



COVID-19 and EISA Challenges Lead to Uncertainty in the Lighting Market: LED Market Update, Analysis, and Implications for Energy Efficiency Programs

May 1, 2020

Introduction

Lighting programs have long operated in an uncertain environment, with shifts in the regulatory environment occurring on top of rapid market transformation. The actions the U.S. Department of Energy (DOE) took related to the Energy Independence and Security Act (EISA) last September and the legal challenges that followed have only added to that uncertainty. This email presents a summary of the latest market trends for residential LEDs, LightTracker's update on the regulatory environment for lighting, and our assessment of what it all means for lighting programs.

COVID-19 Impacts

While it is too early to fully assess its impact, the COVID-19 pandemic has affected the lighting market in multiple ways. There have been shifts in consumer buying patterns as sales move from retail outlets to grocery stores, with daily sales in non-grocery retailers decreasing between 30% and 70% in some cases. This could have an effect on LED market shares, as LEDs have historically comprised a lower share of bulbs sold in grocery stores than in stores like large home improvement retailers and club stores. It will also likely increase the importance of product availability and display in purchase decisions, as customers spend less time in stores browsing and deciding between alternative products.

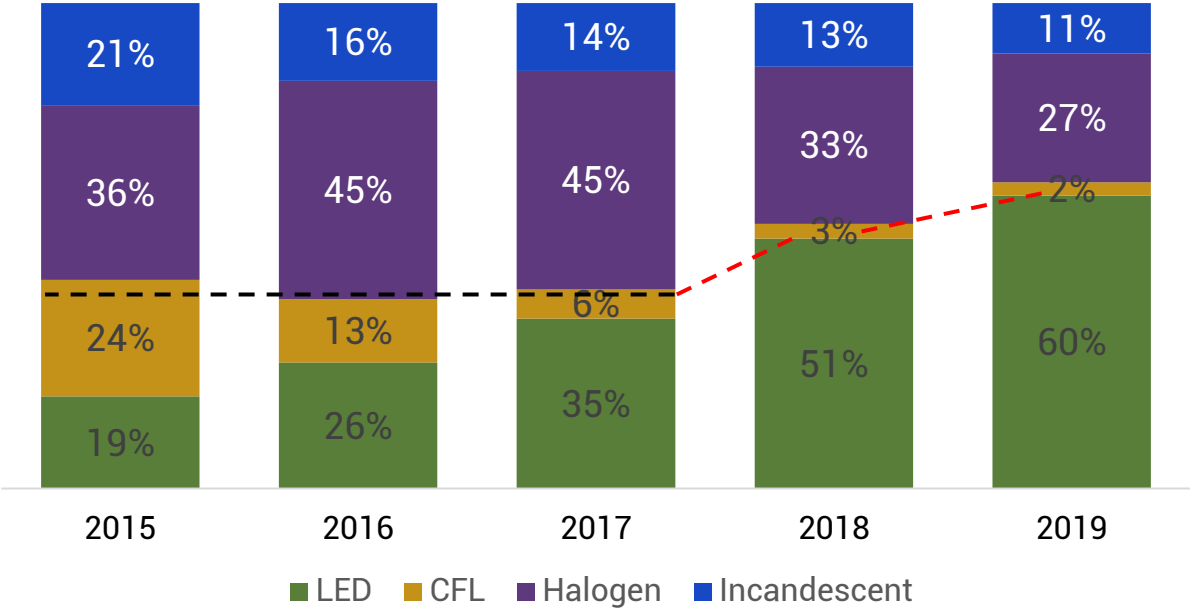
The pandemic has also impacted the lighting supply chain, causing delays in factory shipments, particularly from China, which one LED manufacturer reported could stretch as long as 75 to 90 days. One LED-only manufacturer estimated that the combined effects of these market shifts could reduce their sales by as much as 75% through September. While this may not be representative of the market as a whole – larger and less specialized manufacturers may be better positioned to adapt supply chains and distribution channels – it suggests that the COVID-19 pandemic will have a significant impact on 2020 LED sales.

Lighting Market Update

The Consortium for Retail Energy Efficiency Data (CREED) LightTracker recently completed analysis of 2019 data, with some of the key highlights presented below. Sales data, as well as cost information, are also available at the state level, please contact us if you are interested or have any questions.

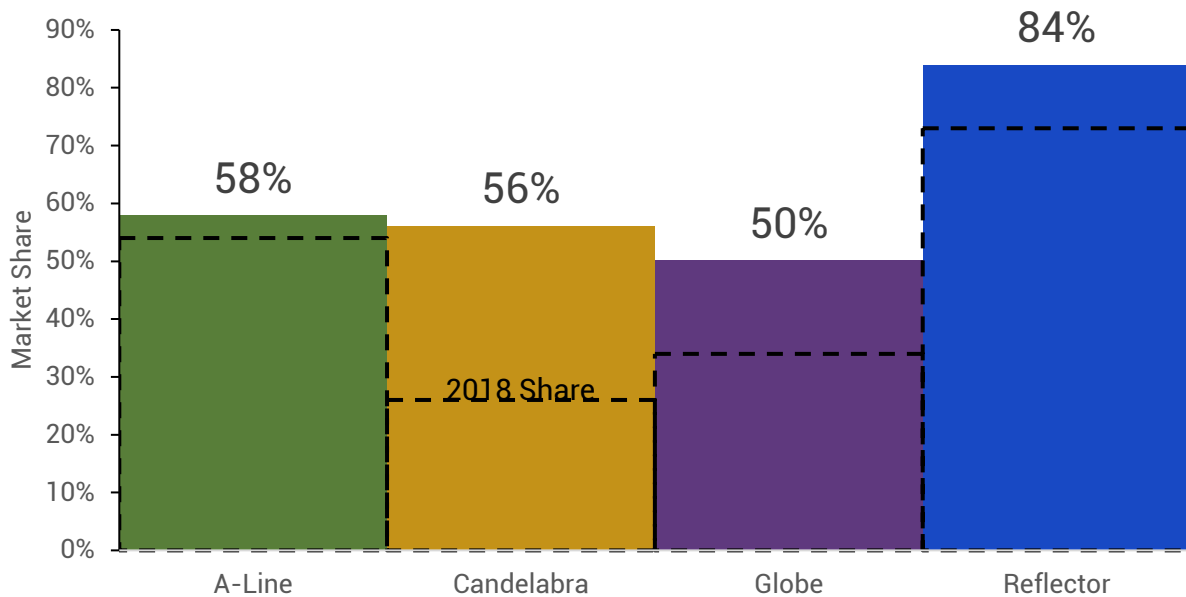
Overall U.S. Sales: LED market share continued to grow in 2019, reaching 60% across all retail channels and lamp styles (Figure 1). As it had in 2018, the growth in LED share in 2019 came at the expense of halogen and incandescent lamps. In prior years, growth in LED share had primarily come at the expense of CFLs.

Figure 1. Total U.S. Market Share by Lamp Type and Year



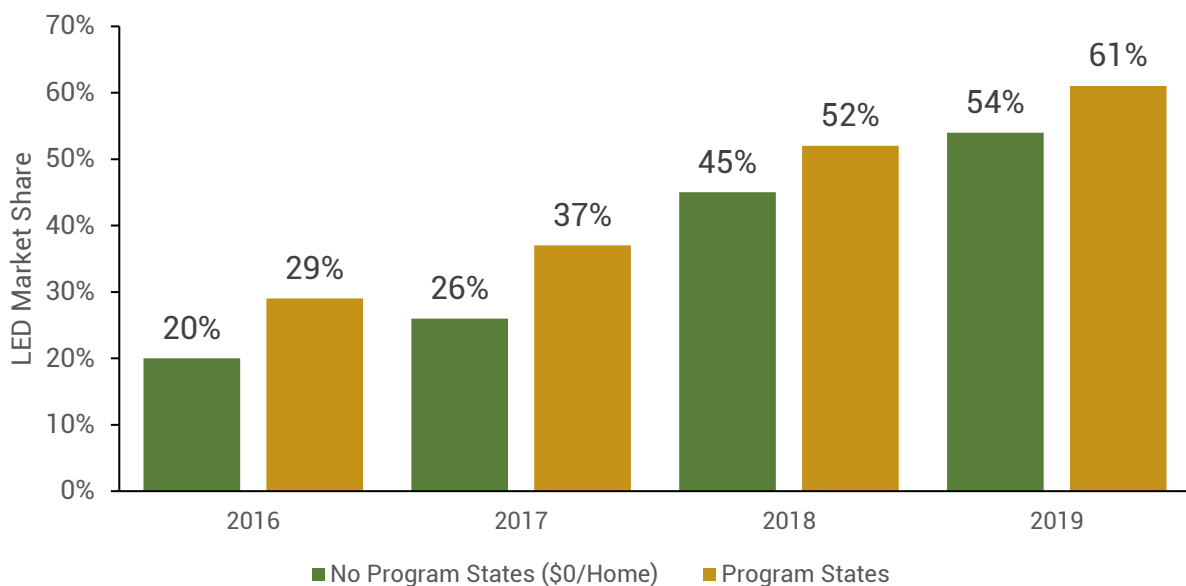
LED Market Share by Style: LEDs continued to dominate sales of reflectors, reaching 84% market share in 2019 (Figure 2). LEDs achieved particularly significant gains in 2019 among candelabra (more than doubling) and globe bulb types and represented a majority of sales for both bulb types for the first time. LED market share for A-lines rose only slightly between 2018 and 2019.

Figure 2. 2019 U.S. LED Market Share of A-Line and Specialty Lamps



Program vs. Non-Program Areas: LED market share in states with lighting program activity continued to out-pace market share in states without lighting program activity in 2019 (Figure 3). The difference in market share between program and non-program states fell from 9% in each of the previous two years to 7% in 2018, but held steady at 7% in 2019, indicating that any market transformation occurring to close the gap is a slow process.

Figure 3: LED Market Share in Program vs. Non-Program States



EISA Update

Last September, DOE issued a Final Rule and a Notice of Proposed Determination (NOPD) related to EISA. The Final Rule rescinded the expanded definition of general service lamps (GSLs) that DOE adopted in 2017, meaning that EISA efficiency standards would not apply to a variety of reflector, decorative, and specialty lamps. DOE also argued that the backstop provision in the original EISA legislation, which would set a standard of 45 lumens per watt beginning in 2020 if DOE failed to set an equally or more stringent standard by 2017, has not been triggered. The NOPD argues that standards more stringent than those included in the first phase of EISA regulations are not justified.

Two groups have filed lawsuits seeking to reverse DOE's Final Rule rescinding the expanded definition of GSLs. The first is made up of a group of environmental organizations, led by the Natural Resources Defense Council (NRDC). The second includes the attorneys general of 15 states, the District of Columbia, and the City of New York. As of April 2020, both lawsuits are ongoing. Briefs in both lawsuits are due by June 15, 2020.

The legal arguments against the 2019 Final Rule focus on the requirements of the EISA legislation and anti-backsliding provisions in the Energy Policy and Conservation Act, which prohibit DOE from adopting standards that will result in an increase in energy use. According to the NRDC: "This is a one-way street: Congress only gave DOE authority to remove exemptions - not the authority to *introduce* new exemptions. Similarly, Congress has explicitly prohibited DOE from weakening a standard once it has been finalized."

Based on the arguments presented in the 2019 Final Rule, DOE will likely argue that anti-backsliding provisions do not apply because the 2017 rule expanding the definition of GSLs was limited to revising definitions; it did not set a standard. DOE will also likely point out that the EISA backstop had not yet taken effect when it issued its rule. Further, in DOE's view, the backstop has not been triggered. As a result, DOE may argue that its Final Rule does not represent backsliding because more stringent standards were not in place.

The comment period for DOE's NOPD closed in November 2019. DOE received 107 comments on the NOPD, 84 of which opposed the proposed decision. Nonetheless, manufacturers and retailers, as represented by the National Electrical Manufacturers Association (NEMA) supported the changes. LightTracker captured additional reactions during meetings with manufacturers and retailers at the September 2019 ENERGY STAR Partners Meeting, with one industry actor noting that "what the government wanted to happen is happening anyway, so why outlaw something that is going away?" In general, the sentiment was that this was a positive decision for consumers and for programs, avoiding a quick increase in prices due to the removal of program support. Some manufacturers that produce only LEDs also supported the decision due to concerns that the backstop would lead to a "race to the bottom" in terms of lamp quality.

Implications for Lighting Programs

Regulators around the country have begun to consider what DOE's September 2019 Final Rule and NOPD mean for lighting programs. While some have pushed out the dates for baseline shifts or extended truncated measure lives, there is a general consensus that a shift in lighting baselines will occur. Whether that shift occurs as a result of legal challenges, changes in the political environment that reinstate regulations, or continued market

transformation, it will take time to come about. There is opportunity for programs to continue to influence the lighting market in the meantime.

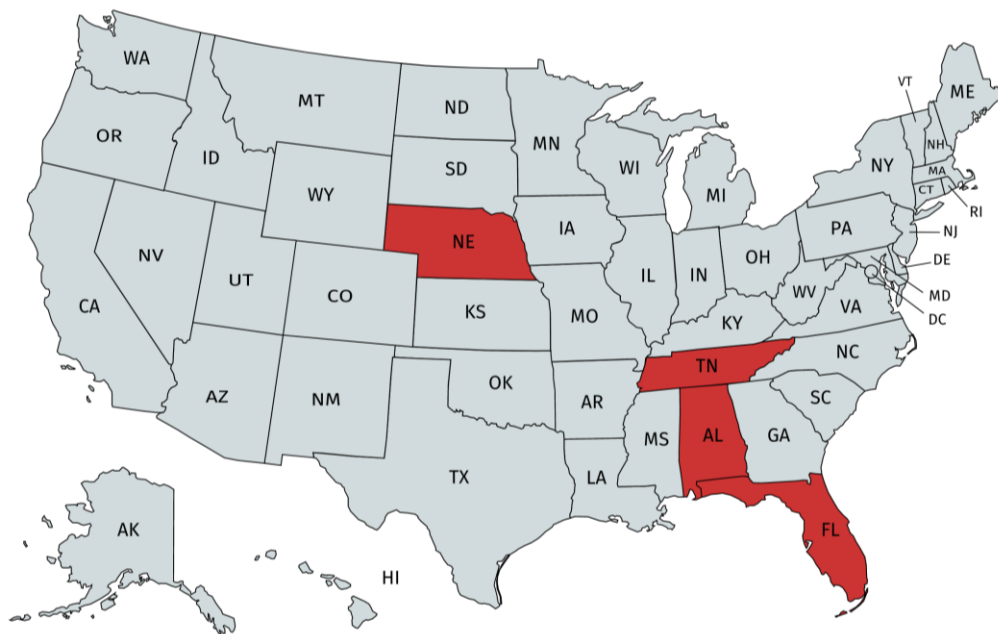
As we cautioned in our last email, however, it is also important to note that future programs would have significantly reduced impacts compared to past programs for a number of reasons, including:

- › **Lower Net-To-Gross (NTG):** There is clearly strong naturally occurring market adoption of LEDs, so states that use NTG ratios would need to apply decreasing NTG ratios.
- › **Volume sales will decrease:** The increasing saturation and longer lifetime of LEDs means that fewer sockets will turn over naturally, leading to lower year-over-year sales. Even direct installation programs will find less sockets in a home that contain inefficient lamps.
- › **Reduced measure lifetime:** Although the technical life of an ENERGY STAR LED is 15,000 hours (approximately 15 years), the lifetime used to estimate program impacts needs to be significantly reduced to recognize the likelihood that the socket filled by a program lamp would have had an LED installed anyway within a few years even in absence of the program.
- › **Gross savings could decrease:** As the saturation of efficient lamps increases, it is likely that the remaining sockets will be in lower-use areas, leading to declining hours of use and gross savings.

Despite these factors, there remain no residential measures to replace the magnitude or cost-effectiveness of lighting. In fact, the acquisition cost of residential lighting, even with a low NTG ratio and a significantly reduced lifetime, may still outperform many of the alternatives. Residential lighting remains relevant as most portfolios try to keep an equitable balance between residential and commercial savings, but we also note that commercial and industrial lighting remains an opportunity. To that end, CREED is currently working to gather commercial lighting data.

Note that CREED Light Tracker is keeping a close pulse on the market throughout 2020. Assuming the COVID crisis eases this fall, we will conduct a shelf-stocking analysis in four non-program states in the fall of 2020 to assess the availability and sales of LEDs vs. incandescent and halogen alternatives (Figure 4). For more information on our upcoming research or how the recent DOE decisions might impact your programs, please contact Scott Dimetrosky at (303) 590-9888 x101, or email scottd@apexanalyticsllc.com.

Figure 4: Location of CREED LightTracker Shelf Stocking Study



About CREED

In order to solve a problem plaguing the energy efficiency industry for many years, in 2012 Apex Analytics created the Consortium for Retail Energy Efficiency Data (CREED). CREED serves as a consortium of program administrators, retailers, and manufacturers working together to collect the necessary data to better plan and evaluate energy efficiency programs. LightTracker is the first initiative of CREED, focusing on acquiring full-category lighting data, including incandescent, halogen, CFL, and LED bulb types, for all distribution channels and for the entire U.S. As a consortium, CREED speaks as one voice for the program administrators nationwide when requesting, collecting and reporting on the sales data needed by the energy efficiency community.

CREED currently has contracts with major utilities to develop a second initiative that will help monitor Commercial and Industrial energy efficient lighting sales. This initiative is working to obtain point of sale data from electrical distributors to foster better incentive programs from utilities. Over the last five years CREED LightTracker, has become the de facto source for residential lighting sales reporting and is used by utilities from California to Massachusetts.

For more detailed analysis and recommendations targeted to your service area and program needs, contact Scott Dimetrosky at (303) 590-9888 x101, or email scottd@apexanalyticsllc.com.