

DSR Consumer Surveys Subgroup -- Summary of Member Contributions

(Updated: Sept. 30, 2004)

The DSR Consumer Surveys Subgroup is made up of representatives from the Pennsylvania Public Utility Commission, the Office of Consumer Advocate, the Energy Association of Pennsylvania, Allegheny Power, FirstEnergy, PECO, PPL, UGI, the Industrial Energy Consumers of Pennsylvania (IECPA), and the Demand Response and Advanced Metering (DRAM) Coalition.

The mission tasked to the Subgroup was threefold:

- To collect existing information from various sources, including EDC focus groups, surveys and other available consumer research;
- To provide input into issues related to consumer interest in access to DSR tools; and
- To provide input into issues related to consumer willingness to participate in available programs and pay fees associated with that participation.

Subgroup members were asked to submit relevant information related to the above mission. The summary of the Subgroup members' individual responses is organized on the next few pages, by the following sections:

- I. Were Customers Interested in DSR Tools if Given the Opportunity?
- II. The Characteristics of a DSR Consumer Participant
- III. Company Program Highlights, Results and Conclusions
- IV. Potential Recommendations

Relevant input related to each of these sections is summarized. The contributing Subgroup company or organization is noted.

Attached as Appendix I is a matrix, Summary of Consumer Satisfaction Research, from DRAM with survey results from other states and projects.

Attached as Appendix II is an article related to Puget Sound's program, submitted by the Energy Association of Pennsylvania.

I. Were Customers Interested in DSR Tools if Given the Opportunity?

PUC -- Three questions related to DSR were asked as part of a statewide Utility Choice survey in March 2001. Sixty-four percent of respondents said they would make lifestyle changes to reduce the amount of power used, even though current law prohibits electricity prices from increasing. Sixty-one percent said all customers need to do their part and use less electricity in the summer months so there is enough electric power for everyone. Eighty-six percent of respondents said they were not aware that the current state law protects consumers from paying the actual cost of electricity.

Allegheny Power -- Focus groups revealed initial interest waned for adjusting thermostats on a day-to-day basis, but participants considered them to be reliable, accurate and customer friendly. Participants indicated that incentives for bumping up the thermostat during pricing events were worthwhile depending on how many consecutive days the pricing events lasted.

FirstEnergy -- FirstEnergy provided information from two projects: the Energy ACCESS Home Energy Management Market Test pilot ("ACCESS") conducted by a New Jersey affiliate, JCP&L (a residential time-of-use rate with load control); and results from a survey of commercial/industrial customers that elected to not participate in a voluntary load response program in 2001. The ACCESS survey revealed a higher level of satisfaction among DSR pilot program customers than its regular customer base. Seventy-eight percent expressed an increase in overall satisfaction with the company. These participants were disappointed when the "no-risk" program ended. Regarding the commercial/industrial voluntary load response program, some customers who chose not to participate were wary that they may not be able to recover equipment costs. A majority of respondents said they would participate if key barriers (such as costs or risk) were addressed.

PECO -- Free cable-channel trials in exchange for participation were popular with participants. Some participants became involved out of curiosity, some participants installed the technology and then forgot about it, and some participated because they wanted get a handle on high energy costs. One trial program survey revealed that participants were highly satisfied, but resistant to the idea of paying for the program beyond the trial. If participants were guaranteed that they would receive benefits, then they would be willing to pay for the program.

PPL -- Quarterly customer-satisfaction studies of randomly selected residential customers (200 per segment per quarter, a statistically significant sample) asked customers about reducing energy usage during peak times. Customers said they were most supportive of Variable Rates/Time of Day (47.5 percent); less enthusiastic about Direct Load Control (18.8 percent); and least supportive of Seasonal Rates (Winter/Summer, 15.8 percent). While two-thirds of the PPL customers in the survey know what a programmable thermostat is, only about 20 percent of those customers have one, with nearly all using the programmable features (yielding a net 11 percent of PPL customers among the respondents who use a programmable thermostat features today).

Only about one-third of PPL customers in the survey population are very interested in programmable thermostats, including those who already have one.

One 2002 study of just 13 participants in PPL's Off Peak Summer Pilot Program revealed that, although participants' overall satisfaction with the PPL Off-Peak Summer Pilot Program was mixed (only half gave a "very satisfied rating"), there was still a very strong willingness to recommend the program to a friend or relative.

That same study showed that approximately three out of four participants plan to stay in the Off-Peak Pilot Program. Nearly all (12 out of 13) either shifted or reduced their energy use while in the program. Similarly, most felt that they saved money (\$10 or less per month savings on their electric bill) while in the program. Participants suggested improving the program by changing the off-peak hours and providing rate comparisons in the billing statement.

In a 2003 study of PPL's Off Peak Summer Pilot Program participants, overall satisfaction was very high (77 percent of 124 respondents gave an 8, 9 or 10 score on a 10-point scale). Only 20 percent of the respondents gave the program a 5, 6 or 7, and 2 percent scored PPL less than a 5 with regard to overall satisfaction with the program. Better than eight of 10 participants would recommend this program to a friend, neighbor or relative. Better than eight of 10 participants plan to stay in the program, with only 13 percent stating that they plan to leave the program. Participants were nearly universal (96 percent), stating that they have either shifted or reduced their energy use while in the program. Eight out of 10 participants believed they saved money on their electric bills as a result of participating in this program. Three out of four participants joined the program for the expected savings, with roughly one in 10 participants joining to decrease electrical demand/improve electric reliability. Another one in 10 participants joined to save energy and reduced dependence on fossil fuels. Only about one in 20 joined for environmental reasons or other factors.

UGI -- Three-quarters of residential customers surveyed were not interested in a discount on electricity in exchange for putting a device on their water heater and/or central air conditioning that would allow the company to turn it off for no more than 30 minutes during peak electricity usage periods (71 percent). Out of the other remaining 29 percent of respondents, 14 percent are interested in this type of discount arrangement, while 8 percent say it depends on the amount of the discount, and 1 percent is not sure of their level of interest. Six percent of respondents say that this option is not applicable to them.

PJM Interconnection -- Surveys revealed nearly all participants in its Central Resource Adequacy Model program were satisfied with their participation, noting a strong preference toward shorter (six-month to one-year) commitment periods and more adverse to longer commitment periods. This information was collected at the suggestion of IECPA.

DRAM Coalition -- Surveys show that residential customers like time-based rates. A nationwide consumer survey in 2000 by Power Perceptions Inc. found that 43 percent of respondents were “extremely,” “very,” or “somewhat” interested in peak/off-peak prices. Participation in voluntary programs ranges as high as 30 percent for marketed opt-in programs, such as Arizona Public Service and Salt River Project residential time-of-use rates, and over 90 percent for default opt-out programs, such as Puget Sound Energy’s residential and small commercial time-of-use rates.

II. The Characteristics of a DSR Consumer Participant

Factors that Positively Impact Participation

Allegheny Power and PECO -- Participants who consider themselves to be technologically proficient are better candidates for program participation.

FirstEnergy -- Customers who participated in the ACCESS pilot registered a higher level of satisfaction than the general customer base, and were disappointed at the termination of the pilot program. The program was “risk free” -- customers were guaranteed they would not pay more than they would otherwise pay on the standard rate.

PECO -- Participants expressed passive initiation. These are the customers who participate because they have nothing to lose, are simply “curious” or enjoyed the free cable channels benefit. A few customers were energy or environmentally conscious, and were drawn to the conservation benefits. Participants also expressed being cost conscious and having a need for control -- with more accurate temperature settings. Participants appreciated bundling with smart thermostats and other services. Participants were comfortable with technology and wanted to be part of something. Males tended to be more active and involved.

PPL -- Quarterly satisfaction studies of randomly selected PPL residential customers (200 per segment per quarter, a statistically significant sample) show that PPL customers have a general understanding of electrical usage and conservation potential of different appliances. Most customers feel they have taken energy conservation steps in the past 12 months, including limiting air-conditioner use; turning off indoor lighting; turning down the thermostat during heating season; and buying new energy efficient appliances. Customers are responsive to public appeals to conserve energy during a crisis. This last finding is supported via the quarterly satisfaction research and via responses during focus groups.

DRAM Coalition -- Residential customers are generally the most price responsive, according to analyses by the Department of Energy, McKinsey, the California Energy Commission and others. See discussion on “Conclusions” below for additional detail.

Factors that Negatively Impact on Participation

Allegheny Power -- Customers generally lost interest in the thermostat program after a few weeks. Customers were more likely to opt out of the “pricing events” as the number of consecutive days that these events occurred increased.

FirstEnergy -- Commercial/industrial customers that did not elect to participate in the 2001 Voluntary Load Reduction curtailment program were uncertain of the risk versus the reward because of baseline uncertainties and unknown risks.

PECO -- Participants are not ready to pay for DSR tools. Some customers are reluctant technology users, especially seniors. For some customers, home comfort was more important than energy savings. Some customers did not like the loss of control over their environment. Some customers had privacy concerns.

PPL -- During focus groups sessions, commercial customers showed some reluctance to limit their energy usage when needed for business purposes. Reasons for non-participation included concerns over the impact of lifestyle and that the savings would not be great enough.

III. Company Program Highlights, Results and Conclusions

OCA -- Demand side program participants need to know the results of their demand response activities.

Allegheny Power -- Participants would strongly consider buying a thermostat if the payback would be two years or less. The thermostat program produced energy savings in heating and cooling costs and the thermostats were reliable, accurate and customer friendly.

Duquesne Light Company -- The Energy Association relayed information from Duquesne Light Company. Duquesne has not conducted any studies or surveys of its customers on the subject of DSR in general or on the results of its Direct Load Control Pilot Program, which will be run for the third consecutive summer beginning in June 2004. A post-summer survey for this year is being considered. Duquesne reiterated that, under its current rate structure and purchase power agreement with Orion Power, DSR programs are not cost-effective and provide no benefit to the company. As such, resources for DSR-related activities are limited and so far have not been extended to studies and general surveys on the topic.

FirstEnergy -- The Energy ACCESS Home Energy Management Market Test showed dramatic evidence of load shifting. However, the rates produced revenue losses that exceeded cost reduction, implying reductions in profitability.

FirstEnergy and PECO -- In order for a program to receive full consideration from a customer, the companies must be able to fully explain the costs and the benefits to the customer so the customer can make an informed decision on whether or not to participate.

PECO -- Training/education of customers should be consistent and equal. The technology must be fully functional and operational. There appears to be a relationship between the extent of benefits and the openness of customers to paying for the program. One consumer comment: "Proving to me that I've saved money will give them permission to charge."

PPL -- Quarterly satisfaction research studies of a random selection of PPL customers (200 per segment per quarter, a statistically significant sample) shows only about a third of all PPL customers are very interested in programmable thermostats. Customers are more supportive of Time of Day Rates, less supportive of Direct Load Control, and least supportive of Seasonal Rates. About half of the customers remember summer pleas for energy conservation, and 90 percent of those took steps to conserve energy at home. About two out of three customers would definitely take steps to conserve energy during a heat wave if they heard an appeal, with the other third willing to take steps after hearing an appeal. PPL research with DSR pilot program participants shows customer satisfaction was very high with DSR programs. Almost all customers believed they shifted or reduced their energy usage, and 80 percent believed they saved money.

UGI -- Nearly 75 percent of residential survey respondents are not interested in a discount on their electricity in exchange for putting a device on their water heater and/or central air conditioning that would allow a company to turn it off for no more than 30 minutes during peak electricity usage periods. Only 14 percent of the customers said yes unconditionally.

DRAM Coalition -- Residential electricity customers have been shown to be the most price-responsive customers in more than 50 programs over the past 20 years. Average price elasticity was measured at -0.30, which means that customers will reduce usage by 30 percent in response to a 100 percent price increase, i.e., going from regular rates to critical peak prices for a few hours in the afternoon on a summer weekday. Volunteers sometimes, but not always, have lower on-peak ratios and shift as much or more load than participants in mandatory programs.

Residential customers like time-based rates, with participation in voluntary programs ranging as high as 30 percent for marketed opt-in programs and over 90 percent for default opt-out programs. Demand response significantly reduces the need for peaking capacity over time.

IV. Potential Recommendations

OCA notes that the Regulatory Assistance Project (RAP) has grants to provide free consulting to public utility commissions, as members of the National Association of Regulatory Utility Commissioners (NARUC), on issues such as DSR. Perhaps this could be another useful venue to get statewide survey information about Pennsylvania consumer acceptance of and willingness to pay for DSR tools. RAP is a national nonprofit organization, formed in 1992 by experienced utility regulators, that provides research, analysis and educational assistance to public officials on electric utility regulation.

OCA recommends that the Commission form an education sub-group to consider strategies for better educating and informing Pennsylvania customers about the value of demand side response and energy conservation. PUC Communications staff notes that this recommendation could follow the model used to approve Telecommunications Relay Service consumer-education plans. This PUC Public Education Advisory Committee currently is made up of both external stakeholders and internal staff. According to OCA, marketing of DSR programs should focus on those customers who are most likely to be successful.

PPL and OCA recommend that the Commission establish a working group to explore the development of rules or guidelines for DSR programs with respect to customer information and administrative structure. The goal is to help ensure that program rules are clear and consumers are well-informed. A common understanding of consumer issues and guidelines will improve the success of DSR programs. Consumers will be more likely to use effective demand response programs that are based on clear, uniform procedures for participation and information. Many aspects of utility DSR programs will differ, including timeframe, extent of benefits, how benefits are obtained, etc. Guidelines may include standard formats for informing consumers about programs; the application process; verification of participants' enrollment and departure from the program; rights and responsibilities; and procedures for how financial costs may be assigned to consumers. Along with information on the process, consumers should be informed about the potential benefits of their participation. Also, participants should receive uniform information about their level of success while they participate in programs. It is important to establish guidelines as early as possible so that future programs will be clearly communicated to consumers.

The issues under consideration by the working group, at a minimum, should include:

- Customer disclosures;
- Program signup and departure information;
- General program consumer information; and
- Plain-language principles.

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Appendix I

Demand Response and Advanced Metering Coalition Summary of Consumer Satisfaction Research RESIDENTIAL DYNAMIC PRICING

Sept. 29, 2004

Program	Major Finding(s)	Customer Class	Reference(s)
AEP "Transtext" Critical Peak Pricing	93% would recommend to a friend	Residential	Consumer Energy Council of America. Quad Report. 1994.
Arizona Public Service Time-of-Use Rates	Over 75% shift load from peak to off-peak "Most" new customers sign up for time-of-use 40% of residential customers are on time-of-use rates Customers feel it gives them control over their electric bill and conserves peak energy	Residential	Southwest Energy Efficiency Project. Arizona Energy Efficiency Programs. 2002.
California Customer Survey	Average rating for time-of-use rates was 7 on scale of 1-10, with 10 most advantageous	Residential	Itron, Inc. Comments filed in CPUC Proceeding R.94-04-031. 1996.
CSW "Customer Choice and Control" Critical Peak Pricing	97% would continue participating 79% had greater understanding of energy use 80% were better able conserve energy	Residential	Hartway, R. <i>et al.</i> "Smart Meter, Customer Choice, Profitable Rate Option," Energy Journal. 1999.
GPU Critical Peak Pricing	Customers like choice of when to consume Customers like ability to manage energy costs Nearly 50% reduction in critical peak usage during some hours	Residential	Bratithwait, S. Presentation. California Energy Commission Workshop. 2002.
Gulf Power "Good Cents" Critical Peak Pricing	95% customer satisfaction 89% would recommend to others 86% are home during peak hours 85% pay more attention to	Residential	White, B. Presentation. Chartwell Conference. 2004.

	electricity use on program		
Nationwide Customer Survey	43% of consumers are interested in time-of-use rates.	Residential	Power Perceptions. Report: The Energy Consumer. 2000.
PG&E "Dispatchable" Critical Peak Pricing	94% either satisfied or very satisfied 98% would continue participating	Residential	Cruz, R. <i>et al.</i> Presentation. ACEEE Conference. 1994.
Puget Sound Energy Small Commercial and Residential Time-of-Use Rates	In 2001 and 2002, 85% of customers were satisfied with the program and "nearly all" would recommend it to others. Later in 2002, following mailing of bill comparisons, approximately 99% of customers remained on the program until it was suspended by PSE.	Residential	Swofford, G. Presentation. PA PUC DSR Workgroup, 2002. Seattle Times, 2002.

Appendix II



News Room

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PSE proposes to end pilot time-of-use program ahead of schedule

(11/06/02)

Program designed during energy crisis needs re-tooling for less volatile times

BELLEVUE - Puget Sound Energy (PSE) announced today that it will ask the Washington Utilities and Transportation Commission to end the company's pilot time-of-use billing program 10 months ahead of schedule so the company and interested parties can evaluate and possibly re-tool the program.

"We believe in the fundamental principle that customers who use energy efficiently should be rewarded," said Steve Reynolds, PSE's president and chief executive officer. "But it is clear that the program as currently designed is not giving many of our customers the rewards they expected and that we believe it should. We intend to analyze and restructure the program to see if it can add value in conjunction with our ongoing and expanded conservation programs."

PSE's time-of-use (TOU) program was created in 2000 during the energy crisis and was intended to provide financial incentives for customers to shift some of their electricity consumption to less expensive, off-peak times of the day. The program was restructured in July 2002 to reflect a calmer energy market. Since that time it has resulted in most participants' bills being slightly higher than on flat rates.

"Time-of-use pricing is an important economic and conservation tool," Reynolds said. "We are pleased that many customers joined us and helped explore a widespread use of the tool," he added. "However, when exploring new territory, you need to be able to recognize when the program is not working as you had hoped. After a complete internal review, we believe it is in the best interest of the program to close it at this time, have PSE return the administrative fee and begin a rigorous analysis of the program and how it could be successfully restructured for the future energy marketplace."

From July through September, TOU customers' bills were approximately 80 cents more per month. PSE will reimburse these customers the \$1.00 per month administrative

charge that was added to the program in July.

Background

The time-of-use program was launched in 2000 during the West Coast energy crisis and provided financial incentives for customers to shift their electric consumption to off-peak times of the day. During the crisis, the cost of power during peak periods was as much as \$145 higher per megawatt-hour than off-peak power. The program was designed to help PSE avoid buying this high priced power and then having to pass those costs along to customers. Most customers on the TOU program at the time paid less than they would have on traditional flat rates.

During the company's general rate case earlier in 2002, the TOU program was modified to reflect today's calmer wholesale electricity market where the price difference between peak and off-peak power is as little as \$5 per megawatt-hour. The result was less difference between the TOU program's retail peak and off-peak prices, meaning lower financial incentives for TOU customers to shift their power consumption. The costs of administering the program were also added to participants' bills under the revised plan. Since this revised plan went into effect in July 2002, most participants have paid slightly more than they would have on flat rates.

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[Back to the top](#)