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MARY ANN JOHNSON, AN ENGINEER IN RESEARCH OF SOLID-STATE LIGHTING AT OSRAM SYLVANIA IN BEVERLY, DOES WIRE BONDING OF LIGHT-EMITTING DIODES.

# Mass. lighting sector thinking beyond the bulb

By James M. Connolly  
jconnolly@bizjournals.com

In an era when one of the first questions asked of a business is whether it will manufacture in China, a common sentiment expressed by executives at the Massachusetts companies that produce next-generation lighting products is that wherever the bulbs are made, the value that they can add here is in the intelligence that makes lighting efficient.

Companies focused on lighting systems based on light-emitting diodes (LED) are on a growth spurt in the Bay State, and they have no plans to give up their leadership role.

"Lighting is the most economically relevant story out there in terms of energy efficiency," said Tom Pincince, CEO at Digital Lumens Inc. The 3-year-old company headquartered a couple blocks from the TD Garden in Boston has more than doubled its staff to 50 in the past year. Pincince's focus is simple: Provide energy-efficient, LED lighting systems for big facilities in sectors such as manufacturing and distribution, commonly in the range of 200,000 square feet.

LEDs are finding a home in large facilities like those thanks to a payback on investment of less than two years. It's not just about how bright the lights are, or how long they last. The attraction is in energy savings with the ease of programming a network of LEDs to dim when feasible, brighten or shift colors when needed, or shut down when not needed. The intelligence behind the bulb is one area where Massachusetts companies are making their mark. They include startups and relatively young companies such as Digital Lumens, Luminus Devices Inc. of Billerica, and QD Vision Inc. of Watertown, as well as divisions of established big companies like Osram Sylvania of Danvers and Philips Color Kinetics in Burlington.

The LED market may not yet have

boomed the way insiders would like. Keith T. S. Ward, president and CEO of Luminus Devices, points to a weak global economy, the fact that LED is still relatively expensive and an entrenched traditional lighting infrastructure as challenges, but he says the LED sector is going through a transition. "LED is already the most efficient white-light technology in the world. As costs come down it will be even more aggressive in replacing traditional lighting sources," he said.

Luminus Devices focuses on four key markets: projection-digital display, entertainment, industrial process and general lighting, the latter being where it positions its "big chip" technology for what Ward calls "long-throw directional light applications," including street lighting.

Ward would like to see Massachusetts become a more cost-effective place for manufacturing so that LED companies can keep manufacturing here along with their R&D and integration. But his company also locates some manufacturing in Asia where many of its customers are sited.

Senior analyst Dan Kline, who covers the LED sector for cleantech market research firm Lux Research of Boston, said, "Innovation has definitely shifted beyond the bulb," said Kline, noting that early innovation in devices such as electronic displays was centered on the LED bulb. "Digital Lumens and others are coming at it from the intelligence angle. The long lifetime of LEDs, plus the intelligence, makes a lot of sense in the commercial market," he said.

However, don't look for a run on LEDs for home or small-business lighting systems quite yet. Prices for LEDs run up to 100 times those of incandescent bulbs, but those prices are coming down, and the quality of lighting is improving to where Pincince expects the residential and SMB markets to pick up in 2012 or 2013. What does that mean for the curly-cue compact fluorescent light bulbs (CFL) that are being promoted as replacements for incandescent lights? "No one will be attending the CFL's funeral," said Pincince.

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