

# **Efficiency 101 on the Doorstep:**

## **Measuring the Impact of a Community-Driven CFL Campaign**

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### **Abstract**

One Change is an international not-for-profit social marketing firm dedicated to converting public awareness to action. Founded in 2005, One Change harnesses the power of person-to-person communication to build broad and diverse public participation in energy and environmental programs. One Change is the organization behind Project Porchlight, an award-winning residential lighting program that consistently produces measurable, highly visible, positive results by inviting residents to install one free compact fluorescent lamp (CFL). Funding partners gain direct access to customers and their energy conservation mandates become accessible, relevant, and personal at the local level.

Evaluations conducted for One Change reveal Project Porchlight's positive influence on customer opinions and behaviors. Participant groups exposed to the Project Porchlight campaign end up with more favorable measured attitudes than control groups. This includes attitudes towards energy conservation, energy efficient products and toward program sponsors. Consistent behavior changes include an increased likelihood to purchase CFL bulbs, an increased likelihood to discuss energy conservation with friends and family, and an increased likelihood of participation in other energy efficiency programs. Results also suggest a sense of self-empowerment and interest in engaging in additional energy efficiency actions.

Drawing upon research conducted over three years, this paper provides a review of how a community-based social marketing campaign was evaluated to measure the impact of programs on the public and on stakeholders. We will discuss the variables that were measured successfully, where evaluation gaps exist, and how evaluations have affected the way One Change delivers programs. The paper will also reveal how growing capacity for rigorous program evaluation can increase opportunities for a not-for-profit organization and its funders.

### **Introduction**

Since 2005, One Change has offered grassroots level comprehensive social marketing campaigns through the award-winning Project Porchlight. One Change aims to make energy conservation accessible, and to convert awareness to action, by making first steps toward energy efficiency both relevant and personal. The Project Porchlight approach identifies and mobilizes supporters of energy efficiency from existing local community networks. These volunteers are equipped with high-quality information materials; colorful hats and jackets; and bags filled with CFLs in distinctive program packaging. Volunteers are trained to invite people to install one free CFL, and use the acceptance of that invitation as an opportunity to convey the program message: "simple actions matter."

The underlying notion is to create a simple first step toward greater energy efficiency that anyone can explain or understand, that is entertaining and empowering, and to provide a social vehicle to offer that first step to as many people as possible. By showing that it is easy to save energy, and demonstrating that it can also be both fun and popular, the Project Porchlight approach

defeats barriers to social change and empowers communities to take further action to become more energy efficient. Mobilizing first adopters and existing social networks to be the spokespeople for Project Porchlight also allows One Change to extend the reach of state, provincial, corporate and utility program messages.

To the best of our knowledge, none of One Change's sponsors have completed evaluations of the Project Porchlight program. However, rigorous third-party evaluation has always been an integral part of each of the One Change campaigns. Due to limited resources, Project Porchlight evaluations used telephone surveys of participant attitudes and intentions, as opposed to onsite surveys of customer actions and actual energy consumption. This paper discusses the methodology and findings of the evaluations of six Project Porchlight campaigns: Ottawa, Ontario and Alberta in Canada; and Vermont, Puget Sound, WA and New Jersey in the United States.

## **Background**

Since its inception, Project Porchlight has engaged over 12,000 registered volunteers from 2,000 groups in 900 communities to deliver the "Simple Actions Matter" message directly to the doorstep of over 3 million households in neighborhoods throughout the United States and Canada. Project Porchlight offers opportunities for community engagement, and uses simple tools like CFLs, digital keychain tire gauges and other accessible, tangible items to carry sponsor messages directly into the home. Project Porchlight makes abstract concepts such as "climate change" and "energy crisis" understandable and surmountable and makes energy conservation accessible, relevant and personal.

At the core of the campaign's approach are tactics of community-based social marketing (CBSM). One finding of CBSM research is that consumer behavior is strongly affected by social norms. Awareness of the importance of energy efficiency is at an all-time high, but converting this awareness into more energy efficient behaviors takes direct public engagement and demonstration at the grassroots level. Project Porchlight engages community groups and volunteers in a residential door-to-door and events-driven CFL distribution campaign. Each campaign is carefully designed to meet the sponsor's overall objective, e.g. targeting specific market segments (low income or ethnically diverse) or to address a specific utility objective such as grid planning. Sophisticated web-based mapping tools allow local program managers to adapt the program message to match the demographic profile of the neighborhoods being reached, and to report in near real-time on interactions and program leads. Project Porchlight also employs traditional corporate marketing tactics that are common to traditional energy efficiency programs, but uses direct public engagement as a way to extend their reach.

Table 1 below gives the summary statistics for each of the *Project Porchlight* campaigns that will be discussed in this paper.

**Table 1.** Summary Statistics from Project Porchlight Campaigns

Campaign	Funder	Funder Type	Number of CFLs	Number of Communities	Events	Volunteers Recruited	Community Groups Engaged
Ottawa	Hydro Ottawa	Local Distribution Company (LDCs)	270,000	1	--	400	207
Ontario	Ontario Power Authority, various local LDCs	Regulator, LDCs	640,000	120	150	2000	500
Vermont	Efficiency Vermont, Burlington Electric	Statewide energy efficiency utility	30,000	49	43	530	--
Alberta	EnCana	Oil&Gas corporation	800,000	467	272	4216	1811
Puget Sound	Puget Sound Energy	Utility	275,000	21	120	1179	127
New Jersey	New Jersey Board of Public Utilities	State	940,000	195	184	2500	100

## Methodology

All Project Porchlight campaigns are managed by local staff and engage directly with existing community organizations. Early stages of each campaign focus on community outreach, local promotion and volunteer training. A campaign launch event that includes local VIPs and musicians provides a focus for the grassroots engagement to generate earned media and momentum at the community level. Each campaign continues to recruit and train volunteers until targets are reached. A volunteer recognition event closes each campaign.

To evaluate the impact of Project Porchlight on individual attitudes, each evaluation study was designed to a) measure changes in individual attitudes over time and b) determine whether these changes in attitude could be attributed to the campaign. Each evaluation began with a pre-campaign survey designed to establish benchmarks on attitudes and conservation behavior. The surveys were conducted by telephone among households in both treatment and control groups. Respondents were selected using a random digit dial methodology from communities within the target areas. Within each community, respondents were classified as residing in either a treatment or control area, based on carrier routes within the corresponding zip codes.

After the pre-campaign survey, respondents in the treatment groups were exposed to the Project Porchlight campaign while respondents in the control groups were excluded from participation. This was done to determine whether changes in public attitude and behavior could be attributed to the Project Porchlight campaign or whether change was a broader phenomena impacting both the treatment and control group.

Statistical testing techniques (pre- and post-test survey methodologies, i.e. paired samples t-tests) allowed evaluators to determine if attitude changes in the treatment group were different than attitude changes in the control group, and which changes in attitude could be attributed to the campaign. By measuring installation rates of CFL bulbs, One Change was also able to estimate energy savings as a result of the campaign.

One Change commissioned independent evaluations of the Porchlight Campaigns to document their effects for current and future program sponsors, and to inform future program design. The evaluations were performed by several different vendors. This sometimes resulted in new insights, but also meant that there was not always consistency between evaluations as to measurement approaches and analysis.

One Change’s evaluations have attempted to measure how making simple first steps toward greater energy efficiency available can shrink barriers to changing energy use behaviours. The evaluators focused on reported intention to change future behaviours consistent with the simple first step. In future evaluations, One Change would like to gain access to participant household energy use information, and attempt to measure changes to actual energy consumption in the home over time. Such quantitative data is probably necessary to determine the full value of the One Change approach.

### Using a Community-Based Social Marketing Approach

One Change uses a community-based social marketing (CBSM) approaches to change individual and community behaviors. One CBSM tool that Project Porchlight applies is the idea that a simple catalyst action can transform self-perception and increase the likelihood that participants will go on to make other choices that are consistent with the first action. In other words, Project Porchlight generates direct savings by getting participants to install CFLs, but an equally important result is the building of a foundation for broader public participation in more complex energy efficiency programs. The networks of community organizations that are created to make One Change campaigns possible are resilient and diverse and have a consistently high positive impact on utility brand perception. This positive impact on brand perception makes it more likely that individuals will participate in a broader range of energy-efficient behaviors and actions.

Research suggests that household energy use may be driven by simple, unconscious habits that may be hard to break. Actions are determined by a number of influencing factors including beliefs, attitudes, access and price. While these factors have been shown to be important for many behaviours, research is still ongoing as to the most important factors for energy conservation. A preliminary list of these factors is shown below.

**Table 2.** Determinants of Household Energy Use Behavior

<b>External Factors</b>
<ul style="list-style-type: none"> <li>• Available technology</li> <li>• Embodied environmental impact (e.g., energy efficiency of buildings, vehicles; materials in consumer products)</li> <li>• Legal and regulatory requirements</li> <li>• Material costs and rewards (payoffs)</li> <li>• Convenience (e.g., of public transit, recycling)</li> <li>• Social norms and expectations</li> </ul>

Table 2 (cont.)

Personal Factors
<ul style="list-style-type: none"> <li>• Financial resources</li> <li>• Literacy</li> <li>• Social status</li> <li>• Knowledge and skills</li> <li>• Personal values</li> <li>• General environmentalist predisposition</li> <li>• Norms and beliefs</li> <li>• Non-environmental attitudes (about energy products, for example)</li> <li>• Perceived costs and benefits of action</li> </ul>

Adapted from PC Stern (2008). "Environmentally Significant Behaviour in the Home," in A. Lewis (ed), *The Cambridge Handbook of Psychology and Economic Behaviour*. Cambridge, U.K.: Cambridge University Press, pp. 363-32.

Using the framework proposed by Doug McKenzie-Mohr for designing and implementing a community-based social marketing campaign, One Change has addressed each of the proposed steps as follows<sup>1</sup>.

### 1. *Selecting Behaviours*

"One Change **empowers** people to believe that **simple actions matter**, and to make **smart choices** that protect the environment." The simple action that One Change chose to promote through Project Porchlight was the installation of a free CFL by households as an entry point for a broader educational effort. One Change founder, Stuart Hickox, started the organization after reading on the ENERGY STAR website that "If every household in America (U.S.) changed one light bulb to a CFL, it would be like taking 800,000 cars off the road". This motivational message started the campaign and has consistently been reported by volunteers and staff as one of, if not THE, most powerful campaign message.

### 2. *Identifying Barriers and Benefits*

A CBSM campaign begins with an informed understanding of who the target audience is and how they see the world, what they want, what they care about, dislike and struggle with. Households are diverse in more ways than geographic (neighbourhood) or ethnicity. Social networks, belief systems, household/family composition, and already-established habits may be other ways to look at the target audience to find out what they currently do and what motivates them. One Change used a pre-test market survey in each of its campaigns to establish benchmarks on attitudes and conservation behaviour prior to implementing Project Porchlight.

### 3. *Develop a Strategy*

The Project Porchlight approach targets individuals through direct contact in a house-to-house distribution campaign largely implemented through volunteers. Each campaign has four phases:

Phase 1: Planning and Outreach – collect baseline data, select geographic targets, create promotional materials and strategic communications plan; identify community groups and recruit lead volunteers

<sup>1</sup> Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing (Education for Sustainability Series, Doug McKenzie-Mohr, William Smith

Phase 2: Campaign Declaration and Public Engagement – Kick-off campaign and outreach to identified groups; select campaign spoke-persons; CFL distribution events and recruitment of door-to-door volunteers

Phase 3: Launch and Program Delivery – Main phase of program delivery with maximum media and door-to-door exposure.

Phase 4: Campaign Celebration, Evaluation and Reporting – internal evaluation and campaign reports completed

This approach has a multiplying effect – not only are individual households reached, but a network is created that stimulates additional action by those exposed to the campaign. The evaluation results clearly indicate that One Change has changed attitudes and increased the likelihood that participating individuals (both target households and volunteers) will take additional actions beyond the simple action (change a light bulb) which is targeted in the campaign, e.g. purchasing ENERGY STAR appliances, recycling refrigerators, etc.

#### *4. Conduct a Pilot*

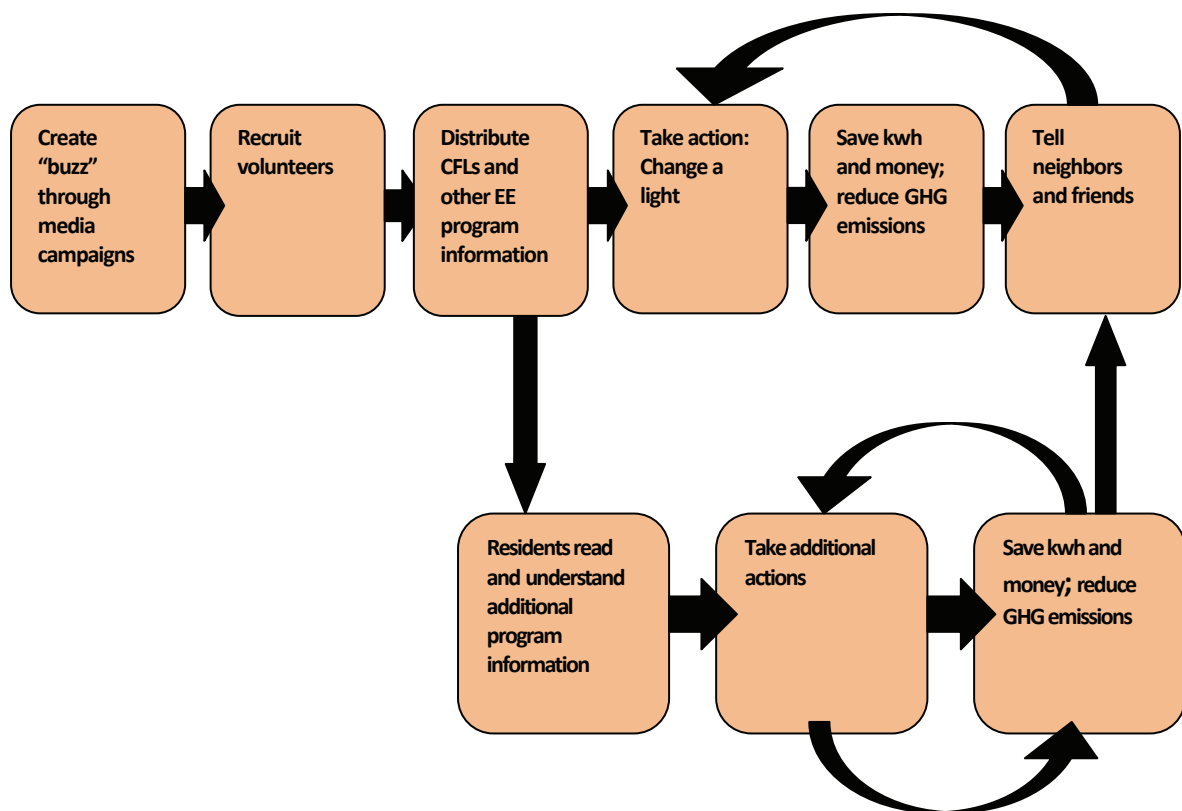
One Change started as a concept backed by enthusiasm, but few resources. This precluded formal piloting but as One Change has implemented successive Project Porchlight campaigns, each one has built upon the results of the previous campaigns. Experience gained during each campaign adds to a campaign toolkit that is shared with new staff and local program leaders. A constant challenge has been how to impose consistency in delivery while allowing local factors such as differences in community demographics to be considered. A tactical plan is written for each campaign to accommodate for specific geographic, budget, sponsor, human resource, and communications needs.

Likewise, public feedback through direct engagement at the doorstep informed the evolution of campaign language. Early on it became clear that participants were often holding CFLs they received through Project Porchlight and waiting to install them until an incandescent burned out. In year two, we stopped referring to CFLs as a “new” light bulb, but just as “a light bulb”, and started referring to incandescent bulbs as “old fashioned.” Customers were encouraged to remove “old fashioned bulbs” even if they were still working.

#### *5. Broad Scale Implementation*

To date, One Change has implemented Project Porchlight across North America reaching more than 3 million households, and recruiting over 12,500 volunteers in the process. Each participant has been exposed to the concept of how simple actions create lasting change. One Change is now about to roll out an automotive fuel efficiency campaign based on similar principals across Ontario after a successful Ottawa-based pilot project in 2009. Instead of a CFL, the fuel campaign will give away free tire pressure gauges. A residential water conservation initiative is set to be pilot tested in 2010. The tools that have allowed One Change to grow from a local campaign in one city in Ontario to continent-wide have been designed to facilitate rapid expansion while sustaining a local feel to each campaign.

Developing a theory of change is another critical element of designing and implementing a community-based social marketing campaign. A theory of change is a tool to design and evaluate social change initiatives, and establishes a kind of “blueprint of building blocks” needed to achieve the long-term goals of a social change initiative. A theory of change can also be viewed as a representation of how an initiative is expected to achieve results and an identification of the underlying assumptions. Project Porchlight’s theory of change is illustrated in Figure 1.



**Figure 1.** Project Porchlight Theory of Change

## Evaluation Results

Project Porchlight was designed to have the following impacts:

1. Community engagement: Mobilize local volunteers and existing community networks to facilitate future energy-efficiency projects; strengthen relationships with local and state governments; and reach out to youth, multi-cultural, and other local groups.
2. Direct energy savings: Install a large number of CFLs
3. Money savings for consumers: One CFL saves the average consumer \$50 in energy costs over 5 years compared to an incandescent light bulb.
4. Direct environmental impact through lower electricity consumption: Changing out one light bulb for a CFL can prevent up to half a tonne of GHG from being emitted from coal-fired power plants
5. Provide access to under-represented communities which traditional energy efficiency programs do not reach, including low-income, senior citizens, non-English speaking, etc.

Project Porchlight in its various campaigns was able to measure results in several areas: installation rates of CFLs, the likelihood of purchasing CFLs in the future (intent to change), favorable attitude towards project sponsors and other energy conservation programs, and a greater interest in energy conservation and higher level of communication with other members of their communities about energy conservation. In each case, the experimental model was used, with the treatment group being compared to a randomly selected control.

### ***Installation Rates***

When contacted by evaluators, Project Porchlight participants reporting installing the CFLs that they had received at the following rates:

- 74% in Saskatchewan
- 70% in Ottawa
- 63% in Alberta
- 57% in Vermont
- 44% in New Jersey
- 39% in Puget Sound

In most cases the most common reason stated for not installing the CFL was some variation on “waiting for the incandescent light bulbs currently in place to burn out”. Some of the difference in installation rates between the campaigns may be due to different amounts of time between CFL delivery and the evaluation surveying. Other reasons given included already possessing CFLs and simply not having gotten around to it yet.

### ***Intentions regarding future purchase of CFLs***

Participation in Project Porchlight was consistently associated with intention to purchase additional CFLs in the future:

- 66% of Ottawa participants reported they are more likely to both use CFLs in the future and to consider energy-efficiency when buying other products as a result of the campaign.
- PSE customers in the Puget Sound who received a Project Porchlight CFL said that they were significantly more likely than before the campaign (77% vs. 65%) to purchase CFLs the next time a bulb burned out. Those who did not receive a CFL became less likely to purchase CFLs over the same period.
- New Jersey residents who received a CFL were significantly more likely than before the campaign (50% vs. 23%) to say they had purchased a CFL as a way to reduce energy consumption and more than eight in 10 said it was very or somewhat likely they would purchase additional CFLs.
- 10% more (54% vs. 44%) Vermont residents “definitely likely” to purchase CFLs in the future
- 10% more (83% vs. 73%) Saskatchewan residents “very likely” to purchase CFLs in the future
- 9% more (68% vs. 59%) Albertans very likely to install CFLs the next time they need to replace light bulbs.

### ***Interest in energy conservation and awareness of ENERGY STAR***

In all campaigns, the evaluations measured consistent, statistically significant increases in reported behaviors such as:

- *thinking about using less electricity at home* (Puget Sound),
- *encouraging others to conserve electricity* (New Jersey and Alberta),
- *speaking with family and friends about climate change* (Vermont),



- *discussing electricity with others more frequently* (Ontario).

The ENERGY STAR brand was consistently promoted through each campaign, and evaluations showed significant positive participant responses, including:

- *increased belief that ENERGY STAR products have a positive impact on the environment* (Puget Sound) and,
- *increases in the number of people “very familiar with the ENERGY STAR logo, and can explain what it means to others”* (Alberta, Saskatchewan, and British Columbia).

### ***Increased Participation in Future Programs***

In New Jersey, Project Porchlight was used to specifically market a refrigerator early-retirement program. A review of participant data showed a significantly higher level of participation in the refrigerator program in areas that had also received Project Porchlight. Unfortunately, the One Change evaluations did not directly measure the extent to which participation in Project Porchlight caused participants to respond more favorably to other energy efficiency program recruiting. However, they did measure some indicators of a future favorable response, including:

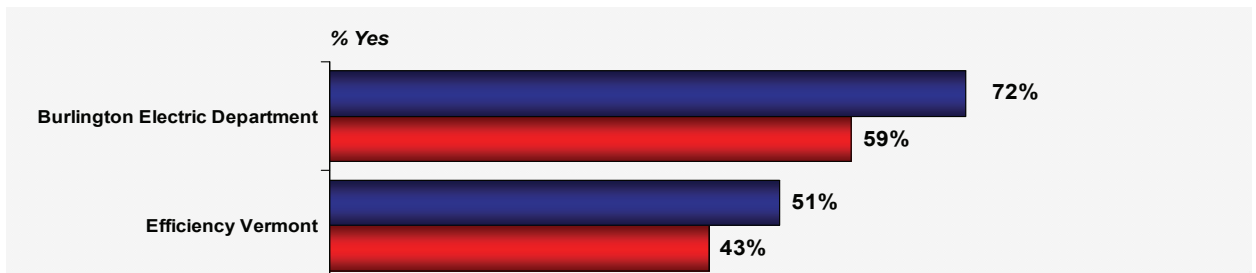
- Large stated volunteer commitment to participate in future programs (over 90% in all evaluations)
- Benefits reported among community groups, regarding their participation will encourage future buy-in:
  - Increased knowledge among group about energy efficiency
  - Increased interest in both environmental and energy-related issues
  - Increased exposure and media attention
- Significantly more positive opinions towards sponsor among those who have received a CFL from Project Porchlight (see document on favorability of campaign sponsors)

### ***Porchlight Campaign impacts on perceptions of Sponsors***

One Change’s evaluations showed strong positive brand impacts by Project Porchlight on campaign sponsors and partners:

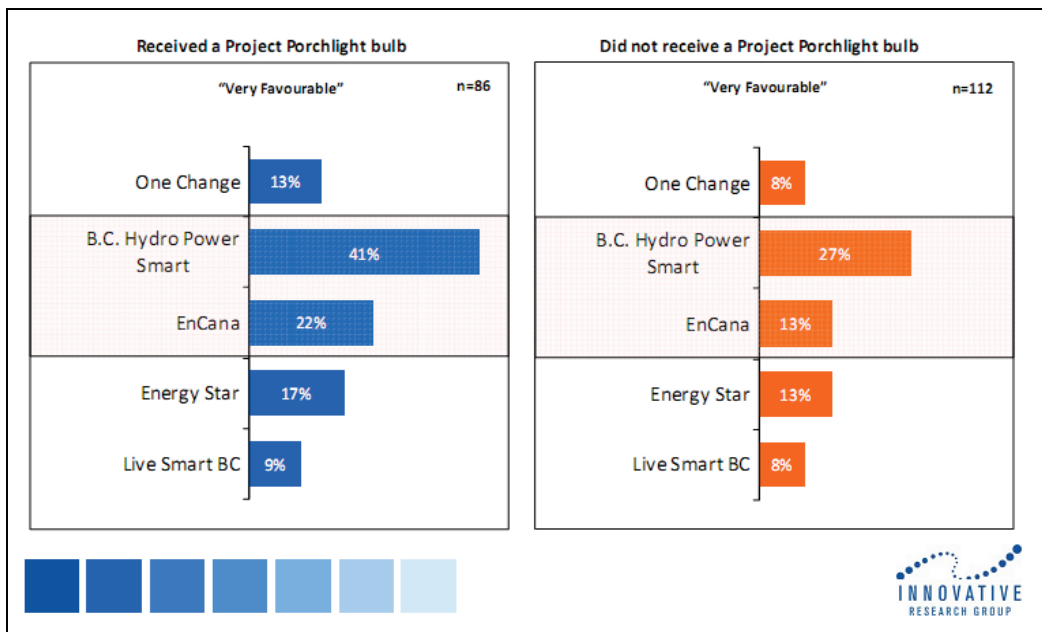
*Alberta Campaign:* Project Porchlight Alberta was funded by EnCana, one of North America’s largest energy companies. Net favorables increased 7% points towards EnCana among those who were exposed to the Project Porchlight campaign. In the control community net favorables among those who were not exposed to the Project Porchlight campaign decreased by 4% points.

*Vermont Campaign:* In Vermont, the Project Porchlight campaign stimulated an increase in sponsor brand awareness in a market where awareness was already relatively high. The campaign prompted increased awareness of both funders, Burlington Electric Department and Efficiency Vermont in the pre-post campaign period as shown in Figure 2.



**Figure 2.** Sponsor Awareness Pre- and Post- Project Porchlight Campaign in Vermont

*BC Campaign:* Differences between ‘very favorable’ for those who received a CFL and those who did not suggest the British Columbia campaign had a positive impact on BC Hydro and EnCana. In the case of BC Hydro and Power Smart, very favorable opinions were significantly higher among those who received a Project Porchlight CFL than among those who did not.

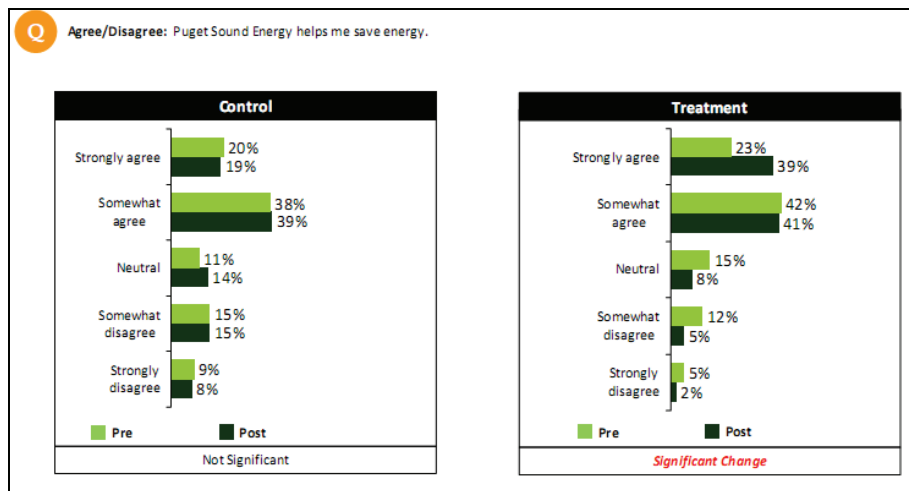


**Figure 3.** Perception of Sponsors in British Columbia

*New Jersey Campaign:* Awareness of the New Jersey Clean Energy Programs (NJCEP) went up from 60 to 65% among New Jersey residents who received a CFL, over the course of the campaign. Favorable opinions of NJCEP went up over the course of the campaign from 47 to 55% among those who received a CFL from Project Porchlight.

*Puget Sound Campaign:* Project Porchlight is an effective vehicle for building social capital. Among those exposed to the Project Porchlight door-to-door campaign, there was a significant increase in positive impressions towards *Puget Sound Energy*. This change was not observed among control group respondents who were not exposed to the Project Porchlight campaign. In addition,

the message that **PSE helps me save energy** saw a significant increase in agreement among those who received a free CFL.



**Figure 4.** Perception of Sponsor in Treatment and Control Groups in Puget Sound

## Conclusions

There is a growing appreciation of the role of consumer behavior in technology use and application as a determinant of actual energy consumption, in addition to the role of consumer behavior in technology or product choice. The One Change Project Porchlight campaign is one of the first of a new generation of initiatives designed to address consumer behavior by intentionally applying community-based social marketing concepts to energy efficiency program design and implementation. One Change’s evaluations showed that Project Porchlight participants had improved attitudes towards future energy efficiency actions, that sponsors and partners gained improved positive visibility and relevance with customers, and that new and resilient networks of community volunteers were created that remain ready to assist sponsors with future programs.

The sponsors’ of One Change’s programs have yet to perform any independent evaluations. One Change’s evaluation efforts have been limited by tight budgets, and also the fact that some CBSM effects are difficult to measure. Many questions remain regarding the measurement of behavior change that need more research, including:

- What is the actual impact on energy use?
- How persistent are changed attitudes and behaviors in the participant group?
- How can the “social momentum” built by CBSM programs such as Project Porchlight be measured, sustained and used to drive participation in other programs?
- How can the extended “spill-over” effect of programs like Project Porchlight be measured as their impact propagates through community networks?
- How can program implementers and sponsors quantify the costs and benefits of social marketing initiatives within the accepted evaluation framework for utility and government-sponsored energy efficiency programs?

Some of these questions may be answered through enhanced evaluations similar to those already routinely performed for conventional energy efficiency programs. Other questions, specifically those about social momentum and spill-over effects may require the development of new evaluation tools and metrics.

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