

NON-RESIDENTIAL LIGHTING: PAST, PRESENT, AND FUTURE

Moderator: Jenna Canseco, DNV GL

PAPERS *(in order of appearance)*:

Light of the Living Dead: The Current Market for T12 Lamps in the Post-EPACT World

Chris Dyson, DNV GL

Erik Mellen, Eversource Energy

William Blake, National Grid

The First Generation of Thin is No Longer In – Knowing your T8s

Jean Shelton, Itron, Inc.

Priya Sathe, Itron, Inc.

Lisa Paulo, California Public Utilities Commission, Energy Division

Pop Quiz! LED Lighting Can Generate Significant Energy Savings in Nonresidential Buildings?

Brian McAuley, Itron, Inc.

SESSION SUMMARY:

Non-residential lighting markets are changing rapidly. This session highlights findings from recent evaluations in multiple jurisdictions to explore the markets for LED lamps, T8s, and T12 lamps as well as how federal legislation has affected these markets. The session also explores some evaluation approaches and the challenges associated with evaluating these markets and related technologies.

Dyson et al. use recent evaluation data from Massachusetts, California, and other parts of the U.S. to address key questions regarding effects of the federal Energy Policy Act (EPACT) of 2005. EPACT was designed to encourage more energy efficient lighting by effectively phasing out older, less efficient technologies including T12 lamps (because these lamps do not meet the more stringent efficacy standards of EPACT). However, evaluation results suggest that the majority of retail stores were still selling these lamps two years after the legislation went into effect, raising questions about the effectiveness of the EPACT legislation and the status of the T12 lighting market. This paper explores how T12 lamps are still being sold despite the more stringent efficacy standards, the types of T12 lamps being sold, who is purchasing the lamps (and why), and how long one may expect to continue to see T12 lamps for sale in retail stores.

Further exploring EPACT and its influence, Shelton et al. examine T8 lamps in general and first-generation T8 lamps in particular, focusing on the unique challenges associated with collecting field data on this technology. While collecting information on the share of T12 lighting simply requires a count of T12 lamps, understanding the installed base of first-generation T8 lamps requires a different, more labor-intensive approach. The paper begins by describing the different generations of T8 lighting, a process for collecting linear lamp make and model numbers, and how these data were analyzed to describe the efficiency distribution of T8 lamps in California businesses into four distinct categories during 2012. The paper concludes with a description of the existing stock and recent purchases of linear technologies by California businesses.

LED replacement lamps are on the rise and may represent “the future” of lighting in nonresidential applications. In California, LED lamps have contributed an increasing share of statewide portfolio-level claimed energy savings over the past several utility program cycles. While the technology itself is not new, it is a relatively new component of California’s energy-efficiency programs and the underlying assumptions regarding the energy savings benefits from these technologies remain uncertain. In the third

and final paper in this session, McAuley et al. review the challenges associated with establishing savings assumptions for LED lamps in nonresidential applications. The paper focuses in particular on establishing the baseline wattage of replaced equipment relative to the installed wattage, the space types and building types in which these lamps are installed, expected lamp life, and lamp performance. This paper explores results from a recently-completed evaluation study nonresidential lighting programs in California that focused on developing estimates of key impact parameters for indoor LED A-lamps and reflector lamps. More specifically, the paper discusses the approach taken to develop estimates of relevant impact parameters.

Each of these papers provides useful intelligence to policymakers, program implementers, and evaluators interested in further understanding nonresidential lighting markets, the relevant technologies—past, present, and future—and some of the challenges associated with identifying these technologies in the field and characterizing their energy savings performance.