In early February, the annual Strategies in Light Conference, covering the techno-business of solid state lighting, was presented in San Mateo by Strategies Unlimited, (a PennWell Publishing subsidiary). This popular meeting, supported by ongoing industry strength, attracted a record attendance of about 300 and a growing array of exhibiting companies that support LED application markets. Attendees were offered a pleasing scenario of interesting papers on industry technology, operating factors and market growth.

High bright markets for 2004 and beyond

The growth of high brightness light emitter applications categories and their related markets (HB LEDs and some lasers) continues to lead the semiconductor arena, with a product strength not seen for quite some time. Specifically, only HB LEDs and non-telecom laser diodes have shown significant growth since 1999. The past average annual growth rates (albeit from small initial values) for almost a decade have approached 50%, even allowing for minimal growth in 2001, and annual growth rates of about 20% are still anticipated for at least the next five years. Thus, this industry segment can only be described as very healthy. Its market health includes not only the largest direct LED application area of cell phone and other hand held LCD back lighting units, followed by the other large growth market segments, such as out door and indoor signs and auto lighting, but the smaller market segments such as architectural, marine and aviation lighting, road and rail signals and flash units for digital cameras. It has also contributed to record attendances at peripheral activities, such as last fall's LED 2003 conference and the recent *Strategies in Light* meeting.

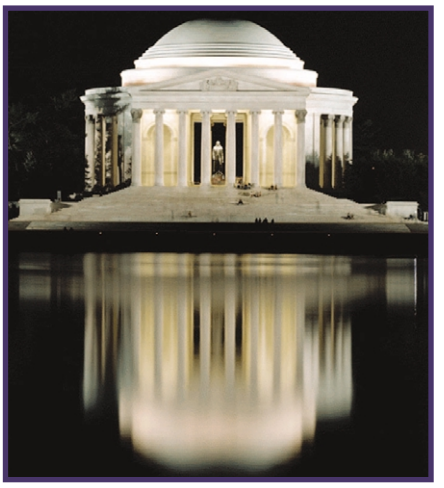
Small LED, spectacular growth

A range of large area, high current and high power LED chips are now available from several manufacturers, but the vast majority of the market units is comprised of the original small LEDs (the 3 and 5mm packs and the surface mount units). However, according to Robert Steele, from Strategies Unlimited, the total value of this small device HB LED market showed spectacular growth last year, reaching $2.7bn, almost a 60% growth from 2002.

This degree of market growth is quite significant, because there was considerable price erosion in 2003, with increasing unit sales of nitride based devices (more than double those of 2002). This also accounted for more than 60% of the 2003 market value. The largest market segment in 2003, as noted earlier, was that of back lighting for mobile appliances, which now provides about 50% of the HB LED market on a value basis, increasing from 40% in 2002. In 2003 back lighting growth was also supported by a significant increase in cell phones sold and by an increasing conversion to full colour displays.

Expanding capacity limited

For the future, LED back lighting is also being considered for the larger (15 to 30 inch) LCD displays. Blue LED key pads (and other colours) are also becoming a large unit market, but most of the HB LEDs used here are low specification diodes and tend not to be included in the market values. In further support of the strength of this market, all the major players are expanding their capacity, with even more rapid expansion occurring in Taiwan, Korea and China, thus making non-Japan Asia the world's volume supplier. Yet the world market is still thought to be capacity limited. For the future Steele forecast growth in most market segments, including autos, for which the first forward white lighting application (running lights) was announced late in 2003. The main exception to this scenario will be the back lighting market segment, because significant price competition is expected to erode value growth in the future. The net result of all this HB LED growth will be an estimated sales value of almost $6bn in 2008, with the big carrot of general illumination to arrive in 2010 or later!
How bright can this market get?



The Thomas Jefferson Memorial, cloaked in a new light wardrobe from Osram Sylvania, celebrating its 100th anniversary and working in partnership with the National Park Service and the National Park Foundation.
http://www.sylvania.com/jefferson/

Dr Alan Mills reporting from San Francisco.