

## Consumer Behavior Study eEnergy Vermont Central Vermont Public Service

### Abstract

eEnergy Vermont is a collaboration of distribution utilities, the statewide energy efficiency utility, and the state's high-voltage transmission operator. Two utility service territories have been chosen for consumer behavior studies: Central Vermont Public Service (CVPS) and Vermont Electric Cooperative (VEC). The CVPS study centers on testing the effectiveness of dynamic pricing and rebates coupled with information feedback treatments in lowering peak demand and total electricity consumption.

### Consumer Behavior Study Features

**Goals and objectives** focus on the impact of customer response during peak events. Peak event notification through a Web portal and in-home displays are coupled in various combinations with peak pricing to inform CVPS about the success of full-scale demand response programs. CVPS is also testing different strategies for transitioning customers to dynamic pricing.

**Study design** involves a sample of approximately 3,700 customers and a test period from June 2012 to May 2014. The design for the pilot involves a randomized control trial with repeated measures. A group of customers in the service territory will be asked to voluntarily participate in the study. Those who are successfully recruited into the study will be randomly divided into a study sample, which will be exposed to one of the six treatments, and a control group, which will be denied treatment. The pilot transitions customers in two treatment groups from a peak time rebate (PTR) in year one to a critical peak pricing (CPP) rate in year two, while the remaining customers are exposed to their treatments for 2 full years.

**Rate treatments** include the application of various dynamic pricing and rebate designs. The utility is implementing a PTR that provides a payment to customers for reducing electric load during declared critical peak events, while the price charged by CVPS for electricity consumed stays at the customers' existing flat rate. In addition, CVPS is slightly lowering the customers' existing standard flat rate and augmenting it with a substantially higher critical peak price overlay during declared critical peak events. Both the PTR and CPP rates are in effect year-round, and peak events are based on wholesale market conditions, coincident with the ISO New England (ISO-NE) annual peak, which occurs in the summer.

**Information technology treatments** include the deployment of in-home displays (IHDs). The utility is testing varying types of notification methods to inform customers about critical peak events. All CVPS customers in the study will receive direct notification of peak events and have Web portal access. Some customers are provided IHDs as one of the notification methods and as a means for viewing site-level consumption information.

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### At-A-Glance

**Recipient:** eEnergy Vermont - Central Vermont Public Service (CVPS)

**State:** Vermont

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**Timing:** June 2012 – May 2014

**Interim Evaluation Reporting:** June 2013

**Final Evaluation Reporting:** November 2014

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**Sample Frame:** ~3,700 Residential Customers

**Number of Treatments:** 6

**Experimental Design:** Randomized Control Trial (RCT) with Repeated Measures

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#### Rate Treatments

- Peak Time Rebate (opt-out)
- Critical Peak Pricing (opt-in)

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#### Information Technology Treatments

- In-home Display
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**Central Vermont Public Service** *(continued)*

**Key Milestones**

Key Milestones	Target Dates
CVPS pilot test period begins	June 2012
CVPS provides Interim Evaluation Report	June 2013
CVPS pilot test period ends	May 2014
CVPS provides Final Evaluation Report	Nov. 2014

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## Consumer Behavior Study eEnergy Vermont *Vermont Electric Cooperative*

### Abstract

eEnergy Vermont is a collaboration of distribution utilities, the statewide energy efficiency utility, and the state's high-voltage transmission operator. Two utility service territories have been chosen for consumer behavior studies: Central Vermont Public Service (CVPS) and Vermont Electric Cooperative (VEC). The VEC study centers on testing the effectiveness of dynamic pricing, information, and possibly end-use control treatments in lowering peak demand and total electricity consumption.

### Consumer Behavior Study Features

**Goals and objectives** focus on the impact of customer response to enhanced customer service and variable peak prices. In-home technology will be coupled in various combinations with a peak pricing rate to inform VEC about the success of full-scale pricing and technology programs.

**Study design** involves a sample of approximately 1,500 customers and a test period from October 2011 to September 2013. The design for the pilot involves a randomized control trial with repeated measures. A group of customers in the service territory will be asked to voluntarily participate in the study. Those who are successfully recruited into the study will be randomly divided into a study sample, which will be exposed to one of the four treatments, and a control group, which will be denied treatment. The pilot transitions all treatment customers from its existing flat rate in year one to a time-of-use (TOU) with variable peak pricing (VPP) rate in year two.

**Rate treatments** include the application of a TOU rate with a VPP component, where the peak-period price changes daily to reflect the ISO New England (ISO-NE) wholesale market price of electricity. Importantly, the VPP is contingent upon receiving approval of the pilot rate from the Vermont Public Service Board.

**Control/Information technology treatments** include the deployment of in-home displays (IHDs), Web portal access, and proactive customer service. VEC is offering all customers Web portal access and augmenting the treatments with IHDs, with and without end-use controls, and enhanced customer service methods as various feedback channels to provide customers with consumption information and notification of peak events.

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### At-A-Glance

**Recipient:** eEnergy Vermont - Vermont Electric Cooperative (VEC)

**State:** Vermont

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**Timing:** April 2011 – September 2013

**Interim Evaluation Reporting:** December 2012

**Final Evaluation Reporting:** December 2013

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**Sample Frame:** ~1,500 Residential Customers

**Number of Treatments:** 2 - 4

**Experimental Design:** Randomized Control Trial with Repeated Measures

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#### Rate Treatments

- Time of Use with Variable Peak Pricing (opt-in)

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#### Control/Information Technology Treatments

- In-home Display
  - In-home Display with end-Use Control
  - Proactive Customer Service
  - Web Portal
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**Vermont Electric Cooperative** *(continued)*

**Key Milestones**

Key Milestones	Target Dates
VEC pilot test period begins	October 2011
VEC provides Interim Evaluation Report	December 2012
VEC pilot test period ends	September 2013
VEC provide Final Evaluation Report	December 2013

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