

SESSION 6A

GETTING THE MOST OUT OF A CHANGE IN CONSUMPTION

Moderator: Phil Degens, Energy Trust of Oregon

PAPERS:

Billing Analysis & Environment that “Re-Sets” Savings for Programmable Thermostats in New Homes

Normand Michaud, Eng MBA, Econoler, Québec, Canada
Lori Megdal, Ph.D., Megdal & Associates, Acton, Massachusetts
Pierre Baillargeon, Eng, Econoler, Québec, Canada
Carl Acocella, Hydro Québec, Québec, Canada

Getting to the Right Delta: Adjustment and Decomposition of Billing Analysis Results

Ken Agnew, KEMA Inc, Madison,
Mimi Goldberg, KEMA Inc, Madison, WI

Using Structural Equation Modeling (SEM) to Identify, Tease Out, and Quantify a Marketing Program’s Influence on Energy Efficiency Intentions and Behaviors

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Katherine Van Dusen Randazzo, Ph.D., KVD Research Consulting, San Diego, CA
Pamela Wellner, California Public Utilities Commission, San Francisco, CA

SESSION SUMMARY:

This session will focus on developments in the area of impact analysis, presenting the results of three papers, with two papers delving into the analysis of customer energy bills and the other researching the impacts of marketing on equipment purchase and installation decisions.

Billing analysis provides an empirically based, cost-effective approach to measuring the impact of energy efficiency programs. One paper looks at the impacts of programmable thermostats in Québec where more than 90% of homes use electricity as their main heating source and where thermostats are installed in each room. Using the program’s participant database, which covers more than 80% of all single family new homes within the last year, a regression analysis was conducted to compare participant’s who only installed electronic thermostats with those who installed at least one programmable thermostat. Analysis of Covariance regression model was estimate as were separate regressions analyzing the impacts under different temperature conditions.

The second paper examines two different approaches for estimating gross program impacts and the potential for bias in both approaches. Estimates of gross savings are derived from a pre/post and post only billing analysis output using engineering equations using. The results are sensitive to what effects are present in the billing analysis output. The presence of take back and quality installation measures affect post-installation consumption and thus affect the application of engineering equations to the billing analysis output. The nature of the biases in each approach are quantified and bracket the unbiased result. The final result is a bias-adjusted by combining the two different approaches.

The third paper develops an approach to evaluating the attitudinal and behavioral effects attributable to one of the largest state-funded social marketing campaigns, Flex Your Power. Structural equation modeling (SEM), to help isolate the campaign’s effects among a multitude of other influences. The underlying principles of SEM will be discussed and its application to other other

marketing and non-marketing program research and evaluation. The evaluation main research topics are s: (1) What are the net effects of the campaign on CFL purchase behaviors? (2) What are the indirect effects of the program that help to lead consumers to the purchase of a CFL? (3) What are the program's effects on the CFL behaviors relative to other marketing and outreach programs? SEM was used to test which factors had the greatest impact on the purchase of a CFL (such as program messaging, socio-economic status, trust in the messaging, baseline knowledge, location, barriers to purchase, and CFL attributes). The direct and indirect effects on CFL behavior (purchase, installation and storage) were quantified for comparison to gain insight into the relative impact each factor had on the CFL behaviors. From these results estimates could be made of the campaign's impact on multiple factors leading to behavior change, not simply the behavior change itself.