

September 15, 2009

Thomas Congdon  
Deputy Secretary for Energy  
Chairman, Energy Planning Board  
Executive Chamber  
State Capitol, Room 245  
Albany, NY 12224

Dear Mr. Congdon:

The Lighting Research Center (LRC) at Rensselaer Polytechnic Institute appreciates the opportunity to provide comments on the draft New York State Energy Plan. Also, we are heartened by the creation of a plan that will build off of over 20 years of NYSERDA's strong leadership and that will allow the state to become a front-runner in creating a sustainable, prosperous economy. We would like to share four thoughts with you about the Energy Plan.

First, the LRC applauds the authors of the Plan for recognizing that improvements in indoor lighting offer a huge opportunity for cost-effective efficiency improvements. These findings are supported by studies conducted by the LRC, other academic institutions, the federal government, and the International Energy Agency. Techniques and equipment that can offer energy savings include daylighting, occupancy sensors, appropriate light levels and task lighting, ballasts and drivers, lamps, luminaires, and lighting design and distribution.

One concern that we had when reviewing the Plan is that much of the energy efficiency information relies on Optimal Energy, Inc.'s *Achievable Electric Energy Efficiency Potential in New York State* (2008). Unfortunately, upon contacting Optimal Energy, we were informed that the report is not yet finalized and the draft is not available for review. Therefore, it is difficult to assess the energy efficiency data in the Energy Plan because the assumptions, methodologies, and calculations for determining the "achievable potential" are unknown.

A second concern is that the opportunity for energy savings from outdoor lighting may have been underestimated. The LRC estimates that about 3.5 GWh of electricity is used for roadway lighting annually in New York State. Over 90% of this is from high pressure sodium (HPS) fixtures, which produces a yellow-orange light. By studying the human visual response at roadway lighting levels, the LRC determined that illumination levels can be reduced by 30% to 50% if a white light source, such as LEDs, induction, or metal halide, is used instead of HPS fixtures. The LRC developed a quantitative system to determine the amount of light needed from a white light source to achieve the same visual performance and brightness levels as with HPS lighting. The International Commission on Illumination (CIE) is currently producing a worldwide technical standard for "mesopic vision," as it is called. Using white light sources for roadways could result in an electricity savings in New York of over 1 GWh per year.

Lastly, the LRC stands ready to continue to assist the state in improving energy efficiency through lighting, as it has done since its founding in 1998, especially through its successful partnerships with NYSERDA. Founded in 1988, the LRC is the leading university-based research center devoted to lighting and offers the world's premier graduate education in lighting, including master's programs and a Ph.D. program. LRC's programs include laboratory testing of lighting products and real-world demonstration and evaluation of lighting products and designs. The LRC conducts laboratory research, field studies, outreach and education, lighting design services, and business incubation services. Research is focused on light sources and products, effects of light on health, human factors, transportation applications, lighting metrics, energy efficiency, daylighting, and light pollution. The LRC's world-class facilities include 30,000 square feet of laboratory and office space and state of the art laboratory equipment, the only university-based lighting research lab accredited by NIST's National Voluntary Laboratory Accreditation Program. Section 5.1.1 of the draft Plan notes that there is a strong base of building technology expertise in Syracuse and New York City, but we believe that Troy, NY should be added to this list as well.

Please do not hesitate to contact the LRC if we can be of assistance during the process of finalizing the New York State Energy Plan.

Sincerely,



Jeremy Snyder  
Manager of Lighting Program