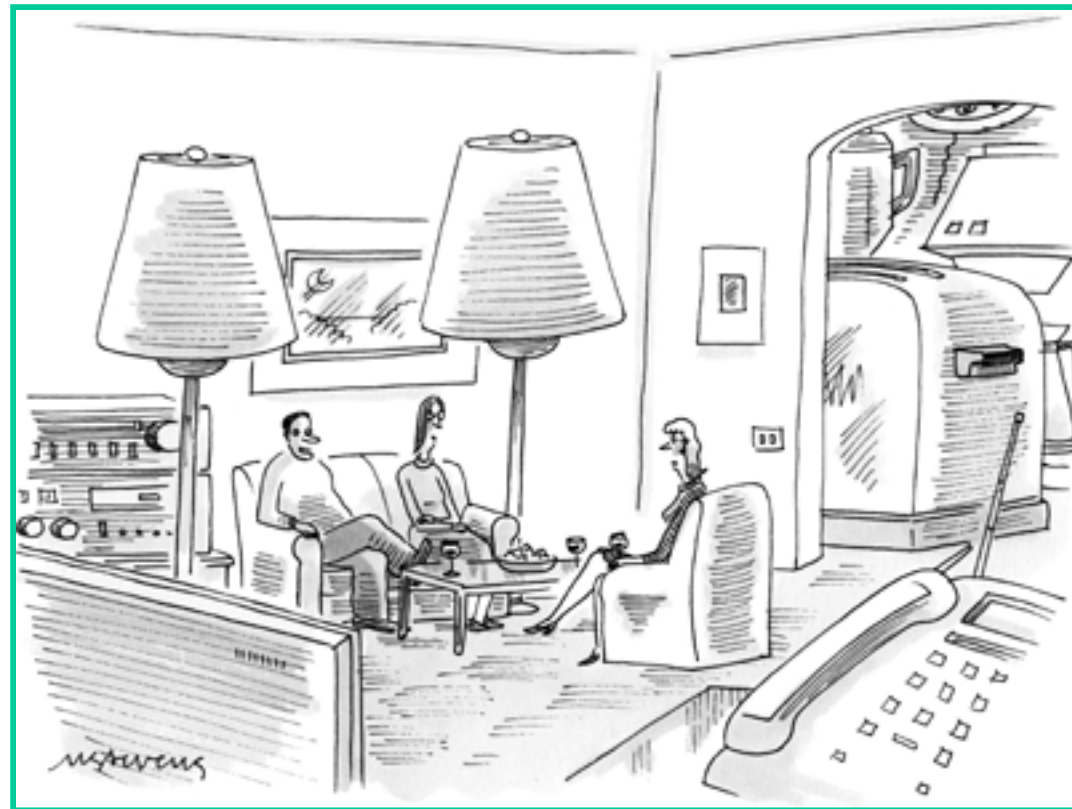


Energy Education in the Home

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Applied Public Policy Research
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Communication with Participant

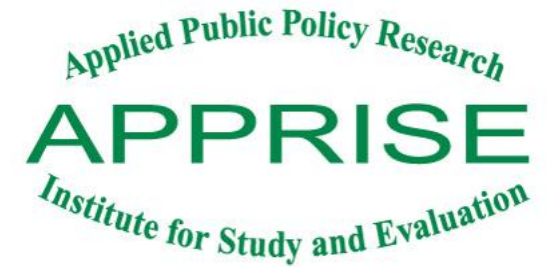
1. Understand what is happening in the home and inform implementation decisions
2. Ensure participant understands how to maximize benefits of measures
3. Develop partnership and achieve customer behavioral impacts


Providers need to understand the importance of communication.



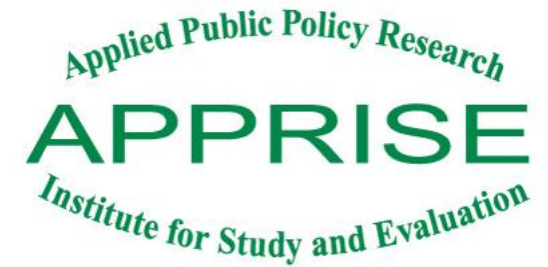


Presentation Overview



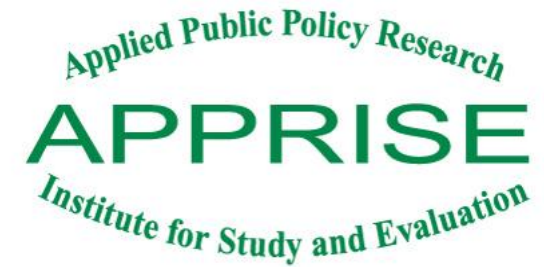
- Energy Education in Low-Income Programs
 - Contractor Implementation (observations)
 - Customer Reports (surveys)
 - Energy Saving Impacts (billing analysis)
 - Summary
- 

Assumptions



- Behavioral changes can reduce energy usage
- We can identify the changes that will lower usage
- We can teach individuals how to change behavior
- We can motivate individuals to change behavior

Measurement Challenge



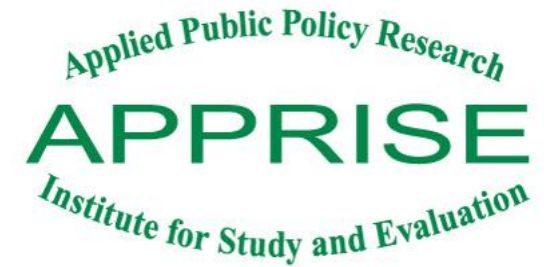
- How do we attribute savings to education?
 - No random assignment
 - All customers receive education
 - Education protocols are program wide
- Variations in contractor performance
 - Relationship to customer reports (surveys)
 - Relationship to usage impacts (billing analysis)

Achieving Impact

1. Are the in-home education procedures implemented by contractors?
2. Do customers internalize and act on this information?
3. Does the education translate into energy savings?

EDUCATION PROCEDURES

Education Process



- Partnership between program/educator and customer
 - If successful, customer has more motivation to take steps to reduce energy usage
- Understanding the energy bills
 - If the customer understands how to read the bill and determine when usage is decreasing, it provides positive re-enforcement for energy-saving actions
- Energy use and costs around the home
 - Allows customer to make decisions about energy usage based on the costs of those uses

Education Process

- Customer goals for usage reduction
- Customer action plan
 - Provides motivation for customer to reduce energy usage
 - Provides direction for customer
- Follow-up
 - See how savings plan is working
 - Positive reinforcement
 - Adjust goals or set additional goals

CONTRACTOR IMPLEMENTATION

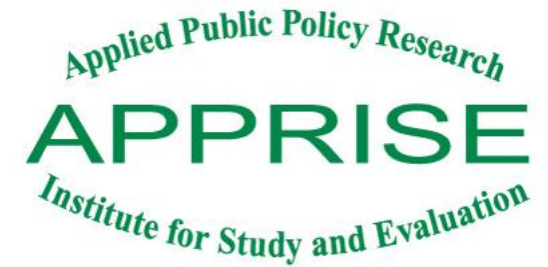
Are in-home education procedures implemented by contractors?

Audit Observation Findings

	Program 1	Program 2
<u>Discussion</u>		
• Home Comfort	94%	59%
• Energy Issues	49%	34%
<u>Energy Bill</u>		
• Review with Customer	38%	12%
<u>Home Walk Through</u>		
• Discussed Usage	62%	36%
• Discussed Actions	75%	21%
<u>Action Plan</u>		
• Recommended actions w/savings potential	67%	11%
• Obtained customer commitment	22%	7%

Implementation varies widely by program.

Audit Observation Findings



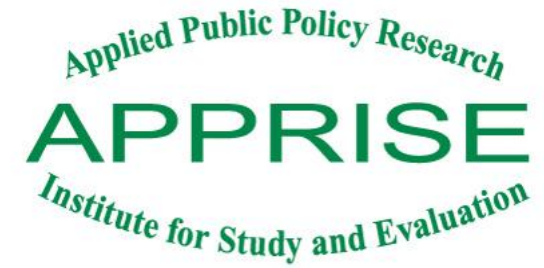
Contractor Discussed	Contractor					
	1		2		3	
	# Obs	% Taken	# Obs	% Taken	# Obs	% Taken
Energy Usage	32	63%	15	47%	22	68%
Energy Saving Actions	32	72%	13	54%	22	91%
Heat Setback	32	72%	12	42%	22	59%
Cooling Usage Reduction	31	35%	9	11%	22	91%
Lighting Use	32	91%	15	73%	22	64%
Actions with Greatest Potential	31	42%	15	60%	22	82%
Summary of Action Opportunities	31	55%	15	60%	22	95%

Implementation varies by contractor within a program.

CUSTOMER ACTIONS

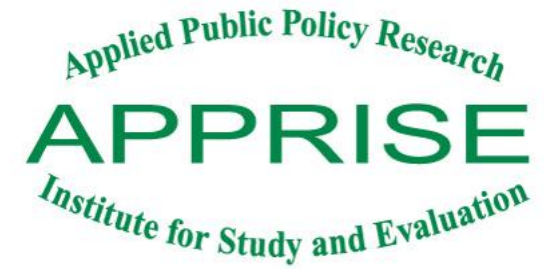
Do customers internalize and act on this information?

Customer Response Energy Bill Review



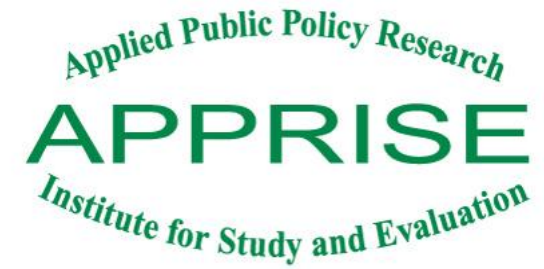
	Contractor 1	Contractor 2	Contractor 3
Survey Respondents	459	194	203
Provider Reviewed Bills	43%	24%	35%
Provider Explained How Energy Use is Measured	50%	40%	50%
Customer has Good Understanding of Energy Bill	81%	74%	79%

Customer Response Action Plan



	Contractor 1	Contractor 2	Contractor 3
Survey Respondents	459	194	203
Provider Gave Written Action Plan	58%	44%	58%
Customer Agreed to Take Actions	55%	41%	54%
Provider Estimated Monetary Savings from Actions	27%	18%	32%

Customer Response Usage Reduction Actions



	Contractor 1	Contractor 2	Contractor 3
Survey Respondents	459	194	203
Customer Implemented Energy Saving Actions	64%	56%	60%
Customer Reduced Heating Usage	48%	40%	51%
Customer Reduced Hot Water Usage	38%	32%	41%
Customer Reduced Air Conditioning Usage	42%	31%	38%

ENERGY SAVING IMPACTS

Does education result in reduced energy usage?

Energy Usage Impacts

	Contractor 1	Contractor 2	Contractor 3
Electric Baseload			
Observations	2,106	523	408
Pre-Usage (kWh)	7,219	7,762	7,444
% Saved	6.8%	3.1%	3.2%
Electric Heating			
Observations	200	68	54
Pre-Usage (kWh)	13,518	13,030	13,428
% Saved	6.5%	5.5%	5.6%
Gas Heating			
Observations	2,024	479	436
Pre-Usage (ccf)	1,009	1,095	979
% Saved	2.9%	4.1%	7.3%

SUMMARY

Connections

- **Observations: Contractors 1&3**
 - More likely to discuss usage and actions
- **Customer Survey: Customers of Contractors 1&3**
 - More likely to report bill was reviewed
 - More likely to report action plan
 - More likely to report reduced usage
- **Energy Savings - Billing Analysis:**
 - Customers of Contractor 1 – highest electric baseload
 - Customers of Contractor 3 – highest gas heating

Summary

- Good procedures have been developed
 - The challenge is implementation
 - Providers must be trained and compensated
 - Quality control and assessment is needed
 - Can impact savings and cost-effectiveness
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