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.

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

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.
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

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<thead>
<tr>
<th>Key Milestones</th>
<th>Target Dates</th>
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<tbody>
<tr>
<td>DECo Smart Home Project informational study begins</td>
<td>January 2012</td>
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<tr>
<td>DECo Smart Home Project quantitative study begins</td>
<td>January 2012</td>
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<tr>
<td>DECo provides Interim Evaluation Report</td>
<td>December 2012</td>
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<tr>
<td>DECo Smart Home Project ends</td>
<td>December 2013</td>
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<tr>
<td>DECo provides Final Evaluation Report</td>
<td>December 2013</td>
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