

SSL Postings

U.S. DEPARTMENT OF ENERGY

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The solid-state lighting industry is steadily growing and establishing a manufacturing presence here at home. Solid-state lighting was not only born of U.S. ingenuity and R&D, but is riding the crest of a worldwide trend toward greater energy efficiency. This offers a golden opportunity for U.S. manufacturing to take a significant role in SSL. From time to time, these Postings will focus on SSL companies manufacturing here in the U.S., a series we call "SSL in America." This is not intended to endorse or promote any of the companies, but rather to describe advances in energy-efficient solid-state lighting. The activities you'll read about here are consistent with the [DOE white paper "Keeping Manufacturing in the United States,"](#) which grew out of DOE's 2010 SSL Manufacturing R&D Workshop.

Spotlight on Xicato

Based in San Jose, CA, in the heart of Silicon Valley, Xicato manufactures LED modules and sells them to luminaire manufacturers. The company was born in 2007 in neighboring Sunnyvale, in the garage of Gerard Harbers, who cofounded Xicato along with fellow Lumileds alumni Mark Pugh and Menko de Roos. Menko, who's now its CEO, recalls that as Xicato grew, it slowly took over the rest of Gerard's house – with the bedrooms serving as offices, the kitchen as cafeteria, and the living room as meeting room – until finally, after a year and a half, Gerard's wife asked for her house back, and the company moved into nearby office space.

Xicato pioneered the use of LED modules, which didn't exist in 2007. The company buys blue LEDs and builds them into a housing, with a phosphor-coated disk on top that converts the blue light to white. Xicato calls it "corrected cold-phosphor technology," and Menko explains that every module is tuned to emit light in a narrow color band, and that the phosphors are not in contact with the LEDs and are heat-sunked, which keeps them cooler and prevents their degradation, thereby promoting color stability.

Xicato had done all of its manufacturing in Asia but recently moved to a new and larger space in San Jose – just down the street from the new stadium being built for the San Francisco 49ers – where it has set up a manufacturing facility for a new line of LED modules that are shipped to Asia for final assembly. Everything that creates the light – except for the LEDs themselves – is made there in San Jose, which amounts to more than half the product (about 80 percent of it from a value perspective, according to Menko).

Xicato's new product line is the company's first line of products that are "intelligent" – meaning that the modules have the capability to integrate electronics, sensors, and software. Xicato began making a pilot line of the new products in San Jose last year and has already started commercial production, which Menko expects to be in full swing by June. All told, about 100 people are employed by Xicato in San Jose, but that should climb to about 120 by this summer. There's also a considerable ripple effect, because Xicato works a lot with local vendors in Silicon Valley.

Menko says that one reason Xicato chose to manufacture in the U.S. is because a significant number of its customers are here. He points out that depending on a product's life cycle, the lost opportunity resulting from delaying its market introduction can far outweigh the theoretical cost advantages of manufacturing offshore. Different lighting applications require different kinds of light, which calls for constant innovation on Xicato's part, and Menko observes that having the engineering department and manufacturing facility under the same roof reduces time to market and saves money. What's more, he says, the company's location in Silicon Valley – an area known for its innovation – makes it easier to find people who think outside of the box, and there's excellent access to highly trained and experienced operators and technicians as well. Plus the region's abundance of software and electronics companies plays right in with Xicato's new line of intelligent products.

IP protection is another reason Menko cites for manufacturing domestically, plus Xicato's San Jose manufacturing process is highly automated, which helps negate the higher U.S. labor costs. In addition, he says, domestic manufacturing results in better communication and, more importantly, greater efficiencies in the product development process. Plus employees don't have to shuttle back and forth between here and Asia to oversee production, which eliminates costly travel expenses.

Menko explains that Xicato's U.S. manufacturing facility will be used to bring new products to market. But as a new product matures and innovation on it ceases, its manufacture becomes a matter of rote labor and will be moved overseas to take advantage of lower labor rates. This, Menko says, will allow the company to continue to focus on innovation, which means that its U.S. manufacturing

operations will play an increasingly important role going forward. Menko notes that Xicato continues to bring new manufacturing equipment into San Jose, where it has the capacity to double its manufacturing space.

Xicato is among a number of companies that are working to create and strengthen a solid-state lighting manufacturing base here in the U.S. 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.