

CNT Energy 2009 Operational Report

A.1 Background

At the beginning of 2007, CNT Energy was awarded the contract to serve as the program administrator for the Ameren Illinois Utilities (AIU) residential real-time pricing program. CNT Energy established the program under the brand name “Power Smart Pricing” (PSP) and began the marketing and enrollment of participants. 2009 marked the third year of the program.

As of December 31, 2009 the program had 7,422 active participants and several hundred more in the process of having meters exchanged and beginning their participation. In 2009 the aggregate savings for Power Smart Pricing participants was \$1,388,996 which represented a 23.6% total savings compared to what the same bills would have been under the flat rate. Average annualized savings were \$304.98 or 24.4%. The following are some of the key metrics of success for the program.

A.1.1 Regulatory Issues

The residential Rate Mitigation Credit created by the 2007 Rate Relief legislation expired with the last billing cycle during December 2009. There were no implications for PSP customers that weren't also for all the other residential customers. CNT Energy received no customer contacts on this issue.

Preliminary discussions with AIU and the Illinois Commerce Commission (ICC) staff on a plan for the ICC Evaluation of PSP have occurred. It is expected that the plan will be formalized in 2010.

AIU has had discussions with the Illinois Commerce Commission (ICC) staff on tariff language to address 2010 enrollment and the 12 month term and December 31, 2010 termination date issues. This issue is expected to be finalized in early 2010.

A.1.2 Operations

CNT Energy has continued to have a very strong working relationship with the AIU. The processing of data files for enrollments and other purposes has continued to be smooth and the review and approval of marketing and other communications materials has been prompt.

The increase in enrollment in PSP has resulted in a higher volume of meter exchanges, and inevitably, a larger number of customers whose meters cannot be read due to inaccessibility. CNT Energy has worked closely with AIU to address these situations.

CNT Energy worked with AIU to promote the free programmable thermostat program, one of the offerings in the Act on Energy residential incentive programs. CNT Energy publicized this offering to PSP participants via a special e-mail in September 2009.

CNT Energy introduced a new online bill comparison tool in 2009. The Bill Comparison Tool provides monthly savings information directly to participants online.

A.1.3 Marketing and Communications

CNT Energy expanded the PSP marketing campaigns to into new areas and used new communication channels. These activities and enrollment results are discussed in more detail below. CNT Energy also conducted a market research campaign to determine customers' awareness of PSP.

A.1.4 Electricity Prices

During 2009, hourly electricity prices were unusually low. Prices did continue to follow the typical summer pattern, with the highest prices of the day occurring in the mid to late afternoon. However, the highest prices of the day remained relatively low, topping out at just 7.993 cents per kWh from 3 p.m. to 4 p.m. on June 24th. Consequently, in 2009 there were no high price alert days. As a result of the low summer prices, PSP participants were able to achieve significant savings with only minor adjustments to how and when they used electricity.

A.1.5 Conclusions

The Power Smart Pricing program continues to be quite successful in terms of its impacts on energy use and bill savings. While enrollment goals have not yet met expectations, enrollment did pick up substantially in 2009. CNT Energy expects that as the reputation of the program continues to grow, enrollment levels will also increase.

A.2 Operations

CNT Energy has continued to have a very strong working relationship with the AIU. The processing of data files for enrollments and other purposes has continued to be smooth and the review and approval of marketing and other communications materials has been prompt.

CNT Energy and AIU worked together to address ongoing interactions between the AIU meter personnel and the new Power Smart Pricing (PSP) customers during the meter exchange process. Larry Kotewa from CNT Energy and Peter Millburg from AIU created workshops to inform meter personnel about PSP and address any concerns. CNT Energy distributed PSP materials, emphasized how customers can save on the program and described the PSP enrollment process at the meeting. Questions from meter personnel ranged from internal AIU procedures to CNT Energy's marketing/targeting approach. Four workshops were conducted in Paxton, Centralia, Peoria and Pawnee.

CNT Energy initiated an Energy PriceLight program in 2007-8 for 120 PSP participants. The PriceLight was a special offering funded by a grant from the Illinois Clean Energy Community Foundation (ICECF). Selected PSP participants receive a "PriceLight"—a small orb that glows different colors based on the current estimated price of electricity. Navigant's evaluation of PSP also found that participants with the PriceLight had a higher elasticity of demand than other PSP participants. CNT Energy continued to make the PriceLight available to participants for the rest of 2009 for a nominal fee. However, because additional funding for the PriceLight program was not secured, it was discontinued at the end of 2009.

CNT Energy worked with AIU to promote the free programmable thermostat program, one of the offerings in the Act on Energy residential incentive programs. These E-Smart™ Programmable thermostats allow the user to preset automatic temperature adjustments and change thermostat settings manually or from any Internet connection. Installing these thermostats also enrolls the customer in the central air conditioner cycling program, where the condenser is turned off for short intervals during times of high overall demand for electricity in the summer season. CNT Energy publicized this offering to PSP participants via a special e-mail in September 2009.

As enrollments increased during 2009, inaccessible meters proved to be a growing operations issue. CNT Energy and AIU worked in conjunction to address estimated meter readings. Although all residential customers have the right to utilize Rider PSP, if the customer has a meter located inside their home, or in another inaccessible location, it may be difficult for the meter personnel to have access to probe the meter. When a meter is inaccessible for reading, AIU notifies the customer and CNT Energy and provides a meter reading schedule. CNT Energy also follows up with the customer to reiterate the necessity of access. Customers on PSP are allowed three estimated meter readings within a twelve month period on the program before they are placed back on Basic Generation Service (BGS-1).

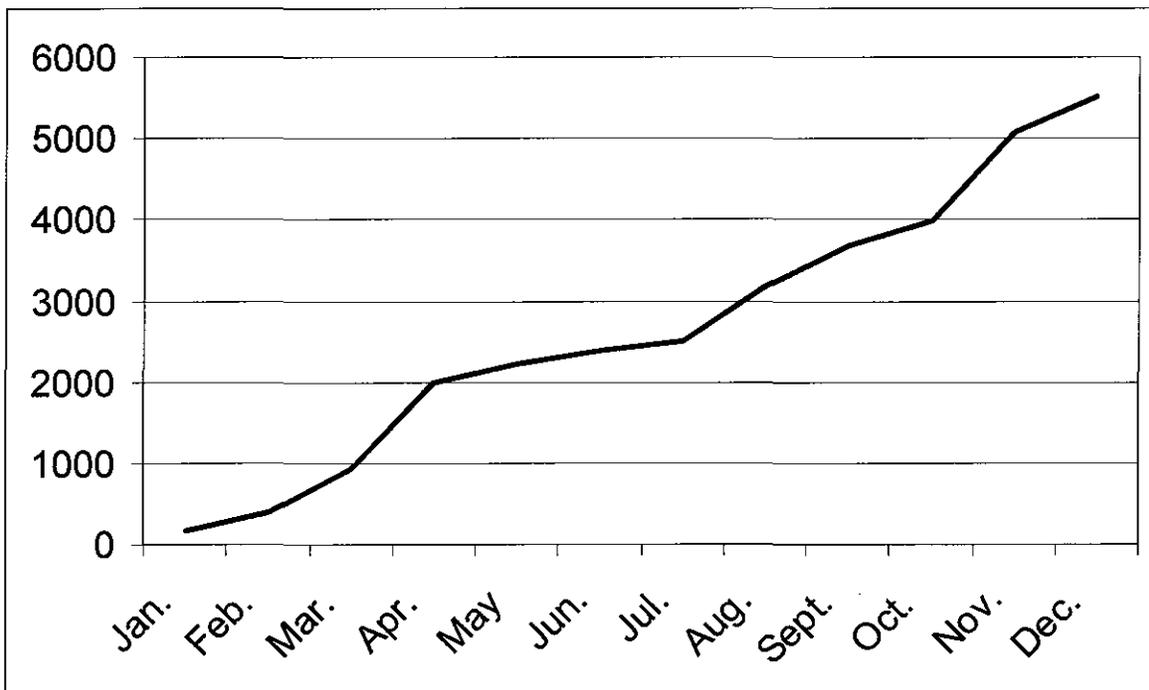
A.3 2009 Marketing of Power Smart Pricing

CNT Energy concentrated its 2009 promotional efforts for Power Smart Pricing (PSP) during winter, early spring, summer and fall. In previous years, marketing was put on hold over the summer in order to ensure that the majority of new enrollees had time to adjust to hourly pricing before the summer months when more action is usually required in order to manage costs. However, due to the mild summer and low hourly electricity prices, CNT did conduct some small promotional mailings later in the summer. A total of 5,519 customers submitted enrollment forms during 2009, bringing program participation to 7,422 by the end of the year.

Target markets included communities targeted in the 2008 campaign as well as additional communities in each of the AIU operating companies' service territories. The 2009 campaign continued to building awareness and participation in and around Peoria, Carbondale, Danville, Decatur, Galesburg, Hillsboro, Litchfield, Bloomington-Normal, and Champaign-Urbana. New areas of focus for 2009 included Macomb, Quincy, Belleville, Jacksonville, Maryville and other communities in the Metro East area,

Promotional strategies included direct mailing, bill inserts, media outreach, online advertising, and community outreach. CNT Energy worked closely with AIU throughout the campaign to monitor responses from customers to ensure a manageable flow of new enrollments. Customer surveys, focus groups, and results from the 2009 campaign all provide insights that will be helpful in designing the 2010 promotional campaign.

Total Enrollment Forms Received in 2009



A.3.1 Communication Channels

Bill Inserts

In February and August all AIU residential customers received bill inserts describing Power Smart Pricing (PSP). The bill inserts were highly effective in driving traffic to the PSP Web site and generating calls to the customer support team at CNT. A noticeable increase in enrollments also occurred as a result of bill inserts, but the response rates were lower than the response rates from direct mail.

Direct Mail

Direct mail has been extremely effective in producing large numbers of enrollments. CNT Energy worked with AIU to refine its mailing lists to effectively target customers who are most likely to be interested in the program and most likely to be able to save money with hourly pricing. Targeting was based on both geography and electricity usage patterns. Direct mail was sent out in March, April, May, July, September, November and December. Monthly quantities ranged from 20,000 to 180,000 pieces and were adjusted throughout the campaign based on results. Over the course of the year, the number of direct mail pieces sent totaled approximately 360,000.

In terms of geographic targeting, CNT Energy focused on ZIP codes that had particularly good response rates from past mailings, and then expanded to other ZIP codes with similar demographic characteristics. In particular, analysis of the results of the 2008 direct mail campaigns showed that response rates tended to be higher in ZIP codes where a large percentage of adults have a BA degree or higher. A large mailing in March 2009 targeted additional ZIP codes with high education levels. This mailing produced excellent response rates and a large number of enrollments (532 enrollment forms submitted in March and 1,060 forms in April).

In addition, mailings were targeted based on customers' individual electricity usage patterns in order to ensure that information reached customers who were most likely to benefit from the program. Specifically, customers who are served under the former electric space heat rate and customers with extremely low electricity usage (under 400 kWh per month) were excluded from mailing lists.

In contrast, analysis of customer usage patterns and savings levels showed that those who have high winter electricity usage but do not receive a lower electric heat rate were among those likely to benefit most from the program. These customers tended to have high savings levels in terms of both percent saved and total dollars saved. A July mailing to AmerenIP and AmerenCIPS high winter users who do not receive the electric space heat rate produced a particularly good response rate with 155 enrollments in July and 683 in August.

Media Outreach

CNT Energy regularly pitched stories to media outlets throughout the AIU service area. Media pitches were timed to correspond with mailings to specific communities, in order to reinforce the message and increase the effectiveness of mailings. Media outreach efforts resulted in good coverage of the Power Smart Pricing program.

1/29/09: USA Today, *Buzz grows for modernizing energy grid*

3/2/09: WHOI, ABC 19, CW 4, *Power Smart Pricing*

3/2/09: WEEK-TV, NBC 25, *Power Smart Pricing*

3/3/09: WICD, ABC 15, *Power Smart Pricing*

3/11/09: WCIA 3, *Power Smart Pricing*

3/22/09: Herald & Review, *Ameren customers save money on electricity through Power Smart*

8/10/09: Danville Commercial News, *Ameren Offers Power by the Hour*

8/21/09: Belleville News-Democrat, *Some Ameren customers saving big on electric bill*

9/20/09: Herald & Review, *Ameren customers save with Power Smart*

11/11/09: WGEM (NBC affiliate in Quincy), *Choose what you pay for electricity*

Advertising

CNT Energy placed PSP ads in select online media during 2009. Test ads ran on Facebook Champaign-Urbana, and they generated a significant increase in traffic to the PSP website. As a result, Facebook advertising was expanded to additional communities.

Online Communications

CNT Energy continued to improve and expand on the online communication tools used to promote and support the Power Smart Pricing program. The PSP blog generated a significant increase in traffic among participants as well as search engine hits. Most articles focused on Illinois energy issues to attract state residents to the Power Smart Pricing brand. CNT Energy also launched a Twitter feed that tweets a Daily Price Report everyday at 6 p.m. Central Time. The Daily Price Report consists of the highest and lowest price for the following day. In the case of a High Price Day, the Twitter feed reports a special message indicating the hours with prices over 13 cents per kWh. Participants were also instructed on how to set up the PSP twitter feed to send the alerts as a text message to their mobile phone.

Community Outreach and Events

CNT Energy worked with AIU to promote PSP through community outreach and events. CNT Energy staff shared exhibit space with AIU at venues such as Earth Day events in the larger communities and corporate events such as employee “green fairs.” CNT Energy also worked to develop relationships with universities, municipal governments and community groups and sought opportunities to give presentations to groups and make brochures available at public facilities such as community centers and libraries.

In May, CNT Energy held a series of Summer Readiness Workshops that provided information about Power Smart Pricing and strategies for managing summer electricity costs. The workshops took place between May 3 and May 21 in Carbondale, O'Fallon, Godfrey, Collinsville, Champaign, Urbana, Bloomington, Peoria, Decatur, Quincy, and Galesburg. A total of nearly 200 people attended the workshops and the events generated media coverage in Champaign-Urbana.

Affinity Marketing

Information about PSP may be best delivered by organizations that people already associate themselves with and trust. CNT Energy continued to develop relationships with groups that have interests in areas such as energy efficiency, the environment, and affordable housing, and cooperate with these organizations to inform their constituencies about the program. In particular, CNT Energy partnered with the Champaign-Urbana area chapter of the Sierra Club to promote the May energy workshops. Thanks to this successful partnership, more than 60 people attended workshops in those communities.

In Carbondale, the Southern Illinois Center for a Sustainable Future and the Shawnee chapter of the Sierra Club helped to promote the May workshops and invited CNT Energy to give a presentation on Power Smart Pricing at the Shawnee Energy Fest. CNT Energy also worked with the City of Urbana, Lewis and Clark Community College, Knox College and public libraries to disseminate information about Power Smart Pricing.

Refer-a-Friend

As participation in PSP grows, program participants have become increasingly important spokespeople for the program. CNT Energy developed a Refer-a-Friend campaign that encourages participants to tell their friends and neighbors about the program. Calls to action were placed in our seasonal newsletters as well as on the PSP website. The campaign provides participants with printed materials, e-mail messages and web content that they can easily share with others. CNT Energy also explored opportunities to use social networking websites such as Facebook and Twitter to encourage participants to spread the word about hourly electricity pricing. New enrollees reporting that they heard about the program through word-of-mouth increased significantly during 2009.

Presentation and Conferences

Real-Time Pricing in the Heartland: Power Smart Pricing Demonstrates the Value of Dynamic Pricing in Central and Southern Illinois, EUCI Evolution of Demand Response and Energy Efficiency Conference, Miami, December 10, 2009.

Panelist, End-User Value: From Promise to Reality, Gridweek, September 22, 2009.

Residential Real-Time Pricing in Illinois: The Policy Implications of Measuring and Evaluating the Impact of Dynamic Pricing, National Town Meeting on Demand Response & Smart Grid, July 14, 2009.

Residential Real-Time Pricing in Illinois: Real World Results from Dynamic Pricing and Demand Response, EUCI Demand Response & Energy Efficiency World, May 19, 2009.

Panelist, The Path Forward: Making the Case for the Smart Grid, GE Energy Smart Grid Executive Summit, Atlanta, GA, May 14, 2009.

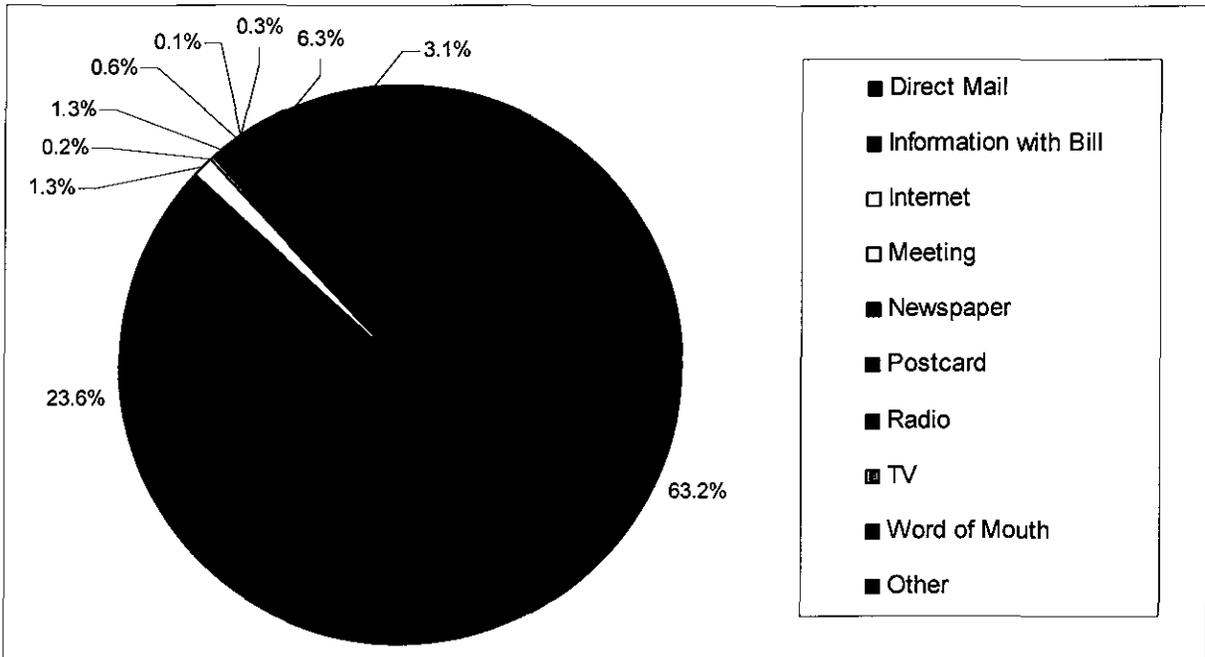
The Center for Neighborhood Technology and its work with the Illinois Smart Grid Initiative, Illinois Sustainable Technology Center, April 22, 2009.

Residential Real-Time Pricing: Increasing Savings and Performance, Metering America Billing/CIS America, Miami, FL March 24, 2009

A.3.2 Analysis of Campaign Results

During 2009, 5,519 customers submitted Power Smart Pricing (PSP) enrollment forms. Direct mail produced the largest number of enrollments, with bill inserts producing the second most. Word-of-mouth was the next most common ways that people reported learning about the program, possibly as a result of increased efforts to encourage participants to tell others about the program. The graph below illustrates the data collected on how people said they heard about Power Smart Pricing.

How heard about PSP



It is worth noting that while media coverage did not directly account for a large number of enrollments, response rates to direct mailings were generally higher in communities where the local media had covered the program. CNT Energy will continue to increase efforts to pair media outreach and direct mailings to improve the effectiveness of future direct mail campaigns.

Characteristics of Participants

Customers who enroll in PSP are asked to provide some basic demographic information such as their household income, and the age and number of people in the household. The information available on the existing customer base provides insights into the types of households that are most likely to enroll in hourly electricity pricing. In particular, the survey revealed the following about the current participants.

Most PSP participants are highly educated.

-74% of surveyed participants pursued additional education after high school.

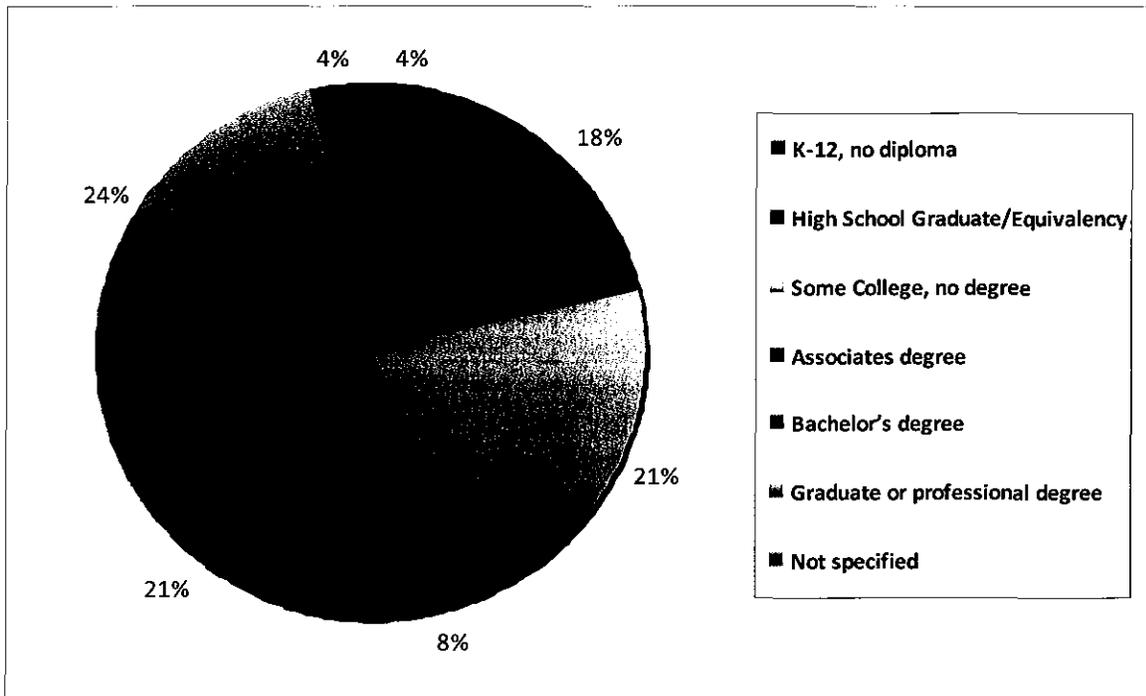
A relatively small majority of participants have household incomes of greater than \$50,000.

- 36% of surveyed participants have a household income \$25,000 to \$49,999.

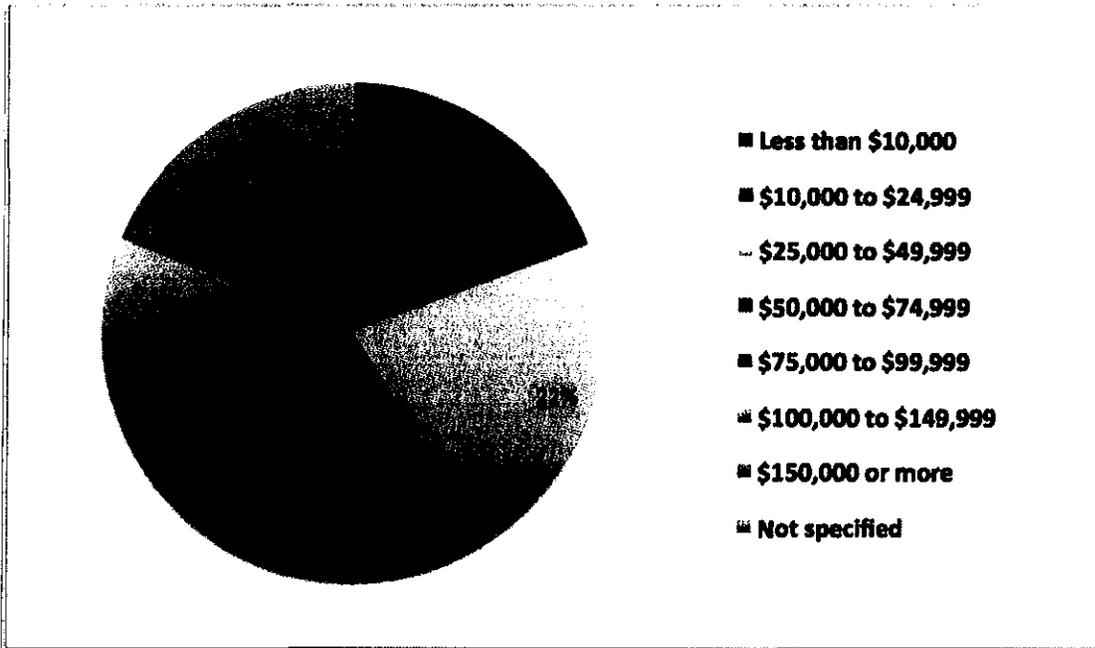
- 44% of surveyed participants have a household income greater than \$50,000.

Most participating households have between one and four people in the home, with two-person households making up the largest segment of the survey respondents (47%).

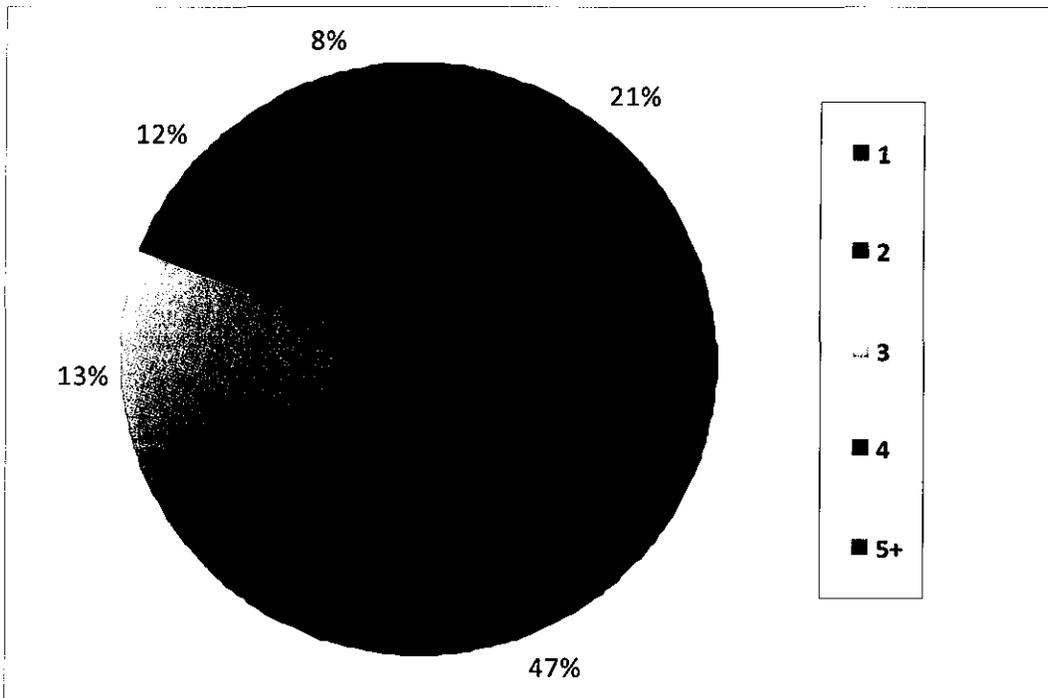
Education Levels of PSP Participants



Household Incomes of PSP Participants



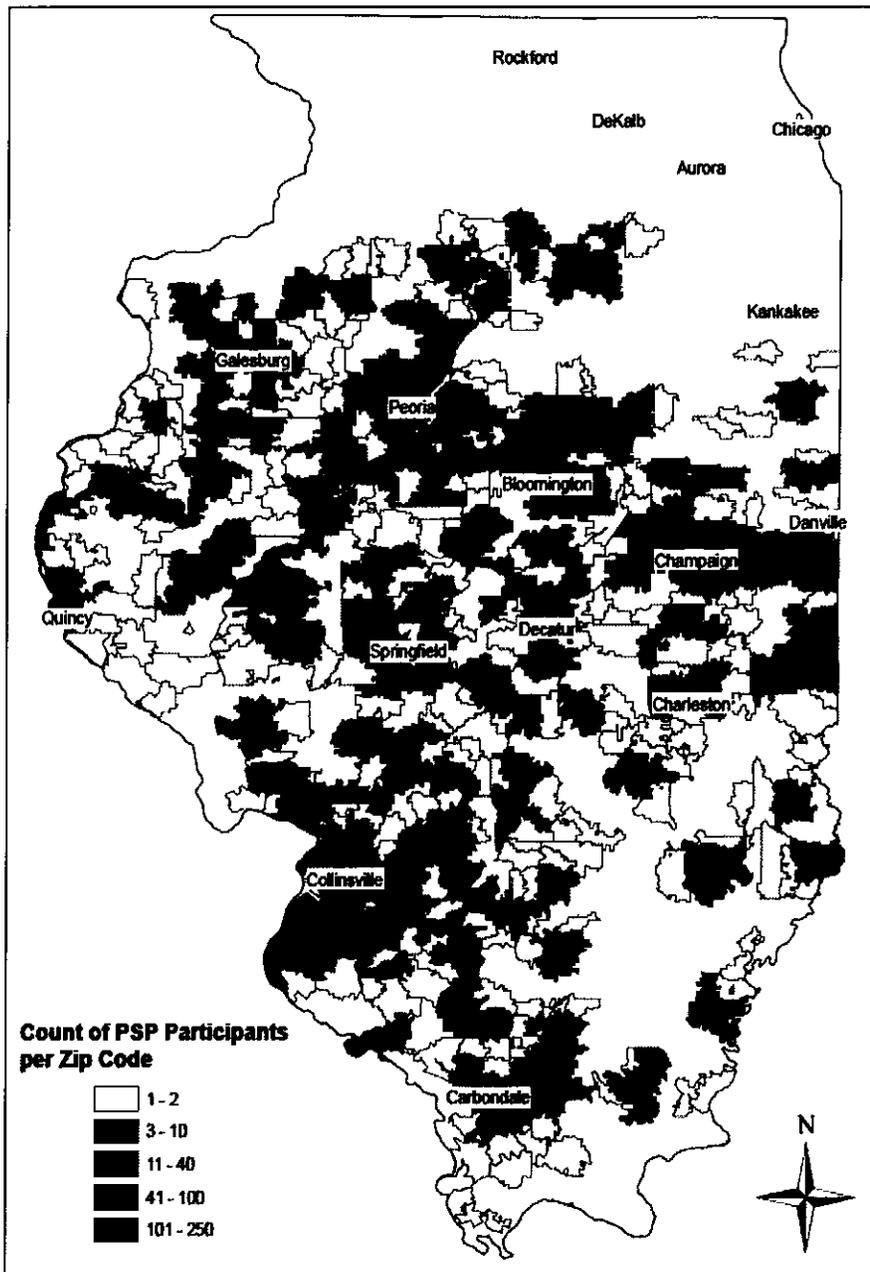
Household Size of PSP Participants



Participation Levels by ZIP Code

CNT Energy mapped the locations of PSP participants in order to visualize enrollment levels in various communities. The map below shows a count of participants by ZIP code, with darker colors indicating larger numbers of participants. This map reveals that, as expected, enrollments were highest in the communities targeted by marketing efforts to date. In addition, shows growth in participation in new areas. For example, in the Quincy area, television news coverage followed by a direct mailing helped drive participation from less than 20 households to nearly 200 during 2009.

Count of PSP Participants by ZIP Code

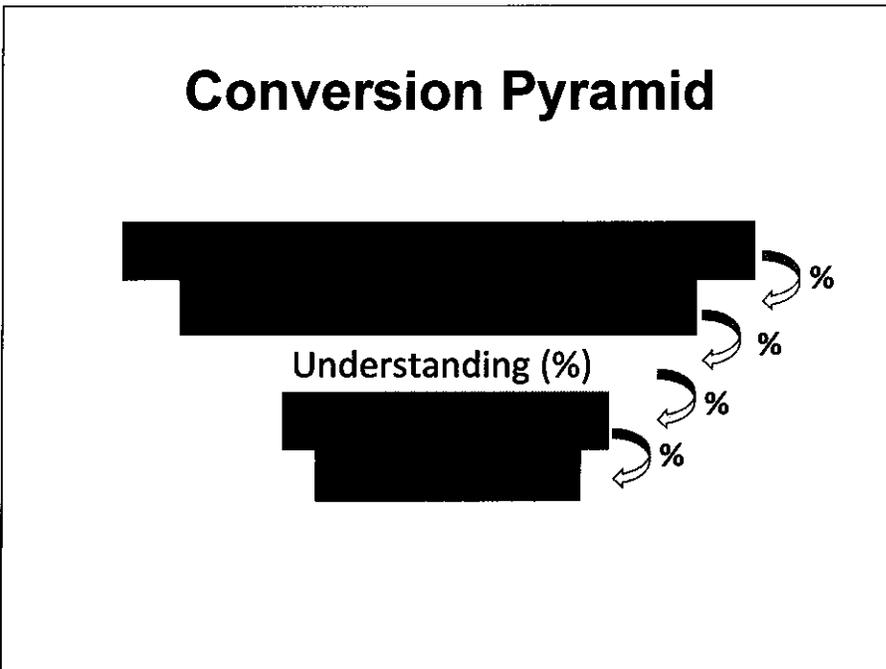


A.3.4 Market Research Results

In the summer of 2009 CNT Energy conducted a phone survey to determine awareness of Power Smart Pricing (PSP). The primary purpose of the survey was to determine awareness of the PSP program among the AIU population that received marketing materials. Among those aware of the program, the goals were to determine effectiveness of communication initiatives and identify barriers to adoption. Among those not aware of the program, we sought to gauge their potential interest and the best methods and messages for communicating. The survey results were used to adapt communications and outreach programs to maximize rate of interest and accelerate consumer sign-ups for the program.

The survey analysis can be conceptualized with the use of a conversion pyramid model. This analysis identifies the steps consumers must take from initial awareness to participation (see figure below).

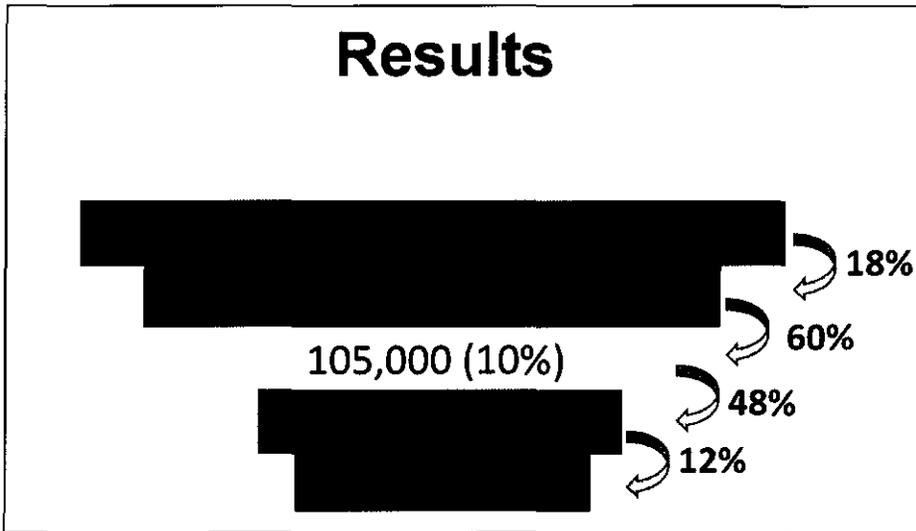
Conversion Pyramid



The survey identified the following results

- Awareness: Eighteen percent of respondents answered yes to the question: "Have you ever heard of Power Smart Pricing?"
- Understanding: Sixty percent of customers who were aware of PSP that could accurately describe it in their own words
- Interest: Sixty percent of respondents indicated that they are "very" or "somewhat interested" in PSP

Results of Survey Analysis



A.3.5 Recommendations for 2010 Marketing Strategies

Based on the survey results and the results of the 2007, 2008 and 2009 marketing campaigns, CNT Energy makes the following recommendations for the 2010 campaign.

- Focus on markets with strong existing penetration to maximize social diffusion, such as Champaign, Belleville, and Decatur.
- Use a mix of local media and tactical direct mail.
- Test outdoor billboard, radio, newspaper ads in conjunction with mailings.
- Work to energize the base.
- Revamp the “refer-a-friend” program.
- Provide a “badge” to current participants (window cling).
- Continue using bill inserts to efficiently drive overall awareness.

A.4 Energy Prices

During 2009, Power Smart Pricing (PSP) participants had unusually low hourly electricity prices. It is typical to see lower prices during the fall winter and spring, while higher prices tend to occur on summer afternoons. That means that in the past, customers on hourly electricity pricing usually got the bulk of their savings during the cooler months of the year. During the summer, more shifting or conservation behavior was required to avoid higher prices in the afternoons.

This summer, hourly prices remained low all summer long, due largely to cool weather and reduced demand for electricity because of the economic slow-down. Prices did continue to follow the typical summer pattern, with the highest prices of the day occurring in the mid to late afternoon. However, the highest prices of the day remained relatively low, topping out at just 7.993 cents per kWh from 3 p.m. to 4 p.m. on June 24. Prices reached their lowest point of the summer from 5 a.m. to 6 a.m. on June 7, when the price actually went below -1 cent per kWh, meaning PSP participants actually received a credit rather than a charge for the electricity used during that hour. As a result of the low summer prices, PSP participants were able to achieve significant savings with only minor adjustments to how and when they used electricity.

A.4.1 High Price Alerts

High price alerts are sent to PSP participants the evening before any day where there are one or more hours over 13 cents per kilowatt hour. Alerts are sent by either e-mail or an automated phone call. Thirty-four percent of participants opted to receive High Price Alerts by e-mail and 64% selected phone notification.

This summer, hourly prices continue to follow the typical summer pattern, with the highest prices of the day occurring in the mid to late afternoon, but remained unusually low all summer long. The highest prices of the day topped out at just 7.993 cents per kWh from 3 p.m. to 4 p.m. on June 24. Consequently, in 2009 there were no high price alert days.

A.4.2 Hourly Day-Ahead Prices

The Day-Ahead MISO market prices continued to be used for the program in 2009. In June 2008 the hourly electricity pricing for AmerenCIPS, AmerenCILCO and AmerenIP were set to be identical using the MISO Ameren Illinois Hub. In January 2009, the prices were changed to each AIU hub, resulting in three very slightly different prices for each AIU utility on some days. Most days the prices were still identical.

The chart below shows how average prices changed across the year, how they compared with 2007 and 2008 prices, and how they compared with the flat rate prices. (Note: the flat rate prices are an all in price and do not include some additional other charges such as the RTP Supplier Charge described below, so the prices cannot be directly compared.)

Average Electricity Prices

	AmerenIP	AmerenCILCO	AmerenCIPS
2007 Average Day-Ahead Prices	4.428	4.517	4.450
2008 Average Day Ahead Prices	4.744	4.776	4.776
January 2009	3.811	3.811	3.811
February 2009	3.220	3.220	3.220
March 2009	2.670	2.670	2.670
April 2009	2.502	2.502	2.502
May 2009	2.352	2.352	2.352
June 2009	2.721	2.721	2.721
July 2009	2.242	2.242	2.242
August 2009	2.448	2.448	2.448
September 2009	2.146	2.146	2.146
October 2009	2.586	2.586	2.586
November 2009	2.378	2.378	2.378
December 2009	3.123	3.123	3.123
Ameren Standard Rates (effective 06/01/09)	AmerenIP	AmerenCILCO	AmerenCIPS
Summer (June, July, August, and September)	5.516	5.525	5.554
Non-Summer, usage under 800 kWh	6.874	7.480	7.484*
Non-Summer, usage over 800 kWh Non-Space Heat	4.856	2.334	5.104*
Non-Summer, usage over 800 kWh Space Heat**	0.885	2.334	2.367*

A.4.3 The Price of Capacity

AIU secures capacity on a monthly basis for PSP and other hourly pricing service customers. For standard rate customers capacity is embedded in the all-in price (the Retail Purchased Electricity Charge). Capacity was relatively inexpensive for 2009 compared to 2008. Summer capacity prices in 2009 were almost halved in comparison to summer 2008, having less of an impact on summer bills, most likely due to lower summer temperatures and overall decreased air conditioner use.

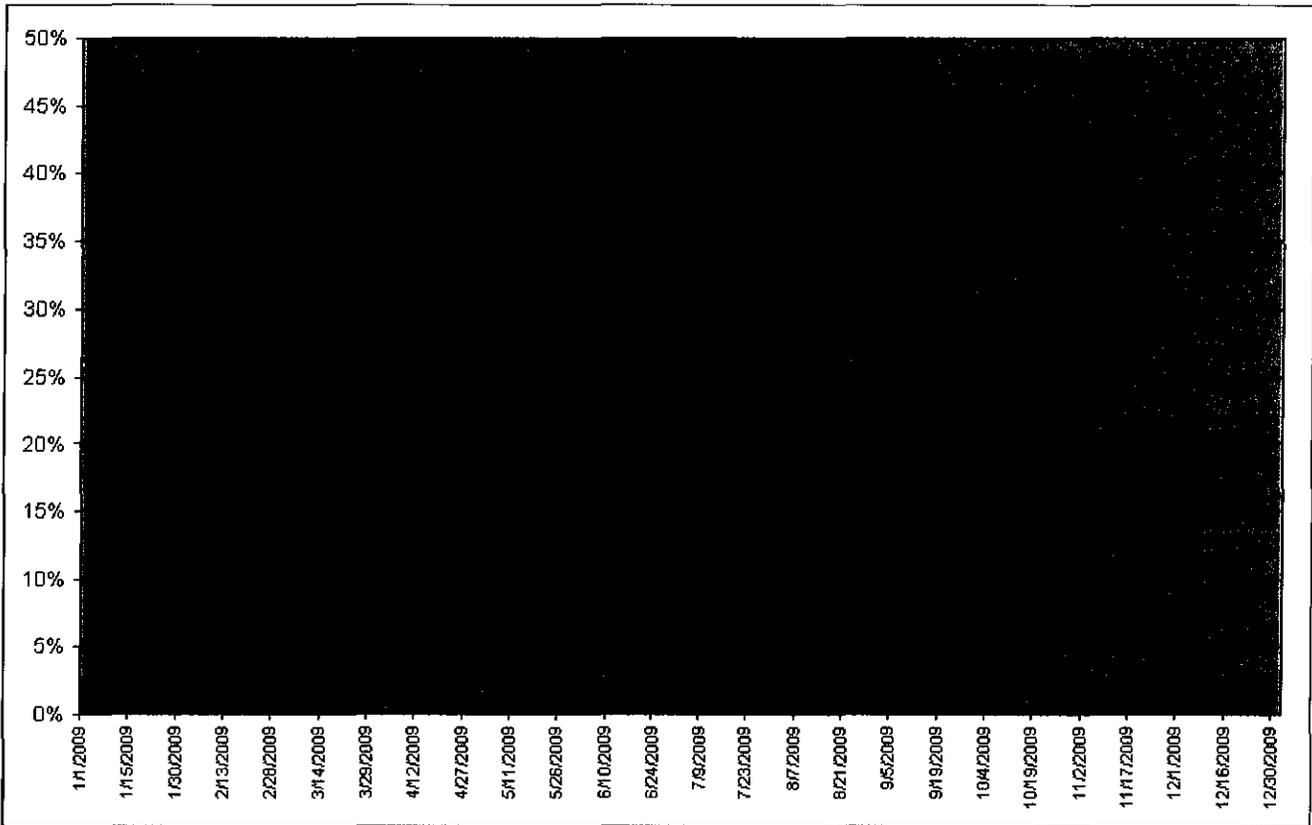
The table below shows how the price of the RTP Supplier Charge changed during 2009 with the highest priced months for the comparable costs from 2008 as a comparison.

2009 Monthly RTP Supplier Charge

	Dollars per kW-day
July 2008	0.242
August 2008	0.244
January	0.023
February	0.008
March	0.007
April	0.006
May	0.006
June	0.018
July	0.158
August	0.125
September	0.013
October	0.009
November	0.009
December	0.009

Capacity is included in the RTP Supplier Charge which also includes a small and relatively consistent cost for ancillary services and is priced by the kW-day, which is a charge that is multiplied by the customer's demand at the system peak during their billing period. When the price of capacity is low, the overall charge is a nominal portion of the bill, but in summer months it can be very large. The method of determining the capacity charge is a source of confusion for customers, and often seen as arbitrary and unfair. If a customer has a low demand at the peak hour, the resulting charge is not that large, but if their demand is high, the charge can be a relatively large portion of the bill. The graph below shows the impact of this charge on bills during 2009, and how it can be a very large spread during summer months.

2009 RTP Supplier Charge as a Percent of the Delivery Services Portion of the Bill
(Not including the General Assembly Rate Relief Credit)



There is a slightly larger than average spread for January 2009, which can be explained by January's slightly higher than normal supplier charge for a non-summer month.

A.5 Customer Surveys

CNT Energy fielded the annual customer satisfaction survey to Power Smart Pricing (PSP) customers in November 2009, to all customers who had been enrolled for two or more months. The response rate was 20%. The Survey addressed the quality of communications and customer behavior. In previous years, participants' opinions about High Price Alert days were solicited. However, the relatively cool weather in 2009 resulted in relatively low electricity prices, and correspondingly, no High Price Alert days. New survey questions to explore participants' actions in this contest were developed. Some highlights of the responses are recorded below.

Changes in energy use

In response to the question, "Have you changed your everyday electricity use since you enrolled in Power Smart Pricing?" 83% report that they had, versus 12% who reported they had not, with 5% unsure. Their activities ranged from simple actions to reduce air conditioning use and turning off lights to investments such as purchasing energy efficient appliances.

Additional questions were designed to explore participants' thoughts on the mild summer. Most participants (67%) recognized the prices were lower, compared to 15% who thought prices were about the same, 4% who believed prices were higher than the previous summer, and 15% who did not know.

Monitoring of energy prices

- 32% of participants checked hourly prices every or most days, while 22% checked only after a high price alert
- 49% of participants check hourly prices online
- 6% call and listened to the recording of prices on the phone
- 41% don't check prices.
- The web tools were used by 3% of participants
- 1% subscribed to the Twitter feed.

Customer information and education

PSP participants receive mailings (in both electronic and paper format) with program updates and tips. Two of the survey questions asked how participants felt about the frequency and the amount of information that was is being sent. A majority of participants were satisfied with the level and quantity of this outreach.

	Too much	About right	Too little
Do you think the frequency of these updates is:	1%	87%	12%
Do you think the amount of information you receive is:	1%	89%	10%

Beginning in 2003 with ComEd’s Energy Smart Pricing Plan (ESPP), CNT Energy began asking a benchmarking question about the ease of participating in hourly electricity pricing. The 2009 results are provided with prior years’ metrics for comparison purposes below.

Participating in ESPP/PSP has been...	2003 ESPP	2004 ESPP	2005 ESPP	Overall ESPP	2007 PSP	2008 PSP	2009 PSP
Quick and easy	81%	82%	75%	76%	58%	71%	80%
Time consuming and difficult	1%	1%	3%	2%	7%	1%	0%
Somewhere between quick and easy and time consuming and difficult	15%	12%	17%	19%	20%	20%	14%
Don't know	3%	4%	5%	4%	15%	7%	5%

A.6 Recommendations

CNT Energy anticipates that 2010 operations will continue to function smoothly, and that the Power Smart Pricing (PSP) enrollment will continue to grow. In the interest of continual quality improvement, CNT Energy has four recommendations related to the customer experience.

They are: (1) AIU could extend the AMR/advanced meter system to PSP participants with access problems; (2) continuing outreach and education for AIU's staff; (3) explore improvements in the AIU bill format; and (4) continuing to explore ways to adjust the capacity charge.

A.6.1 Interval AMR/advanced/smart meters

As described above, CNT Energy would like to reduce meter reading access issues in 2010. This could both provide a better customer experience and reduce administrative costs for AIU associated with estimated bills. CNT Energy would like to work with AIU to explore options of using its advanced metering system to help overcome the access problems associated with probing interval meters.

A.6.2 Continuing Outreach and Education

CNT Energy would like to continue working with AIU on ongoing training and education of their call center and meter reader and installation staff. We have enjoyed the opportunities we have had to work with AIU staff and would welcome additional opportunities to collaborate.

A.6.3 Bill streamlining or redesign

CNT Energy is aware that AIU is in the process of making changes in their bill due to the upcoming merger of the companies, as well as in an ongoing effort to improve its usefulness for the customer. While we appreciate that making changes in the content of the bill is a difficult process, we would like to take this opportunity to convey the comments of many customers on this subject. Most customers only vaguely understand the details of their bills. In addition, a consistent complaint from PSP customers is that they cannot see their monthly savings on the bill. If this element could be incorporated in the format, it would increase the program's credibility and customer satisfaction. We appreciate that the process of getting to a "better bill" is not a quick or easy one. However, if there is any way CNT Energy can contribute to AIU's work on this topic, we would be happy to do so.

A.6.4 Capacity Charge

Unlike in 2008, the price of capacity paid by PSP participants was relatively low. However, this charge still represents an unexpected and difficult to manage cost for participants of peak time power. We reiterate our interest in further research into how the capacity charge could be adjusted to continue to encourage demand response from PSP participants, but, if possible, to lower the difference in capacity costs between otherwise similar customers, and/or spread some of the costs over a longer period of time.

A.7 Attachments

- Sample Direct Mail Piece
- Summer Readiness Kit
- Sample Media Coverage: Some Ameren customers saving big on electric bill, Belleville News-Democrat, August 21, 2009
- Sample News Coverage: Choose what you pay for electricity, WGEM Quincy News, November 11, 2009

Power Smart Pricing

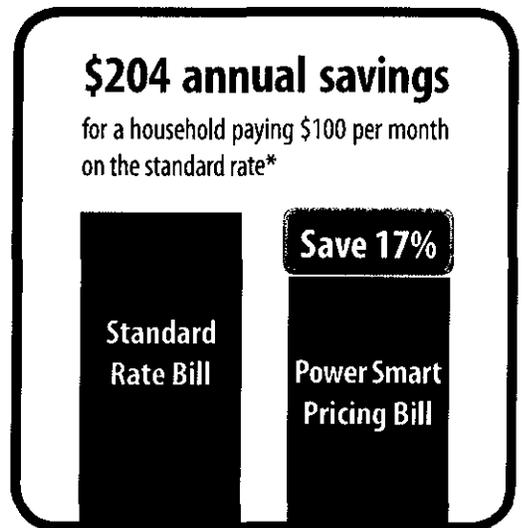


An hourly electricity pricing program from the Ameren Illinois Utilities, administered by CNT Energy

Cut 17% off your electricity bills with Power Smart Pricing

We're writing to let you know about an electricity pricing option offered by the Ameren Illinois Utilities that could help you cut your household energy costs. Ameren customers like you who normally pay more than \$30 per month for electricity are among those who are likely to benefit from Power Smart Pricing, a program that lets you pay the hourly, wholesale price of electricity.

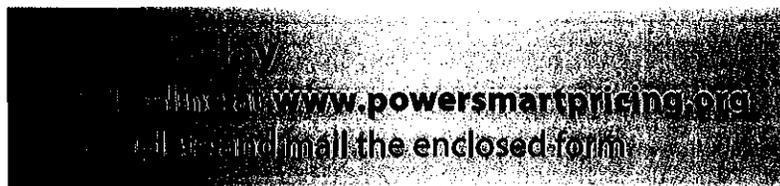
Customers who signed up for Power Smart Pricing have saved an average of 17% on their electricity bills compared with what they would have paid on the standard rate.*



Power Smart Pricing works a bit like a cell phone plan that offers lower rates for nights and weekends. It lets you pay lower prices for electricity during off-peak times. In addition to nights and weekends, electricity prices often remain low throughout the day during the fall, winter, and spring.

Customers who signed up for Power Smart Pricing say it's a quick and easy way to cut household energy bills. Please review the information on the reverse side of this letter to find out whether it could be a good choice for you.

To learn more, go to www.powersmartpricing.org or contact us at **1-877-655-6028** or info@powersmartpricing.org.



*Based on average customer savings for May 2007 through September 2009. Actual savings vary depending on customer usage and market conditions. While savings are likely for most customers, past performance does not guarantee future results.

What people say about Power Smart Pricing

"We have been extremely impressed with not only the information on current electricity charges we receive from the Power Smart Pricing program but also with the tips on how to conserve utility usage."
—Dennis, Decatur

"I really appreciate the Power Smart Pricing Program. It's saving money and raising awareness of energy use."
—Maggie F., Urbana

"I was just recently retired . . . all my bills were being scrutinized for ways to make them smaller, or keep them in a friendly manner. Power Smart Pricing offered me the opportunity with electricity usage to jump at the chance to sign up."
—Mary G., Harrisburg, IL

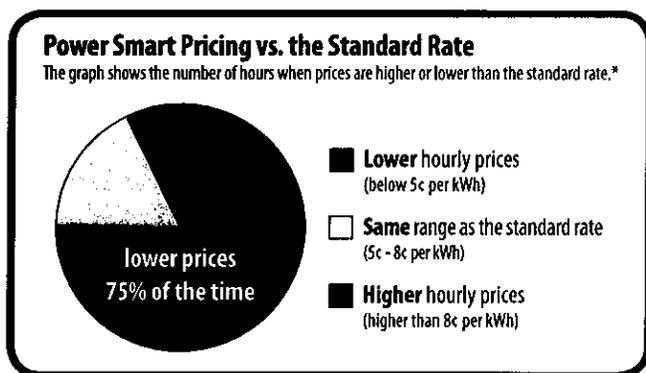


Asked Questions about Power Smart Pricing

How can I save with Power Smart Pricing?

Under the standard residential rate, electricity costs the same amount no matter what time of day you use it. Power Smart Pricing lets you pay the hourly wholesale market price of electricity. The hourly price varies throughout the day, so you could save money by being smart about both **how much** electricity you use, and **when** you use it.

- **Most of the time, the hourly price is lower than the standard fixed rate.**
 - Prices tend to remain low most of the time during the fall, winter and spring.
 - Higher prices are most likely to occur during the summer on hot weekday afternoons.
- **To reduce your costs, shift some of your electricity use to lower priced hours.**



How much could I save?

AmerenCIPS customers who signed up for Power Smart Pricing have saved an **average of 17%** compared with what they would have paid on the standard rate. Individual savings vary based on electricity use and market conditions. The more you can shift electricity use to lower-priced times, the more you could save with hourly pricing.

Will I still be an Ameren Customer?

Yes. If you sign up for Power Smart Pricing, the Ameren Illinois Utilities will continue to deliver your power, respond to service calls and issue your bill. You will receive additional program support from CNT Energy, an independent nonprofit organization dedicated to helping Illinois residents save energy and money. CNT Energy will provide personalized information, services and tools to help you manage your electricity costs.

*Based on hourly prices for October 2007 through September 2009. Actual prices vary depending on market conditions. Past performance does not guarantee future results.

Is Power Smart Pricing right for me?

Power Smart Pricing is likely to be a good option if:

- You are interested in saving money by using energy wisely at home.
- You want to be part of a program that helps you save energy and improve the environment.
- You can make some simple adjustments in how and when you use electricity. For example, you can do laundry and run the dishwasher at night and on weekends when electricity prices are low.
- You heat your home with natural gas or propane.

How can I track hourly prices and my use?

You'll receive information and support to make it easy to manage your costs.

- Each evening, prices for the following day are available **online and by phone.**
- You'll receive **day-ahead alerts** (by e-mail or phone) to let you know in advance when prices will be high.
- **Online tools** will help you understand and manage your electricity use.
- A specialized **support team** is available to answer questions and help you get the best possible value from hourly electricity pricing.

Is there a fee?

Customers who select Power Smart Pricing will be charged a monthly participation fee of \$2.25. This fee will be included in your electricity bill. Savings from Power Smart Pricing are expected to more than offset this modest monthly charge.

How long do I have to stay in the program?

To enroll, you must agree to remain on the hourly electricity rate for a minimum of 12 consecutive monthly billing periods. At the end of that period, you will be free to contact any certified third party supplier or your Ameren Illinois utility if you wish to select a different supply option. **So far, 99% of participants have elected to stay with Power Smart Pricing after their 12-month obligation expired.**

For questions about whether the program is right for you, reach us at 1-877-655-6028 or e-mail info@powersmartpricing.org

Power Smart Pricing Program Enrollment Form

Enrollment form for Power Smart Pricing, open to residential customers served by AmerenCILCO, AmerenCIPS (includes CIPS in Metro East) and AmerenIP.

All information required for enrollment. If information is missing we cannot process your form.

Enrolling online is quick and easy at
www.powersmartpricing.org

1. Contact Information

Customer name (PRINT as shown on your electric bill)

Mailing address

City State ZIP

()
Phone

E-mail address

Go paperless. Check this option to receive the majority of your program updates electronically rather than in the mail.

2. High Price Alert Method

You will receive day-ahead alerts by phone or e-mail when prices will be 13c per kWh or higher. **Please select your high price alert method:**

E-mail Phone (Check one)

3. Your Heating System

What is your primary source of heat? (Check one.)

- Natural gas
 Propane
 Electric (*Power Smart Pricing may not be your best option if you have electric heat. For more information, go to www.powersmartpricing.org.*)
 Other: _____

Which best describes your heating system?

- Vents (furnace)
 Radiators (boiler)

Do you use space heaters?

- No
 Yes. How many? _____

4. Billing Information

Your Ameren Illinois electric utility: CILCO CIPS CIPS-ME IP

Ameren account # _____ - _____

Electric (kWh) meter # _____

You can find your account and meter numbers on page 2 of your Ameren Illinois utility bill. See the reverse side of this form for an example.

5. Customer Signature

By signing this form, I agree to the following:

- I am requesting Power Smart Pricing service under Rider PSP and Rider RTP (available at www.ameren.com) pursuant to an Ameren Illinois utility tariff approved by the Illinois Commerce Commission (ICC).
- I acknowledge that an Interval Data Recording (IDR) meter or meters must be installed at my premises by my Ameren Illinois utility in order to commence service under Rider PSP.
- I acknowledge that the Ameren Illinois Utilities must have access to the meter location at my home during all normal business hours Monday through Saturday throughout the year to insure hourly readings are available to support my participation on PSP.
- I acknowledge that once Power Smart Pricing service under Rider PSP commences, I am required to take this service under Rider PSP for at least 12 consecutive monthly billing periods.
- A monthly participation charge of \$2.25 will be added to my Ameren Illinois Utilities electric bill.
- I agree to the terms and conditions of taking service under both Rider PSP and Rider RTP now in effect and as may be amended from time to time.
- I authorize this participation agreement to be secured and maintained by CNT Energy.
- I authorize my Ameren Illinois utility to release my account information including energy usage and billing information and all other information permitted by law to CNT Energy. I understand that CNT Energy will keep my account information confidential and will use this information only to operate and improve the program, and to provide me with access to my account information through a secure interface on the CNT Energy Web site.
- I authorize my electrical usage data and billing information to be used in aggregate with other Rider PSP participants for purposes of evaluating consumer and system benefits and understand that my individual data will be held confidential.
- I acknowledge that Rider PSP will terminate on December 31, 2010, unless an extension has been approved by the ICC.
- I understand the price I will pay for electricity I use is based on the hourly market price for energy which may be above or below the standard rate for residential customers (BGS 1).

Signature (Must be signed by the person whose name appears on the account)

Contact Name (If different from your customer name)

Date

Over →

Power Smart Pricing Program Enrollment Form, page 2

To help CNT Energy maximize your benefits, please provide the following information about your home appliances and electricity usage.

6. Your Household and Energy Usage

Do you:

- Own your home
- Rent your home

_____ Number of people in your household

How do you cool your home?

- Fans
- Window air conditioner(s) Number of units: _____
- Central air conditioner Number of units: _____

Do you have any electricity generating equipment?

- No
- Yes, solar (photovoltaic)
- Yes, backup generator
- Yes, other: _____

Finding Your Account and Meter Numbers

You can find your account and meter numbers on page 2 of your Ameren Illinois Utility bill, as shown below. Look for the meter number next to the reading for total kWh.

The diagram shows a utility bill for ANNE EXAMPLE at 123 SAMPLE LN, HOMETOWN, IL 61922. The account number is 12345-67890. Below is a table with columns for SERVICE, FROM, TO, and NO. OF DAYS. The meter number 12345678 is circled next to the Total kWh reading.

	SERVICE	FROM	TO	NO. OF DAYS
meter number →	Total kWh	12345678	12/01-12/31	31
	Peak kWh	12345678	12/01-12/31	31
	Off Peak kWh	12345678	12/01-12/31	31
	On Peak kWh	12345678	12/01-12/31	31

7. How You Heard about the Program

How did you learn about this program? (Check all that apply.)

- This mailing
- Information in my utility bill
- Newspaper
- TV
- Radio
- Community meeting
- Word of mouth
- Internet
- Other: _____

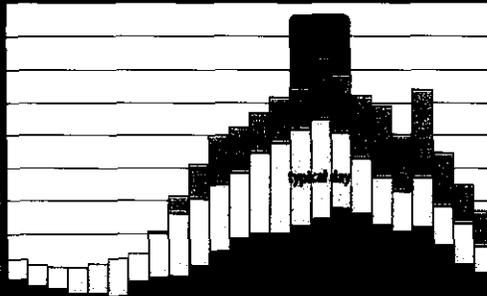
Please return this form to:

Power Smart Pricing
 2125 W. North Ave.
 Chicago, IL 60647-5415

 Phone: 1-877-655-6028
 Fax: 1-773-278-3840
 E-mail: info@powersmartpricing.org

To enroll online, go to www.powersmartpricing.org.

Your Power Smart Pricing Summer Energy Saving Guide



Use fans along with (or instead of) your air conditioner. Fans use far less electricity than air conditioners.

Charge devices such as cell phones and cordless tools at night when electricity prices are low.

Unplug cell phones and other rechargeable devices when they are done charging.



Learn more online.

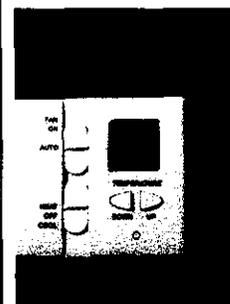
Check prices and learn more about managing household energy costs at www.powersmartpricing.org.

Find more tips at these websites:

Energy Star
www.energystar.gov

U.S. Department of Energy, Energy Savers
www.energysavers.gov

Ameren Illinois Utilities, Act on Energy
www.actonenergy.com



When electricity prices are high or you are away from home, change your thermostat to a warmer temperature setting. For window air conditioners, adjust the setting to low (or the energy-saver setting) or turn the air conditioner off.

Use a programmable thermostat to conserve energy automatically during the afternoon (when electricity prices are usually highest) and while you are sleeping or away from home.

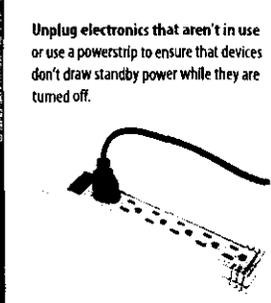
Precool your home at night and in the morning when prices are low. (See reverse side for details.)



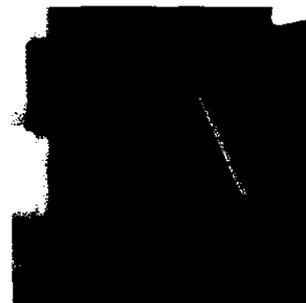
Run the dishwasher when electricity prices are low. Some dishwashers have a timer that lets you set a start time.

Only wash full loads of dishes, and use the more efficient "energy-saving" or "no-heat-dry" option.

Avoid heating up the kitchen on hot days. Use the microwave, enjoy no-cook meals, or grill outside.

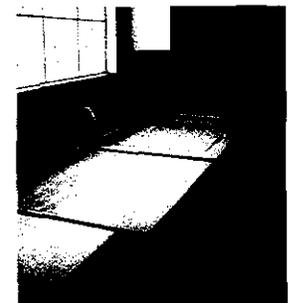


Unplug electronics that aren't in use or use a powerstrip to ensure that devices don't draw standby power while they are turned off.



Clean up on low prices by doing laundry at night or on weekends when electricity prices tend to be low. Avoid running the washer and dryer during times when prices are high.

Wash full loads and use cold water when possible. Make sure the dryer stops once your clothes are dry, or hang clothes on a rack or clothesline.



Your Power Smart Pricing Summer Energy Guide

Dear Power Smart Pricing participant,

We are entering summer, the season when hourly electricity prices typically fluctuate most. **Being smart about your electricity use – especially your air conditioning use – will help you manage your electricity costs with the Power Smart Pricing (PSP) program.**

During the summer, air conditioning usage has a big impact on demand for electricity. As a result **the highest prices of the day typically occur in the afternoon.** Depending on weather and other conditions, some days will have higher overall prices than others. The tips on this poster can help you cut costs during high price times and throughout the season. Here are two tips that will benefit you most during the summer season:

- Reduce electricity usage between the hours of 2 p.m. and 5 p.m. (especially on hot summer days).
- Limit air conditioning usage during higher priced hours and try precooling to take advantage of lower priced hours.

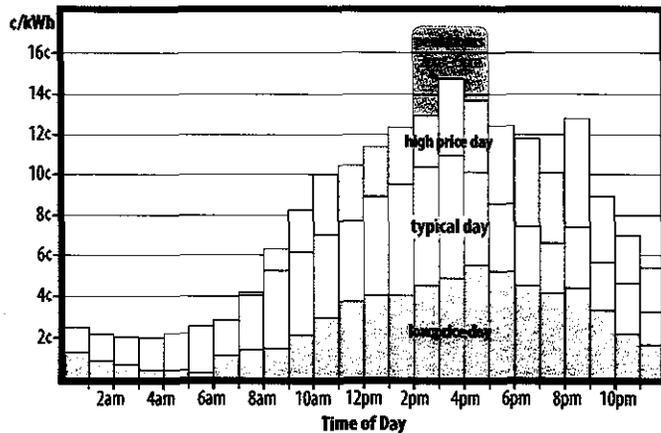
We hope you'll find the poster useful and place it in a central location to help everyone in your home remember to pitch in to save energy and money this summer.

Sincerely,
The Power Smart Pricing Program Team
Reach us at 1-877-655-6028 or info@powersmartpricing.org.

You will receive an alert in advance any time prices will reach 13¢ per kWh or higher.

You can also check prices online at www.powersmartpricing.org or by phone at 1-877-655-6028.

Typical Summer Price Patterns*



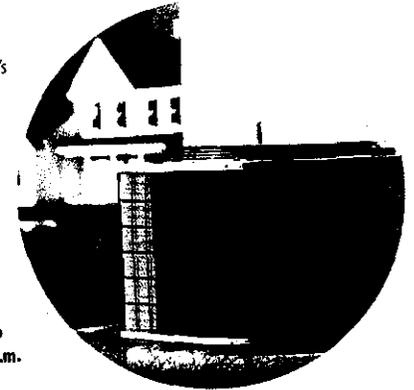
The graph shows how electricity prices normally vary during summer days. Prices are usually highest during the late afternoon and tend to peak between 2 p.m. and 5 p.m.

High price days tend to occur when the weather is particularly hot. Low price days can occur on weekends and when the weather is cool.

*Based on prices during the summer of 2008.

Precooling Your Home

Air conditioner use accounts for as much as 40 percent of a typical household's summer energy consumption. You can manage your cooling costs by precooling your home during hours when the price of electricity is low, then using less air conditioning during higher priced hours. Many Power Smart Pricing participants have shared stories of their success with precooling, saying it's an easy way to manage air conditioning costs while keeping their homes comfortable.

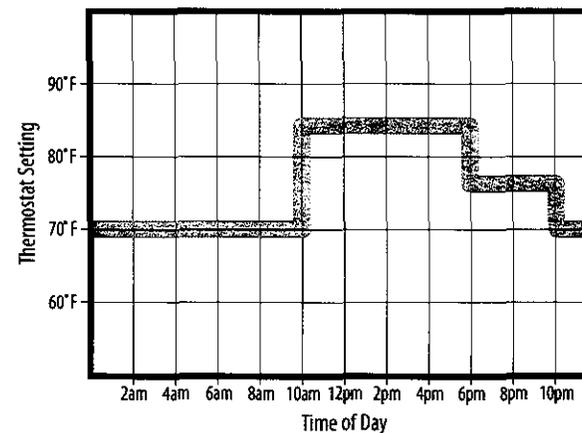


To precool your home, simply run the air conditioner in the evening, overnight and during the morning hours when electricity is cheaper. Then increase your thermostat temperature setting or turn off your air conditioner during the afternoon. The goal is for your air conditioner to idle during the highest priced times, especially between 2 p.m. and 5 p.m.

The graph below illustrates this precooling strategy and the table lists recommended thermostat temperature settings for each precooling phase.

Precooling is easy, but you may have to experiment to find what works best for your house and your comfort level. Of course, the effectiveness of precooling will also depend on the outside temperature, humidity levels, and the insulation in your home. You can make precooling more effective by shading south facing windows during the day to minimize heat from the sun. And if you have a programmable thermostat you can set it to help you precool automatically.

Thermostat Settings for Precooling



Time	Phase	Temperature Setting
10pm - 10am	Precooling	69°F - 72°F
10am - 6pm	Idle	82°F - 85°F
6pm - 10pm	Comfort	75°F - 78°F

Find more energy-saving tips at www.powersmartpricing.org.

Friday, Aug. 21, 2009

Some Ameren customers saving big on electric bill

Almost 6,000 enrolled in power smart pricing

BY MIKE FITZGERALD – News-Democrat

Low wholesale electricity prices -- a result of low demand stemming from cool temperatures and the slumping economy -- have enabled Ameren customers in the Power Smart Pricing program to cut their power bills by 27 percent on average this year.

Almost 6,000 Illinois households are enrolled in the Power Smart Pricing program, according to Stephanie Folk, a spokeswoman for CNT Energy, of Chicago, which administers the program for Ameren Illinois Utilities.

Customers in the program are notified via an electronic meter what price they will pay for electricity each hour of the day. They are warned via e-mail the day before prices are expected to spike above 13 cents a kilowatt hour.

As a result, participants can trim power costs by adjusting their electricity usage to off-peak hours, such as nights and weekends.

"We're just trying to let people know that option is out there and available," Folk said. "For the right customers, that can be really good value if they're looking for ways to cut costs around the house."

The 27 percent rate of savings calculated for Power Smart customers takes into account the \$2.25 monthly fee they pay to enroll in the program, Folk said.

Ameren Illinois installs a special meter free of charge at the homes of Power Smart customers. The meter notifies them of hourly, wholesale electricity prices.

More than 830 customers have signed up for Power Smart pricing in St. Clair County. The town in the county with the most Power Smart customers is Belleville, with 369; followed by O'Fallon, 186; Swansea, 50; and Fairview Heights, 48.

Since its early 2007 launch, participants have saved an average of 13 percent compared with what they would have paid under the standard fixed rate.

To enroll, call CNT Energy at 877-655-6028 to order an application form, or apply directly by logging onto www.powersmartpricing.org. Contact reporter Mike Fitzgerald at mfitzgerald@bnd.com or 239-2533.

[<< Back](#)



Choose what you pay for electricity

Posted: Nov 11, 2009 5:59 PM CST



QUINCY, Ill (WGEM) -- How can you save hundreds of dollars each year on your electric bill?

By signing up for the "Power Smart Pricing" program by Ameren, electric customers can view real-time prices for their services. David Edwards of Quincy, has saved on his electric bill over the past year.

David said, "Probably three hundred dollars, 350. Something like that. Which is substantial."

David has been enrolled in the program for the past 16 months. At first he thought the lifestyle changes were hard to stick by. But after seeing the savings, he says any inconvenience has been well worth it.

David continued, "It's been an adjustment for a couple of things. We use the timer on the dishwasher to wash the dishes at 11 or 12 at night."

David has had to make other changes as well. Like running the washer and dryer and air conditioner during off peak hours. But these changes can pay off big.

David finished, "There was actually one month where the price of electricity was negative at one or two o'clock in the morning. So they actually pay you for using power."

For more information on the "Power Smart Pricing" Program you can visit the web site <http://www.powersmartpricing.org/>



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CNT ENERGY

**SCHEDULE OF DIRECT EXPENSES
FOR THE AMEREN PROJECT
AND SUPPLEMENTARY INFORMATION**

**For the Year Ended
December 31, 2009**

CNT Energy
Ameren Project Report

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Desmond & Ahern, Ltd.

CERTIFIED PUBLIC ACCOUNTANTS & CONSULTANTS

Independent Auditor's Report

To the Board of Directors of
CNT Energy
Chicago, IL

We have audited the accompanying schedule of direct expenses for the Ameren project of CNT Energy for the year ended December 31, 2009. This schedule is the responsibility of the Organization's management. Our responsibility is to express an opinion on this schedule based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of direct expenses for the Ameren project are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the schedule. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall schedule presentation. We believe that our audit provides a reasonable basis for our opinion.

As discussed in Note 1, the schedule of direct expenses for the Ameren project of CNT Energy is intended to present the expenditures of that project's portion of the financial reporting entity of CNT Energy that is attributable to the expenditure transactions of the Ameren project.

In our opinion, the schedule of direct expenses for the Ameren project referred to above presents fairly, in all material respects, the direct expenses charged to Ameren for CNT Energy for the year ended December 31, 2009 in conformity with Generally Accepted Accounting Principles.

The supplementary schedule of revenue and expenses for the Ameren project of CNT Energy is presented for purposes of additional analysis. Such information, except for that portion marked "unaudited," on which we express no opinion, has been subjected to the auditing procedures applied to the schedule of direct expenses for the Ameren project, and, in our opinion, the information is fairly stated in all material respects in relation to the schedule of direct expenses for the Ameren Project.

This report is intended solely for the information and use of Ameren and is not intended to be and should not be used by anyone other than the specified party.

Desmond & Ahern, Ltd.

March 19, 2010
Chicago, IL

CNT ENERGY
SCHEDULE OF DIRECT EXPENSES FOR THE AMEREN PROJECT
For the Year Ended December 31, 2009

Salaries	\$ 159,889
Payroll taxes and employee benefits	31,616
Professional and contractual fees	94,075
Workshops and meetings	4,041
Travel	13,402
Supplies	1,821
Postage and mailings	104,677
Printing and publications	35,373
Amortization on capitalized software	25,000
Telephone	424
Dues and Subscriptions	<u>1,274</u>
Total Direct Expenses	<u><u>\$ 471,592</u></u>

See independent auditor's report and notes to financial statements.

CNT ENERGY

**NOTES TO THE SCHEDULE OF DIRECT EXPENSES FOR THE AMEREN PROJECT
December 31, 2009**

Note 1 - Nature of Operations and Summary of Significant Accounting Policies

Organization

CNT Energy (formerly known as Community Energy Cooperative) was founded by The Center for Neighborhood Technology (CNT), and incorporated in April 2001 as an Illinois not-for-profit corporation. CNT Energy is a membership organization helping consumers and communities obtain needed information and services to control energy costs. It is exempt from income taxes under Section 501(c)(4) of the Internal Revenue Code.

Basis of Presentation - Ameren Project

The Ameren Project is accounted for as a project in CNT Energy's annual financial statement. The CNT Energy's annual financial statement audit is scheduled to occur after the Ameren reporting deadline. The Ameren Project is a portion of that annual financial statement. This report was prepared solely to meet the request of Ameren.

SUPPLEMENTARY INFORMATION

CNT ENERGY
SCHEDULE OF REVENUE AND EXPENSES FOR THE AMEREN PROJECT
For the Year Ended December 31, 2009

	<u>Unaudited</u>	<u>Audited</u>	<u>Total</u>
Revenue:			
Ameren contract	<u>\$ 413,404</u>	<u>\$ -</u>	<u>\$ 413,404</u>
Expenses:			
Direct Expenses:			
Salaries	\$ -	\$ 159,889	\$ 159,889
Payroll taxes and employee benefits	-	31,616	31,616
Professional and contractual fees	-	94,075	94,075
Workshops and meetings	-	4,041	4,041
Travel	-	13,402	13,402
Supplies	-	1,821	1,821
Postage and mailings	-	104,677	104,677
Printing and publications	-	35,373	35,373
Amortization on capitalized software	-	25,000	25,000
Telephone	-	424	424
Dues and Subscriptions	-	1,274	1,274
Total Direct Expenses	<u>-</u>	<u>471,592</u>	<u>471,592</u>
Indirect Expenses			
Internal contracts with CNT	<u>20,027</u>	<u>-</u>	<u>20,027</u>
Total Indirect Expenses	<u>20,027</u>	<u>-</u>	<u>20,027</u>
Total Expenses	<u>\$ 20,027</u>	<u>\$ 471,592</u>	<u>\$ 491,619</u>

See independent auditor's report and notes to financial statements.

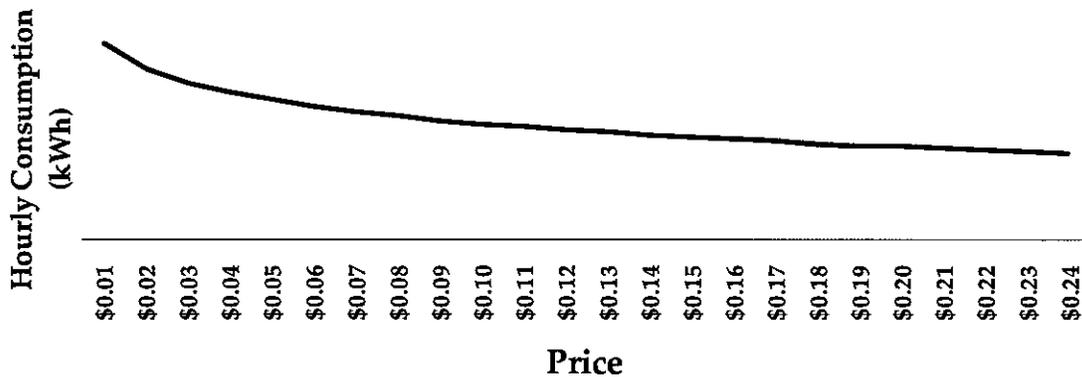
Exploratory Analysis of Fluctuating Price Elasticities

To fully appreciate why the assumption of a constant own-price elasticity of demand may be too restrictive an assumption, it is useful to work through an example of exactly what a constant own-price elasticity of demand implies for price responsiveness. Recall that the own-price elasticity of demand is the percentage change in consumption that is prompted by a 100% increase – a doubling – of price. This means – using the -2.3% overall estimate cited in Table 1 – that an increase in price from \$0.01 to \$0.02 will decrease consumption by 2.3%, an increase in price from \$0.02 to \$0.04 will decrease consumption by a further 2.3%, an increase in price from \$0.04 to \$0.08 will decrease consumption by a further 2.3% and that an increase in price from \$0.08 to \$0.16 will decrease consumption by a further 2.3%.

In summary, with a constant own-price elasticity of demand, the relative effect on consumption is the same for an increase in price from \$0.01 to \$0.02 as an increase in price from \$0.08 to \$0.16.

Plotting the demand curve for a customer with an average consumption of 1.7 kWh per hour using the -2.3% estimate (see Figure 17 below) we see that the steepest part of the curve – the greatest incremental change in consumption given an incremental \$0.01 increase in price – occurs at the lowest prices. The implication is that customers will reduce more consumption as the price moves from \$0.07 to \$0.08 than they will as the price moves from, for example, \$0.15 to \$0.16. This seems improbable.

Figure 17. Demand Curve Implied by -2.3% Elasticity Estimate



Having concluded that the shape of the demand curve implied by the assumption of constant own-price elasticity is an imperfect hypothesis of the relationship between the price of electricity and residential consumption of electricity, Summit Blue/Navigant Consulting proceeded to use the dataset to conduct an exploratory analysis to determine if in fact the own-price elasticity of demand fluctuates with price.

Before proceeding with this analysis, certain assumptions were made regarding customer behavior in the face of changes in price. These assumptions form the theoretical framework of the analysis.

Assumption 1: When the price of electricity is low, customers do not care about small fluctuations in price. It seems unlikely that the benefit to the customer of shifting or curtailing routine electricity consumption at very low prices exceeds the opportunity cost to the customer of shifting or curtailing that routine electricity consumption.

Example: whether the price of electricity is \$0.01 or \$0.02 it is unlikely that a customer would change when he or she irons his or her clothing.

Assumption 2: As the price of electricity rises to a moderately high level, customers will begin to care more about fluctuations in price. The benefit of shifting or curtailing routine electricity consumption will, at moderately high prices, exceed the opportunity cost to the customer of shifting or curtailing that routine electricity consumption.

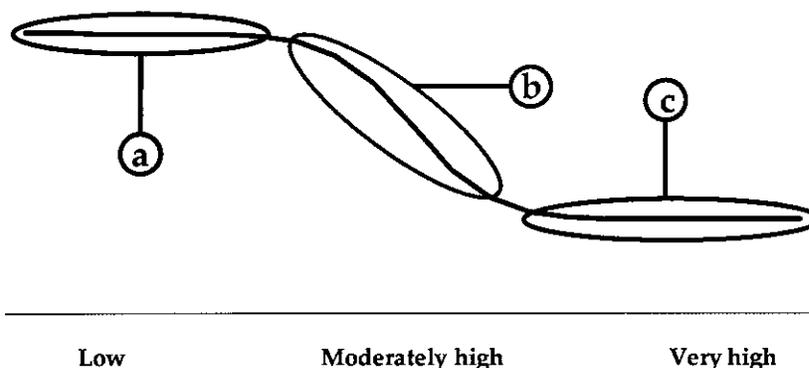
Example: observing a price increase from \$0.12 to \$0.16, a customer may decide to iron his or her clothing later in the day when the price will be lower despite the inconvenience (i.e., the opportunity cost).

Assumption 3: There is some base level of non-discretionary electricity consumption below which a customer cannot go.

Example: it is unlikely that a customer will unplug their refrigerator or hot water heater, regardless of how high the price of electricity is.

If the above assumptions about the behavior of the average customer are accurate, this implies that the demand curve for electricity is S-shaped, as below in Figure 18.

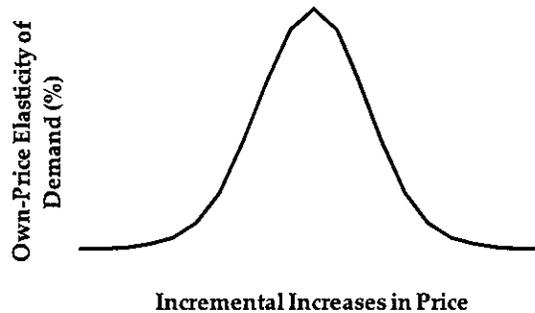
Figure 18. Theoretical S-shaped Demand Curve



The three lettered sections of the demand curve, a, b, and c, correspond with assumptions one through three laid out above. In section a, when prices are low, demand is relatively inelastic – the price is too low for the customer to care. In section b, when prices are moderately high, prices are relatively elastic and customers will curtail or shift consumption in response to changes in price. In section c, when prices are very high, demand is once again inelastic – the only consumption left that has not been curtailed is non-discretionary.

A demand curve such as the one hypothesized above must automatically imply elasticities that fluctuate with the price level. In fact, the theoretical demand curve shown above in Figure 18 would imply a set of own-price elasticities of demand such as those plotted in Figure 19 below.

Figure 19. Elasticities Implied by S-shaped Demand Curve



To determine whether or not the actual demand for electricity matched the hypothesized S-shaped demand curve, the following model was estimated for winter (December, January, and February), shoulder (March, April, May, September, October, and November) and summer (June, July, and August) non-holiday weekdays, using only observations between 6am and midnight. Note that for this model specification natural logs were not used as it was the demand curve itself which was the object of estimation rather than the own-price elasticity of demand.

Exploratory Model:

$$y_{i,t} = \alpha_i + \rho PRICE_t + \beta X_t + errors$$

Where:

- $y_{i,t}$ = Household i 's consumption of electricity (kWh) in hour t .
- α_i = The customer-level fixed effect.
- ρ = The estimated effect of an incremental change in price on electricity consumption.
- $PRICE_t$ = The hourly price of electricity in hour t .
- β = Vector of estimated coefficients.
- X_t = Vector of weather variables in hour t . This vector includes cooling degree hours, heating degree hours and a dummy for humid days equal to one when the dewpoint was greater than or equal to 65 degrees F.

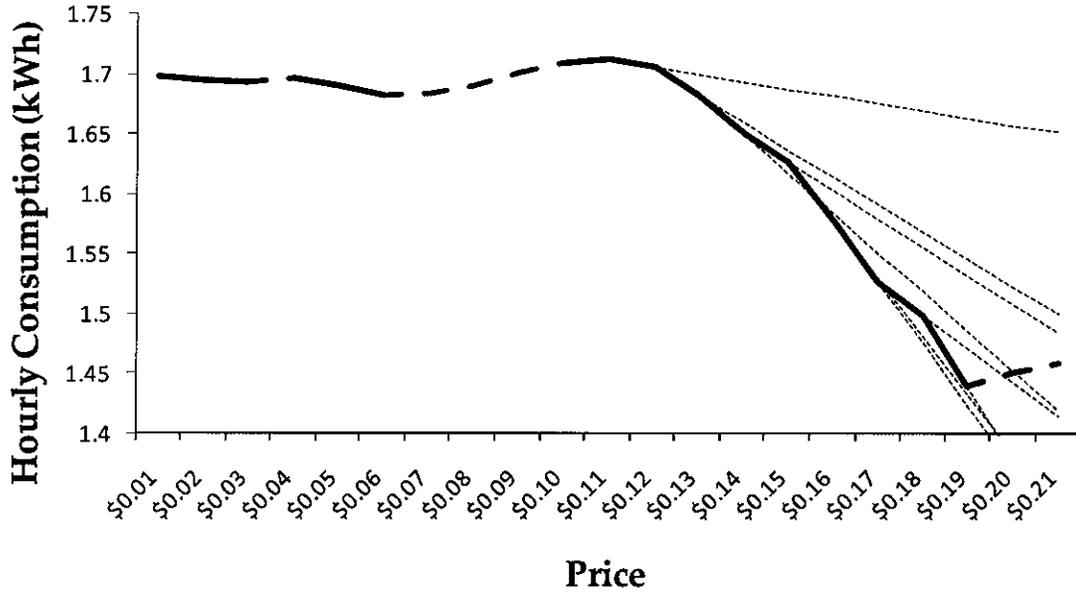
This model was then estimated in a number of iterations. For the first iteration, all hours were used, for the second iteration, all hours in which the price of electricity exceeded \$0.01 were used, for the third iteration all hours in which the price of electricity exceeded \$0.02 were used, and so on.

Results of Exploratory Analysis

The estimates thus obtained were then applied to the average level of electricity consumption per hour (1.7 kWh) and incremental increases in price matching the cut-off price used for each iteration of the estimation above. In this way an estimated demand curve for the average customer (in the summer months) could be generated and plotted as in Figure 20 below. Note that dashed sections of the blue curve represent positive or statistically insignificant estimates of the coefficient on the price variable. The

small dashed grey lines represent the linear functions estimated in the model above at the various cut-off points used.

Figure 20. Summer Demand Curve Implied by Exploratory Model Iterative Estimation



Estimates of price obtained above the cut-off point of \$0.19 were not significantly different from zero. It is unclear whether this is due to the demand curve flattening out as hypothesized above, or simply due to the paucity of data-points for which the price exceeds that level.

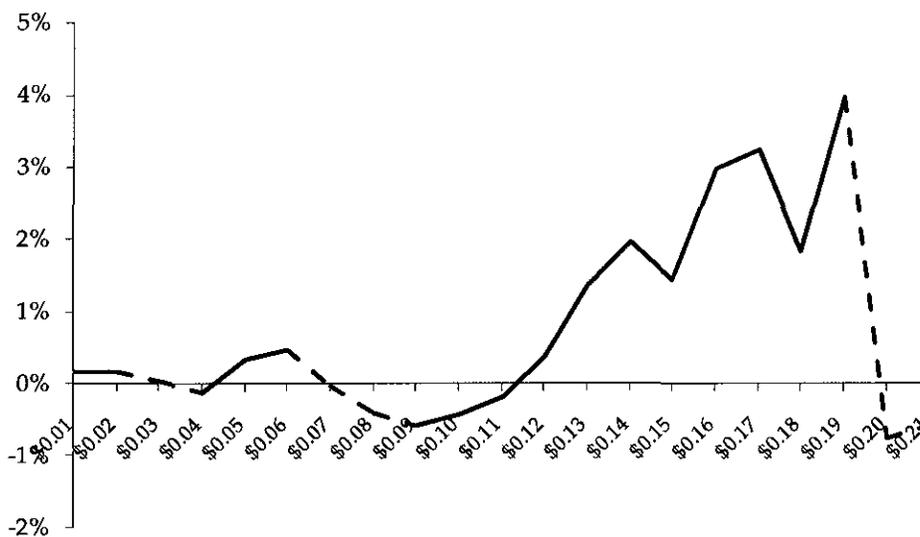
Using this implied demand curve, it is possible to estimate the average customer’s own-price elasticity of demand, change in level of consumption, and percentage change in consumption at each incremental increase in price. These are presented in Table 22. Values highlighted in red indicate values derived from estimates that are statistically not significant from zero.

Using the values in the third column of the following table– “Incremental % change in consumption” – the percent reduction in consumption may be plotted for each incremental increase in price. This plot is presented in Figure 21. Dashed sections of the blue line represent values derived from positive or not statistically significant estimates.

Table 22. Implied Summer Own-Price Elasticity of Demand

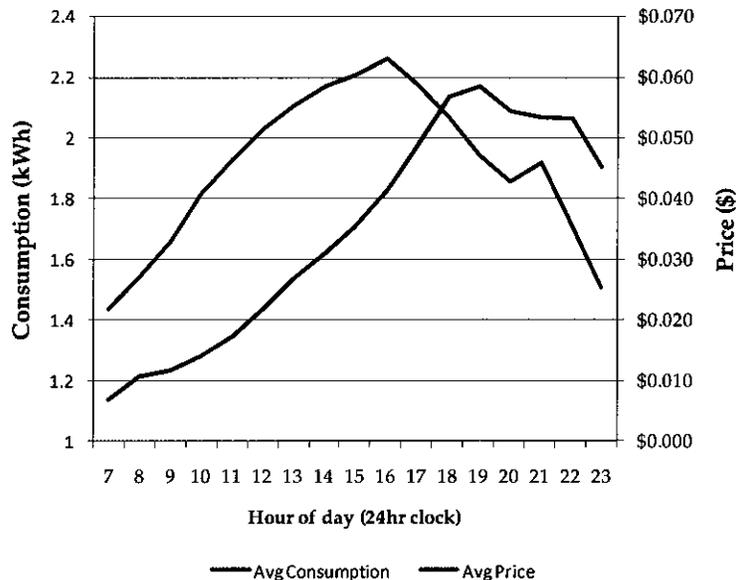
Price	Implied Elasticity	Incremental % change in consumption	Incremental change in consumption (kWh)
\$0.01	0.00	0%	0.00
\$0.02	0.00	0%	0.00
\$0.03	0.00	0%	0.00
\$0.04	-0.01	0%	-0.01
\$0.05	-0.02	0%	-0.01
\$0.06	0.00	0%	0.00
\$0.07	0.03	0%	0.01
\$0.08	0.05	1%	0.01
\$0.09	0.04	0%	0.01
\$0.10	0.02	0%	0.00
\$0.11	-0.04	-0.4%	-0.01
\$0.12	-0.16	-1%	-0.02
\$0.13	-0.25	-2%	-0.03
\$0.14	-0.20	-1%	-0.02
\$0.15	-0.45	-3%	-0.05
\$0.16	-0.52	-3%	-0.05
\$0.17	-0.31	-2%	-0.03
\$0.18	-0.71	-4%	-0.06
\$0.19	0.15	1%	0.01
\$0.20	0.12	1%	0.01

Figure 21. Implied Percent Reduction in Consumption Given Incremental Increase in Price



It should be noted by the reader that the estimates of customer response to price changes obtained from the exploratory model are likely to be conservative, although the degree of conservatism will decline as the cut-off price increases. This conservatism is due to the correlation of intra-day price and consumption movements. As an illustration, the average summer hourly consumption by hour, and the average summer hourly price are plotted in Figure 22 below.

Figure 22. Average Summer and Consumption and Price By Hour



Note that price and consumption both begin low in the early hours of the day, both gradually rise over the course of the day and both gradually decline together in the evening. These movements are correlated in the opposite manner to what would be expected – that is, consumption is increasing through the day as the price increases. It is clearly not the case that higher prices cause greater consumption, but simply that consumption – and prices – rise during the day and fall at night because that is when most customers require their energy.

This apparent relationship, the spurious positive correlation between intra-day prices and consumption, leads to serial correlation in the error term of the regression and causes a positive bias in the estimates. This spurious correlation will tend to bias estimates of the relationship between consumption and price upwards and make it appear as if an increase in price causes an increase in demand.

The negative estimates obtained above, therefore are negative because the true inverse relationship –price goes up and consumption goes down – is over-powering the correlative effect arising from the spurious intra-day correlation between price and consumption. Thus the estimates are in fact conservative.

The reason why the degree of conservatism declines as the cut-off price increases is due to the fact that higher electricity prices are disproportionately distributed among a small group of hours and by excluding the lower-price hours in one cent increments, the correlative effect is thus gradually reduced.

An attempt by Summit Blue/Navigant Consulting was made to control for this correlative effect by performing a similar estimation, but using only the data-points from a single hour of the day.¹⁷ This would entirely remove any intra-day correlative effects. Unfortunately the results of these ancillary regressions were inconclusive and erratic. This is due to an effect touched on at the start of the Elasticity section of this report above, the estimation of which is beyond the scope of this year's study: the cross-price elasticity of demand.

Recall that the cross-price elasticity of demand is the percentage change in the consumption of one good (or in this case the consumption of electricity in a given hour, for example between noon and 1 p.m.) that comes about when the price of another good (for example, the consumption of electricity between 9 p.m. and 10 p.m.) increases by 100%.

In general, if the price is relatively high between 9 p.m. and 10 p.m. it will also usually be relatively high between noon and 1 p.m. Thus, although a customer's own-price elasticity of demand would indicate that his or her consumption between 9 p.m. and 10 p.m. should decrease, if consumption between 9 p.m. and 10 p.m. and consumption between noon and 1 p.m. are in fact substitutes, the *cross-price* elasticity of consumption will cause consumption between 9 p.m. and 10 p.m. to *rise*. These interactions were suspected to be the reason for the erratic results obtained using hour-by-hour regressions.

When the ancillary regressions were attempted once more, with the price of other hours as well as the price corresponding to the hour of consumption included as regressors, it was found that many of the parameter estimates on these regressors were significant and positive, indicating that there was indeed a significant cross-price effect. No further exploratory analysis was pursued, however, falling as it does beyond the scope of this year's study.

The two central conclusions of the above analysis are:

1. **The own-price elasticity of demand is almost certainly *not* constant.**
2. **There exist significant, if unquantified, cross-price effects.**

These conclusions lay a solid foundation for the 2010 impact analysis and indicate the path which Summit Blue/Navigant Consulting must explore in order to better quantify both own- and cross-price elasticities of demand change with price level.

Suggested Analytic Approach for Elasticity Estimation in 2010 Evaluation – Next Steps

The two central conclusions above, that own-price elasticity of demand is not constant and that there exist significant cross-price effects, suggest that any approach taken in the 2010 PSP impact evaluation must somehow control for both features.

One framework that suggests itself as well-suited to estimating an S-shaped demand curve (from which own-price and cross-price elasticities could be derived) is a regime-changing framework driven by Markov-switching. This type of model postulates that there exist two or more "states" or "regimes" within which the relationship between the dependent and independent variables exist, e.g., a low-price regime and a high-price regime. Each regime is, in essence, its own model and is in some ways analogous

¹⁷ That is, regressing consumption that occurs between, for e.g., noon and 1 p.m. against the price at that time.

to the manner in which two price elasticities of Method B were estimated, although inherently superior in that the “threshold” at which one regime switches for another is determined endogenously within the model.

The probability of being in one regime or another is estimated by maximum likelihood and is driven by a cascading Markov chain. In such a model, the hourly price of electricity would be used as a regressor in estimating the probability of switching between regimes. This procedure is well established in econometric literature and is explained exhaustively by Hamilton as well as Kim and Nelson,¹⁸ among others.

Although this approach has not been applied specifically to the estimation of a demand curve for electricity, it has been used quite fruitfully in the past for the estimation of the probability of price spikes occurring in electricity markets. In particular, the work of Kanamura and Ohashi (2007)¹⁹ and of Mount, Ning, and Cai (2006)²⁰ make use of this framework for forecasting such price spikes. An informative empirical comparison of various regime-switching models for electricity spot prices by Janczura and Weron (2010)²¹ provides additional context. Since the effect of quantity demanded on price (the concern of the papers cited above) and the effect of price on the quantity demanded (the concern of the PSP impact evaluation) are effectively two sides of the same coin it seems likely that the methods used in the papers cited above could be very useful in helping to quantify the degree to which price dictates residential electricity consumption.

Another possible analytic framework that could be used to explore and quantify the price responsiveness of residential electricity consumers, and one which is explicitly designed to address the cross-price effects is that of the “almost ideal demand system” (AIDS). This procedure is quite popular for exploring household expenditures on a variety of goods and has in the past been used by Brannlund et al (2007)²² to estimate elasticities of demand for electricity, although only for overall demand (i.e., with a quarterly rather than hourly time series) in relation to the rebound effect of energy conservation.

Summit Blue/Navigant Consulting intends to explore both of these frameworks, as well as any others which may suggest themselves in the course of those explorations, to enable the estimation both of own-price elasticities of demand, but, just as importantly, the cross-price elasticities of demand to a high degree of rigor for the 2010 PSP impact evaluation.

¹⁸ Kim, Chang-Jin and Nelson, Charles R. *State-Space Models With Regime Switching*, MIT Press, 1999

Hamilton, James *Time Series Analysis* Princeton University Press, 1994 (see Chapter 22: Modeling Time Series with Changes in Regime).

¹⁹ Kanamura, T., Ohashi, K. (2008). *On transition probabilities of regime switching in electricity prices*. *Energy Economics* 30, 1158-1172.

²⁰ Mount, T.D., Ning, Y., Cai, X. (2006). *Predicting price spikes in electricity markets using a regime-switching model with time-varying parameters*. *Energy Economics* 28, 62-80.

²¹ Janczura, J., Weron, R. (2010). *An empirical comparison of alternate regime-switching models for electricity spot prices*. Currently unpublished, available at: <http://mpira.ub.uni-muenchen.de/20661/>

²² Brannlund, R., Ghalwash T., Nordstrom J. (2007). *Increased energy efficiency and the rebound effect: Effects on consumption and emissions*. *Energy Economics* 29, 1 – 17.

Appendix C » Elasticity Model Output

Model Output – Method A – Overall Elasticity Estimate

METHOD A – ESTIMATE OF OVERALL OWN-PRICE ELASTICITY OF DEMAND – WINTER
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7374	7352691.13	997.11	2425.90	<.0001
Error	2.29E7	9428966.01	0.41		
Corrected Total	2.29E7	16781657.13			

R-Square	Coeff Var	Root MSE	lnkwh Mean
0.438139	-954.7643	0.641114	-0.067149

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	7371	6955526.571	943.634	2295.79	<.0001
lnprice	1	78379.523	78379.523	190692	<.0001
DEW	1	97009.017	97009.017	236016	<.0001
TEMP	1	221776.016	221776.016	539565	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	52887.2837	52887.2837	128671	<.0001
DEW	1	73248.3545	73248.3545	178208	<.0001
TEMP	1	221776.0158	221776.0158	539565	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	0.1304961479	0.00036380	358.71	<.0001
DEW	0.0076503798	0.00001812	422.15	<.0001
TEMP	-.0126339894	0.00001720	-734.55	<.0001

METHOD A – ESTIMATE OF OVERALL OWN-PRICE ELASTICITY OF DEMAND – SUMMER
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5621	3844679.112	683.985	1510.67	<.0001
Error	8.96E6	4058713.958	0.453		
Corrected Total	8.97E6	7903393.070			

R-Square	Coeff Var	Root MSE	lnkwh Mean
0.486459	293.2657	0.672881	0.229444

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	5618	3515858.759	625.820	1382.21	<.0001
lnprice	1	74738.138	74738.138	165069	<.0001
DEW	1	197741.740	197741.740	436739	<.0001
TEMP	1	56340.476	56340.476	124436	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	865.6055	865.6055	1911.81	<.0001
DEW	1	108195.2537	108195.2537	238964	<.0001
TEMP	1	56340.4756	56340.4756	124436	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-0.023487646	0.00053718	-43.72	<.0001
DEW	1.145523426	0.00234335	488.84	<.0001
TEMP	1.082992571	0.00307010	352.75	<.0001

Model Output – Method A – Overall Elasticity By Cohort Vintage

METHOD A – ESTIMATE OF OVERALL OWN-PRICE ELASTICITY OF DEMAND – SUMMER, NEW PARTICIPANTS ONLY
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3610	1840993.696	509.971	1190.63	<.0001
Error	4.22E6	1807025.672	0.428		
Corrected Total	4.22E6	3648019.368			

R-Square Coeff Var Root MSE lnkwh Mean
0.504656 300.7560 0.654461 0.217605

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	3607	1657324.892	459.475	1072.74	<.0001
lnprice	1	69815.807	69815.807	162999	<.0001
DEW	1	86835.315	86835.315	202735	<.0001
TEMP	1	27017.683	27017.683	63078.4	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	602.75260	602.75260	1407.25	<.0001
DEW	1	47514.46611	47514.46611	110932	<.0001
TEMP	1	27017.68289	27017.68289	63078.4	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-0.052914049	0.00141054	-37.51	<.0001
DEW	1.158089614	0.00347707	333.07	<.0001
TEMP	1.259747710	0.00501584	251.15	<.0001

METHOD A – ESTIMATE OF OVERALL OWN-PRICE ELASTICITY OF DEMAND – SUMMER, EXPERIENCED PARTICIPANTS ONLY
The GLM Procedure

Dependent variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2013	2003960.989	995.510	2099.30	<.0001
Error	4.75E6	2250294.550	0.474		
Corrected Total	4.75E6	4254255.539			

R-Square Coeff Var Root MSE lnkwh Mean
0.471049 286.9606 0.688630 0.239974

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	2010	1857415.704	924.087	1948.68	<.0001
lnprice	1	30512.470	30512.470	64343.6	<.0001
DEW	1	93031.698	93031.698	196182	<.0001
TEMP	1	23001.116	23001.116	48503.9	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	232.00808	232.00808	489.25	<.0001
DEW	1	59238.83217	59238.83217	124921	<.0001
TEMP	1	23001.11605	23001.11605	48503.9	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-0.013319662	0.00060218	-22.12	<.0001
DEW	1.125660021	0.00318486	353.44	<.0001
TEMP	0.941513970	0.00427502	220.24	<.0001

Model Output – Method B – Overall Elasticity Estimate Below and Above Threshold Price of \$0.13

METHOD B – ESTIMATE OF SUMMER OWN-PRICE ELASTICITY OF DEMAND WHEN HOURLY PRICE < \$0.13
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5621	3252297.953	578.598	1309.16	<.0001
Error	7.85E6	3467426.476	0.442		
Corrected Total	7.85E6	6719724.430			

R-Square Coeff Var Root MSE lnkwh Mean
0.483993 489.2876 0.664802 0.135871

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	5618	2959173.869	526.731	1191.80	<.0001
lnprice	1	75768.905	75768.905	171438	<.0001
DEW	1	140194.904	140194.904	317210	<.0001
TEMP	1	77160.275	77160.275	174586	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	114.32601	114.32601	258.68	<.0001
DEW	1	51725.32175	51725.32175	117036	<.0001
TEMP	1	77160.27545	77160.27545	174586	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-0.010243422	0.00063689	-16.08	<.0001
DEW	0.873082752	0.00255209	342.10	<.0001
TEMP	1.348957659	0.00322845	417.83	<.0001

METHOD B – ESTIMATE OF SUMMER OWN-PRICE ELASTICITY OF DEMAND WHEN HOURLY PRICE >= \$0.13
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1964	143815.5275	73.2258	185.30	<.0001
Error	249542	98614.2589	0.3952		
Corrected Total	251506	242429.7864			

R-Square Coeff Var Root MSE lnkwh Mean
0.593225 160.9526 0.628634 0.390571

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	1961	140401.5959	71.5969	181.18	<.0001
lnprice	1	299.4870	299.4870	757.85	<.0001
DEW	1	776.5995	776.5995	1965.17	<.0001
TEMP	1	2337.8450	2337.8450	5915.88	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	171.114592	171.114592	433.00	<.0001
DEW	1	342.305800	342.305800	866.20	<.0001
TEMP	1	2337.845016	2337.845016	5915.88	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-0.248322669	0.01193358	-20.81	<.0001
DEW	0.620157947	0.02107139	29.43	<.0001
TEMP	1.668043521	0.02168690	76.91	<.0001

METHOD B - ESTIMATE OF WINTER OWN-PRICE ELASTICITY OF DEMAND WHEN HOURLY PRICE < \$0.13
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7229	2116586.476	292.791	884.88	<.0001
Error	5.55E6	1837851.361	0.331		
Corrected Total	5.56E6	3954437.836			

R-Square Coeff Var Root MSE lnkwh Mean
0.535243 741.5350 0.575225 0.077572

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	7227	2059898.904	285.028	861.42	<.0001
lnprice	1	38498.541	38498.541	116351	<.0001
TEMP	1	18189.030	18189.030	54971.1	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	14908.92455	14908.92455	45057.9	<.0001
TEMP	1	18189.02980	18189.02980	54971.1	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	0.1726983765	0.00081358	212.27	<.0001
TEMP	-.0052915291	0.00002257	-234.46	<.0001

METHOD B - ESTIMATE OF WINTER OWN-PRICE ELASTICITY OF DEMAND WHEN HOURLY PRICE >= \$0.13
The GLM Procedure

Dependent variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	535	7453.59547	13.93195	44.17	<.0001
Error	17693	5580.45297	0.31540		
Corrected Total	18228	13034.04844			

R-Square Coeff Var Root MSE lnkwh Mean
0.571856 403.4958 0.561609 0.139186

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	533	7429.655409	13.939316	44.20	<.0001
lnprice	1	3.248710	3.248710	10.30	0.0013
TEMP	1	20.691352	20.691352	65.60	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	4.74180080	4.74180080	15.03	0.0001
TEMP	1	20.69135182	20.69135182	65.60	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-.0867406040	0.02237097	-3.88	0.0001
TEMP	-.0036527030	0.00045098	-8.10	<.0001

METHOD B - ESTIMATE OF SHOULDER OWN-PRICE ELASTICITY OF DEMAND WHEN HOURLY PRICE < \$0.13
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6929	4389135.278	633.444	1650.50	<.0001
Error	1.42E7	5461247.884	0.384		
Corrected Total	1.42E7	9850383.162			

R-Square Coeff Var Root MSE lnkwh Mean
0.445580 -330.4706 0.619508 -0.187462

Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	6926	4332571.863	625.552	1629.93	<.0001
lnprice	1	1566.337	1566.337	4081.23	<.0001
DEW	1	0.372	0.372	0.97	0.3245
TEMP	1	54996.706	54996.706	143299	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	2749.52013	2749.52013	7164.13	<.0001
DEW	1	33762.43195	33762.43195	87971.1	<.0001
TEMP	1	54996.70610	54996.70610	143299	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	0.0395211096	0.00046693	84.64	<.0001
DEW	0.0062678203	0.00002113	296.60	<.0001
TEMP	-.0079837348	0.00002109	-378.55	<.0001

METHOD B - ESTIMATE OF SHOULDER OWN-PRICE ELASTICITY OF DEMAND WHEN HOURLY PRICE >= \$0.13
The GLM Procedure

Dependent Variable: lnkwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1992	19663.07977	9.87102	22.23	<.0001
Error	45949	20398.74248	0.44394		
Corrected Total	47941	40061.82225			

R-Square Coeff Var Root MSE lnkwh Mean
0.490818 -397.6818 0.666291 -0.167544

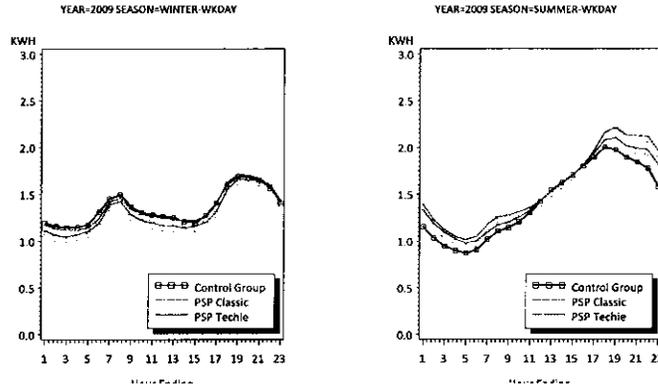
Source	DF	Type I SS	Mean Square	F Value	Pr > F
acctno	1989	19578.08742	9.84318	22.17	<.0001
lnprice	1	12.40984	12.40984	27.95	<.0001
DEW	1	1.60261	1.60261	3.61	0.0574
TEMP	1	70.97989	70.97989	159.89	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
lnprice	1	16.60072431	16.60072431	37.39	<.0001
DEW	1	48.76479803	48.76479803	109.84	<.0001
TEMP	1	70.97989415	70.97989415	159.89	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
lnprice	-.1345412467	0.02200167	-6.12	<.0001
DEW	0.0050628590	0.00048307	10.48	<.0001
TEMP	-.0051640447	0.00040840	-12.64	<.0001

Appendix D » Load Curve Comparisons for Subgroups of Customers

Go Paperless "Techies" vs. Classic - Winter and Summer

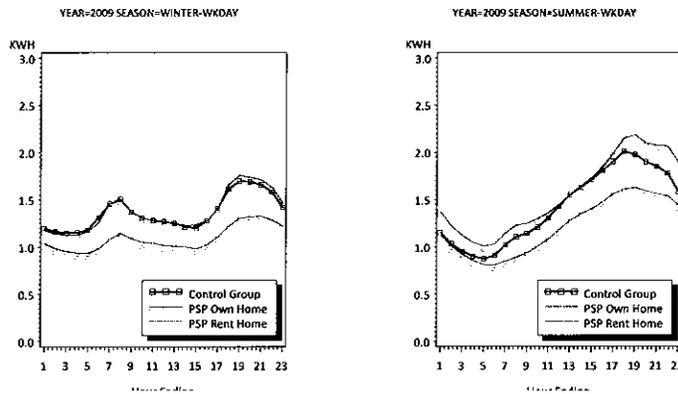


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31% chose the 'Go Paperless' option.

Own Home vs. Rent Home - Winter and Summer

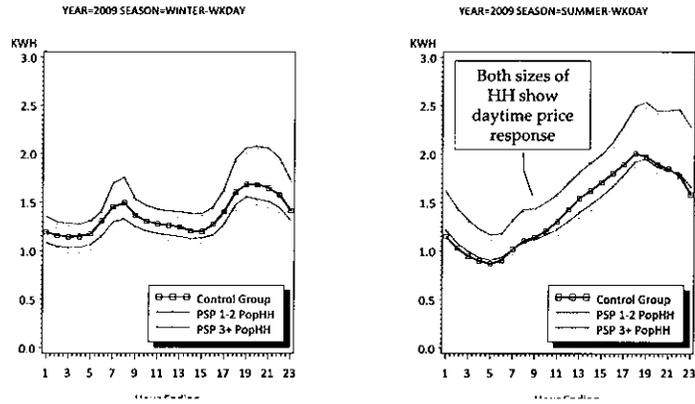


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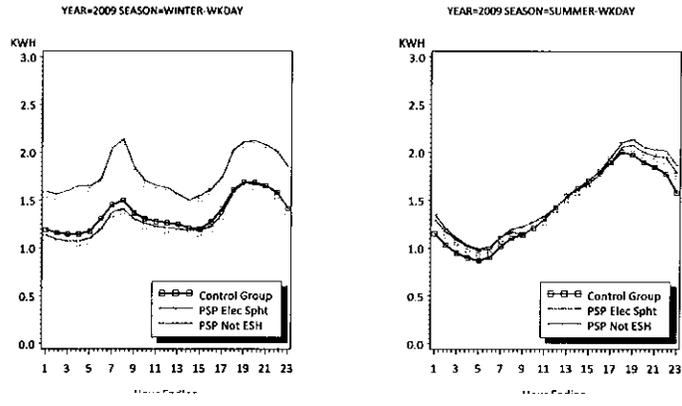
10% of PSP participants are renters.

1-2 Person Households vs. 3+ Persons - Winter and Summer



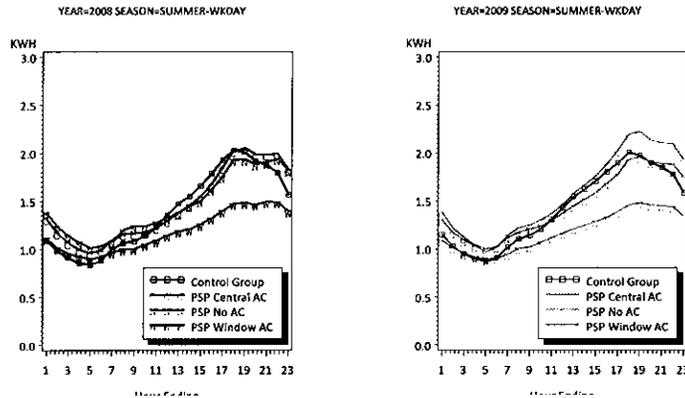
57% of PSP participants are in 1-2 person households.

Electric Primary Space Heat Fuel vs. Other Fuels - Winter and Summer



7% of PSP Participants report primary electric space heat use. (591/8706)

Type of Air Conditioning – Summer 2008 and Summer 2009 (Low Price Days)



Control AC use in 2009 is 10% higher than in 2008. This is due to the fact that the 2009 data is based on a higher percentage of homes with Central AC.

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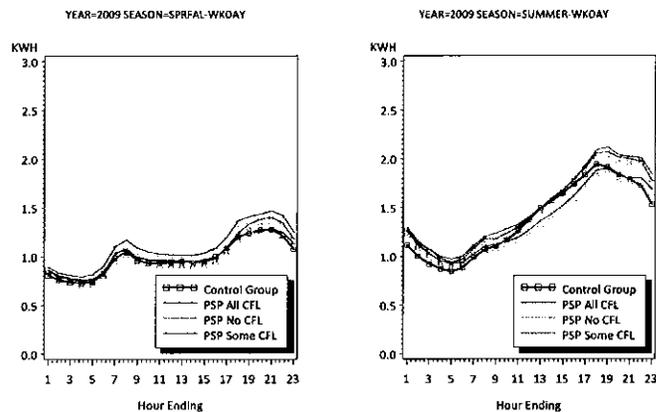
These are comparable because High Price Days are not included in 2008.

Is this increased use due to low rates?

Or is this just a reflection of the higher use, 3+ person homes?

74% have Central AC

Use of CFLs in Home – Spring/Fall and Summer of 2009



All CFL use in 2009 is 10% higher than in 2008. This is due to the fact that the 2009 data is based on a higher percentage of homes with All CFL.

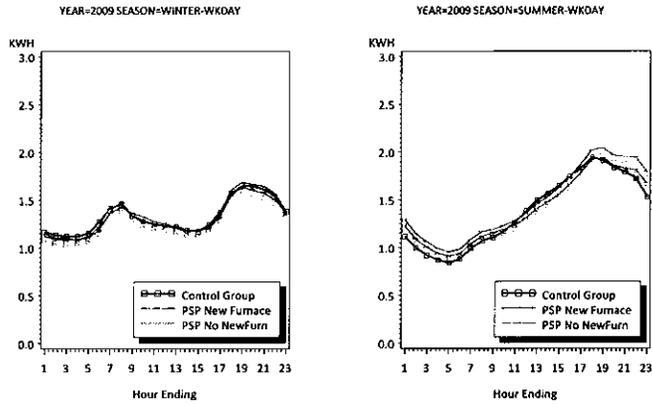
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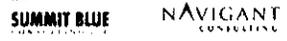
Is having all CFLs a sign of a conservation ethic related to less AC use?

46% of survey respondents report they use all CFLs in their homes.

Recently Installed New Furnace – Winter and Summer 2009

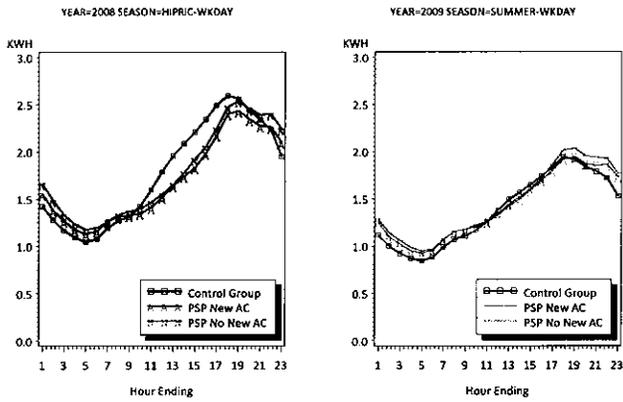


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Not a lot of impact, but nice to see some impact in the correct places.
 Installation of a new Central AC could be correlated with installation of a new furnace.
 25% of survey respondents reported that they installed a new furnace in the last five years.

Recently Installed New Central AC – High Price Days 2008 and Summer 2009

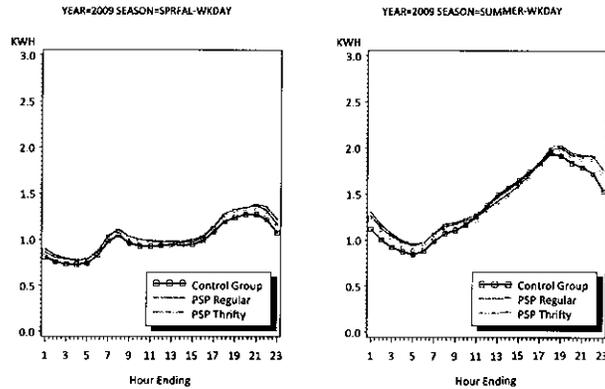


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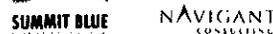
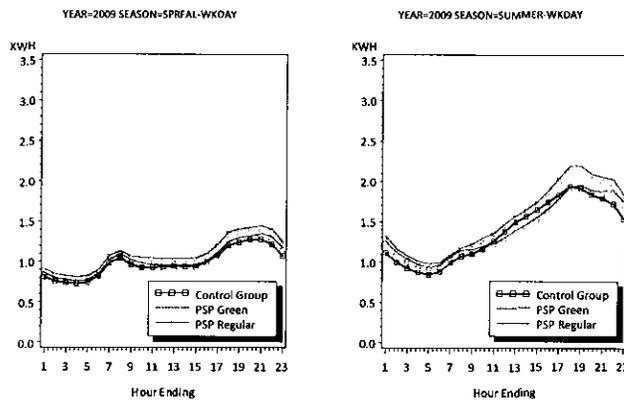
As Central AC stock turns over, we would expect to see decreased summer peaks.
 However, PSP price response potential may stay relative.
 20% of survey respondents reported that they installed a new air conditioner in the last five years.

Score themselves High on 'Thrifty' – Spring/Fall and Summer 2009



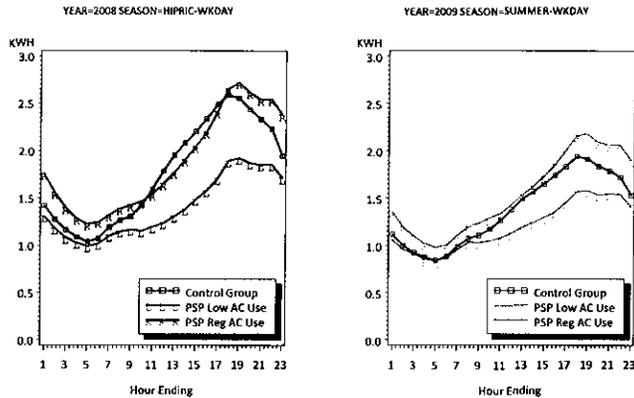
Both groups respond the same to price signals.
 61% of survey respondents gave themselves the highest score on the 'thrifty' scale.
 "I always shop for the lowest prices, even if it takes more time and effort."

Score themselves High on 'Green' – Spring/Fall and Summer 2009



73% of survey respondents gave themselves the highest score on the 'green' scale.
 "Everyone should make a real effort to conserve energy even if they don't have to worry about the cost."

Say they regularly limit their AC use – High Price Days 2008 and Summer 2009

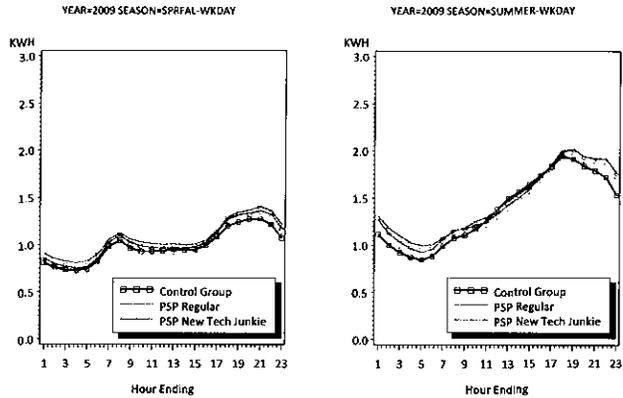


Electricity usage on high price days (KWH) from PJM



28% of survey respondents gave themselves the highest score on this question: "I try not to use air conditioning often"

New Tech Junkies – Spring/Fall and Summer 2009

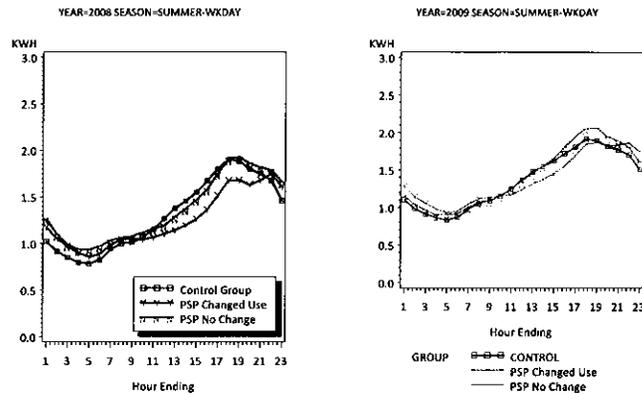


Electricity usage on high price days (KWH) from PJM



68% of survey respondents gave themselves the highest score on this question: "I am usually eager to try new products with new technologies."

Have you changed your use? – Summer 2008 and 2009

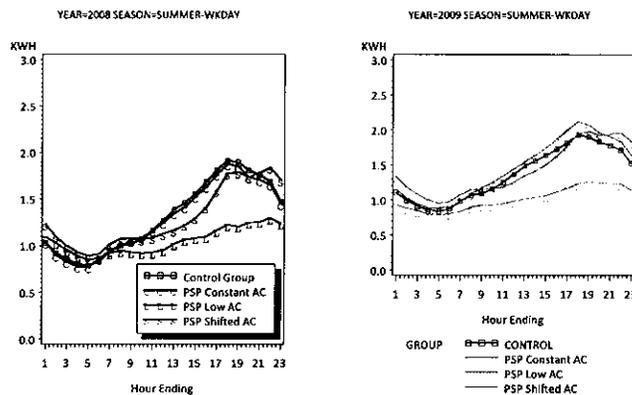


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74% of respondents to the Fall 2009 participant survey said that they changed their electric usage in 2009 compared to how they used energy in 2008.

AC Use Patterns – Summer 2008 and 2009



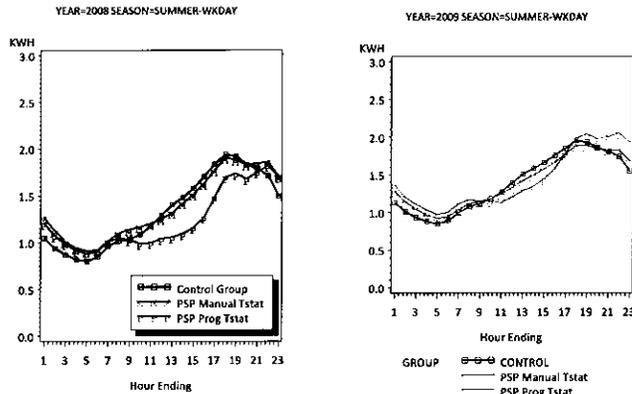
group in 2008 and are higher in 2009.

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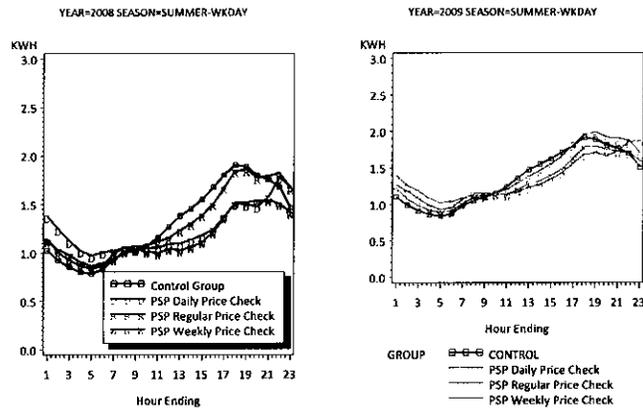
16% of respondents reported that they kept their AC set at a constant temperature all summer.
 10% reported that they lowered their use of AC.
 74% reported that they shifted their use of AC.

AC Use Shifting by Type – Summer 2008 and 2009



Of customers who reported that they shifted their use of AC, 47% did it with manual adjustments to their thermostat and 53% used their programmable thermostat features.

How often do you check prices? – Summer 2008 and 2009



21% of respondents reported checking prices daily and 17% checked prices weekly. Others are considered 'regular' price checkers.

Appendix E » Detailed Net Benefit Calculations

<i>Calendar Year</i>	2008	2009
<i>Incremental Year</i>	1	2
Non-Participant Reduction in MISO Price Over 50 Peak Hours		
Estimated from Market Effects model (see Table 19)	\$978,664	\$758,700
Utility/Participant avoided capacity costs		
Number of Participants	3,000	7,000
kW per hour reduction during top 50 hours	0.25	0.15
Total MW per hour reduction during top 50 hours	0.750	1.050
Capacity Cost (\$/kW-Summer)	\$14.57	\$8.49
Total value of avoided capacity costs	\$10,928	\$8,915
Utility/Participant avoided energy costs		
Number of Participants	3,000	7,000
Reported average annualized bill savings per customer	\$92.65	\$304.98
Add back PSP Participation Charge per customer (\$2.25 per month)	\$27.00	\$27.00
Add average annual bill savings from conservation (@10 cents per kWh)	\$18.60	\$15.10
Total average annualized bill savings per customer	\$138.25	\$347.08
Total value of avoided energy costs (new participants get half of annualized savings)	\$207,375	\$1,735,400
Program Implementation Costs - CNT		
Total Expenses in Annual Report	\$420,458	\$491,619
Program Implementation Costs - Ameren		
Ameren all-in PSP program costs reported to the ICC	\$695,876	\$925,308
Take out payments to CNT	\$420,458	\$491,619
Take out payments to Summit Blue/Navigant Consulting	\$64,000	\$82,000
Net Program Implementation Costs - Ameren	\$211,418	\$351,689
Evaluation Costs		
Summit Blue/Navigant Contract	\$64,000	\$82,000