

SSL Postings

U.S. DEPARTMENT OF ENERGY

February 2, 2016

Greetings from Raleigh

Greetings from Raleigh, NC, where we're gathered for DOE's 13th annual [SSL R&D Workshop](#). One of the many things we'll be doing here is taking a moment to honor one of the founding fathers of LED lighting, who passed away last year. For those of you who don't know, Roland Haitz was a true visionary and among the very first to recognize the tremendous potential LEDs had for general illumination. Although that potential seems beyond obvious today, back in the 1990s – when LEDs were confined to use as indicator lamps – it was anything but. Roland's vision, foresight, and spot-on grasp of the physics involved led him to coauthor a seminal white paper that quantified the huge and realistic energy-savings potential of LED lighting and was instrumental in persuading Congress to mandate the creation of [DOE's Solid-State Lighting Program](#). En route, it also postulated the now-famous Haitz's Law, which forecasts the improvement rate of LED lighting performance and cost.

The "light-years" of progress since then have enabled much of SSL's potential to be realized, but there is still significant room for improvement in the technology. Right now, the best-performing LED lighting products – with a source efficacy of about 160 lm/W and a luminaire efficacy of 125 – 135 lm/W – are more than halfway to the targets set forth in [DOE's SSL R&D Plan](#). If those figures are increased to 250 lm/W and 200 lm/W, respectively, we can realize annual savings on the order of 4,500 tBtu of primary energy by 2030, which is worth \$40 billion in today's dollars and makes the \$1.4 billion (143 tBtu) SSL saved in 2014 seem tiny by comparison.

In other words, there is much more to come – which is why we're all here in Raleigh. Everyone here understands that SSL technology is very far from being a done deal, and that it still offers us a lot of headroom in many different directions. That headroom is reflected not only in the lineup of all-star speakers exploring everything from connected lighting, to human factors, to system reliability, to remaining R&D challenges, but also in the 50 research posters that will be on display, each one covering a different aspect of what still remains to be accomplished. Those posters include not only projects funded by the DOE SSL Program, but also those funded by DOE Small Business Innovation Research (SBIR), National Science Foundation SBIR, and Advanced Research Projects Agency - Energy (ARPA-E). And in a first for DOE SSL workshops, seven of the posters represent the winners of a university-student competition and thus represent the new generation of SSL researchers – the ones likely to "finish the job" in the coming years.

Other than tremendous energy savings, what else do we stand to gain from finishing that job? Just better LED products with improved lighting quality, lower first costs for LED products, stronger positioning of domestic manufacturing, and far-reaching collateral advances on multiple scientific and technological fronts. In terms of overall ROI, I'd say that's not too shabby – and is ample reason to keep the pedal to the metal, knowing that the best is, indeed, yet to come.

Best regards,
Jim Brodrick

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