these higher efficacy lamps. DOE's review of available HID lamps from manufacturers (including EYE, GE, OSRAM SYLVANIA, Philips, Venture, and Ushio) is presented in spreadsheet format on the DOE's Web site at *http://www1.eere.energy.gov/buildings/appliance_standards/commercial/hid_analytical_spreadsheet_tools.html.*

DOE has determined that potential energy conservation standards for HID lamps are expected to be economically justified. The estimated aggregate NPV of consumer costs and benefits from a potential standard are expected to be $30.0 billion (2010$) at a 3-percent discount rate and $13.7 billion at a 7-percent discount rate over the 30-year analysis period (2017–2046). DOE has not produced detailed estimates of the potential adverse effects of a national standard on manufacturers or on individual categories of users. Instead, DOE is relying on the presence of existing, more efficacious products in the market today as an indicator of the probable economic feasibility for manufacturers of producing more efficacious lamps if required by standards.

Finally, the scenarios examined in DOE's analysis show the potential for significant energy savings, with the combined savings for medium-wattage HID lamps over the 30-year analysis period (2017–2046) of at least 11.4 quads. The 11.4 quads estimated in this final determination is an undiscounted value, and is substantially higher than the discounted value of 2.8 quads estimated in the NOPD, although both values represent the same physical quantity and would constitute significant energy savings. 75 FR 22031, 22040 (April 27, 2010).

During the energy conservation standards rulemaking process, DOE will perform a detailed analysis of the effect of possible standards on manufacturers as well as a more disaggregated assessment of their possible impacts on user subgroups.

B. Future Proceedings

In terms of the three responses to the NOPD, all commenters encouraged DOE to establish an energy conservation standard for HID lamps. ACEEE offered support for the proposed positive determination and encouraged DOE to move forward with a rulemaking to establish standards for HID lamps. (ACEEE, No. 22 at p. 1) NEMA stated that "industry supports cost-effective HID lamp standards that conserve energy." (NEMA, No. 21 at p. 2) SDG&E encouraged DOE to issue a positive final determination and open a new rulemaking to consider energy conservation standards for HID lamps. (SDG&E No. 23 at p. 1) Each of the commenters also included suggestions regarding the efficacy metric for HID lamps of lumens per watt. NEMA recommended that standards be based on initial lumens per watt, but suggested that DOE consider lumen maintenance factors and reliability, as different ballasts can affect the lumen maintenance of the system. Finally, NEMA commented that lumens per watt is not an appropriate metric for directional lamps and a different unit of measure will be needed. (NEMA, No. 21 at p. 2) ACEEE reiterated its comments related to the 2003 and 2004 draft reports, that ACEEE supports minimum efficiency standards for HID lamps. (ACEEE, No. 22 at p. 1) As stated in the NOPD, ACEEE referenced a 60 lumens per watt minimum efficacy requirement in response to the 2003 draft report. 75 FR 22031, 22033 (April 27, 2010). NEMA indicated that industry would expect conservation standards at the very least to eliminate MV lamps. (NEMA, No. 21 at p. 2) Further, SDG&E commented that substantial savings would be realized with efficiency standards that eliminate less efficient HID lamps, such as probe-start MH and MV lamps. (SDG&E No. 23 at p. 1)

Moving forward, SDG&E encouraged DOE to consider combining future HID lamp rulemaking with the current MH lamp fixture rulemaking. (SDG&E, No. 23 at p. 2) ACEEE suggested that DOE explore the potential of combining the rulemaking related to HID lighting systems into a single rulemaking with MH lamp fixtures. (ACEEE, No. 22 at p. 1) Finally, NEMA commented that the industry believes that DOE will achieve much greater energy savings from HID systems with electronic ballasts and/or intelligent controls as compared to savings gained through potential standards that increase HID lamp efficacies. (NEMA, No. 21 at p. 4)

In response to the suggestion of a combined rulemaking, DOE, in fact, has considered a combined rule, but a combination of the HID lamps rule with the MH lamp fixture rule would be problematic for the reasons that follow. First, the MH lamp fixture rule covers only metal halide fixtures and, thus, does not overlap entirely with an HID lamp rule because neither HPS nor MV lamps would be covered. Second, the MH lamp fixture rule also applies only to new fixtures. Both ACEEE and SDG&E in their comments noted that probe-start MH ballast technology has been banned effectively in new fixtures by EISA 2007 due to the high efficiency levels mandated for those types of ballasts and banned outright in multiple State regulations. (ACEEE, No. 22 at p. 2; SDG&E, No. 23 at p. 2) However, DOE notes that probe-start MH lamps can still be shipped for replacement applications. A potential HID lamps rule that were to set an efficacy level higher than probe-start MH would likely yield significant energy savings (see TSD chapter 6, section 6.2). The MH lamp fixture rule would limit inefficient technologies in new fixtures, and the lamps rule would be expected to hasten the transition away from inefficient technologies in existing equipment. As DOE moves forward with a possible HID energy conservation standard, the analysis will be compared and combined with the MH lamp fixture rule where possible.

Given today's positive final determination, DOE will begin the process of establishing test procedure

requirements for HID lamps, which is expected to result in the publication of a proposed rule. During the test procedure rulemaking process, DOE will consider the American National Standards Institute (ANSI) document ANSI C78.389–2004, "American National Standard for Electric Lamps—High Intensity Discharge—Methods of Measuring Characteristics," and the following Illuminating Engineering Society of North America (IESNA) Lighting Measurement (LM) documents: LM–47–01, "IESNA Approved Method for Life-Testing of HID Lamps," and LM–51–00, "IESNA Approved Method for the Electrical and Photometric Measurements of High Intensity Discharge Lamps."

DOE will also begin a proceeding to consider establishment of energy conservation standards for HID lamps. DOE will collect information about design options, inputs on the engineering and LCC analyses, and potential impacts on the manufacturers and consumers of HID lamps. DOE will evaluate whether potential energy conservation standards are technologically feasible, economically justified, and would likely result in significant energy savings in accordance with the requirements of EPCA. (42 U.S.C. 6295(o)) Depending on the outcome of these analyses, as well as on other factors set forth in EPCA, DOE will determine which, if any, standards would be appropriate for this equipment.

IV. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

This final determination is not subject to review under Executive Order 12866, "Regulatory Planning and Review." 58 FR 51735 (October 4, 1993).

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.,* as amended by the Small Business Regulatory Enforcement Fairness Act of 1996), requires preparation of an initial regulatory flexibility analysis for any rule that, by law, must be proposed for public comment, unless the agency certifies that the proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. A regulatory flexibility analysis examines the impact of the rule on small entities and considers alternative ways of reducing negative effects. Also, as required by Executive Order 13272, "Proper Consideration of Small Entities in Agency Rulemaking," 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003 to ensure that the potential impact of its rules on small entities are properly considered during the DOE rulemaking process. 68 FR 7990 (February 19, 2003). DOE has made its procedures and policies available on the Office of the General Counsel's Web site at *http://www.gc.doe.gov*.

DOE reviewed today's final determination under the provisions of the Regulatory Flexibility Act and the policies and procedures published on February 19, 2003.

When adopted, today's final determination will set no standards; it will only positively determine that future standards may be warranted and should be explored in an energy conservation standards rulemaking. Economic impacts on small entities would be considered in the context of such a future rulemaking. On the basis of the foregoing, DOE certifies that this final determination has no significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this proceeding. DOE will transmit this certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act of 1995

This proceeding determines that the development of energy conservation standards for HID lamps may be warranted and, accordingly, will impose no new information or recordkeeping requirements on the public. Therefore, OMB clearance is not required under the Paperwork Reduction Act. (44 U.S.C. 3501 *et seq.*)

D. Review Under the National Environmental Policy Act of 1969

In this notice, DOE positively determines that future standards may be warranted, and environmental impacts, if any, will be explored in a subsequent energy conservation standards rulemaking. DOE has determined that review under the National Environmental Policy Act of 1969 (NEPA), Public Law 91–190, codified at 42 U.S.C. 4321 *et seq.,* is not required at this time. NEPA review can only be initiated "as soon as environmental impacts can be meaningfully evaluated." (10 CFR 1021.213(b)) Because this final determination only concludes that future standards may be warranted, but does not propose or set any standard, DOE has determined that there are no environmental impacts to be evaluated at this time. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

Executive Order 13132, "Federalism," 64 FR 43255 (August 10, 1999), imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to assess carefully the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in developing regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process that it will follow in developing such regulations. 65 FR 13735 (March 14, 2000). DOE has examined today's final determination and concludes that it would not have substantial direct effects on the States, on the relationship between the Federal government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation standards for the equipment that is the subject of today's final determination. States can petition DOE for exemption from such preemption to the extent permitted and based on criteria set forth in EPCA. (42 U.S.C. 6297) No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform," 61 FR 4729 (February 7, 1996), imposes on Federal agencies the duty to: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation specifies the following: (1) The preemptive effect, if any; (2) any effect on existing Federal law or regulation; (3) a clear legal standard for

affected conduct while promoting simplification and burden reduction; (4) the retroactive effect, if any; (5) definitions of key terms; and (6) other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether these standards are met, or whether it is unreasonable to meet one or more of them. DOE completed the required review and determined that to the extent permitted by law, this determination meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) (Pub. L. 104–4, codified at 2 U.S.C. 1501 *et seq.*) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. For regulatory actions likely to result in a rule that may cause expenditures by State, local, and Tribal governments in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a) and (b)) UMRA requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed "significant intergovernmental mandate." UMRA also requires an agency plan for giving notice and opportunity for timely input to small governments that may be potentially affected before establishing any requirement that might significantly or uniquely affect them. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820 (March 18, 1997). This policy is also available online at *http://www.gc.doe.gov.*

Today's final determination will not result in the expenditure of $100 million or more in a given year by the HID lamp manufacturers affected by this rulemaking. This is because today's final determination sets no standards; it only positively determines that future standards may be warranted and should be explored in an energy conservation standards rulemaking. The final determination also does not contain a Federal intergovernmental mandate. Thus, DOE is not required by UMRA to prepare a written statement assessing the costs, benefits, and other effects of the determination on the national economy.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This determination does not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

DOE has determined under Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights," 53 FR 8859 (March 15, 1988), that this determination does not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

The Treasury and General Government Appropriation Act, 2001 (44 U.S.C. 3516, note) requires agencies to review most disseminations of information they make to the public under guidelines established by each agency pursuant to OMB general guidelines. The OMB's guidelines were published at 67 FR 8452 (February 22, 2002), and DOE's guidelines were published at 67 FR 62446 (October 7, 2002). DOE has reviewed today's notice under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgates a final rule or is expected to lead to promulgation of a final rule, and that: (1) Is a significant regulatory action under Executive Order 12866 or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the administrator of the Office of Information and Regulatory Affairs as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use if the proposal is implemented, and of reasonable alternatives to the proposed action and their expected benefits on energy supply, distribution, and use.

Today's regulatory action determines that development of energy conservation standards for HID lamps may be warranted and would not have a significant adverse effect on the supply, distribution, or use of energy. This action is also not a significant regulatory action for purposes of Executive Order 12866 or any successor order, and it has not been designated as a significant energy action by the Administrator of OIRA. Therefore, this final determination is not a significant energy action. Accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under the Information Quality Bulletin for Peer Review

On December 16, 2004 in consultation with the Office of Science and Technology Policy, the OMB issued its Final Information Quality Bulletin for Peer Review (the Bulletin). 70 FR 2664 (January 14, 2005). The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal government, including influential scientific information related to agency regulatory actions. The purpose of the Bulletin is to enhance the quality and credibility of the Government's scientific information. Under the Bulletin, the energy conservation standards rulemaking analyses are "influential scientific information." The Bulletin defines "influential scientific information" as "scientific information the agency reasonably can determine will have, or does have, a clear and substantial impact on important public policies or private sector decisions." 70 FR 2667 (January 14, 2005).

In response to OMB's Bulletin, DOE conducted formal in-progress peer reviews of the energy conservation standards development process and analyses and prepared a Peer Review Report pertaining to the energy conservation standards rulemaking analyses. The "Energy Conservation Standards Rulemaking Peer Review Report" dated February 2007 has been disseminated and is available online at

http://www1.eere.energy.gov/buildings/appliance_standards/peer_review.html.

V. Approval of the Office of the Assistant Secretary

The Assistant Secretary of DOE's Office of Energy Efficiency and Renewable Energy has approved publication of this final determination.

Issued in Washington, DC, on June 16, 2010.

Cathy Zoi,

Assistant Secretary, Energy Efficiency and Renewable Energy.

[FR Doc. 2010–16041 Filed 6–30–10; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2010–0102; Directorate Identifier 2010–NE–09–AD; Amendment 39–16341; AD 2010–13–10]

RIN 2120–AA64

Airworthiness Directives; Ontic Engineering and Manufacturing, Inc. Propeller Governors, Part Numbers C210776, T210761, D210760, and J210761

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain serial numbers (S/Ns) of Ontic Engineering and Manufacturing, Inc. propeller governors, part numbers (P/Ns) C210776, T210761, D210760, and J210761. This AD requires removal of the affected propeller governors from service. This AD results from three reports received of failed propeller governors. We are issuing this AD to prevent loss of propeller pitch control, damage to the propeller governor, and internal damage to the engine, which could prevent continued safe flight or safe landing.

DATES: This AD becomes effective August 5, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of August 5, 2010.

ADDRESSES:

You can get the service information identified in this AD from Ontic Engineering and Manufacturing, Inc., 20400 Plummer Sreet, Chatsworth, CA 91311, *e-mail: Bill.nolan@ontic.com;* telephone (818) 725–2323; fax (818) 725–2535; or *e-mail: Susan.hunt@ontic.com;* telephone (818) 725–2121; fax (818) 725–2535, or on the Web at *http://www.ontic.com/pdf/SB-DES-353_Rev_A.pdf.*

The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building Ground Floor, Room W12–140, Washington, DC 20590–0001.

FOR FURTHER INFORMATION CONTACT: Roger Pesuit, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712; *e-mail: roger.pesuit@faa.gov;* telephone (562) 627–5251, fax (562) 627–5210.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to certain S/Ns of Ontic Engineering and Manufacturing, Inc. propeller governors, P/Ns C210776, T210761, D210760, and J210761. We published the proposed AD in the **Federal Register** on March 15, 2010 (75 FR 12148). That action proposed to require removal of the affected propeller governors from service.

Examining the AD Docket

You may examine the AD docket on the Internet at *http://www.regulations.gov;* or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647–5527) is provided in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

Comments

We provided the public the opportunity to participate in the development of this AD. We received no comments on the proposal or on the determination of the cost to the public.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

We estimate that this AD will affect 45 propeller governors installed on airplanes of U.S. registry. We also estimate that it will take about four work-hours per airplane to perform the actions, and that the average labor rate is $85 per work-hour. Required repair parts will cost about $842 per propeller governor. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $83,790. Our cost estimate is exclusive of possible warranty coverage.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866;

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under **ADDRESSES**.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

■ Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows: