

## Lighting Research Center

*Advancing the effective use of light for society and the environment.*

### LRC News

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#### LRC Invites Utilities to Join Mesopic Street Lighting Project

By Keith Toomey

Researchers at the LRC are about to embark on a new project, working with utilities and industry, to develop a new type of street lighting system that provides better lighting in areas with low-light conditions such as typical residential roadways. These low but not quite dark (mesopic) lighting conditions are often problematic to people, especially drivers.



"After we develop the new lighting system we will demonstrate and evaluate its effectiveness in actual street lighting situations," said Peter Morante, LRC's director of energy programs. "We're inviting interested utilities to join us on this project. Anyone interested can email me ([moranp@rpi.edu](mailto:moranp@rpi.edu)) or call me (518-687-7100)".

Morante explained that the mesopic street light will be designed to reduce energy use and demand while maintaining superior human visibility. The system will be environmentally friendly, be of high quality in order to pass all utility requirements, be able to operate in both cold and hot climates without dramatic degradation of its light output, and have a lamp life equal to or greater than current high pressure sodium street light systems. The demonstration and evaluation of the mesopic street light system will measure energy use, consumer acceptance and perceptions, visibility, and light levels.

"It is possible to develop a street light that saves 30 percent of the electric energy, maintains human visibility, and increases regulated utilities' profits," said Morante. "Such a light system would use lamps and luminaires tuned to how peoples' vision reacts to nighttime conditions."

The LRC also plans to help to commercialize the mesopic street light concept within the lighting community. This will include technology transfer activities such as discussions and the presentation of research findings. Of particular interest are the Illuminating Engineering Society of North America (IESNA) and the National Electrical Manufacturers Association's (NEMA) outdoor lighting committees, which will be encouraged to include mesopic street lighting in their standards.

The LRC will work on this project with interested utility partners, an outdoor lighting fixture manufacturer selected through an invited request for proposals, a lamp manufacturer, and the California Lighting Technology Center (CLTC).

#### More about mesopic light conditions

Dr. Mark Rea, director of the LRC, says mesopic lighting conditions occur at night in areas with low lighting levels. "Humans see very differently under mesopic conditions than under photopic or scotopic lighting conditions," says Dr. Rea. "Photopic conditions occur during the day and in lit buildings, while scotopic conditions occur at night under the stars."

A new system of photometry, developed by the LRC to address lighting for mesopic vision, will be used in this project. Read more about the [unified system of photometry](#) in the October 2004 issue of this newsletter.

#### About the LRC

The Lighting Research Center (LRC) is part of Rensselaer Polytechnic Institute and is the leading university-based research center devoted to lighting. Founded in 1988, the Lighting Research Center has built an international reputation as a trusted and reliable source for objective information about lighting technologies, applications, and products. Its mission is to advance the effective use of light and create a positive legacy of change for society and the environment.