

SESSION 10

MANAGING PEAK DEMAND

Moderator: Dr. Daniel M. Violette, Navigant Consulting

PAPERS:

Evidence of Consistency over Time of the Demand Response of Large Commercial and Industrial Customers in Aggregator-Based Programs

Dr. Steven D. Braithwait, Christensen Associates Energy Consulting, Madison, WI

Consolidated Edison of New York Room Air Conditioning Pilot

Vicki Kuo, Consolidated Edison Company of New York, New York, NY

Mei Shibata, ThinkEco, New York, NY

Curt Puckett, KEMA, Inc., Clarklake, MI

Comfort and Load Control: It's Getting Hot in Here – But is the Utility to Blame?

Frank Stern, Navigant, Boulder, CO, USA

Nicholas DeDominicis, PECO, Philadelphia, PA, USA

Greg Ekrem, Navigant, Boulder, CO, USA

Bethany Glinsmann, Navigant, Madison, WI, USA

SESSION SUMMARY:

Managing peak demand is important for reducing energy prices and avoiding the need to build generation plants to meet high levels of electricity demand that may occur in only a few hours of the year. The economic downturn has reduced overall electricity use in many regions, yet peak demand has not been affected to the same extent and is still growing in some areas. This session will focus on methods for managing peak demand across three key customer segments – large commercial and industrial customers, residential customers, and large multi-residential buildings. Each paper presents innovative program elements and produces estimates of the peak demand reductions attained.

The first paper, by Dr. Braithwait, examines an approach to managing peak demand through the use of third party aggregators. These aggregators are responsible for consolidating loads and working with commercial and industrial customers to deliver load reductions in response peak hour event notices. There has been a rapid development of the curtailment service provider industry in North America. This paper estimates the effectiveness of this aggregator-based approach to managing peak demands and contrasts this approach with the use of dynamic pricing to achieve peak demand reductions. Spanning three years, this study is able to address issues of persistence, expectations for load reductions, and the longer-term effectiveness of aggregator-based load management approaches versus the use of dynamic pricing to reduce peak demands.

The second paper, by Mr. Shibata, addresses load control approaches for the multi-residential building segment. This customer segment has been difficult to reach and has posed technology challenges as well as customer recruitment and satisfaction challenges. The paper describes a program developed in partnership with Con Edison in New York City that manages peak demand through the remote control and monitoring of room air conditioners prevalent in this customer segment. The paper explores the impacts of load control events on customers as well as the load reductions achieved.

The third paper, by Mr. Stern, explores a key issue in developing strategies for residential load control programs, i.e., what happens to customer comfort during a prolonged heat wave when cycling of air conditioners is a major component of the load control program. Rather than a program participant survey-based approach, this paper presents a controlled experiment designed to address

comfort issues that may be due to the load control program and those comfort issues that simply are associated with the heat wave and are not related to the program. Questions explored by this study are: 1) during a prolonged heat wave, how much of that discomfort is due to the control event and how much of it would have occurred anyway; and 2) How is the control strategy likely to affect comfort and savings?