

SSL Postings

U.S. DEPARTMENT OF ENERGY

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Although you do not often hear about growth in domestic manufacturing here in the United States, 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 also 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, the Postings focus on SSL companies manufacturing here in the U.S., in a series called "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 U.S. Department of Energy (DOE) white paper ["Prospects for U.S.-Based Manufacturing in the SSL Industry."](#)

Spotlight on LumiGrow

LumiGrow is a manufacturer of "smart," tunable LED horticultural luminaires and related software. According to founder and CEO Kevin Wells, 85–90% of the company's manufacturing is done in the U.S., using contract manufacturers in Reno, NV, and Fremont, CA. The use of contract manufacturers, Kevin notes, allows LumiGrow to focus on researching the effects of different light spectra on various types of ornamental and food plants, and on designing and developing luminaires that can best put that knowledge into practical use. The idea, he explains, is to manipulate the light so as to make plants grow in desired ways — for example, to produce a sweeter fruit or a larger flower.

LumiGrow is based in Novato, CA, a few miles north of the Golden Gate Bridge, where 22 people work, ranging from engineers and sales staff to administrative personnel and plant scientists. Those plant scientists, says Kevin, conduct extensive research into the effects of light on plants, not only at LumiGrow's headquarters but also at a half-dozen greenhouses at the University of California at Davis. He notes that LumiGrow also works collaboratively with university and other researchers all across the globe, and has its own director of research. Through the use of related software, LumiGrow's luminaires are completely tunable by the users, which are primarily commercial greenhouses. Roughly 60% of those customers are U.S.-based, with the rest scattered in some 30 other countries.

Kevin notes that LumiGrow works closely with its customers to guide them in how best to use its products, with many of those customers then going on to create their own “secret sauce” spectral recipes tailored to the plants they grow. He recounts that research conducted by NASA in the 1990s convinced him of the potential for LEDs to influence plant growth, but that SSL technology was not at a stage where this was practical until around 2006, when costs had dropped enough to make it feasible. So he founded LumiGrow that year, and in 2008 the company brought its first product to market.

Kevin cites turnaround time as a major reason LumiGrow manufactures domestically, explaining that sales orders tend to be large and to arrive at irregularly spaced intervals, rather than as a steady stream of smaller orders, and that this makes fast responses especially critical. He says some items that the company originally sourced from outside the U.S. are now obtained domestically — for example, aluminum extrusions, which turned out to be cheaper to obtain from a Texas-based supplier than to ship from overseas, bringing the added advantage of much shorter lead times.

Another advantage of manufacturing in the U.S., Kevin notes, is that it speeds up and facilitates the resolution of any problems that may arise, as well as last-minute requests for revisions. He explains that trying to get to the bottom of a problem can be tricky when there’s a language barrier, and when a face-to-face meeting would require a lengthy and costly overseas plane trip. The bottom line, Kevin says, is that in many ways, manufacturing here actually lowers the cost of doing business. What’s more, he observes, the specialized human-resource knowledge base LumiGrow needs is easier to draw upon here in the U.S. than it would be overseas.

On the flip side, Kevin notes that it’s difficult to find U.S. vendors that are capable of producing on a large scale, which can cause manufacturers who are in need of large quantities to look elsewhere. This, he believes, makes for a golden opportunity to revive what he calls “basic manufacturing” here in the U.S. by providing companies such as LumiGrow with high-volume production capabilities — at a time when foreign production costs are increasing.

Kevin observes that LumiGrow’s sales are steadily increasing as the horticultural use of LEDs becomes more widely known and luminaire prices continue to come down, and he estimates that at present there are about 3 million square feet of plants being grown with LumiGrow lights — bringing, he says, 50–70% energy savings over conventional sources.

LumiGrow 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.