SESSION 1B

IMPACTS OF TIME-OF-USE PROGRAMS

Moderator: Kevin Cooney, Summit Blue Consulting

PAPERS:

Using Experimental Design to Assess the Impacts of Education and Rate Design: The PEAK Plus Pilot Project

Crispin Wong, The Cadmus Group
Hossein Haeri, The Cadmus Group
Kerstin Rock, The Cadmus Group
Steven Chamberlin, The Cadmus Group
Ben Bronfman, The Cadmus Group
Edward Lovelace, Southern California Edison

Beyond the Price Effect in Time-of-Use Programs: Results from a Municipal Utility Pilot, 2007-2008

Susan Lutzenhiser, Research Into Action, Inc.
Jane Peters, Research into Action, Inc.
Mithra Moezzi, Ghoulem Research
James Woods, Behavioral Economics

Measuring the Impact of Time of Use Rates on Peak and Off-peak Energy Consumption: Some Results from a Randomized Controlled Experiment

Ken Tiedemann, BC Hydro
Iris Sulyma, BC Hydro
Mark Rebman, BC Hydro

Integrated Data Analysis Approach to Understanding Behavior Change in TOU Programs: An Application of Quartile Analysis

Marc Pedersen, BC Hydro

SESSION SUMMARY:

This session explores the promise of time-of-use (TOU) programs to modify consumer and business electricity consumption patterns. Several of the papers explore the effects of combining time differentiated rate structures with information, education, and other behavioral approached to achieve greater impact from the rate structures themselves. The realities of making statistically significant changes in consumption patterns through information programs to enhance rate design shows that not all approaches produce significant impacts. Knowledge gained through the pilot program efforts shows value in modifying approaches for future efforts, and some programs may require more time for the behavioral strategies to produce demand and energy reductions of commensurate with the efforts. Information gained from the papers presented in this session can be leveraged by other utilities to inform their program design, marketing, and implementation strategies to make the most of TOU pricing to achieve utility load shaping goals.

The first paper by Crispin Wong and her colleagues at the Cadmus Group and Southern California Edison (SCE) summarizes the results of an evaluation of The PEAK Plus pilot project, jointly implemented by SCE and The Energy Coalition. The program was designed to quantify the incremental effects of a targeted student energy curriculum, a critical peak rate design offering, and a combination of

the two. Although feedback from PEAK education participants suggests that knowledge transfer occurs between students and their parents, results regarding PEAK education by itself were inconclusive and did not show a statistically significant effect on load shifting behavior.

The second paper by Susan Lutzenhiser of Research Into Action presents the results of a two-year collaborative research project between the authors and the Demand Response Research Center (DRRC) focused on behavioral response to a voluntary time-of-use pilot rate offered by the Sacramento Municipal Utilities District (SMUD) under the PowerChoice label. The project assessed the potential for increasing demand response through enhanced information and real-time consumption feedback and attempted to understand behavioral response to a TOU rate. Over half of surveyed participating households reported that they had made a great deal of effort to adjust their electricity consumption to the rate. Despite this, load data analysis revealed only minimal price effects.

The third paper by Ken Tiedemann and Iris Sulyma of BC Hydro explores the effects of TOU pilot rate at a winter peaking utility north of the border that has substantial energy storage capacity in its hydro-electric reservoirs. Customers were randomly assigned to a control group or one of several treatment groups. Treatment group customers received information on how they could save energy during the peak period and shift load from the peak period to the off peak period, and they had access to the CRI website for consumption information for their account. Average on-peak consumption for the treatment group was significantly lower than for the control group.

The forth paper, by Marc Pedersen, also of BCHydro reports on the statistical analysis of consumption data collected from time-of-use (TOU) pricing programs at BC Hydro. BC Hydro recently completed a two-year winter pilot among its residential customers to explore the extent to which they would respond to TOU pricing signals. By integrating consumption data with detailed information collected from baseline and post-pilot surveys, several insights on TOU program effectiveness were discovered. The paper reports on the key demand response enablers and behavioral drivers that characterized the most successful households.