Edison Electric
INSTITUTE

Power by Association

May 16, 2016

Ms. Brenda Edwards
U.S. Department of Energy
Building Technologies Office
Mailstop EE-5B
Energy Conservation Standards for General Service Lamps
EERE–2015–BT–STD–0003
1000 Independence Avenue SW
Washington, DC 20585-0121

Re: Notice of Proposed Rulemaking for Energy Conservation Standards for General Service Lamps, Docket # EERE-2015-BT-STD-0051

Dear Ms. Edwards,

The Edison Electric Institute (EEI) appreciates the opportunity to submit comments on the Notice of Proposed Rulemaking (NOPR) which was released by the Department of Energy (DOE or Department). See *Energy Conservation Program for General Service Lamps*, 81 *Fed. Reg.* 14,528 (March 17, 2016).

EEI is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for 220 million Americans, operate in all 50 states and the District of Columbia, and directly employ more than 500,000 workers. With more than $106 billion in annual capital expenditures, the electric power industry is responsible for millions of additional jobs. Reliable, affordable, and sustainable electricity powers the economy and enhances the lives of all Americans. Many of our members are combination gas and electric companies, and provide services for both energy types.

EEI strongly supports the Department's energy conservation standards program for consumer products and certain commercial and industrial equipment. We believe that the program has been one of the most successful energy efficiency efforts ever created because of its focus on setting standards that are technically feasible and economically justified for a majority of consumers. The program's success can be largely attributed to its historical reliance on setting standard levels that ensure that customers who purchase the product save money.

DOE Should Set a Reasonable Minimum Power Factor Requirement for All General Service Lamps

Power factor is a measure of how effectively buildings are using electricity. In an electric power distribution system, a load with a low power factor draws more current than a load with a high power factor for the same amount of useful power transferred. The higher currents increase the energy lost in the distribution system, and has the potential to overload the system in a building or between buildings. From a utility point of view, incandescent light bulbs, which all have a power factor of 1.0, have historically been the best for system performance. In contrast, typical CFL's have power factors in the 0.5 to 0.6 range, while most LED lamps have power factors in the 0.50 to 1.0, with most LED products in the Energy Star Certified Light Bulbs Database being in the range of 0.70 to 0.90.

In the NOPR, DOE proposes a minimum power factor of 0.5 for compact fluorescent lamps and 0.7 for LED lamps. EEI would suggest higher values, since many products from multiple manufacturers are already available at these levels. For example, according to the Energy Star Certified Light Bulbs Database in March, 2016, over 1,200 certified compact fluorescent lamps (out of 1,479, or 81.1%) have a power factor of at least 0.6. For LED lamps, over 4,900 products (out of 5,399, or 91.1%) have a power factor of at least 0.8.

According to NEMA, in 2015, the high power factor incandescent light bulbs had a market share of nearly 60%, with CFL at approximately 23%, and LED's at 17%. The proposed rule would significantly alter this market spread eliminating nearly all of the highest power factor bulbs and significantly increasing the market share of the various lower power factor bulbs. While lower power factor bulbs alone are not a problem, the complete elimination of these high power factor bulbs does raise potential power factor concerns. As a result, EEI would propose a minimum power factor of 0.6 for compact fluorescent lamps and 0.8 for LED lamps.

EEI has also Identified a Number of Areas of Concern with the Technical Support Document (TSD) that DOE Should Address Prior to Issuing a Final Rule

EEI has reviewed the March 17, 2016 NOPR and the TSD that was published In February 2016 in the above-referenced docket. As discussed in detail below, a careful review of that analysis has revealed a number of areas where the analysis appears to either overestimate or underestimate certain impacts such as upstream impacts. This remains an ongoing area concern with underlying inputs into the Department's analysis.[1]

A. The "Site to Source" values shown in the TSD Appear to be Overstated and Should be Updated Prior to the Release of a Final Rule

[1] See https://www.regulations.gov/#!documentDetail;D=EERE-2016-OT-0010-0004

As part of the analysis, DOE used a "site to source" use factor that continues to be deeply flawed. As part of the TSD, DOE published the following graph, depicting the "site to source" conversion factor that was used, which is based on the National Energy Modeling System's (NEMS) model and used AEO 2015 inputs:

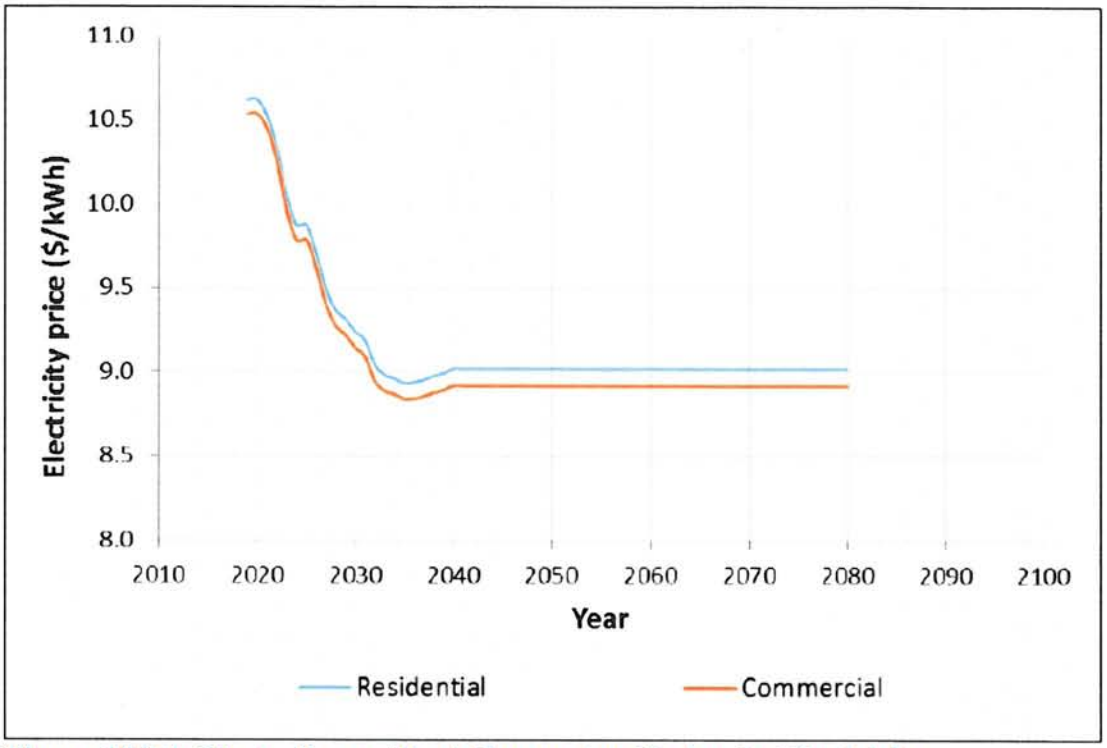

Figure 10.2.1 Site-to-Power Plant Conversion Factor for Electricity

The conversion factor estimates depicted in Figure 10.2.1 are overstated for the following reasons: 1) they do not account for the changes in the generation mix that are occurring now and in the future due to the Clean Power Plan; 2) they reflect a national number, which ignores the significant variation in electric generation by power pool region; and 3) they incorrectly "assign" a fossil fuel heat rate to renewable electric generation. Further, the graph and national impact analysis spreadsheet shows the conversions factor increasing slightly from 2035 to 2040, without explanation and shows no improvement from 2040 on. This post 2035 increase does not comport with the expected fuel mix that will be generating electricity post-2030. Other studies, such as the September 2015 EPRI-NRDC study entitled *Environmental Assessment of a Full Electric Transportation Portfolio*, which can be downloaded at http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002006881, provide more updated projections for the future fuel mix of electric generation.

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B. DOE Must Incorporate Up-to-Date Information Regarding the Changing Generation Fleet When Conducting Long-term Assessments of Electricity Usage and Upstream Emissions.

The TSD provides minimal information in terms of emissions and utility impacts. As part of the planning process, DOE must begin to use updated information when analyzing national, utility, and emissions impacts for purposes of all energy efficiency standards. Failure to use updated data overestimates the reductions associated with these standards. In order to provide an accurate and reliable analysis, the Department must recognize and address significant and expected changes in the power sector that will alter demand for electricity and the composition of the electric generating fleet through the 30-year analytical period being used for general service lighting. DOE's analysis as presented does not reflect any assessment of the expected, and often already occurring, changes in electricity demand and generation.

By definition, AEOs only address final environmental standards and do not include expected, but not yet final, new or amended environmental standards. As a result, AEO 2015 does not account for the impact of the Environmental Protection Agency's (EPA) EPA Clean Power Plan (CPP), which will have a significant impact on the estimated upstream energy impact analysis and on the emissions analysis. This program, by EPA's own estimates, will reduce power sector GHG emissions by 32 percent below 2005 levels by 2030.[2] The final CPP also included incentives for early—2016-2021—deployment of renewables and certain end-use efficiency programs. As EIA noted in its analysis of the proposed CPP, which was projected to achieve lesser reductions, "the Clean Power Plan has a significant effect on projected retirements and additions of electric generating capacity. Projected coal plant retirements over the 2014-40 period, which are 40 GW in the AEO2015 Reference case (most before 2017), increase to 90 GW (nearly all by 2020)… [and] the Clean Power Plan increases projected renewable capacity additions in all cases."[3]
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[2] *See* EPA, *Clean Power Plan Fact Sheet* (Aug. 3, 2015), http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-overview.pdf.

[3] EIA, *Analysis of the Impacts of the Clean Power Plan* (May 2015).

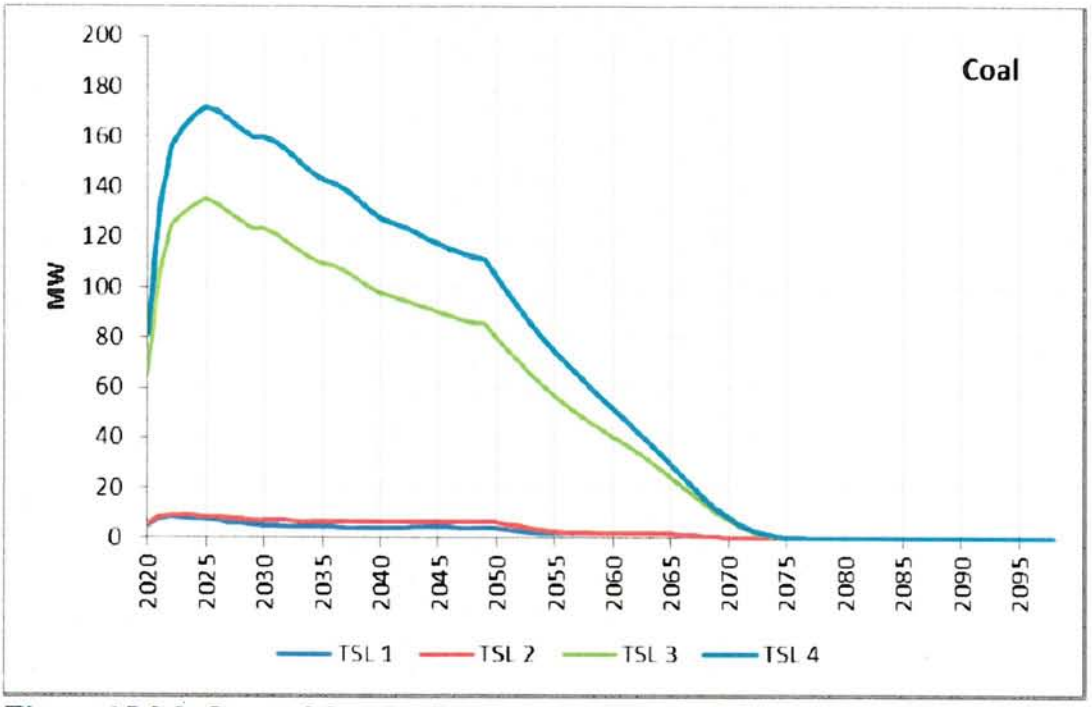

Figure 15.3.2 General Service Lamps: Coal Capacity Reduction

Therefore, for DOE to assume that over 130 MW of coal-fired power plants will not be installed in 2025 as a result of this general service lamp standard (at TSL 3) appears to be a vast overstatement, as EIA's own analysis of the CPP demonstrates that it is likely that 0 MW are going to be installed with or without this rule.

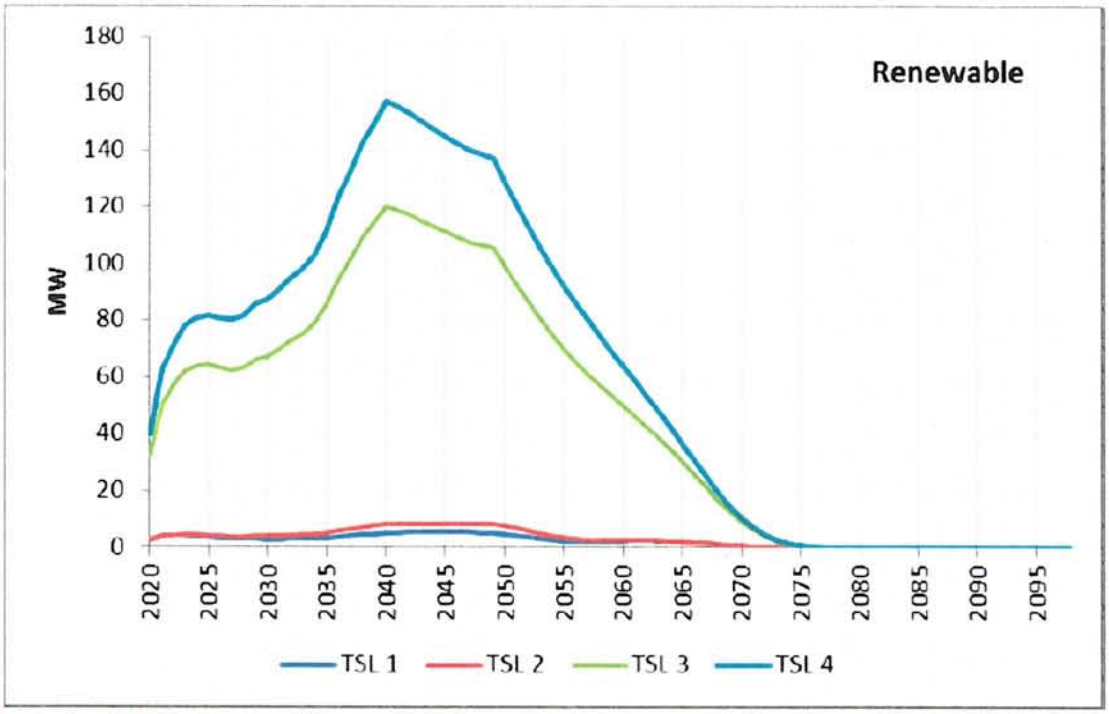

Figure 15.3.6 General Service Lamps: Renewables Capacity Reduction

Similarly, for DOE to assume that nearly 40 MW of renewable generation in 2020 and over 60 MW of renewable generation will not be installed in 2025 as a result of this general service lamp standard (at TSL 3) is also questionable, given state renewable portfolio standards increasing and federal policies that continue to favor renewable generation. The analysis should not include estimated savings associated with "avoiding" renewable capacity that will almost certainly be built anyway, regardless of this rule.

Thank you for your review and consideration of our comments. Please contact Steve Rosenstock (202-508-5465, srosenstock@eei.org) if you have any questions about EEI's comments.

Respectfully submitted,

Steven J. Rosenstock

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