

## Consumer Behavior Study

### FirstEnergy Ohio

#### Smart Grid Modernization Initiative

#### Abstract

FirstEnergy Ohio's (FE) Smart Grid Modernization Initiative (SGMI) includes a consumer behavior study that evaluates the impacts of different levels of enabling technologies combined with various time-based rate programs on energy consumption and peak demand.

#### Consumer Behavior Study Features

**Goals and objectives** center on customer acceptance and response during peak demand events to varying combinations of enabling technologies, providing end-use controls and information and time-based rate options. FE is also interested in assessing the effects of enhanced customer understanding of their electricity usage.

**Study design** involves a study sample of approximately 5,000 residential customers, and a test period from June 2012 to August 2014. The study is conducted using a randomized control trial design. Customers are recruited into the study and randomly assigned to control and treatment groups among the time-based rate and technology options. Study participants may opt-out of the critical peak rebate (CPR) treatment at any time during the program.

**Rate treatments** include the implementation of a CPR that provides a payment to customers for reducing electric load during declared critical peak events, while the price charged by FE for electricity consumed stays at the customers' existing flat rate. FE is testing two levels of rebate and two critical peak periods (4 hours and 6 hours) during the summer season (June to August). Customers receive day-ahead notification of critical peak events and can receive such notification up to 15 times per year.

**Control/Information technology treatments** include the deployment of in-home displays, two types of programmable communicating thermostats (customer self-controlled and utility-controlled), and direct load control power switches operated by the utility. 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. All participants receive education materials and training about program benefits to enable them to take full advantage of the in-home technology they receive and improve their eligibility for rebates. A Web presentation tool provides information regarding energy usage and energy management strategies.

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#### **At-A-Glance**

**Recipient:** FirstEnergy Ohio

**State:** Ohio

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**Timing:** June 2012 – August 2014

**Interim Evaluation Reporting:** September 2012

**Final Evaluation Reporting:** September 2014

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**Sample Frame:** ~5,000 Residential Customers

**Number of Treatments:** 16

**Experimental Design:** Randomized Control Trial

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#### **Rate Treatments**

- Flat rate w/ Critical Peak Rebate Overlay (opt-out)

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#### **Control/Information Technology Treatments**

- Programmable Communicating Thermostat
  - In-home Display
  - Direct Load Control Power Switches
  - Web Portal
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**FirstEnergy Ohio** *(continued)*

**Key Milestones**

Key Milestones	Target Dates
FE Consumer Behavior Study test period begins	June 2012
FE provides Interim Evaluation Report	September 2012
FE Consumer Behavior Study test period ends	August 2014
FE provides Final Evaluation Report	September 2014

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