# SSL Postings

U.S. DEPARTMENT OF ENERGY

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*Solid-state lighting (SSL) is rapidly transforming the lighting industry, and the U.S. has been at the epicenter of SSL innovation. U.S.-based researchers and product developers have been instrumental in toppling cost and performance barriers, and in positioning SSL for rapid market growth. U.S. lighting manufacturers are well positioned to benefit from the SSL revolution, strengthening our country's position as a leader in the technology. From time to time, the* Postings *focus on SSL companies that manufacture in the U.S. This is not intended to endorse or promote any of the companies, but rather to motivate and inspire other U.S. companies to follow suit. The philosophy and activities you'll read about in these profiles are consistent with the recommendations set forth in the U.S. Department of Energy (DOE) white paper* "Prospects for U.S.-Based Manufacturing in the SSL Industry."

## Current, powered by GE

Home to about 500 employees, the East Flat Rock, NC, plant of Current, powered by GE (formerly GE Lighting Solutions) manufactures outdoor lighting — such as area, roadway, decorative post-top, and canopy luminaires. About 90% of those products are LED-based, with the other 10% high-intensity discharge (HID). But it wasn't always that way. Just four years ago, the percentages were the other way around, with HID comprising the majority and LEDs just a small portion. But in the last few years, the payback periods on LED outdoor lighting products have shrunk considerably — down to two to three years, and in some cases even less, notes Gary Steinberg, Current systems manager for outdoor fixtures. This, he says, has made such products widely attractive to the market and led Current to the decision to rapidly, and almost completely, switch over the production of its East Flat Rock plant to LED.

The one-million-square-foot facility — which, by the way, is lit by GE Albeo high-bay LED luminaires — seems the embodiment of cutting-edge manufacturing. But lighting production there actually dates back to the late 1950s. Back then, the plant's rural location near the Blue Ridge Mountains (just outside the city of Hendersonville) provided the company with an ideal setting to set up an outdoor demonstration site for streetlights, which hadn't yet become commonplace in the U.S. Called the Crossroads of Light, that demonstration site allowed GE to show its customers the advantages of street lighting and let them compare various options, such as different pole spacing and fixture types, in a real-world setting. So the East Flat Rock factory has participated in several different lighting revolutions. First there was the large-scale deployment of lighting on U.S.

roadways, which was followed later on by the transition of outdoor lighting technology from mercury vapor to high-pressure sodium and metal halide. And today the facility is once again at the forefront of an even more dramatic technology transition, from HID to LED technology.

Customers from the late 1950s would hardly recognize the East Flat Rock plant nowadays, and not just because of the products it makes. The way those products are made has undergone a revolution, too. According to Gary, lean manufacturing is the order of the day, which boosts production efficiency and cuts down on cost. And there's a minimal amount of inventory lying around, because most products are made to order. That's because, as Gary explains, when it comes to outdoor lighting, every customer wants something slightly different, so Current's catalog structure allows for many different possible permutations. He notes that reducing inventory also cuts down on obsolescence, because with SSL, new and improved generations of components are constantly emerging — which is likely to continue for quite some time, since the technology still has quite a bit of headroom. By manufacturing to order, the company can keep up with the latest developments in SSL technology. Other components, such as the driver, are developed (and some are manufactured) in-house. Flexibility in manufacturing drivers is still evolving, in order to drive new value in LED lighting — for example, with tunable products and those that need to engage with sensors and networks. These new features will be a part of a "revolution within the LED revolution," as LED lighting products are developed to be more adaptive and engage with the Internet of Things; and manufacturers such as Current are making preparations to handle whatever comes down the road.

The jobs at Current's East Flat Rock plant — which made its first LED fixture in 2009 — have changed as well, Gary observes, with less emphasis on traditional metalworking and more on such things as electronics and surface-mount technology. Some of the company's engineering is also done there, with the rest done either in Cleveland or outside the U.S.

In addition to materials science and the integration of components and drivers, the company's research focuses a lot on optical systems and photometry. One of nine GE showcase plants worldwide, the East Flat Rock facility manufactures products that are sold globally, mainly in the Western Hemisphere.

The East Flat Rock plant is yet another example of how U.S. lighting companies, large and small, are rapidly transitioning their factories and workforces entirely to LED. In the process, advanced manufacturing approaches are being employed to make production more customized, more efficient, quicker, and more cost-effective.

As the lighting market shifts to SSL technology, Current, powered by GE is one of many companies that are helping to reinforce U.S. manufacturing and R&D leadership. This will not only help bring significant energy savings through more-efficient lighting products, but will benefit our economy by adding jobs at multiple levels of the supply chain.

As always, if you have questions or comments, you can reach us at postings@akoyaonline.com.