

Evaluation Efforts for SMUD's Home Electricity Reports Program

**EPA Webinar
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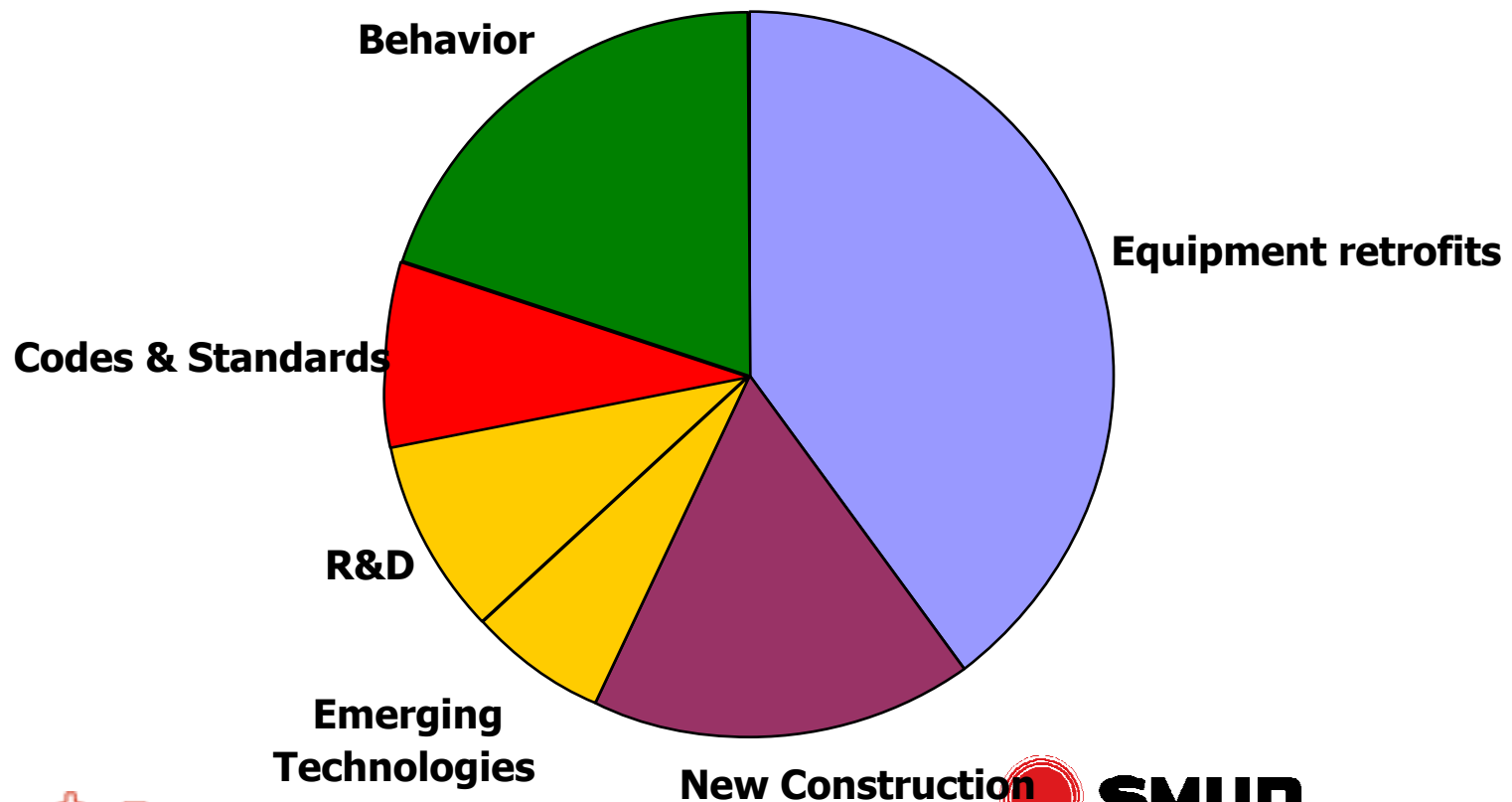
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Why this Program is Important

- SMUD Board Adopted 10-Yr Goals in 2007: 1940 GWh by 2017
The Problem: Only 1220 GWh said to be available to tap*



*Itron, Inc. Energy Efficiency Potential Study. (Sacramento, CA: Sacramento Municipal Utility District, 2006).



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Case Study #1: Home Electricity Reports



Home Electricity Report

Account number: 123456789
Report period: 03/13/10 - 04/13/10

We are pleased to provide this personalized report to you.

The purpose of the report is to:

- Provide information
- Track your progress
- Share energy efficiency tips

This information and much more available at smud.org/reports

BOB SMITH
555 MAIN STREET
SACRAMENTO, CA 95852

Last Month Neighbor Comparison

You used **34% LESS** electricity than your efficient neighbors.



How you're doing:

▶ **GREAT** 😊😊

Good 😊

More than average

* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

Who are your Neighbors?

■ All Neighbors

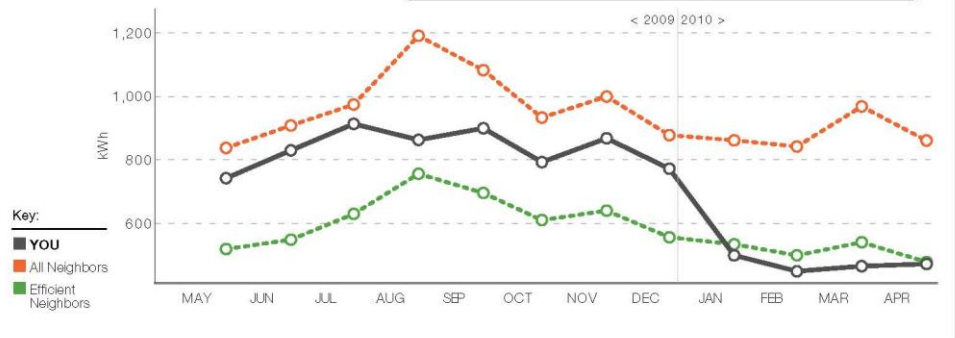
Approximately 100 occupied, nearby homes that are similar in size to yours (avg 2,856 sq ft) and have both electricity and natural gas service

■ Efficient Neighbors

The most efficient 20 percent from the "All Neighbors" group

Last 12 Months Neighbor Comparison

You used **22% MORE** electricity than your efficient neighbors.
This costs you about **\$150 EXTRA** per year.



Turn over for savings →

Home Electricity Reports

Leverage tools from the social sciences:

- Feedback
- Normative messaging
- Loss-aversion
- Make it easy
- Reminders
- Goal setting
- Commitments

Last Month Neighbor Comparison | You used **34% LESS** electricity than your efficient neighbors.



* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

How you're doing:

GREAT 😊 😄
Good 😊
More than average

Who are your Neighbors?

All Neighbors

Approximately 100 occupied, nearby homes that are similar in size to yours (avg 2,856 sq ft) and have both electricity and natural gas service

Efficient Neighbors

The most efficient 20 percent from the "All Neighbors" group

Last 12 Months Neighbor Comparison

You used **22% MORE** electricity than your efficient neighbors. This costs you about **\$150 EXTRA** per year.



Personal Comparison

How you're doing compared to last year:



* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

So far this year, you used **12% less** electricity than last year.

★ You're on pace to use less in 2010

Looking for ways to save even more? Visit smud.org/reports

Action Steps | Personalized tips chosen for you based on your energy use and housing profile

Quick Fixes

Things you can do right now

Smart Purchases

Save a lot by spending a little

Great Investments

Big ideas for big savings

Sample Research Questions for Year 1

- How much did participants save?
- What actions did they take?
- What, specifically, motivated them?
- How much of savings is from behavior versus equipment changes?
- How much of the savings resulted from participation in other SMUD programs?
- Who saved the most?
- How did participants feel about the reports? Did they read them? How did they use them?
- Do the reports help or hurt customer satisfaction?



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Market Research and Evaluation Efforts*

- ☑ Baseline Behavior and Attitude survey (March, 2008)
- ☑ 5-month impact evaluation by SMUD Bus. Planning (October, 2008)
- ☑ Post-pilot Behavior and Attitude survey (June, 2009)
- ☑ Participant survey (Sept, 2009)
- ☑ First-year impact evaluation by SMUD contractor (November, 2009)
- ☑ Analysis of savings data by market segment (March, 2010)
- 40-month impact evaluation by SMUD contractor (February, 2012)

* Six additional impact evaluations have been done by Opower and other parties.



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Experimental Design of Pilot Group (April, 2008 to March, 2009)

- Randomly selected from within geographic pilot areas:
 - Control group: 50,000 residential customers
 - Test group: 35,000 residential customers



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Impact Evaluation: Design

- General Linear Model (GLM) controlling for:
 - Selected housing characteristics
 - Billing time period (staggered)
 - Weather
- Subset analyses:
 - House size
 - Vintage
 - Heating fuel (gas vs electric)
 - Presence of pool
- Monthly billing data:
 - 12 months pretest (April, 2007-March, 2008)
 - 12 month test period (April, 2008-March, 2009)
- Phone survey of high savers (n=78)
 - Asked what actions were taken specifically in response to reports



* The Impact of Home Electricity Reports, ADM Associates, Aug 2009.



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Evaluation Insights:

What was the program impact?

- 1.9% savings overall (213 kWh/yr/household)
- 25% of savings attributable to recipients who also took a SMUD rebate or loan (represents maximum attributable to those programs).
- Worst case levelized cost 6.9 cents/kWh (assumes zero persistence, zero contribution where rebates were taken)
- Better data tracking of rebate recipients needed

* The Impact of Home Electricity Reports, ADM Associates, Aug 2009.



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Evaluation Insights: What Changes Were Made?

- 57% of changes reported by recipients were behavioral
- 43% equipment changes (but more research needed)

* From survey of high savers, The Impact of Home Electricity Reports, ADM Associates, Aug 2009.



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Evaluation Insights: What Changes Were Made?

Measure	Treatment Effect	Weight (kWh per year)	Annual Impact (kWh)
Recycled second refrigerator/freezer	0.007	1161	8.1
Unplugged appliances not in use	0.076	100	7.6
Turned off PC when not in use	0.013	390	5.1
Total			20.8



* From survey of high savers, Impact of Home Electricity Reports, ADM Associates, Aug 2009.



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Pre/Post Evaluation of Attitudes and Behaviors: Topics Addressed

- Overall satisfaction with SMUD
- The degree to which they feel SMUD helps them in specific areas
- General interest in energy-related areas
- Previous year's EE behavior
- Planned EE behavior changes for coming year
- Recollection of SMUD EE communications



* Home Electricity Reports Survey of Attitudes and Behaviors, SMUD Market Research, June, 2009.



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Pre/Post Evaluation of Attitudes and Behaviors: Methodology

- Blind Study – respondents unaware study affiliated with program
- Pretest sent by mail before program launch to establish baseline
- Post-test sent after one year to assess changes in responses
- 4,455 total completed questionnaires

	Control	Pilot
2008/Pre	n=1155	n=1213
2009/Post	n=1079	n=1008



* Home Electricity Reports Survey of Attitudes and Behaviors, SMUD Market Research, June, 2009.



Evaluation Insights: Awareness

- Few significant Increases in Awareness of Efficiency Opportunities
- Reports may not increase customers' awareness of EE opportunities
- Instead, the reports may remind them to engage more often in EE behaviors with which they are already familiar.

* Home Electricity Reports Survey of Attitudes and Behaviors, SMUD Market Research, June, 2009.



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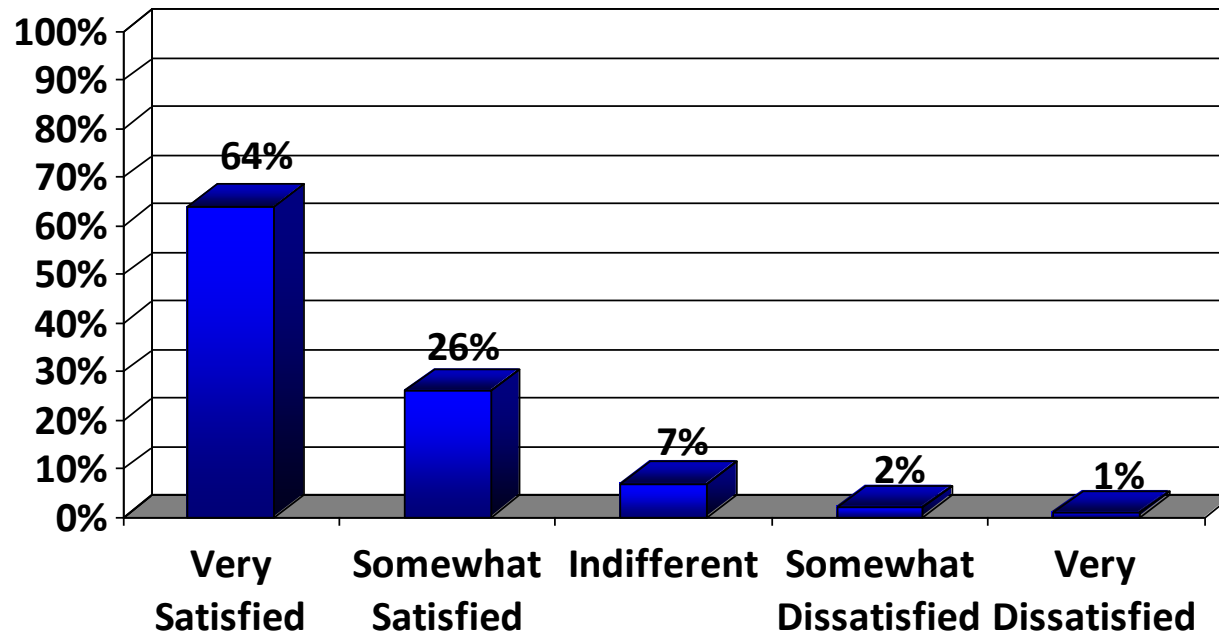
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Evaluation Insights: Customer Satisfaction

- Customer satisfaction was unchanged

Overall, how satisfied are you with SMUD?



* Home Electricity Reports Survey of Attitudes and Behaviors, SMUD Market Research, June, 2009.



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Participant Satisfaction Survey: Topics Addressed

1. Program recall
2. Perceived value of reports and overall satisfaction with reports
3. Program design preferences
 - a. Frequency
 - b. Distribution channel
 - c. Neighbor group composition
4. Level of interaction with the reports
5. Understanding and opinions regarding neighbor comparison
6. Feedback on individual report sections
7. General open-ended questions to provide depth to responses in the above categories
8. Demographic information

* Home Electricity Reports Participant Satisfaction Survey Results, SMUD Market Research, Aug, 2009.



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Participant Satisfaction Survey: Methodology

- Mailed in May, 2009 to 5,000 pilot participants
- n=1,375
- Margin of error = $\pm 2.2\%$ at 95% confidence level
- Respondents told survey affiliated with the Home Electricity Reports
- A visual and narrative depiction of the report was included with the cover letter to assist in recall

* Home Electricity Reports Participant Satisfaction Survey Results, SMUD Market Research, Aug, 2009.



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Evaluation Insights: How did recipients use reports?

- 98% recall receiving the reports
- 90% read all or most of the reports, most carefully
- 70% find them easy to understand
- 67% find them valuable
- Customers are talking about the reports
- Customers aren't clear about how their neighbors are selected and have mixed feelings about the relevance of the group and the appropriateness of the comparison.

* Home Electricity Reports Participant Satisfaction Survey Results, SMUD Market Research, Aug, 2009.



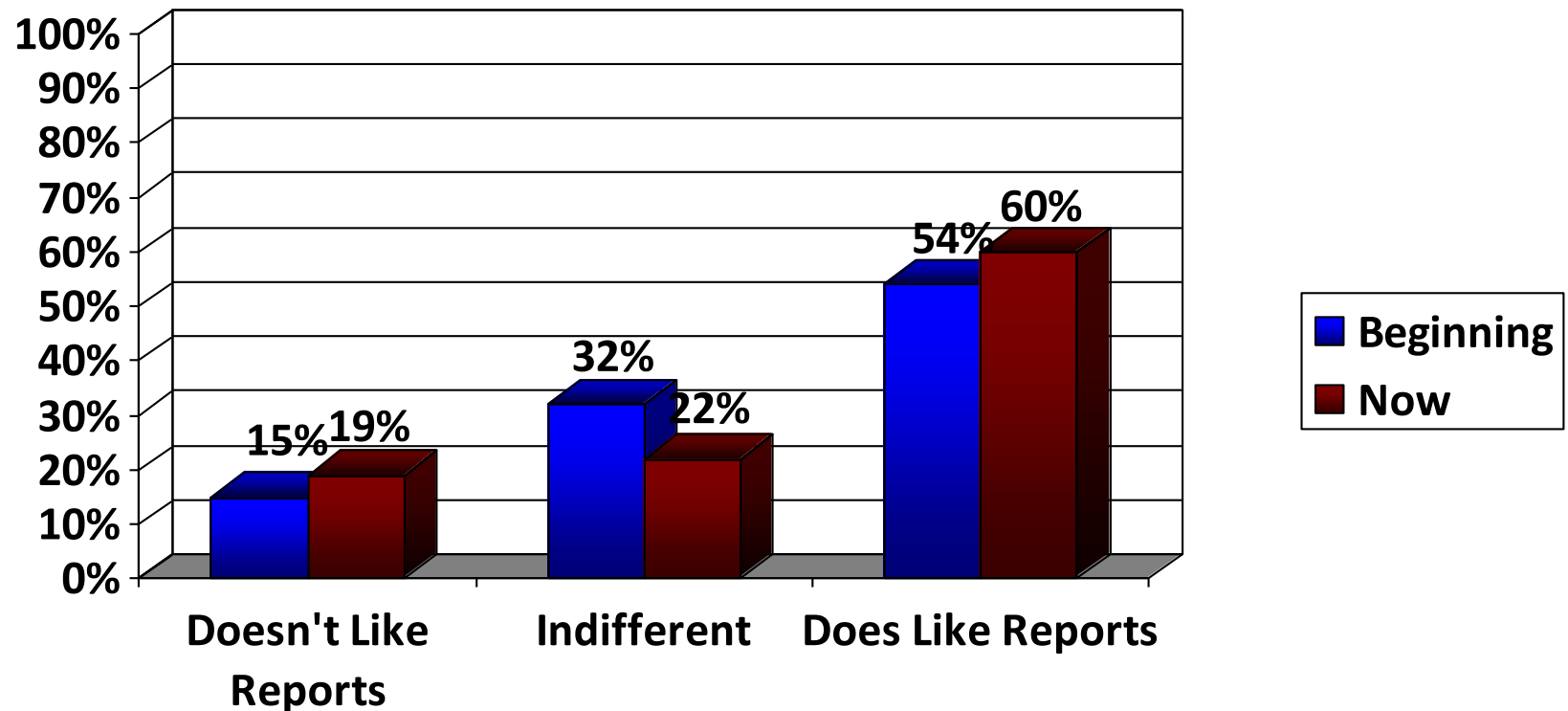
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Evaluation Insights: How did customers feel about the reports?

Initial Sentiments Versus Current Sentiments



* Home Electricity Reports Participant Satisfaction Survey Results, SMUD Market Research, Aug, 2009.



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Applying Evaluation Insights to Program Effectiveness

- Improved explanation of neighbor comparison
- Targeting segments that saved most during the pilot (launched Oct, 2010):
 - Highest users (projected savings: 179 kWh/yr/household)
 - SMUD market segment “Big Toys, Big Spenders” (677 kWh)
 - Multi-variable predictive model (584 kWh)
- Experimental design is still important!
 - Control group: 25,000 randomly selected from same targeted pool
 - Testing additional refinements
- Measuring persistence of savings
 - Discontinued reports to 6,500 recipients in July, 2010



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Case Study #2: SMUD's Branded Awareness Campaign

Save Today. Save Tomorrow.



Community

Run appliances before 4 p.m. or after 7 p.m. The more we reduce our energy use during the peak hours, the fewer power plants we'll need to build. And that's good for everyone.



Savings

Set your thermostat to 78° or higher — save up to 10% of cooling costs for every two degrees you raise it.



Environment

Reduce your environmental impact by making your home more energy efficient. Use SMUD rebates on ENERGY STAR® appliances.

You have choices for how you use electricity. As your customer-owned electric utility, we can help you save money on your bill, protect the environment, and help the community.

This summer, we can all start by reducing our energy use during the peak hours of 4:00 p.m. to 7:00 p.m. Saving today will keep costs low, maintain reliable electric service, and help build a cleaner, healthier environment for tomorrow.

How will you save today?

smud.org/savetoday



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Save Today. Save Tomorrow.

Energy efficiency rebates for your home.



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CLICK TO
LEARN
MORE.

Save Today. Save Tomorrow.

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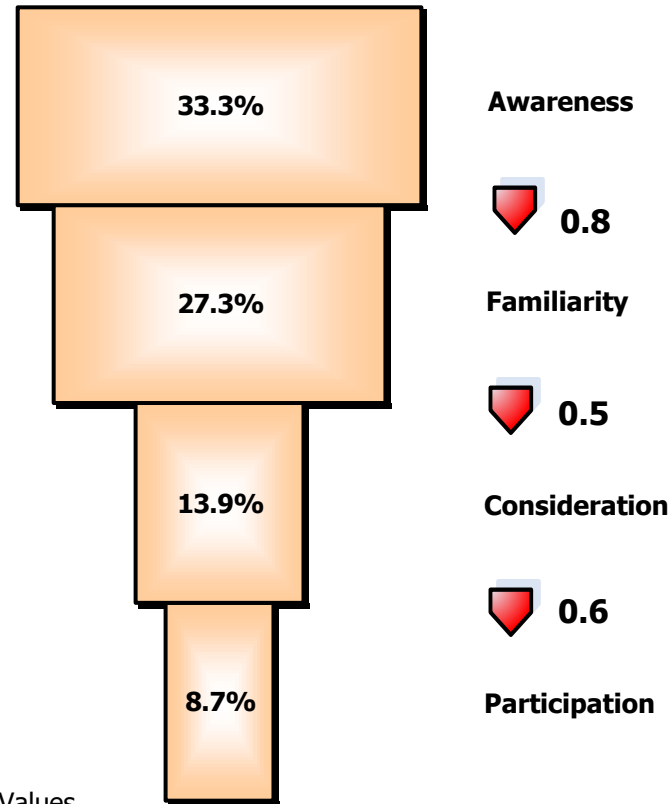
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Perception Tracker Survey: Online Energy Audit "Funnel"

Example Insights from fall, 2010:

- All levels of the Audit funnel are below the average and awareness is particularly low
- The transition ratios are strong, which suggests focusing on increasing awareness will directly translate into higher participation



Average Values
Awareness 46.6%
Familiarity 34.7%
Consideration 17.3%
Participation 9.6%



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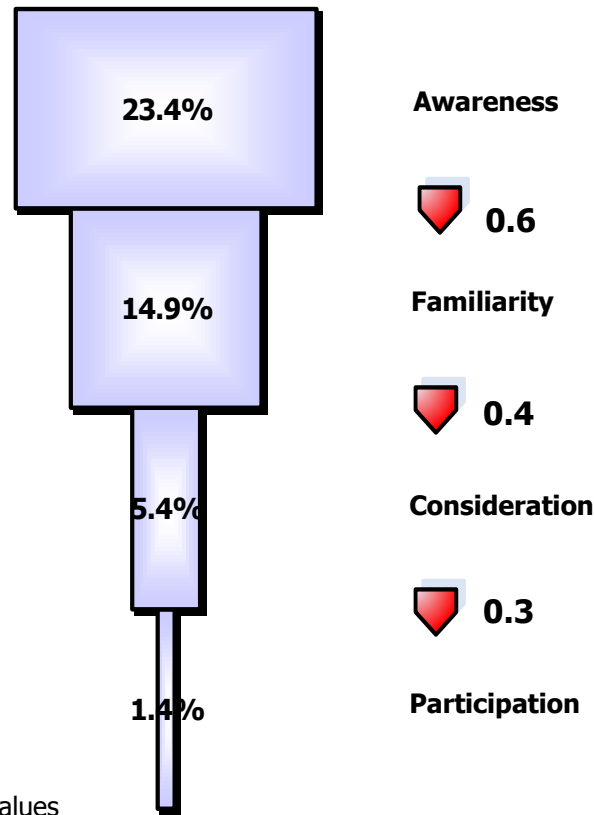
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Perception Tracker Survey: Carbon Offsets Funnel

Example Insights from fall, 2010:

- All levels of the funnel remain far below average
- Carbon Offsets is new and relatively complex program
- But it is one of the few programs that has increased its scores in the lower funnel compared to last quarter
- As for all newer programs, the communication efforts should continue to focus on awareness and education
- Program staff should continue to take measures to increase conversions from Consideration to Participation, which is still weak



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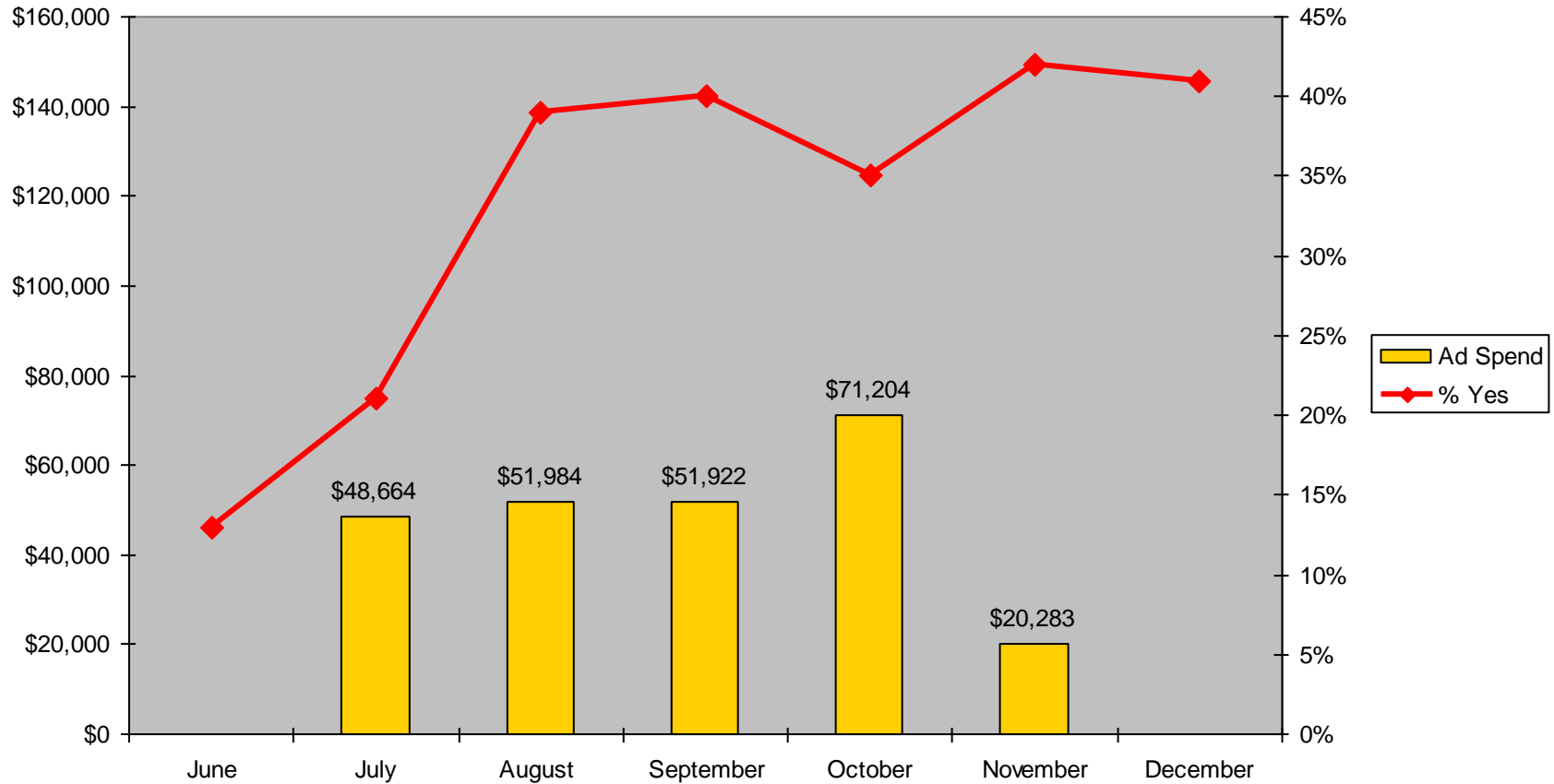
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Advertising Image: Did you see a little girl hugging a globe or holding a house?



Ad spend includes Save Today print, billboard, web, and print



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