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Impacts of the 2020 Federal Light Bulb Efficiency Standard

By Chris Granda

Summary

Starting January 1, 2020, it will be against the law to sell most halogen and incandescent light bulbs in the U.S. An existing federal minimum energy efficiency standard of 45 lumens per watt (LPW) comes into effect on this date and no currently available halogen or incandescent lamps are able to meet it. Federal law allowed California to implement the 45 LPW GSL standard effective January 1, 2018. The California and federal standards accelerate a transition to light emitting diode (LED) light bulbs already underway. This transition will eventually make most residential lighting efficiency programs no longer cost-effective. Since the change in federal administration, there has been some uncertainty in the energy efficiency community about these standards, and their effects on the U.S. light bulb market. This article seeks to answer some common questions about the standards, and to provide some clarity about potential market impacts.

Light Bulb Regulations

The 2007 Energy Independence and Security Act (EISA) set a path for a steady increase in light bulb energy efficiency. Initial standards for general service incandescent lamps (GSILs) which took effect between 2012 and 2014 replaced traditional incandescent light bulbs with more efficient halogen models. The law also required the U.S. Department of Energy (DOE) to develop stronger, broader standards for all general service lamps (GSL) to take effect in 2020. EISA sets specific procedural deadlines for DOE to meet along the way and requires that the new standards save at least as much as a 45 lumen per watt (LPW) standard. If DOE misses required steps or the savings target, then the law triggers a "backstop" standard of 45 LPW for all GSLs. DOE failed to comply with the law's requirements and acknowledged in 2016 and 2017 that the backstop had been triggered. The 45 LPW GSL backstop standard comes into effect on January 1, 2020 and will prohibit the sale of non-complying versions of most light bulbs commonly sold in the U.S. including A-line, reflector, and decorative light bulbs with medium, candelabra and intermediate screw bases.

While the federal GSL backstop standard is technology neutral and allows the sale of any kind of GSL that can meet the 45 LPW efficiency requirement, most light bulbs of all types for sale in the U.S. will probably be LEDs after the standard comes into effect. LEDs mostly run above 70 LPW, consumers like the technology, and LED market share has recently increased rapidly. Halogen bulbs for sale today only run at about 20 LPW and several years ago manufacturers abandoned efforts to commercialize a new generation of more efficient halogens. Most compact fluorescent lamps (CFL) can meet the 45 LPW requirement, but are losing market share to LEDs based on light quality,

reliability and price. CFLs dropped from 50 percent of all A-line light bulb sales in 2014 to less than 10 percent today and some manufacturers are discontinuing their CFL product lines. The federal backstop GSL standard does not cover linear fluorescent lamps, which are subject to their own federal standards.

Federal energy efficiency standards usually preempt state standards, but EISA allowed California to implement GSL standards before they come into effect at the federal level, which the California Energy Commission (CEC) did at the beginning of 2018. The California GSL standards allow retailers to sell-through inventories of older, less efficient bulbs, and halogen bulbs may continue to be available on California store shelves for some months. The California standard also uses a narrower definition of GSL than the federal standard and does not include reflectors or decorative bulbs. CEC is currently considering expanding the California GSL definition to be the same as the federal definition, which could happen as early as the beginning of 2019.

Challenges to the GSL Standards

DOE has repeatedly stated that the backstop standard has been triggered in documents filed under its GSL rulemaking. The National Electrical Manufacturers Association (NEMA), which represents the lighting industry, has stated that DOE did not fail to meet EISA's requirements for a GSL rulemaking, and that the backstop has not been triggered. In 2017, NEMA sued DOE over aspects of its GSL rulemaking process and eventually reached a settlement that required DOE to consider amended or additional federal standards for LEDs and other products, but did not directly address the GSL backstop. NEMA also filed a legal challenge against the California GSL standards and asked a federal judge to prevent California from enforcing them. In December of last year the court ruled against NEMA, permitting CEC to implement its standards as scheduled.

DOE established the broad definition for GSLs mentioned above through a ruling in January of 2017. DOE could re-revise the federal GSL definition, returning it to something like the pre-2017 definition. A narrower definition might mean that some light bulbs, such as reflectors and many decorative bulbs, would no longer be subject to the GSL backstop standard. However, such action by DOE would conflict with anti-backsliding provisions in federal law and would likely be fought in court.

The Appliance Standards Awareness Project is currently working at the state level to help ensure that the 45 LPW federal GSL standard comes into effect in 2020 as expected. In 2017, Governor Phil Scott (R) signed Act 42, adopting the federal GSL standard in Vermont. Similar bills mirroring the federal 2020 standard are wending their ways through the legislative processes in several other states. The California, Vermont, and other new states' GSL standards will create a regulatory bulwark against any efforts by Congress or the Trump administration to narrow or remove the federal backstop GSL standard.

Enforcement

Most federal energy efficiency standards prohibit the manufacturing or importation of non-compliant products after a compliance date. This allows retailers with non-compliant products in their warehouses to sell them legally after the standard comes into effect. The federal backstop GSL standard is unusual because it prohibits the sale of non-compliant light bulbs, putting retailers legally at risk. The law also allows states to sue any person – including retailers – who distributes a non-compliant GSL in commerce. In other words, if DOE fails to enforce the standard, any state Attorney General can step in to enforce the federal law.

Lighting Efficiency Program Future

A couple of factors point to a closing window for residential lighting efficiency programs. Since 2010, first CFLs and then LEDs have claimed significant shares of the U.S. light bulb market. As a result, the energy efficiency of the average new light bulb sold in the U.S. has increased significantly. That means the savings that energy efficiency programs can claim for helping to install an efficient LED has decreased, compared to the average new light bulb that consumers would have installed anyway. Because LEDs and CFLs last much longer than halogen light bulbs, consumers also need to buy replacement bulbs less frequently and annual sales of light bulbs in the U.S. are dropping.

Energy efficiency programs helped popularize both CFLs and LEDs and helped bring us to the bright future for light bulb efficiency that we have today. The next step is for the federal GSL backstop standard to complete the transition to LEDs. Because LEDs are so efficient, and because there are still more than 3 billion incandescent and halogen GSLs currently in use in the U.S. today, any delay of the LED transition would waste very large amounts of energy.

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