

## EMERGING TECHNOLOGIES SHOWCASE WEBINAR: BEHAVIOR BASED ENERGY EFFICIENCY PROGRAMS

*Summer Goodwin – Bonneville Power Administration*

*Laura McCrae – Snohomish County PUD*

*Matthew Babbitts – Clark Public Utilities*

*Joel Smith – Puget Sound Energy*

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Question and Answer session

Snohomish County PUD – Laura McCrae

**Q:** How did this program tie to Starbucks' business mission? In other words, why would the employees care about energy use? They're there to sell coffee. How was the link made, if at all?

**A:** Starbucks has quite aggressive sustainability goals including energy-use reduction goals, water reduction and waste reduction. They have been pushing those messages to store employees over the last 3 or 4 years. Laura's understanding of why Starbucks was interested in this pilot is because they recognized that they couldn't completely reach their energy reduction goals just through capital improvements and equipment upgrades. They had to get employees engaged and taking appropriate action, making sure that equipment was turned off when not in use, appropriate levels of lighting were being used, etc. If they could drive some amount of measurable savings through simple and free actions by their employees, that would help get them to their sustainability goal.

**Q:** What were the savings from the Starbucks pilot for the 1 month active vs. 4 months "persistence"?

**A:** Pooled savings were between two and four percent for the competition period. The baseline period data that they collected didn't include enough cold weather days for good analysis of what happened during the persistence period. Baseline data went from May through July 2012. The competition period was August 2012 and the persistence period was September through December. They quickly realized that the temperature points they saw during their baseline didn't allow for fantastic analysis of persistence. There is an estimate of no persistence for the post-competition period which they don't think is entirely accurate because many of the stores indicated that they maintained the behaviors that they took on during the competition.

Lesson learned, in terms of planning for measurement verification, is to make sure that your baseline data period and the granularity of the data is consistent with the weather that you expect to see throughout the period that you're monitoring.

### Clark Public Utilities – Matthew Babbitts

Q: 350 kWh per household is only \$35 savings per year – what is the cost to deliver the report per household?

A: Matt doesn't know what it is per household off the top of his head. It is cost effective based on the equations that they use at Clark. 350 kWh per household may not seem like a lot but it works out to be about two percent of annual consumption. 20,000 households at 350 kWh a household are really big numbers. Summer Goodwin said that if you could hit two percent of the residential market, that's huge. 20,000 customers is a small percentage of their total residential base. If they can get 2% savings for each one of those houses, that's a huge success.

Q: When you say the control group was statistically equivalent, does this mean that previous to the pilot the two groups used the same amount of energy?

A: Clark PUD randomly picked 30,000 accounts from the utility base. They then went through another random allocation where those 30,000 either ended up in a test group or a control group. Both control and test groups are statistically equivalent because everyone is dealing with the same set of variables. For example, if it's a really cold winter, both the test group and the control group go through a really cold winter. There are not a lot of changing variables for each group. Information about what each group used before they segmented them into the testing/control group is not known, until the two groups are compared and to see how much additional savings were brought on by the actual home energy reports (HER). They do an analysis before they submit their final savings numbers where they draw out other measures that may have been dealing with savings. If a customer in either one of the groups puts in new windows, for example, it gets flagged in their system and they can back out those savings that the windows provide. So they're really narrowing down to just the behavioral based energy savings and not double counting energy savings. That was a big concern and they wanted to make sure they had a good grasp on that before they took credit for potentially any savings that weren't really there.

### Puget Sound Energy – Joel Smith

Q: Do you have any plans to return some of the suspended group to receiving reports? It would be interesting to know (a) what their results receiving the reports would then be, and (b) what their results would be if they then didn't receive the reports again. E.g., maybe receiving a report one year every four years (or whatever) could be almost as effective.

A: PSE has discussed that idea, and it's related to the sample size comment. Regrettably, there were not enough people in the program to be able to drop some off of the program, bring a portion of them back on and still be able to evaluate with confidence what the performance was. It's a great idea. In hindsight, if there were more than 40,000 people at the start, there would have been more of an opportunity. With the number of people actually in the program, it was decided to drop 10,000. But the population was not large enough to do that and still be able to continue to test with high confidence levels.

Q: Doesn't an increase in savings for both sets of treatment homes (reports and discontinued reports) suggest exogenous (external factors) factors of impact? In other words, something else besides the presence or absence of HERS reports increased savings by 10-20%.

A: While it's not possible to dispute that, the assumption is that the results are translating into actual behavior change with folks changing their habits and changing their behaviors and changing how they incorporate energy decisions into their lifestyle. Thus they're saving more when the opportunity is present. It's important to note that this is still all compared against a control group. It's not necessary to normalize for weather or economic impact. The nature of an experimental design should in theory have impact factors hitting the groups equally.

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Q: Did you learn anything about the mechanics of behavioral efficiency? If not, aren't you stuck with Random Control Testing methods for evaluation, since such a simple research design lacks external validity?

A: That's an excellent point. In general, program managers try to get certain information out of surveys. However, without a behavioral psychologist involved in creating the BBEE survey, with attention to elements such as word choice, order of question, and framing of the question, there is not much confidence to be gained from the results of the survey based on social norming. It's possible that some reciprocal types of responses could skew the results.