

SGIG Consumer Behavior Study

Detroit Edison Company

SmartCurrentsSM Smart Home Project

Abstract

Detroit Edison Company's (DECo) SmartCurrentsSM Smart Home project includes a consumer behavior study evaluating the impacts of time-based rates, enabling technologies, and information treatments on energy consumption and peak demand.

Consumer Behavior Study Features

Goals and objectives center on customer acceptance of and customer response to varying combinations of enabling technologies, providing end-use controls and information and time-based rates as part of its quantitative study. DECo is also interested in customer technology acceptance of and engagement with pre-payment billing options and smart appliances as part of its informational study.

Study design involves assessing various research questions in two separate formats: a quantitative study and an informational study. The quantitative study sample is approximately 5,400 residential customers, and a test period from January 2012 to December 2013. The quantitative study involves a Randomized Control Trial with Denial of Application of Treatments design (i.e., Recruit and Deny Treatment). Customers opt-in to the study with the understanding that the treatments are limited in supply and then randomly assigned to control and treatment groups among the time-based pricing and technology options. Study participants are provided with a rate comparison tool in order to familiarize themselves with the financial implications of time-based rates. The informational study sample is approximately 800 residential customers, and a test period from January 2012 to December 2013. The information study assigns customers to the treatment groups on a first-come, first-served basis. DECo does not intend to randomize participants for these groups or to generalize results to the entire DECo service territory.

Rate treatments include the implementation of a Time-of-Use (TOU) rate with a substantially higher critical peak price (CPP) overlay during a four-hour weekday critical peak period. The CPP overlay is applied with day-ahead notice to participating customers when forecasted temperatures, system load, or system emergency conditions create needs for demand reductions. Participating customers can be notified of up to 20 critical events each year. DECo is offering a pre-payment billing option that allows customers to pre-pay for electric service as part of its informational study.

At-A-Glance

Recipient: Detroit Edison Company

State: Michigan

Timing: January 2012 – December 2013

Interim Evaluation Reporting: December 2012

Final Evaluation Reporting: December 2013

Sample Frame: ~6,200 residential customers

Number of Treatments: 7

Experimental Design: Randomized Control Trial with Denial of Application of Treatments

Rate Treatments

- Time-of-Use w/ Critical Peak Pricing Overlay (Opt-in)

Control/Information Technology Treatments

- Programmable Communicating Thermostat
- In-home Display
- Web portal
- Smart Appliances (informational study only)

Information/Education Treatments

- Education Package

Additional Study Elements

- Pre-payment billing option (Opt-in, informational study only)
 - Rate Comparison Tool
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Detroit Edison Company *(continued)*

Control/Information technology treatments include the deployment of in-home displays and programmable controllable thermostats. These devices, in conjunction with customer web portal access, facilitate two-way information exchange and enable customers to better manage their electricity bills through improved understanding of electricity consumption patterns of appliances and equipment. DECo is offering subset of customers “smart” appliances that can react to changing price signals and provide end-use data for each appliance as part of its informational study.

Education treatments augment the customer web portal access with a curriculum designed to educate customers about energy, energy usage, energy costs and rates, and energy management. All participants in the study treatment groups have access to a variety of feedback and educational materials.

Key Milestones

Key Milestones	Target Dates
DECo Smart Home Project informational study begins	January 2012
DECo Smart Home Project quantitative study begins	January 2012
DECo provides Interim Evaluation Report	December 2012
DECo Smart Home Project ends	December 2013
DECo provides Final Evaluation Report	December 2013

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