

Final Report

Lighting Program Assessment: Residential Direct Distribution

Funded By:



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EXECUTIVE SUMMARY

The Bonneville Power Administration (BPA) provides energy efficiency technical assistance and program support to its over 140 public utility customers by establishing a set of standard offer programs and setting the incentive payment thresholds that customer utilities can claim for qualifying energy efficiency projects. Each utility determines for itself the retail program components that will be available in their service territory. Retail utility conservation programs are generally funded through BPA's Conservation Rate Credit (CRC) or a Conservation Acquisition Agreement (CAA), or implemented under the BPA power sales contract.

In October 2009, BPA contracted with Research Into Action, Inc. to complete an assessment of two components of the lighting program available to customer utilities in Fiscal Year 2009 (FY 2009).¹ The first component included the distribution of compact fluorescent light bulbs to residential ratepayers through direct mail or direct-install activities. The second component was an assessment of the Northwest Trade Ally Network (TAN) to determine how it was operating relative to expectations, and to document the expectations and experience of the staff, utility contacts, and registered trade allies.

This document presents the findings from the first component: compact fluorescent lamps (CFL) direct distribution efforts.

FINDINGS

Direct distribution of CFLs remains popular with utility staff for a variety of reasons. Providing CFLs to ratepayers through a direct-install program, a give-a-way effort, or through direct mail allows utility staff to provide a simple-to-use, energy-saving bulb to a large number of customers. When the measure is provided for free and distributed widely, it is likely to reach ratepayers that otherwise might not have engaged with energy efficiency.

In BPA's territory specifically, given the number of small utilities operating in rural areas, directly mailing bulbs through a fulfillment house is popular because it is simple and requires very little in staff resources. It also provides a way to serve residential customers that are widely dispersed or that reside in remote areas.

Direct Install

Our survey did not find a high number of utilities engaged in direct install. This may be due to competing research goals: direct mail utilities tended to be small; but a greater number of large

¹ October 2008 to October 2009.



and medium utilities were listed as having direct install activities in the BPA tracking system. By trying to contact utilities with direct mail programs, we found few direct install programs.

Changes made to the BPA lighting program subsequent to the launch of this research project are encouraging more utilities to pursue direct install activities. Since April 2010, BPA is providing third-party program support for utilities who want to provide direct install CFLs. Staff believe that by 2011, more utilities will have recorded direct install activities.

Other Distribution Methods

Almost 70% of the utilities contacted reported ordering CFLs in bulk to distribute at community fairs, annual dinners, or similar events. Utilities distribute CFLs at social and community events in order to: expose customers to the bulbs; have a positive community presence; or to augment broader utility marketing efforts. BPA does not track these bulk-purchases until the bulbs are distributed and subsequently entered into the planning, tracking, and reporting (PTR) system. Given the presence of CFL distribution for marketing or public relations benefits, BPA expects that some portion of bulk purchased bulbs will not be considered part of efficiency program efforts or used to meet CRC requirements.

Direct Mail

Utilities that directly mailed CFLs to customers did so for a variety of reasons, including simplicity and the confidence that a wide range of customers would be reached. Contacts reported many lessons learned in managing the logistics of these efforts, including: the importance of communicating with rural post office staff; the importance of packaging choices; and the value of providing advance notice with an option to refuse the delivery.

The primary difference in the program experience of utility staff is reflected in the choice between unsolicited and “opt-in” programs. Both approaches were valued by utility contacts, but those employing an opt-in approach were more likely to expect customers to do something else (complete a satisfaction survey, order a weatherization kit, or request an audit). By contrast, utilities that mailed CFLs to all ratepayers distributed the packages to everyone, including the occasional household that reported not wanting the bulbs.

Direct Mail Recipient Responses

The average installation rates for the direct mail portion of the lighting program were quite high. On average, 60% of the shipped bulbs were installed upon delivery. Eighty-seven percent of the respondents installed at least one bulb and the majority plans to install more bulbs in the future, leading to a future projected installation rate of 89%.

Among direct mail recipients, we found relatively high satisfaction with the bulbs that were distributed. We also found that those receiving the direct mail bulbs were equally likely to report installing them, regardless of whether or not they had CFLs installed in their home prior to the shipment. The importance of maintaining rigorous quality standards is indicated by some contacts’ comments about low light and/or slow start-up. If this program option is expected to

encourage adoption among households without CFLs, providing an experience with a high-quality bulb is critical.

Consistent with the best practice research conducted for this study, our survey of residential end-users revealed that those receiving more than five bulbs per package reported lower installation rates than those receiving five or fewer.

Utilities launching direct mail efforts in the future will want to consider the lessons described in this report and communicate with customers about the packages through a pre-notice describing what the packages contain, whether or not they will be charged, and how to opt-out of the delivery. Avoiding issues with breakage, communicating with the post office, and extensive address list cleaning helps ensure that the bulbs reach customers as expected. A pre-notice mailer not only alerts residents of the shipment, but also serves as a test of list quality – any returned mail indicates an address that should be removed.

RECOMMENDATIONS

We offer the following recommendations:

- ➔ **Limit the number of bulbs per Direct Mail package.** Limit the number of unsolicited bulbs sent via Direct Mail to five or fewer per household to maximize installation rates.
- ➔ **Distribute best practice findings.** Provide a tip sheet to utilities pursuing direct mail. This sheet should include a checklist of considerations (communicating with the local post office, sending a pre-delivery notice to test addresses and avoid confusion). Distributing the best practice research findings to retail utilities may also increase the effectiveness of these efforts.
- ➔ **Prioritize quality and, if necessary, include instructions or educational materials.** Providing high-quality bulbs continues to be an important consideration for all three program approaches. Surveys with direct-mail recipients found a number of consumers are still dissatisfied with the time it takes for these bulbs to come to full brightness, and a portion reported that at least one of their bulbs had burnt out. Recipients of specialty bulbs, and those receiving only standard twistlers, were equally satisfied with the bulbs they received.

The best practice review found that educational materials can be quite valuable, particularly when multiple wattage bulbs are shipped. Customers who receive specialty bulbs are likely to benefit from instructions that describe the most appropriate bulb for a given use or fixture type.

Bulb quality and appropriate application of the measure (installed in the right fixture, providing the expected or desired light) is an important factor in whether or not bulbs remain in place in the case of direct install or inspire additional purchases, in the case of a give-away effort.

- ➔ **Consider promotions that rely on redeemable coupons.** Contacts were rather extreme in their responses when asked about website and in-person options for obtaining more bulbs – a substantial portion reported “one” and “five” on a five-point scale, indicating that residential customers will either strongly prefer or strongly resist using these options. Those expressing preference in obtaining additional bulbs in-person were less likely to prefer the website option.

The most popular method for obtaining additional bulbs was through a redeemable coupon. This makes sense, in that coupons allow participants to collect additional bulbs through their normal shopping routines with no additional effort required.

- ➔ **Provide an interactive platform for future requests.** Matching the type and quantity of bulbs to the customer’s needs is easier with a website interface that allows customers to visually identify the type of fixtures they have and then receive reliable information on the best lighting choices for that fixture or application.
- ➔ **Provide additional support to encourage direct install.** Small utilities may perceive that they do not have the staff to manage direct install programs, or that these programs are unacceptably expensive to implement. Leveraging state weatherization efforts, using volunteer groups, or authorizing others that can act as an agent for the utility are potential strategies for minimizing the costs associated with direct install and provide a cost-effective way to distribute an otherwise low-cost measure.

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INTRODUCTION

The Bonneville Power Administration (BPA) provides energy efficiency technical assistance and program support to its over 140 public utility customers by establishing a set of standard offer programs and setting the incentive payment thresholds that customer utilities can claim for qualifying energy efficiency projects. Each utility determines for itself program components that will be available in their service territory. Retail utility conservation programs are generally funded through BPA's Conservation Rate Credit (CRC) or a Conservation Acquisition Agreement (CAA), or implemented under the BPA power sales contract.

In October 2009, BPA contracted with Research Into Action, Inc. to complete an assessment of two components of the lighting program available to customer utilities in Program Year 2009. The first component included the distribution of compact fluorescent light bulbs to residential ratepayers through direct-install and other distribution or direct-mail activities. The second component was an assessment of the commercial lighting activities of the Northwest Trade Ally Network (TAN) to determine how it was operating relative to expectations, and to document the expectations and experience of the staff, utility contacts, and registered trade allies.

This document presents the findings from the first component: compact fluorescent lamps (CFL) direct distribution efforts.

BACKGROUND

As a marketer of wholesale power, BPA does not directly run energy-efficiency programs. Instead, BPA provides a framework for its customer utilities through the BPA Implementation Manual that outlines BPA's requirements and reimbursement for a variety of eligible efficiency measures. BPA's customer utilities have widely varying energy-efficiency priorities and capabilities.

One of these options is the regional Change-a-Light (CAL) program. BPA began offering the CAL program in 2008 after the Northwest Energy Efficiency Alliance discontinued it. In addition to the retail markdown component of the CAL program, BPA provides customer utilities with a number of other options for encouraging CFL use in their service territories.

This report is focused on three of these options: direct install, other distribution methods, and direct mail.

- ➔ **Direct Install:** Direct install programs install energy efficiency measures into ratepayer homes, generally at no charge through a third party.
- ➔ **Other Distribution Methods:** For the purposes of this report, other distribution methods refer to instances where utilities distribute CFLs, typically for free, to customers in a



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variety of ways, including: direct installation; distribution for free at community events; to use as an incentive or prize; or to mail out to customers. These CFLs are often obtained through a bulk purchase order through a third-party vendor, manufacturer, or fulfillment house.

➔ **Direct Mail:** Direct mail programs deliver energy efficiency devices (primarily light bulbs and showerheads) directly to residential customers through the mail or other postal service in order to introduce new technology or encourage residential customers to take actions likely to result in lower energy use. In this option, customers install the measures themselves.

In 2009, at least ten utilities used BPA's CAL program partner to direct mail CFLs to their customers. Additional utilities reported using other fulfillment contractors to direct mail CFLs to their customers.

BPA's residential program staff asked Research Into Action to assess both how the direct install and direct mail activities were implemented by customer utilities and the experience of residential customers receiving bulbs through these delivery mechanisms. This information will guide revisions to the BPA Implementation Manual for 2010/2011, relative to product mix and program delivery options.

Direct Installation

Direct-install activities have qualified for CRC reimbursement for many years, yet we found little direct-install activity among the utilities we interviewed in 2009. Direct-install reimbursement rates are higher than other reimbursements because of the greater certainty that the bulb was installed and where it was located. However, direct-install activities can be more expensive to implement because of the staff and verification requirements associated with these projects.

Utilities we interviewed reported that their efforts were tied to multifamily or low-income program efforts in which CFLs are installed as part of a larger residential weatherization program. Community action entities or state-supported efforts to reduce the energy cost burden on low-income households often distribute these bulbs, but direct-install activities are not necessarily restricted to these households.

BPA has sought to streamline the direct-install documentation requirements. Utilities that report savings from direct-install CFLs must have a staff person or other agent document the address, number, type, and location of the bulbs installed.

Other Distribution Methods

Utilities that want to distribute CFLs directly may order a bulk shipment of CFLs. While bulk shipment is not synonymous with direct mail or direct installation, it indicates that the utility is engaged in some type of direct distribution effort.

Implementation staff noted that while utilities occasionally contact them to arrange a bulk purchase, utilities do not necessarily (nor are they required to) report the purpose for the shipment.

Direct Mail

BPA utilities have been able to mail CFLs directly to their customers for many years. As a convenience to utilities, a Direct Mail opportunity was added to the CAL program in 2009. The CAL program partner (PECI) selected a subcontractor through a competitive solicitation to act as supplier and fulfillment house for Direct Mail CFLs. Utilities could always contract with another service provider, and several chose to do so. According to CAL program implementation staff, BPA wanted to provide utilities that were not able to participate in the retail program or otherwise had limited retail program options with a simple way for their customers to benefit from energy-efficient lighting and to expand the penetration of CFLs.

ROLE OF THE ENERGY EFFICIENCY REPRESENTATIVES

Energy Efficiency Representatives (EER) act as BPA's efficiency "sales force" by seeking to become a trusted advisor to BPA customer utilities within a specific territory. BPA staff rely on EERs to communicate and interpret the energy efficiency program guidelines to the customer utilities, and to help them adapt the opportunities to their service territories. EERs also track how their utilities are using their CRC credit dollars.

Pursuing energy savings from CFL installations is a high priority for utilities with CRC credits to use, since the federal standard change, which phases out inefficient light bulbs, has created a limited time horizon for claiming energy efficiency savings from CFLs.

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UTILITY INTERVIEWS

INTRODUCTION

In collaboration with BPA staff and the EERs, we developed a list of 54 utilities that had either: 1) directly installed CFLs in ratepayer homes; 2) received bulbs through a bulk purchase; 3) mailed CFLs directly to ratepayer homes; or 4) participated with the TAN. In some cases, the program activity was reported from BPA’s program tracking (PTR) system. In other cases, utility activities were known by EERS or BPA program staff. For the purposes of this report, we categorized any utility with more than 5,000 customers as *large/medium* and all utilities with fewer than 5,000 customers as *small*. Table 2.1 shows the population by program component.

Table 2.1: Population

PROGRAM COMPONENT	TOTAL UTILITY LIST (N= 54)		LARGE/MEDIUM UTILITY (N=35)		SMALL UTILITY (N=19)	
	N	PERCENT	N	PERCENT	N	PERCENT
Direct Install	11	20%	7	20%	4	21%
Bulk Purchase	19	35%	14	40%	5	26%
Direct Mail	16	30%	6	17%	10	53%
Registered with TAN	48	88%	33	94%	15	79%

In December 2009, we interviewed 28 utility contacts. We prioritized utilities that had engaged in at least two of the three lighting program strategies. These utilities were distributed across five states. Table 2.2 shows the portion of contacts in each state engaging in each program component, and by utility size.

Table 2.2: Sample Characteristics

REPORTED PROGRAM COMPONENT	STATE (N=28)					UTILITY SIZE (N=28)	
	WA (N=11)	OR (N=5)	ID (N=8)	MT (N=2)	NV (N=1)	LARGE/MEDIUM (N=15)	SMALL (N=13)
Direct Install	3	—	—	—	1	1	3
Bulk Shipment	10	2	5	1	1	8	3
Direct Mail	7	2	4	2	1	5	10
Registered with TAN	8	5	6	3	1	13	10



RESIDENTIAL PROGRAM EFFORTS

We asked each utility contact about their overall residential lighting efficiency efforts. We did not offer a list of activities or ask contacts about each one, so the activities listed below may not be exhaustive. However, the most commonly reported activities included directly-mailed bulbs and efforts to give away CFLs obtained through bulk purchases.

The preponderance of direct mail and giveaway activities should not be considered representative of the entire BPA utility population, because the evaluation purposely targeted utilities that had directly mailed bulbs to customers. Since these utilities tended to be smaller, we interviewed a greater proportion of small utilities on our original contact list than the large/medium utilities.

Direct Install

Our original contact list had eleven utilities with known direct install activities. We interviewed contacts from four of the eleven utilities; however, only two reported implementing direct install activities. Since we asked all contacts that reported receiving bulk shipment CFLs if they used them for direct install, we identified one additional utility with direct install activities.

Of the three contacts reporting direct-install projects, two said that they distributed the bulbs through low-income weatherization efforts administered by a community-based third party. These third parties are authorized to confirm installation of each bulb, so the utility has very little involvement with specific projects. The third contact described an ongoing project to retrofit each unit in a large multifamily building. This contact said he works directly with the building owner to ensure that the bulbs are installed. Building staff retrofit units only as they become vacant to avoid complaints about changes to existing lighting. While this may increase the long-term retention of the lighting, contacts are concerned about the delays in installation.

Other Distribution Methods

We identified other distribution methods by asking contacts to first describe their overall residential lighting program activities and then to tell us if their utility had directly ordered bulk-purchase CFLs in the prior program year. While 10 of the 28 were known to have ordered bulk-purchase CFLs, a total of 19 contacts (or 68% of those surveyed) reported that their utility had bulk-purchased CFLs. Of those 19 contacts, 12 reported their utility had also ordered bulk shipments of CFLs in previous program years.

We learned that most utilities distribute these CFLs by giving them out at events or as part of other community engagement. Give-away efforts tied to specific program activities tended to involve distribution through emergency food boxes or community action agencies, or were handouts as part of a home energy audit. Other give-away activities occurred at special events associated with Earth Day, annual meetings, energy fairs, school events, or as incentives for other activities.

One contact said he kept CFLs in his utility vehicle and occasionally installed them during a home audit. However, he noted that, “This is not formally part of the program, and I don’t do it

much, because it tends to slow me down, and I'm usually behind schedule." Another contact reported that the bulk shipment bulbs were used in a distribution activity that qualified as direct install because recipients provided an address and utility representatives confirmed that they were customers of the utility before they gave the customer the bulb.

Direct Mail

The original contact list had 14 utilities that had directly mailed CFLs to their customers.² We interviewed 13 of the 14 direct-mail utilities. Since we asked all utility contacts if they had directly mailed CFLs to their customers (regardless of list status), we identified three additional utilities with some type of direct-mail effort in the FY 2009 program year, for a total of 16 respondents with direct mail activities.

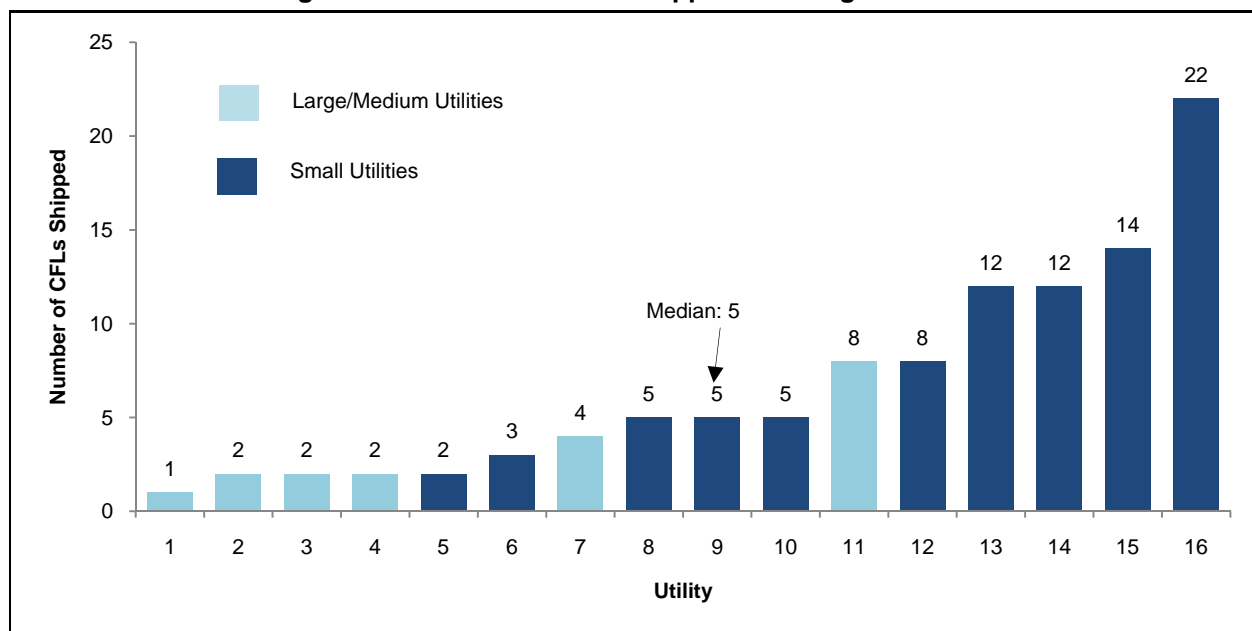
These contacts reported that they direct-mailed CFLs to as few as 600 and as many as 8,200 service addresses. The total number of bulbs mailed ranged from 2,000 to 88,000, depending on the number of bulbs sent and the number of customers receiving them. Contacts at 12 of the 16 utilities reported mailing CFLs, unsolicited, to all residential addresses.³ Four of the 16 contacts did not send CFLs to all customers; instead, they required that customers opt-in to the offer by sending in a coupon, filling out an electronic form, or requesting the bulbs through involvement in another efficiency program. Among the four, three used the CFL direct mail to entice customers to do something for the utility: visit the utility's newly designed website; encourage customers to sign up for on-line billing; or complete a satisfaction survey. The fourth utility sent conservation kits to customers who requested them.

Eleven of the 16 (69%) reported that this was their first CFL direct-mail effort. The number of bulbs shipped to each address ranged from one to 22 (Figure 2.1).

² This included one utility that distributed packages of CFLs to all residential ratepayers, but not through the U.S. Postal Service.

³ Addresses were typically filtered to identify any ratepayers receiving their bill outside the utility service territory, as might be the case for summer homes or out-of-state owners.

Figure 2.1: Number of CFLs Shipped to a Single Address



Direct Mail - What Was Shipped?

Table 2.3 describes the different types of lighting shipments and how they were distributed among utilities with greater or fewer than 5,000 customers.⁴ None of the large/medium utilities mailed specialty bulbs to their customers, and only one of the small utilities required customers to opt-in or request the shipment.

Table 2.3: What Was Shipped?

ASPECT	TOTAL (N= 16)	LARGE/MEDIUM UTILITY (N=6)	SMALL UTILITY (N=10)
Unsolicited	12	3	9
Included Specialty Bulbs	5	—	5
Sent As A Conservation Kit*	4	2	2
Average Number Shipped	6.8	3.2	8.8

* Including refrigerator thermometers, low-flow aerators, or showerheads.

⁴ To explore the relationship between the size of a utility and the efficiency program choices, we used the total ratepayer counts from the Energy Information Administration (EIA) and determined which contacts were from utilities with greater, or less than, 5,000 ratepayers.

When utility staff were asked about their assumptions for the percentage of bulbs that were installed immediately upon receipt of the direct mailing, nine contacts said they assumed that all were installed (Table 2.4).

Table 2.4: CFL Installations

INSTALLATION ASSUMPTIONS	NUMBER REPORTING
All Installed	9
No Assumptions or Don't Know	5
Assumptions Are Built Into the RTF Deemed Savings Value	2

Why Direct Mail?

We asked each contact what it was about the direct mail component that made it attractive to their utility. Contacts mentioned a variety of factors, including the simplicity of the program, a desire to provide a connection to the utility, broader coverage among ratepayers, the availability of CRC money, and the shortage or lack of retailers that carry CFLs in their service territories. Eight contacts mentioned the simplicity of the program design, and six of these were from small utilities, indicating a higher importance of simplicity by this segment. We found almost no difference between the large/medium and small utilities in the rate at which they mentioned: using the CFL offer to facilitate connection with utility communication; using the offer to provide better energy efficiency coverage; the presence of CRC money to spend; or even the lack of retail presence (Table 2.5).

Table 2.5: What Made Direct Mail Attractive?
(Multiple Responses Allowed)

REASON	TOTAL	LARGE/MEDIUM UTILITY (N=6)	SMALL UTILITY (N=10)
Simple	8	2	6
CRC Money to Spend	8	5	5
Provide Better Program Coverage, Broader Benefits to Customers	7	3	4
Lack of Retail Options	7	2	4
"Give Something" to Customers	4	—	4
Facilitate Connection with Utility (Promote New Website, Satisfaction Survey Incentive)	2	1	1
Control for Overlapping Utility Territories	2	1	1

When asked to compare the direct-mail approach to other lighting program approaches, contacts said direct-mail reduces uncertainty about the portion of ratepayers who benefit from energy-

efficiency program activities. This, combined with the convenient distribution offered by fulfillment houses, made direct-mail attractive.

- *“Direct mail of conservation kits is about as easy as can be.”*
- *“Change-a-Light is very difficult for us to work with. We have no Home Depot, no Wal-Mart... direct-mail is easy, but there are a lot of logistics to consider.”*

We asked contacts if they had received any feedback about the CFL shipment. Only one contact reported not receiving any feedback on the mailing. The most common response (given by 10 of 15) was that customers gave them positive and appreciative comments. Two utility contacts reported receiving negative responses from fewer than five customers, some of whom accused the utility of sending mercury to their home, or said they were upset by receiving Styrofoam packaging. Two other contacts reported hearing from a limited number of confused customers – typically, these callers were concerned that they would be billed, that something had been mis-delivered, or (again) asking about the mercury contained within a CFL.

- *“People really appreciated them. We had some requests for more. It was great PR!”*
- *“The feedback was mostly positive. A few customers came back to say that the packaging was inadequate and that the CFL was broken.”*
- *“The feedback we’ve received is thankful. The post office did a story on the mailing. The boxes were huge, so we had to stage the shipping. Our members were so excited. We heard lots of positive feedback.”*

Of the 15 utility contacts who answered questions about their intention to direct-mail CFLs to their customers again, ten said they had no future plans to do so. Nine of the 10 were among utilities that had sent CFLs to all residential customers.

- *“We probably won’t do this again. I need to turn to spending funds on renewables for the next year or two.”*
- *“We won’t. We’re saturated. BPA says ‘You are done.’ It would be hard to justify.”*
- *“We don’t have any future plans to direct mail in 2010. We are still participating in Change-a-Light, and after March, BPA will stop paying credits on CFLs.”*

Direct Mail – Lessons Learned

We asked contacts if, based on their experience, they would make any changes to future direct-mail efforts, and to recommend program improvements. Of the 15 respondents, 7 suggested changes. The most common comments dealt with addressing logistical issues, particularly the challenges for rural post offices that must deliver the shipments.

Specific comments about working with the post office included:

- *“I don’t know if I’d do as many (bulbs) at once again. The boxes were large and overwhelmed the post office. A smaller mailing would be better... but if you consider*

the postage costs and the variety we were able to send, it made financial sense, but the logistics were a challenge.”

- *“Work with the contractor and the local post office. Even our post offices had a huge problem with this. The volume was a challenge. Also, most of our customers pick up at the post office, so we’d have one customer open their box and another wonder where theirs was.”*
- *“We did a really nice package, included specialty bulbs. But, since it was a larger box, some customers had trouble receiving it and had to come in and pick up their package in the post office.”*
- *“One whole issue we had to deal with was seasonal accounts. I’m sitting on 500 boxes of bulbs that I expect people will come in and get. Summer residents present a little bit of risk. Also, if you are small and rural, you should be talking to your post office. Be proactive; you don’t want 20 pallets showing up.”*

Another cluster of comments had to do with the level of information provided to customers, both before the mailing and in the packages themselves. Contacts reported receiving calls from customers who were confused about why they had received the bulbs, were concerned about mercury in the bulbs, or who had general questions about the package.

- *“Create some effective communication in advance of the mailing. Make it clear that it’s from the utility and include educational materials.”*
- *“I did send out a card bill stuffer to advise them that this was coming. Even with that, we received a number of calls with questions.”*

Five contacts mentioned their experience with fulfillment houses or BPA program staff. In most cases, these contacts were appreciative – acknowledging help from BPA and the CAL contractor, or generally noting the simplicity of the fulfillment house approach. One complained about his experience with the fulfillment house.

- *“I have to say that my experience top to bottom with the Change-a-Light was positive. People at BPA helped me get the hard-to-reach funds. It was great.”*
- *“It went really smoothly. The fulfillment company took all the work off of us. They were very knowledgeable about BPA and how to use the CRC. They filled me in on everything that was eligible and what we could take credit for.”*
- *“I’d suggest that (other utilities) explore going directly to a distributor before approaching a third-party contractor.”*

The negative comments were quite limited and centered on selecting the fulfillment contractor, rather than on BPA or its reimbursement levels. In one case, the time required for public procurement overlapped changes to the list of approved measures, creating difficulties in the bidding process for this public organization.

Finally, we asked contacts if they wanted to make any recommendations for BPA about the program offer. Only four contacts had specific recommendations – two of whom urged BPA to maintain existing incentive levels. The two other requests were: 1) that BPA provide advance notice of program changes and inform utilities about what BPA is doing; and 2) for more turnkey program options for small utilities. “I’d love to do heat pumps and weatherization,” this contact said, “but we don’t have the expertise to do that.”

SUMMARY OF UTILITY STAFF INTERVIEWS

Direct distribution of CFLs to residential customers remains popular with utility staff for a variety of reasons. Utilities seeking to use their CRC funding and obtain quick energy savings will continue to be attracted to this path. Giving away CFLs, either through a direct-install effort, a give-a-way program, or through direct mail allows utility staff to provide a simple-to-use energy-saving device to ratepayers. In BPA territory specifically, given the number of small utilities operating in rural areas, directly shipping bulbs through a fulfillment house is simple and requires very little in staff resources. It also provides a way to serve residents of far-flung or rural territories. This evaluation found that the majority of the utilities offering direct mail programs are truly small utilities (10 of 16 had fewer than 5,000 ratepayers). It is logical that these contacts reported choosing direct mail because it was simple. Unsolicited direct mail is even simpler in that it avoids creating a request process that requires administrative staff (to track and process requests).

3

RESIDENTIAL END-USER SURVEY OF DIRECT MAIL RECIPIENTS

METHOD

Research Design

As reported in the previous section, among the 28 utilities interviewed for this project, 16 reported having direct mailed CFLs to their ratepayers in FY 2009. Of the 16, seven utilities provided the research team with a list of 100 to 200 residential customer names and contact information so that we could survey a sample of their ratepayers. Our goal was to examine the effectiveness of this approach broadly, through a survey designed to estimate the installation rates of the bulbs, document the general attitudes and/or satisfaction with them, and assess the attractiveness of several options for obtaining CFLs in the future.

We analyzed the responses and report on them below. When appropriate, we compared the responses between groups to identify statistically significant differences in patterns of responses. Any notable findings or statistically discernible differences are discussed in the appropriate section below.

Sampling Design and Survey Instrument

In collaboration with BPA staff, the assessment team developed a survey instrument for residential customers designed to take no more than five minutes to complete. Most of the questions were closed-ended. The survey was administered by Abt SRBI in February 2010.

BPA requested that we complete 200 end-user interviews with residential ratepayers who had received CFLs in the mail in 2009. We estimated that 30 survey interviews per utility territory would be sufficient, which increased our total sample size from 200 to 210 (see Table 3.1).

Ultimately, we completed 202 telephone surveys. All of the utilities included sent CFLs to all of their residential ratepayers after filtering mailing lists for zip codes outside their service territories (as might be the case with summer homes or rental properties).



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Table 3.1: Population and Sample

UTILITY	APPROXIMATE NUMBER RECEIVING CFLs	CONTACT NAMES PROVIDED	ACTUAL SAMPLE*
Fall River Electric Cooperative	6,100	150	30
Idaho County Light and Power	3,400	100	28
Kittitas PUD	3,400	172	30
Lincoln Electric Cooperative	3,200	150	30
Orcas Power and Light Cooperative	7,000	135	30
Wells Rural Electric	4,000	150	30
Vera Water and Power	8,200	123	24
TOTAL	35,300	980	202

* We attempted 30 completes per territory, but fell short in two territories: Vera Water and Power and Idaho County Light and Power.

Abt SRBI separated cellular phone numbers from landline numbers and avoided calling mobile phones unless it was necessary to meet the sample quota. The portion of mobile phone numbers was typically between 10% to 30%; however, for one utility, the list contained 74% mobile phone numbers. Cellular phones were required in the three rural utility service territories. Ultimately, surveys were completed with 202 residential contacts, with an overall survey response rate of 23% (Table 3.2).⁵

Table 3.2: Disposition

STATUS		COUNT
Completed		202
Qualified Refusals	Hard Refusal	1
	Soft Refusal	1
List Errors	Wrong Number/Person	144
	Fax/Modem/Line Problems	8
	No Phone Number	7
	Disconnected Number	28
		Continued

⁵ *Response Rate* is defined as the number of completed interviews divided by the number of persons for whom a contact attempt was made. The total number of contacts attempted was 872.

STATUS		COUNT
No Contact Made	Busy/No Answer	50
	Other Barriers	8
Not Screened	Callback	157
	Answering Machine / Voicemail	111
	Other Barriers	53
	Not Dialed	101
Screened Out	Not Qualified	98
	Qualified Callback	11
Total List		980

Installation Rates

Recall that in Figure 2.1, we reported that the median number of bulbs mailed by surveyed utilities was five. For our sampled customers, the median rose to eight bulbs. CFLs were shipped to ratepayers in a packages containing from 4 to 22 bulbs (Table 3.3). Table 3.3 presents the statistics for each utility with customers contacted for this research. The weighted average adjusts the overall average to account the total number of bulbs distributed among each of the seven utilities.

Table 3.3: Installation Rates

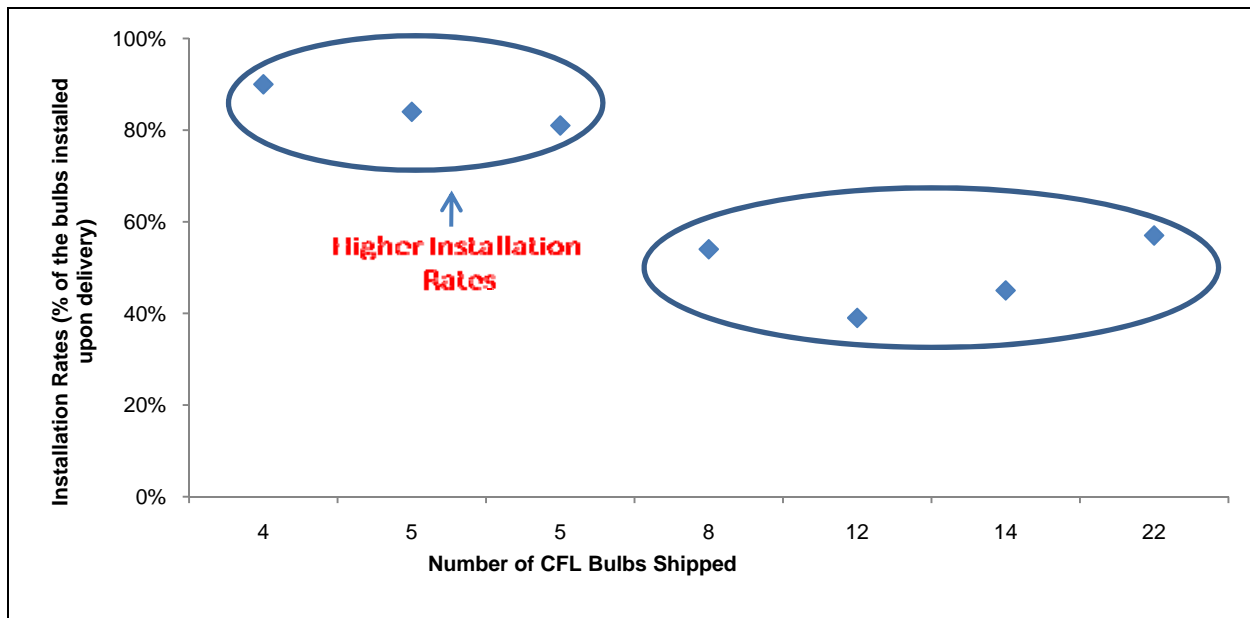
UTILITY	CFLS SHIPPED	REPORTED INSTALLATION				INSTALLATION RATE	
		No BULBS (PERCENT)	SOME BULBS (PERCENT)	ALL BULBS (PERCENT)	AVERAGE NUMBER	CURRENT ¹ (PERCENT)	PROJECTED ² (PERCENT)
A	4	4%	13%	79%	3.6	90%	100%
B	5	4%	25%	64%	4.0	81%	99%
C	5	3%	23%	70%	4.2	84%	97%
D	8	23%	53%	23%	4.3	54%	94%
E	12	23%	57%	17%	4.7	39%	83%
F	14	20%	60%	20%	6.3	45%	85%
G	22	10%	47%	37%	12.6	57%	82%
Weighted Average	8.7	13.6%	43.5%	39.3%	5.3	60.3%	89%

¹ *Installation Rate* was estimated by dividing the number of bulbs installed from the package by the total number of bulbs shipped to a household. This ratio was converted to a percent.

² *Projected Installation Rate* was estimated in the same manner as the *Installation Rate*, except the number of bulbs installed is the sum of already installed bulbs and bulbs expected to be installed in the future (self-reported by each household).

Those who received more than five bulbs per package reported lower installation rates than those who received five or fewer (Figure 3.1). Those who received more than five bulbs were less likely to have reported installing all of all them upon delivery than those who received fewer than five (Table 3.3).

Figure 3.1: Distribution of Installation Rates



To further explore installation rate patterns, we evaluated the installation rates of different demographic populations in our sample and tested for significant differences (Table 3.4). We found no significant differences in installation rates by fuel type, respondent’s education, and house size.

Table 3.4: Installation Rates

DEMOGRAPHIC ATTRIBUTES	AVERAGE INSTALLATION RATE
FUEL TYPE (SPACE HEATING)	
Electricity (N=74)	60%
Natural Gas (N=20)	76%
Propane (N=41)	55%
Wood (N=42)	65%
Other (N=16)	80%
FUEL TYPE (WATER HEATING)	
Electricity (N=141)	65%
Natural Gas (N=20)	69%
Propane (N=30)	54%

DEMOGRAPHIC ATTRIBUTES	AVERAGE INSTALLATION RATE
Other (N=1)	60%
Continued	
EDUCATION	
High School Diploma or Less (N=46)	60%
Some College (N=59)	67%
Four-Year College Degree (N=57)	64%
Post-Graduate/Professional Degree (N=31)	63%
HOUSE SIZE	
One to Two Bedrooms (N=50)	65%
Three Bedrooms (N=79)	64%
Three or More Bedrooms (N=64)	62%

Prior Use of Compact Fluorescent Light Bulbs

Sixty-six percent (134 of 202) of residential contacts reported that they had at least one CFL installed in their home before they received the shipment from their utility. Of those reporting prior installation, over 60% (82 of 134) said they had more than five CFLs installed in their home when they received the shipment from their utility (Table 3.5), and almost half (64 of 134) had CFLs stored in their home before the shipment.

Table 3.5: Estimated Number of CFLs Installed Prior to Shipment

CHARACTERISTIC	NONE		1 TO 5		MORE THAN 5	
	N	PERCENT	N	PERCENT	N	PERCENT
Number of Bulbs in Use (N=200)	66	33%	52	26%	82	41%

Eighty-five percent of residential end-user contacts (114 of 202) reported installing at least one of the bulbs shipped to them by their utility (Table 3.6). In examining the portion that reported installing at least one light bulb, we found no significant difference between households with, or without, CFLs installed prior to the shipment, indicating that both groups were equally likely to install utility-supplied CFLs.

Additionally, approximately 24% (27 of the 114 respondents who installed at least one light bulb from their shipment) reported that at least one of those bulbs had burned out.

Table 3.6: Installation of Utility-Supplied CFLs

BULBS INSTALLED FROM THE UTILITY PACKAGE	NONE		AT LEAST ONE		DON'T KNOW	
	N	PERCENT	N	PERCENT	N	PERCENT
Respondents Using Energy-Efficient Bulbs Before The Delivery (N=134)	15	11%	114	85%	5	4%
Respondents Not Using Energy-Efficient Bulbs Before The Delivery (N=66)	10	15%	54	82%	2	3%

Compact Fluorescent Light Bulb Attitudes and Satisfaction

Contacts were asked to indicate the extent to which they agreed with a series of statements about the CFLs they received. The majority (83%) of the respondents agreed (offered a “4” or a “5” on a five-point scale) that energy-efficient light bulbs can be found in the stores where they shop. Sixty-nine percent of residential contacts indicated that they intended to purchase energy-efficient light bulbs in the future. However, only a third of the respondents (33%) agreed that such light bulbs were reasonably priced (Table 3.7).

Table 3.7: Awareness and Intention

TO WHAT EXTENT DO YOU AGREE THAT...	STRONGLY DISAGREE		NEUTRAL	STRONGLY AGREE		DON'T KNOW
	“1”	“2”	“3”	“4”	“5”	
Energy-efficient bulbs are available at stores I shop at. (N=200)	2% (4)	0%	8.5% (17)	11% (21)	73% (145)	6.5% (13)
I plan to purchase energy-efficient bulbs in the future. (N=201)	10% (19)	4% (8)	14% (28)	22% (45)	47% (94)	4% (7)
Energy-efficient bulbs are reasonably priced at stores I shop at. (N=201)	5% (10)	12% (24)	30% (61)	16% (33)	17% (34)	19% (39)

As noted in Table 3.8, a majority of the residential contacts (more than 60% of respondents in all cases) were satisfied (offering a “4” or a “5” on a five-point scale) with the brightness of the light, how bulbs fit the fixtures, and the overall performance of the light bulbs. Respondents were slightly more satisfied with the way the CFLs fit in the fixtures than with the brightness of the bulbs or the bulbs’ overall performance. Contacts also rated the overall performance of the CFLs higher than the brightness of the bulbs.

Table 3.8: Satisfaction

ASPECT ¹	VERY DISSATISFIED		NEUTRAL	VERY SATISFIED	
	"1"	"2"	"3"	"4"	"5"
How satisfied are you with how the efficient bulbs fit in your fixtures? (N=173) ²	2% (3)	5% (8)	13% (23)	30% (51)	51% (87)
How satisfied are you with the efficient bulbs' overall performance? (N=172) ²	5% (9)	5% (8)	16% (27)	36% (63)	38% (66)
How satisfied are you with the brightness of the light? (N=175) ²	6% (10)	10% (17)	21% (37)	30% (53)	33% (58)

¹ Only those reporting that they had installed at least one bulb were asked these questions.

² We tested for the statistical differences between patterns of responses on brightness of the light, how bulbs fit the fixtures, and the overall performance of the bulbs using the Wilcoxon Signed-Rank Test for non-independent groups. This test is used for analyzing ordinal data of related groups. Significant differences at $p < 0.05$ are discussed in the text.

Those who were unsatisfied (offering a "1" or "2" on the five-point scales) were asked why they were unsatisfied.

- ➔ Eleven contacts were unsatisfied with how the bulbs fit in the fixtures, eight of these contacts simply reported that the bulbs failed to fit in their fixtures; only two of the eight received specialty bulbs.
- ➔ Seventeen contacts were unsatisfied with the overall performance of the bulbs. The most commonly reported reasons (offered by 8 of the contacts) were "lack of brightness" or "bulbs not lasting long."
- ➔ Twenty-seven contacts were unsatisfied with the brightness of the light. Of these contacts, 14 (52%) said that the light was not bright enough, six (22%) said the lamps took too long to reach full brightness, and five (19%) reported both of the above reasons.

In order to assess if those who received specialty bulbs experienced more trouble using those bulbs than customers who only received standard CFLs, we added a set of questions for these customers. First, we reminded them of the types of bulbs they had received and asked them if any of the bulbs they received were harder to use. Of the 90 contacts who received specialty bulbs, 29 (32%) reported having difficulties using the specialty bulbs. Of those 29 respondents, almost half (14, or 48%) mentioned that one or more of the light bulbs they received did not fit their fixtures, while 9 contacts (31%) stated that the bulbs were either not bright enough or were slow to turn on. We observed no significant differences in satisfaction responses between respondents who received the specialty bulbs and those who received the regular bulbs.

Eighty-two percent (166 of 202) of all residential contacts reported that they would be interested in obtaining additional bulbs from their utility. We asked these contacts how likely they would be to request those additional bulbs if they were available through: 1) a coupon redeemable at a local retailer; 2) a website; 3) in-person at the utility office; or 4) through a telephone request line. A significantly larger portion of residential contacts reported they would be likely to obtain additional bulbs through a redeemable coupon than through the other options. As visible in Table 3.9, substantial percentages of those who selected the in-person and website options chose the

most extreme (“1” or “5”) end of the range of choices. A further examination of the preferences for in-person and website options revealed that individuals preferring the in-person option were less likely to prefer the website option.

Table 3.9: Options for Requesting Additional CFLS¹

OPTIONS ¹	VERY UNLIKELY		NEUTRAL	VERY LIKELY	
	“1”	“2”	“3”	“4”	“5”
Using a Coupon at a Local Retailer (N=166)²	5%	6%	15%	26%	48%
Through a Website (N=165)²	35%	5%	13%	13%	34%
In-Person at the Utility Office (N=164)²	27%	10%	14%	15%	34%
Telephone Request (N=164)²	14%	5%	27%	23%	30%

¹ Only those reporting an interest in obtaining the additional bulbs were asked these questions.

² We tested for the statistical differences between patterns of responses on requesting additional bulbs through website, in-person, telephone, or coupon using the Wilcoxon Signed-Rank Test for non-independent groups. A significantly greater proportion of respondents chose the coupon option.

We asked contacts who said they were unlikely to use any of the options (giving each option a “1” or “2” on the five-point scale) to explain their response.

- ➔ Sixty-seven contacts reported that they were unlikely to order additional bulbs through a website. Their reasons tended to center on technological issues or lack of access to the Internet. These responses included: not having a computer (34%); not using a computer or the Internet often (18%); and other responses, such as lack of or slow Internet connection, dislike of unfamiliar websites or the Internet in general, or inconvenience (48%).
- ➔ Sixty contacts reported that they were unlikely to obtain bulbs in person at their utility office. Of these contacts, 45 (or 75%) reported this option was too inconvenient or that they rarely, or never, go to their utility office.
- ➔ Thirty-two contacts reported they were unlikely to use a telephone request line. They offered a variety of reasons. The most common (given by nine, or 28%) was that it was easier to go to the store or use the Internet.
- ➔ Eighteen contacts reported that they were unlikely to use coupons. The most common reasons (offered by 11) were that they either do not use coupons or forget to use them.

Last, we examined whether education level was related to likelihood of requesting additional bulbs through in-person, website, telephone, or redeemable coupon options. We observed no statistically significant relationships between education level and the likelihood of requesting bulbs in person, by telephone, or with redeemable coupons. However, preference for ordering bulbs via a website increased significantly as contacts’ level of education increased (Table 3.10).

Table 3.10: Education and Requesting Additional CFLs- Website Option

LIKELY TO REQUEST VIA WEBSITE?OPTIONS*	VERY UNLIKELY		NEUTRAL	VERY LIKELY	
	"1"	"2"	"3"	"4"	"5"
High School Diploma or Less (N=40)	55%	5%	3.5%	15%	23%
Some College/Associate Degree/ Trade School (N=54) ²	35%	6%	24%	13%	22%
Four-Year College Degree (N=46) ²	28%	2%	13%	9%	48%
Post-Graduate or Professional Degree (N=25)	16%	12%	4%	16%	52%

* We used the Kruskal-Wallis Test for independent groups to examine the relationship between a preference for ordering additional bulbs through a website and level of education obtained. The likelihood of preferring the website option significantly increased as level of education increased.

Demographic Profile

Over 90% of the 202 contacts (183, or 91%) reported that they owned their home. They used various fuels for space heating: electricity (39%), wood (22%), propane (21%), natural gas (10%) and other (8%). However, a large majority (73%) used electricity for water heating (Table 3.11).

Table 3.11: Fuel Use

FUEL (N=202)	HOME HEATING	WATER HEATING
Electricity	38.6%	72.8%
Natural Gas	9.9%	9.9%
Propane	20.8%	15.3%
Wood	21.8%	--
Other	7.9%	.5%

Table 3.12 shows that only 23% of the respondents had a high-school diploma or less; many had some college (31%), a four-year college degree (29%), or post-graduate/professional degree (16%).

Table 3.12: Education (N=202)

HIGH-SCHOOL DIPLOMA	SOME COLLEGE	COLLEGE DEGREE	POST-GRADUATE/ PROFESSIONAL DEGREE
23.3%	31.2%	28.7%	15.8%

SUMMARY OF END-USER SURVEY

The average installation rates for the direct mail portion of the lighting program were quite high. On average, 60% of the shipped bulbs were installed upon delivery. Out of 202 contacts, 87 (45%) installed all of the bulbs, 82 (42%) installed some of the bulbs, and 26 (13%) installed no bulbs. Eighty-five of 115 contacts that failed to install all of the bulbs reported that they expected to install more bulbs in the future. Incorporating these reported expectations into an installation rate estimation resulted in a projected average installation rate of 89%.

Customer installation rates dropped when utilities shipped more than five CFLs per package, indicating an optimal shipment of no more than five bulbs. About 83% of respondents believed that energy-efficient light bulbs could be found in local retail stores; however, only a third agreed with the statement that these bulbs were reasonably priced. Survey respondents were slightly more satisfied with how the bulbs fit in the fixtures than with the brightness or overall performance of the bulbs. More than 80% of contacts reported that they would be interested in obtaining additional CFLs from their utilities. Contacts said they preferred using a coupon rather than requesting the bulbs in person, or via telephone or their utility's website.

Two-thirds of the respondents (66%) were already buying and installing CFL(s) at the time of the delivery, which indicates that the CFL adoption rate is quite high in the population these utilities serve. The installation rate was identical for those who had not installed any CFLs prior to delivery and those who already had, indicating that direct mail remains a viable strategy for encouraging adoption.

4

BEST PRACTICES: DIRECT INSTALL

METHODOLOGY

Our analysis of direct-install best practices results from a literature review of 14 evaluation reports and conference papers published between 2004 and 2009. The sources were identified in a search of proceedings from the International Energy Program Evaluation Conference and American Council for an Energy Efficient Economy (ACEEE) Summer Study, and the online libraries of the Consortium for Energy Efficiency, Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance.

The sources discuss the use of a direct-installation approach in more than 11 different programs targeting both lighting and other retrofit measures, including refrigerators, water-efficient shower heads, and aerators. It is interesting that only two of those programs were implemented by utilities (or their contractors); the majority was implemented by local government/community partnerships, government agencies, or public benefit corporations.

Table 4.1 lists the programs discussed, the funder or implementer, and the period of analysis. A complete list of sources is in Appendix A.

Table 4.1: Direct-Install Programs Discussed in Literature Reviewed

PROGRAM NAME	TARGET MARKET	FUNDED BY	IMPLEMENTED BY			ANALYSIS PERIOD
			GOVERNMENT/ COMMUNITY PARTNERSHIP	GOVERNMENT/ PUBLIC BENEFIT CORPORATION	UTILITY	
Energy Coalition Partnership Program	Residential (senior citizens, mobile homes, multifamily rentals) and small commercial	SoCalGas	X			2006-2008
Focus on Energy	Multifamily	State of Wisconsin Public Service Commission		X		2007-2008
First Response Program	Low-income residential customers	Colorado Governor's Energy Office		X		2007
Continued						



PROGRAM NAME	TARGET MARKET	FUNDED BY	IMPLEMENTED BY			ANALYSIS PERIOD
			GOVERNMENT/ COMMUNITY PARTNERSHIP	GOVERNMENT/ PUBLIC BENEFIT CORPORATION	UTILITY	
Bakersfield Kern Energy Watch Local Government Partnership	Single-family and multifamily	Pacific Gas & Electric (PG&E), Southern California Edison (SCE), Southern California Gas Company (SoCalGas), City of Bakersfield, County of Kern	X			2006-2008 2005-2006
Home Energy Solutions Program	Single-family, multifamily, manufactured homes	Energy Trust of Oregon		X		2005-2006
Partnership for Energy Affordability in Multi-Family Housing	Affordable multifamily housing	California Public Utilities Commission (CPUC)	X			2004-2005
Limited Income Refrigerator Replacement & Lighting Program	Low- and limited-income residential customers	San Diego Gas & Electric (SDG&E)			X	2004-2005
Comprehensive Hard-to-Reach Mobile Home Energy Savings Program	Mobile homes	SCE, SoCalGas			X	2004-2005
Energy Efficiency on Wheels Program	Low-income, hard-to-reach customers	San Francisco Power Cooperative	X			2004-2005
San Francisco Peak Energy Program	Hard-to-reach customers (targeted by neighborhood)	PG&E and the City of San Francisco, Office of Environment	X			2003-2004
Davis Comprehensive Energy Efficiency Program	Residential buildings	City of Davis	X			2003

Table 4.2 shows the measures implemented by each program.

Table 4.2: Direct-Install Measures

PROGRAM NAME	CFLS	LIGHTING FIXTURES	PROGRAM-MABLE T-STATST	WX MEASURES	WATER EFFICIENCY MEASURES	HOME ENERGY AUDIT	OTHER MEASURES
Energy Coalition Partnership Program (CA)			X	X	X	X	
Focus on Energy (WI)	X				X		
First Response Program (CO)	X				X		Combustion safety, water temp monitoring
Bakersfield Kern Energy Watch Local Government Partnership (CA)	X	X	X				
Home Energy Solutions Program (OR)	X				X		
Partnership for Energy Affordability in Multi-Family Housing (CA)	X		X				
Limited Income Refrigerator Replacement & Lighting Program (CA)	X	X					refrigerator
Comprehensive Hard-to-Reach Mobile Home Energy Savings Program (CA)	X		X	X	X		
Energy Efficiency on Wheels Program (CA)			X		X		
San Francisco Peak Energy Program	X		X				
Davis Comprehensive Energy Efficiency Program							Single-family window-mounted evaporative cooler



Other items of note regarding the 11 programs include:

- ➔ **The installer:** Six programs used contractors to install the measures; one used a handful of “youth corps” teams.
- ➔ **Absence of a “major” measure:** The majority of programs did not include a “major” measure, but distributed multiple measures together. California’s Bakersfield Kern Energy Watch Local Government Partnership and the Energy Trust of Oregon’s Home Energy Solutions Program are exceptions, in that lighting measures were installed as part of a larger home energy audit.
- ➔ **Rationale for the use of direct install:** Only three cases offered an explanation for the program’s selection of its direct-install approach:
 - **Focus on Energy (WI):** Direct install was one of three program delivery models (along with direct mail and a one-on-one workshop) tested in an experimental design process.
 - **Partnership for Energy Affordability in Multi-Family Housing (CA):** A direct-install component was added in an effort to increase the uptake of rebates.
 - **Energy Efficiency on Wheels Program (CA):** Direct install was used to serve hard-to-reach communities that would otherwise not have opportunities to improve energy efficiency.

BEST PRACTICES

Overview

The literature review identified six best practices. Table A-1, in Appendix A, lists each best practice, the studies in which it is discussed, and the state or region in which it was identified.

Rationale and Implementation Approaches

Our review found seven primary best practices associated with direct installation programs. These best practices tend to center on two primary considerations of direct install programs: preventing the measure from being removed after installation; and encouraging the targeted population to participate.

Avoiding measure removal improves the energy savings associated with these activities by improving the overall retention rate. Generally, these best practices are associated with improving the quality of the measures selected and the installation. It can also include educational efforts to offset any confusion or dissatisfaction with installed measures.

- ➔ **Including an educational component** for the target market has been found to increase the acceptance and retention of measures. This can occur through workshops, one-on-one provision of information, or through printed materials mailed to participants or left at the site. Educational material can be provided by the program directly or can be part of the

installation contractor's responsibilities. When appropriate, materials can refer beneficiaries to other programs or provide information about the benefits of energy efficiency. When the direct install program includes measures that are complicated to program or understand (such as programmable thermostats), programs should provide training to users.

- ➔ **Tracking important program information** is important to aid verification and evaluation, as well as helping administrators avoid treating the same address multiple times. Participant contact information and product information are important for verifying that products were installed where reported. The information is also important for identifying widespread measure failure or dissatisfaction. Programs should also know who installed the measures, and when. Follow-up surveys ensure that administrators know if measures are failing immediately or being removed.
- ➔ **Instituting quality control measures** to improve energy savings retention. Quality control protocols can avoid problems with measures or installations that are inadequate or inappropriate. Generally, these activities center on the selection of contractors and methods for identifying and excluding installation contractors that fail to meet the expectations of the program. Pre-screening contractors will ensure that they are licensed, bonded, and insured, and should reveal whether or not the contractor has a history of dissatisfied customers. Above all, when a complaint occurs, program representatives need to respond rapidly. Training for installation contractors is another option for quality control.
- ➔ **Providing visible utility sponsorship** overcomes doubts about legitimacy among participants, many of whom may be suspicious of “free” offers. This sponsorship leverages the credibility the utility has with its customers and provides an opportunity to coordinate marketing efforts or leverage the monthly communication utilities already have with their ratepayers.
- ➔ **Including a variety of bulb and fixture options** improves the odds that customers will accept the measure because the bulbs that are installed are appropriate for the fixtures and meet the expectations of residents.
- ➔ **Following recognized CFL-specific best practices** helps program implementers avoid the most common reasons for removing or disabling measures. Installers should ensure that: CFLs installed have lumen output equal to, or higher than, the bulb being replaced; CFLs are installed in hard-to-reach, high-use fixtures first; CFLs installed by the program are marked somehow for easy verification; and the number of lamps installed per home is limited to a reasonable number (typically no more than 10-12 bulbs).

Benefits of Direct Install

Our literature review identified three benefits of direct install.



- ➔ **Higher rate of CFL installation and retention:** Two studies found that direct installation resulted in a longer measure life than (in one case) direct mail or one-on-one workshops, and (in the other case) CFLs purchased with a coupon (Berger 2008; Nexus 2008).
- ➔ **More effective in reaching customers than either education or rebates by themselves:** An evaluation study found that when a program added a direct-installation component (which involved two contractors offering no-cost measure installations), it increased the uptake of measures among multi-family properties that would have delayed such implementation had they been required to pay for the improvements (KEMA 2006).
- ➔ **High customer satisfaction:** Several evaluation studies reported high customer satisfaction with direct install programs and measures (PA 2009a; LaPalme 2007; EMCOR 2006; Grover et al. 2006).

Limitations of Direct Install

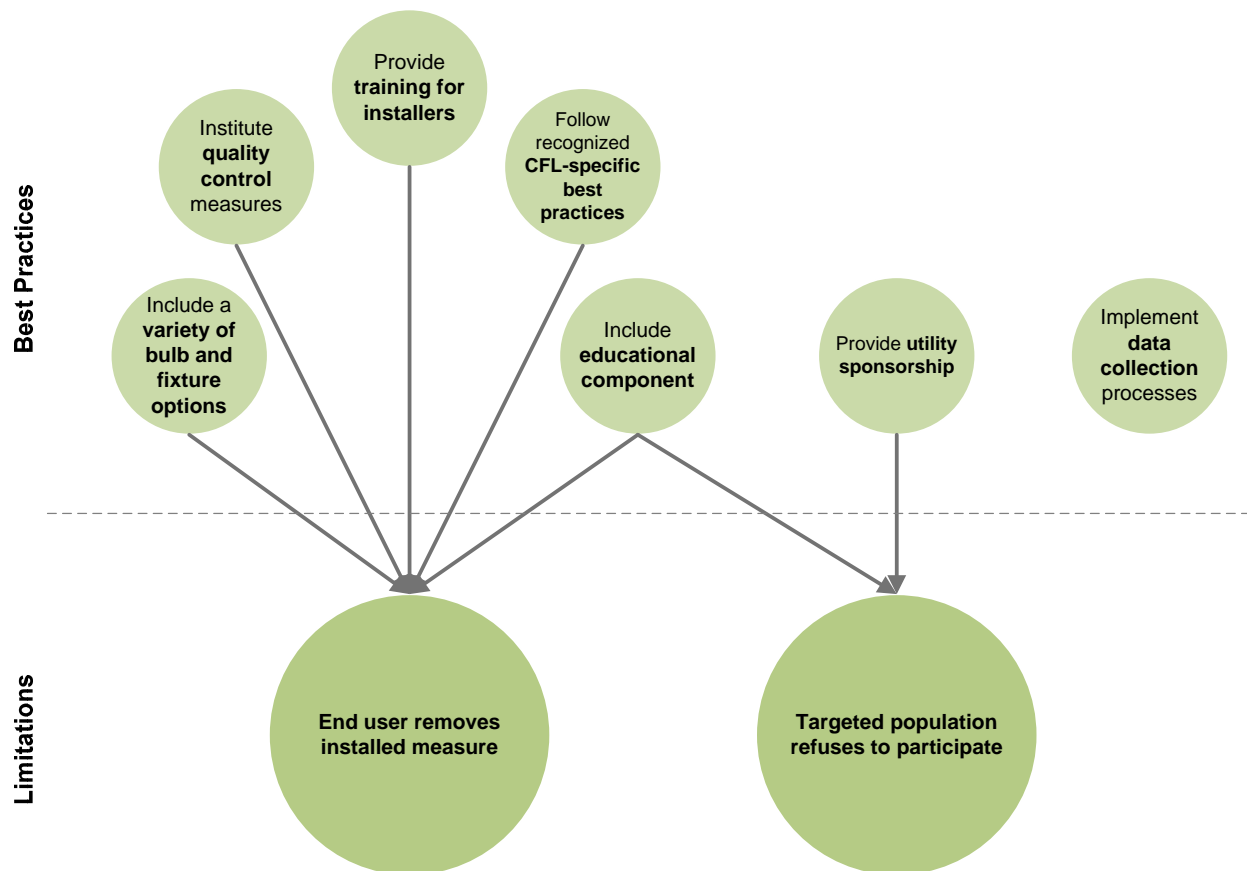
Our literature review identified four limitations to direct install approaches. The best practices offer a variety of ways to overcome these limitations. The relationship between the limitations and best practices is diagrammed in Figure 4.1. Often, the limitations of direct install have to do with the fact that residents have not identified, nor pursued, the specific energy efficiency measure.

- ➔ **The recipients of directly installed measures remove them** for a variety of reasons – often because they don't like it, cannot use it, or because it fails. Selecting a variety of CFL options, ensuring that bulbs and installation contractors pass quality control protocols, and ensuring that residents know how the measure is expected to work are all important strategies for overcoming the threat of removal.
- ➔ **Residents may also refuse to participate or decline the equipment** if they believe their current equipment is adequate, disliked features of the measures being offered, or if they are suspicious of the program contact. Utility sponsorship, educational material, and offering a variety of measure options are all ways of overcoming refusal.
- ➔ **Even when residents desire the measures, program features can create barriers.** Direct install programs are often established out of equity concerns and may include income-qualification requirements. When income qualification is required, it may be useful to identify a proxy for income, such as WIC or food stamp eligibility, or even zip code. In some cases, it may be necessary to establish an acceptable level of uncertainty and provide the measures accordingly.
- ➔ **Utilities with large geographic territories, particularly when the population is widely dispersed, often avoid direct install** because of the cost associated with traveling long-distances. Utilities with these characteristics can improve the cost effectiveness of the program by grouping installations through scheduling and by linking low-cost, low-use

measures with higher cost, higher impact measures (such as HVAC audits and repairs, weatherization measures, or duct-sealing).

Figure 4.1 diagrams the relationships between the best practices and limitations. In many cases, the best practices provide a lever for overcoming limitations.

Figure 4.1: Relationship between Direct Install Best Practices and Limitations



COMPARISON OF BEST PRACTICES

We were unable to interview more than a few contacts from utilities reporting direct install projects in 2009, which limits our comparison to best practices identified here. Nevertheless, it is clear from the best practice analysis that several best practice components are part of BPA’s program requirements. Others are dependent upon the implementing utility.

BPA’s documentation and verification requirements are designed to ensure that qualified products are installed in appropriate locations. The higher reimbursement rate for directly-



installed bulbs reflects the added costs and increased certainty that follow from verification requirements. However, subsequent audit or inspection activities are the responsibility of the retail utility. Since the products are being installed, generally for free, several best practices focus on tracking information required to verify that products are installed and avoid fraud. Marking program-installed bulbs and limiting the number that can be installed in one dwelling are also strategies for controlling fraud. Training and quality control measures ensure that jobs are well done, even though the recipient is not paying the installer directly.

It appears that direct install activities among retail utilities are occurring in tandem with weatherization or audit activities. Ensuring that the installation partner is credible to residential customers is the purview of the retail utility.

5

BEST PRACTICES: DIRECT MAIL

Direct mail is a distribution method for small, easy-to-install energy efficiency measures (such as CFLs and water-efficient showerheads) in which the measures are sent by mail to the homes of residential customers. It was common for utilities to use direct mail in 2000-2001 to distribute CFLs in response to the West Coast Energy Crisis. By 2009, direct mail was frequently linked to other program elements (for example, home energy audits or online energy surveys).

METHODOLOGY

Our direct mail best practices result from a literature review and informal interviews with efficiency program evaluators and implementers.

The literature review surveyed eight evaluation reports and conference papers published between 2002 and 2009. We identified these sources by searching proceedings from the International Energy Program Evaluation Conference and ACEEE Summer Study, as well as the online libraries of the Consortium for Energy Efficiency, Energy Trust of Oregon, the California Measurement Advisory Council (CALMAC), and the Northwest Energy Efficiency Alliance.

We augmented our literature review by conducting in-depth interviews with seven direct-mail experts: three program managers at utilities currently running direct-mail programs, two third-party direct-mail program implementers, and two program evaluators.

PROGRAM OVERVIEW

The findings result from a study of the use of a direct-mail approach in more than seven different programs targeting residential households with lighting and other retrofit measures, including refrigerators, water-efficient shower heads, and aerators (Table 5.1).

Table B-1, in Appendix B, lists the programs discussed, the funder or implementer, and the period of analysis. A complete list of sources is also in Appendix B.



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Table 5.1: Direct Mail Programs Discussed in the Literature and by Interviewees

PROGRAM NAME	FUNDER/IMPLEMENTER	ANALYSIS/ IMPLEMENTATION PERIOD
Change-a-Light Program	Wake Electric (North Carolina)	2009
Act on Energy	Ameren (Illinois)	2008-2009
Power of 10 Challenge	Pasadena Water and Power (California)	2008-2009
Energy Right	Tennessee Valley Authority	2007-2009
First Response Program	Colorado Governor's Energy Office	2007
Compact Fluorescent Light Bulb Program	PacifiCorp	2002
Conservation Kit Program	Seattle City Light	2001-2002

Table 5.2 lists the number of bulbs delivered and other measures included in the reviewed programs.

Table 5.2: Direct Mail Program Details

PROGRAM NAME	NUMBER OF BULBS	OTHER MEASURES INCLUDED
Change-a-Light Program (NC)	2	None
Act on Energy (IL)	2	None
Power of 10 Challenge	2	\$75 order form for additional bulbs, bulb recycling pouch
Energy Right	2	Aerator, gaskets, water temperature gauge, air temperature gauge
First Response Program (CO)	4	Showerhead, thermometers to measure hot water and refrigerator/freezer temperature, educational materials
Compact Fluorescent Light Bulb Program (ID, WY)	2	None
Conservation Kit Program (WA)	2	Aerator, flow-rate measurement bag

Table 5.3 notes whether or not the program was unsolicited or required recipients to opt-in, describes the recipient selection process, and notes any known follow-up activities.

Table 5.3: Direct Mail Program Details

PROGRAM NAME	APPROACH		RECIPIENT SELECTION PROCESS	FOLLOW-UP ACTIVITIES
	UNSOLICITED	OPT-IN		
Change-a-Light Program (NC)	X		All residential customers	None

PROGRAM NAME	APPROACH		RECIPIENT SELECTION PROCESS	FOLLOW-UP ACTIVITIES
	UNSOLICITED	OPT-IN		
Act on Energy (IL)	X		Customers living more than 45 minutes from a big box store	None
Power of 10 Challenge	X		All residential customers	Surveyed sample of recipients
Energy Right		X	Customers received kits after requesting and completing a home energy audit	Limited evaluation (surveys) of participants
First Response Program (CO)	X	X	Some kits sent to all customers on a list, others sent only to customers who responded through a business reply card approach	Unknown
Compact Fluorescent Light Bulb Program (ID, WY)				Unknown
Conservation Kit Program (WA)		X	Customers requested kits by mail by returning a reply postcard	CFL discount coupon mailing

BEST PRACTICES

Our literature review and interviews resulted in the identification of six best practices associated with direct mail program efforts.

- ➔ **Mailing free CFLs to customers** can serve as an effective outreach strategy and, thus, **should be combined with educational information**, links to other sources, or provide a path for ordering additional products. Adding educational information also results in higher installation rates for direct-mail measures.
- ➔ **Packaging choices are important** for direct mail products. Broken CFLs create concerns about mercury and all shipments should contain information about risk and safe disposal. Pallets can be drop-shipped at local post offices for individual distribution to reduce handling and breakage. Packaging choices should also reflect an overall environmental awareness; avoiding Styrofoam or non-recyclable plastic. Coordinating these shipments with local post offices is important.
- ➔ **Prepare shipments of no more than four bulbs when the mailing is unsolicited.** Higher installation rates have been documented when a smaller number of bulbs are



shipped. Many programs choose to mail two bulbs rather than one because the marginal increase in cost is low. Mailing only one or two bulbs introduces customers to the product, but is unlikely to encroach on emerging retail markets, since households use far more bulbs than this.

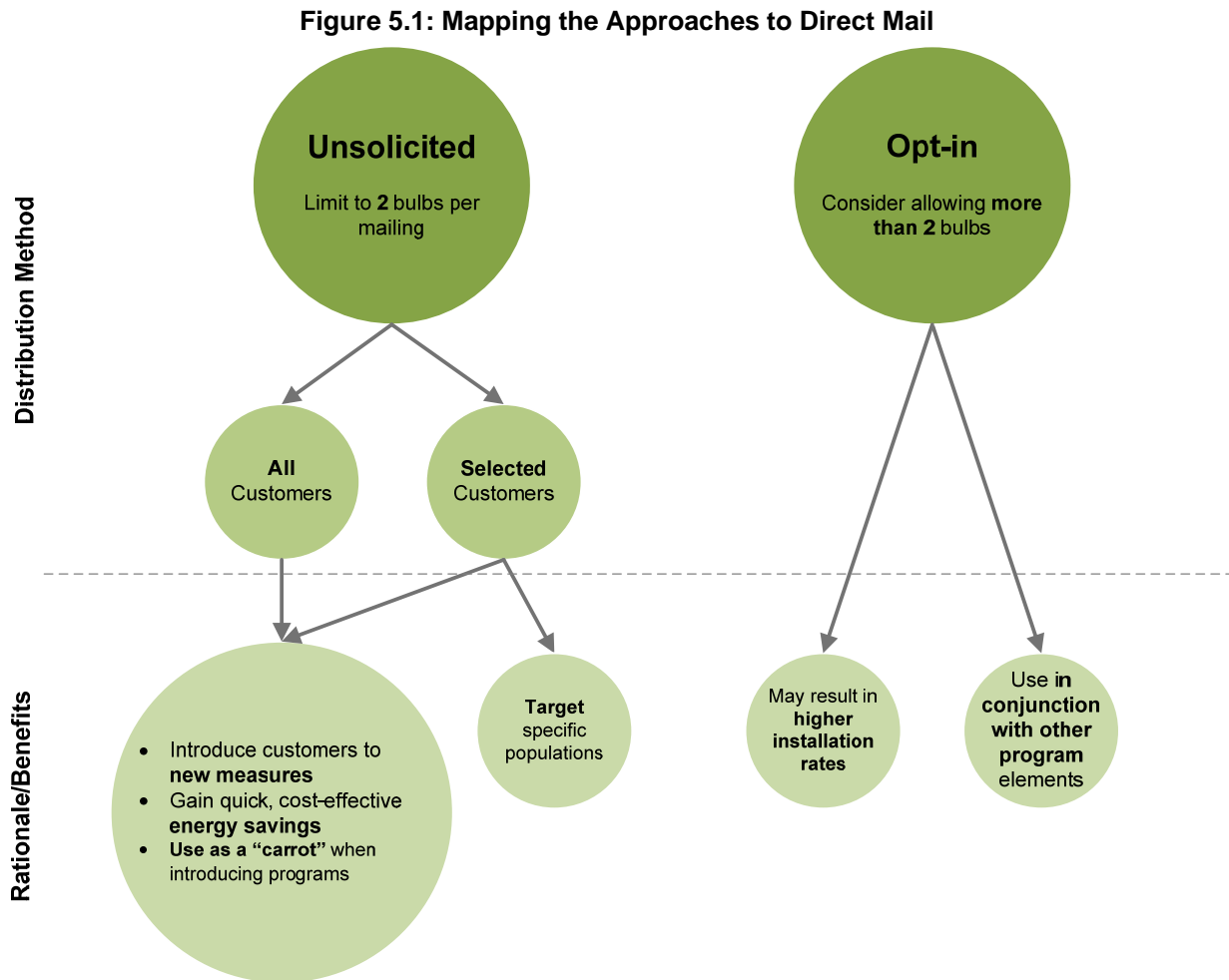
- ➔ In cases **where the customer has requested the bulbs, a greater number of bulbs per shipment might be appropriate.** Customers who request bulbs or who have otherwise opted-in to an efficiency program (received an audit, requested a home energy review, or returned an information card) have higher installation rates than those that receive bulbs unsolicited. Options for implementation include: auditor-identified locations and appropriate bulbs; credit at on-line store; or a catalog of lighting options with a credit for specific customers.
- ➔ A common reason that CFLs are not installed is because they are perceived not to fit into customer fixtures, either because the bulb is too large for the socket, it sticks out of lamp shades or sconces, or because it is the wrong type of bulb for the fixture. **Providing bulbs of different sizes and wattage increases the likelihood that they will fit** customer fixtures and be used in an appropriate location. This is an expensive proposition for unsolicited mailings, but could be accomplished with an on-line ordering process or pre-delivery audit.
- ➔ **Adapt direct mail program approaches to reflect the constraints of specific service territories or local market characteristics.** Far-flung ratepayers in a rural service territory might have less experience with or access to a variety of CFLs than their urban counterparts. Consider the effects of the shipment on local retailers, particularly if they are already committed to carrying the measure.

PROGRAM APPROACHES

We also found three distinct program options for those considering direct mail. The primary difference is between unsolicited or opt-in programs (Figure 5.1).

Unsolicited Mailings

Program implementers can distribute measures free-of-charge and unsolicited to customers. In some cases, measures are distributed to all customers. This may be an effective approach for introducing a new measure, demonstrating improvement to an existing measure, or to provide exposure for specialty applications of an existing technology (for example, a 3-way CFL). Utilities will also choose this option as a way to gain quick, cost-effective energy savings.



Portion of Customers

Program implementers may also choose to distribute measures unsolicited and for free, but only to targeted recipients. Customers could be selected for demographic characteristics that make them hard to reach through standard utility programs, or they could live in an area that lacks easy access to energy efficiency products and services.

Opt-in Process

Alternatively, program implementers may choose to distribute measures to customers who have opted-in by requesting the measure. Customers can request a shipment by returning a mail-in reply card, completing an on-line form or calling a phone hotline. This type of distribution is easily tied to other programmatic elements, such as a home energy audit, or through existing utility communications, such as newsletters or electronic bill payment. Higher installation rates



are expected when customers have asked for a shipment of CFLs – particularly if they’ve been given a chance to select the wattage or type of bulb likely to fit their needs.

PROS AND CONS OF DIRECT MAIL

A few issues with direct mail have either positive or negative implications. Table 5.4 summarizes the “pros” and “cons” of the more commonly discussed issues.

Table 5.4: Pros and Cons of Direct Mail

ISSUE	PRO	CON
Effect on Market Transformation Efforts: Some program evaluators and implementers argue that giveaways – in which bulbs are distributed to customers free-of-charge or at vastly reduced prices – undermine market transformation efforts. In this scenario, giveaways are contrasted to market-based programs that work directly with retailers and manufacturers to increase bulb supply, variety, and market-led promotions.	Primes market by introducing product to customers who may not have tried it on their own	Confuses customers’ understanding of the value of the product
Spillover	High spillover rates <ul style="list-style-type: none"> • 62% in one study (ECONorthwest 2002) and 39% in another (Sandahl et al. 2006) 	Lower spillover rates compared to <i>previous purchasers</i> of CFLs <ul style="list-style-type: none"> • 94% for previous purchasers compared to 62% for recipients of a free CFL (NEEA 2002)
Cost	One of, if not the, least expensive distribution methods Also requires little labor on the part of utility staff and can be cost-effectively outsourced, as opposed to workshops, bulb/fixture exchange program, or direct-install program	Cost of postage makes up a high percent of total cost, so can also be distributed in-person through community-based organizations or the utility customer service center, if applicable
Installation Rate	High installation rate (but may depend on number of bulbs distributed) <ul style="list-style-type: none"> • 68% in one study (Sandahl et al. 2006) 	Installation rate may be lower than with other distribution approaches <ul style="list-style-type: none"> • One study found mass mailing of free CFLs had a lower installation rate than direct install or bulbs given out at one-on-one workshops (Berger 2008)
Good PR for Utility/Coop	Sponsoring utilities/co-ops report that customers are pleased with programs	Public relations concerns may trump effective program design

Problems with Direct-Mail Implementation

The research identified a few problems encountered during implementation of direct-mail programs. Table 5.5 summarizes the problems and the ways in which they have been, or could be, addressed.

Table 5.5: Problems with Direct-Mail Implementation Elements

PROGRAM ELEMENT	PROBLEM(S)	ADDRESSED BY . . .
Customers Required to Request Bulbs by Responding to Mailed Offer	<ul style="list-style-type: none"> Residents don't notice offer Residents have moved and don't receive an offer 	<ul style="list-style-type: none"> Repeat mailings Follow-up surveys
Lag Time Between Creation of Mailing List and Implementation of Mailing	<ul style="list-style-type: none"> Addresses out-of-date Bulbs/kits are undeliverable 	<ul style="list-style-type: none"> Include <i>return to sender</i> on address label so bulbs/kits are returned to sender and undeliverable addresses can be tracked Reduce lag time between creation of list and implementation of mailing
Mass Mailing of Several Thousand Packages Over Short Time Period	<ul style="list-style-type: none"> Post offices, especially in rural areas, may be overwhelmed 	<ul style="list-style-type: none"> Notify main post office in advance of mailing
Mailing Fragile Product	<ul style="list-style-type: none"> Breakage in mail Customer concerns about mercury contamination 	<ul style="list-style-type: none"> Careful packaging of product Mailing from local post office using "pallet drop" rather than individual shipments from far-away location

COMPARISON OF BEST PRACTICES TO BPA UTILITY APPROACHES

Our review of best practices associated with direct mailing energy-efficient products found several considerations for BPA and the retail utilities that choose this approach.

One basic choice is whether to ship CFLs to all ratepayers, or to set up a request process. Small utilities could perceive a request process as an administrative hurdle without support from BPA. Indeed, few of the smaller utilities interviewed as part of this research had established a request process.

Regardless of whether or not the CFLs are sent to everyone, sponsors should include educational material. According to utility contacts and those that work with fulfillment houses, information about CFLs is usually included in shipments. What is less clear is if the educational materials are sufficient for specialty bulbs or shipments with multiple wattage bulbs. BPA may want to recommend that utilities shipping variety packs of bulbs (specialty or multiple wattage) ensure that educational material is clear about the ideal use of different types of bulbs.



None of the utility contacts we interviewed described linking the mailing to follow-up energy efficiency activities, although some utilities did make additional boxes available at the utility office for those wanting more. Additional activities could be spurred by using a card for ordering additional bulbs, providing a coupon with a bar code, or establishing an Internet site to facilitate additional purchases. All of these options have the added benefit of being easy to track, allowing the sponsoring utility to demonstrate that additional interest in energy efficiency resulted from the CFL shipment.

Limiting the number of bulbs shipped to two or fewer also emerged as a best practice, particularly when the shipment is unsolicited. Installation rates are highest for the first two bulbs, and shipping only a few bulbs is unlikely to undermine the local retail market for CFLs. Comparing the 2009 shipments to the best practice diagram (Figure 5.1), mapping unsolicited and opt-in bulbs reveals that BPA utilities did not match this logic. Those that required an opt-in shipped only a few bulbs, while those that shipped unsolicited bulbs to all customers often shipped a large number of bulbs. However, the rationale for unsolicited shipments includes gaining quick, cost-effective energy savings. Small utilities seeking to use their CRC funding, obtain quick energy savings, and simultaneously provide something valuable to constituents, will continue to be attracted to this path. The current proposal to limit shipments to no more than five bulbs will augment the cost-effectiveness of this option by reducing the portion of bulbs that are stored.

Consistent with the reports of contacts from direct mail utilities, the best practice review found it important to avoiding issues with breakage and communicate with the local post office personnel. A pre-notice mailer alerts residents of the shipment, but also serves as a test of list quality – any returned mail indicates an address that should be removed.

6

FINDINGS AND RECOMMENDATIONS

FINDINGS

Direct distribution of CFLs remains popular with utility staff for a variety of reasons. Providing CFLs to ratepayers through a direct-install program, a give-a-way effort, or through direct mail allows utility staff to provide a simple-to-use, energy-saving bulb to a large number of customers. When the measure is provided for free and distributed widely, it is likely to reach ratepayers that otherwise might not have engaged with energy efficiency.

In BPA's territory specifically, given the number of small utilities operating in rural areas, directly mailing bulbs through a fulfillment house is popular because it is simple and requires very little in staff resources. It also provides a way to serve residential customers that are widely dispersed or that reside in remote areas.

Direct Install

Our survey did not find a high number of utilities engaged in direct install. This may be due to competing research goals: direct mail utilities tended to be small; but a greater number of large and medium utilities were listed as having direct install activities in the BPA tracking system. By trying to contact utilities with direct mail programs, we found few direct install programs.

Changes made to the BPA lighting program subsequent to the launch of this research project are encouraging more utilities to pursue direct install activities. Since April 2010, BPA is providing third-party program support for utilities who want to provide direct install CFLs. Staff believe that by 2011, more utilities will have recorded direct install activities.

Other Distribution Methods

Almost 70% of the utilities contacted reported ordering CFLs in bulk to distribute at community fairs, annual dinners, or similar events. Utilities distribute CFLs at social and community events in order to: expose customers to the bulbs; have a positive community presence; or to augment broader utility marketing efforts. BPA does not track these bulk-purchases until the bulbs are distributed and subsequently entered into the planning, tracking, and reporting (PTR) system. Given the presence of CFL distribution for marketing or public relations benefits, BPA expects that some portion of bulk purchased bulbs will not be considered part of efficiency program efforts or used to meet CRC requirements.



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Direct Mail

Utilities that directly mailed CFLs to customers did so for a variety of reasons, including simplicity and the confidence that a wide range of customers would be reached. Contacts reported many lessons learned in managing the logistics of these efforts, including: the importance of communicating with rural post office staff; the importance of packaging choices; and the value of providing advance notice with an option to refuse the delivery.

The primary difference in the program experience of utility staff is reflected in the choice between unsolicited and “opt-in” programs. Both approaches were valued by utility contacts, but those employing an opt-in approach were more likely to expect customers to do something else (complete a satisfaction survey, order a weatherization kit, or request an audit). By contrast, utilities that mailed CFLs to all ratepayers distributed the packages to everyone, including the occasional household that reported not wanting the bulbs.

Direct Mail Recipient Responses

The average installation rates for the direct mail portion of the lighting program were quite high. On average, 60% of the shipped bulbs were installed upon delivery. Eighty-seven percent of the respondents installed at least one bulb and the majority plans to install more bulbs in the future, leading to a future projected installation rate of 89%.

Among direct mail recipients, we found relatively high satisfaction with the bulbs that were distributed. We also found that those receiving the direct mail bulbs were equally likely to report installing them, regardless of whether or not they had CFLs installed in their home prior to the shipment. The importance of maintaining rigorous quality standards is indicated by some contacts’ comments about low light and/or slow start-up. If this program option is expected to encourage adoption among households without CFLs, providing an experience with a high-quality bulb is critical.

Consistent with the best practice research conducted for this study, our survey of residential end-users revealed that those receiving more than five bulbs per package reported lower installation rates than those receiving five or fewer.

Utilities launching direct mail efforts in the future will want to consider the lessons described in this report and communicate with customers about the packages through a pre-notice describing what the packages contain, whether or not they will be charged, and how to opt-out of the delivery. Avoiding issues with breakage, communicating with the post office, and extensive address list cleaning helps ensure that the bulbs reach customers as expected. A pre-notice mailer not only alerts residents of the shipment, but also serves as a test of list quality – any returned mail indicates an address that should be removed.

RECOMMENDATIONS

We offer the following recommendations:

- ➔ **Limit the number of bulbs per Direct Mail package.** Limit the number of unsolicited bulbs sent via Direct Mail to five or fewer per household to maximize installation rates.
- ➔ **Distribute best practice findings.** Provide a tip sheet to utilities pursuing direct mail. This sheet should include a checklist of considerations (communicating with the local post office, sending a pre-delivery notice to test addresses and avoid confusion). Distributing the best practice research findings to retail utilities may also increase the effectiveness of these efforts.
- ➔ **Prioritize quality and, if necessary, include instructions or educational materials.** Providing high-quality bulbs continues to be an important consideration for all three program approaches. Surveys with direct-mail recipients found a number of consumers are still dissatisfied with the time it takes for these bulbs to come to full brightness, and a portion reported that at least one of their bulbs had burnt out. Recipients of specialty bulbs, and those receiving only standard twistlers, were equally satisfied with the bulbs they received.

The best practice review found that educational materials can be quite valuable, particularly when multiple wattage bulbs are shipped. Customers who receive specialty bulbs are likely to benefit from instructions that describe the most appropriate bulb for a given use or fixture type.

Bulb quality and appropriate application of the measure (installed in the right fixture, providing the expected or desired light) is an important factor in whether or not bulbs remain in place in the case of direct install or inspire additional purchases, in the case of a give-away effort.

- ➔ **Consider promotions that rely on redeemable coupons.** Contacts were rather extreme in their responses when asked about website and in-person options for obtaining more bulbs – a substantial portion reported “one” and “five” on a five-point scale, indicating that residential customers will either strongly prefer or strongly resist using these options. Those expressing preference in obtaining additional bulbs in-person were less likely to prefer the website option.

The most popular method for obtaining additional bulbs was through a redeemable coupon. This makes sense, in that coupons allow participants to collect additional bulbs through their normal shopping routines with no additional effort required.

- ➔ **Provide an interactive platform for future requests.** Matching the type and quantity of bulbs to the customer’s needs is easier with a website interface that allows customers to visually identify the type of fixtures they have and then receive reliable information on the best lighting choices for that fixture or application.
- ➔ **Provide additional support to encourage direct install.** Small utilities may perceive that they do not have the staff to manage direct install programs, or that these programs



are unacceptably expensive to implement. Leveraging state weatherization efforts, using volunteer groups, or authorizing others that can act as an agent for the utility are potential strategies for minimizing the costs associated with direct install and provide a cost-effective way to distribute an otherwise low-cost measure.



APPENDICES

APPENDIX A: DIRECT INSTALL

APPENDIX B: DIRECT MAIL

APPENDIX C: ADDITIONAL COMPARISON

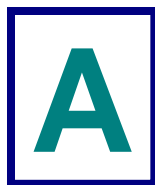
APPENDIX D: RESIDENTIAL END-USE SURVEY GUIDE

APPENDIX E: UTILITY INTERVIEW GUIDE



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RESIDENTIAL LIGHTING PROGRAM ASSESSMENT



DIRECT INSTALL

BEST PRACTICE SOURCES

Table A.1: Summary of Best Practices

BEST PRACTICE	CITY, STATE OR REGION	STUDIES
Include an educational component for the target market.	California Colorado	PA 2009a Carroll and Berger 2008 LaPalme 2007 KEMA 2006
Implement thorough data collection processes.	California	PA 2009a Nexus 2008 Grover et al. 2006 Adams et al. 2006
Institute quality control measures.	California	LaPalme 2007 KEMA 2006
Provide utility sponsorship of the program.	California Oregon	Grover et al. 2008 LaPalme 2007 Grover et al. 2006
Provide training for installation contractors.	Colorado San Francisco	Berger et al. 2008 EMCOR 2006
Include a variety of bulb and fixture options.	California	LaPalme 2007 Seiden et al. 2006
Follow recognized CFL-specific best practices.	California	LaPalme 2007

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BEST PRACTICE SOURCES

Table B.1: Summary of Best Practices

BEST PRACTICE	CITY, STATE OR REGION	STUDIES
Combine free CFL mailings with educational information and an order form/web link for ordering additional product.	Colorado	Berger et al. 2008 Interviews
Take care in packaging to prevent breakage.		Interviews
Limit bulbs in an unsolicited give-away promotion to two.		Interviews
Allow a greater number of giveaway bulbs if the customer has requested them or participated in a home energy audit/in-home inspection.	Colorado	Berger et al. 2008 Sandahl et al. 2006 Interviews
Provide a variety of bulb types.		Interviews
Consider the unique constraints of the service territory when designing the program approach.		Interviews

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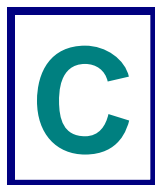


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INTERVIEWS

Table B. 2: Interviewed Experts

INTERVIEWEE	POSITION	COMPANY	DATE INTERVIEWED
Lynn Hoefgen	President	NMR Group, Inc.	January 28, 2010
John Hoffner	Program Manager	Pasadena Water and Power	December 10, 2009
Cynthia O’Reilly	Program Manager	Tennessee Valley Authority	January 19, 2010
Angela Perez	Public Relations	Wake Electric	December 10, 2009
Tami Rasmussen	Director	ECONorthwest	January 28, 2010
Phil Scarbro	Director, Consumer Division	EFI	December 10, 2009
Karen Wamke	Program Manager	Ameren	December 10, 2009



ADDITIONAL COMPARISON

RESIDENTIAL CFL PROGRAM APPROACHES

BPA staff requested additional research on installation rates. Our comparison of the different residential program approaches to CFL distribution reveals the following findings. Additional data appear in Sections 4 and 5.

- ➔ **Installation Rate:** Installation rates are higher for direct install than direct-mail. Across the seven studies consulted, the median installation rate for direct install and direct mail are **90%**; for direct mail, it is **69%**.
- ➔ **Intent to Purchase a CFL in the Future:** Both direct-install and direct-mail programs appear to have a positive effect on customers’ intentions to purchase additional CFLs.
- ➔ **CFL Use:** CFLs appear to be installed in high-use and low-use locations in about the same proportion, whether distributed through direct install or direct-mail programs.

Table C. 1: Comparison of CFL Program Results

FINDING	DIRECT-INSTALL RECIPIENTS	DIRECT-MAIL RECIPIENTS		PREVIOUS CFL PURCHASERS
	LITERATURE REVIEW	LITERATURE REVIEW	SURVEY – 2/2010	LITERATURE REVIEW
Installation Rate	Median: 90% 76% ¹¹ 88% ¹² 90% ¹⁵ 100% ¹ 100% ¹⁰	Median: 69% 59% ⁷ 68% ² 70% ¹ 94% ¹³		90% ⁶ (1st and 2nd bulbs) 75% to 87% (3 rd to 6 th bulbs) 52% to 62% (7 th and 8 th bulbs)
Storage Rate	7% ¹⁵			
Measure Life	6 to 7 years ⁵	N/A		5 to 7 years ⁵
Percent Intending to Purchase a CFL in the Future	51% ⁴	39% ² 62% ³		94% ³
Percent of CFLs Used More than 30 Minutes/Day	58% ¹	53% ¹		N/A
Percent of CFLs Used Less than 4 Hours/Day	29% ¹	33% ¹		N/A
Approach Cost	High	Low to Moderate		—

¹ Berger et al. 2008; Percentages calculated by Research Into Action based on figures provided in paper.



- ² Sandahl et al. 2006
- ³ ECONorthwest 2002
- ⁴ Grover, et al. 2008. In this study, direct-install recipients reported actions previously taken, not expectations of future action.
- ⁵ Nexus Market Research, Inc. 2008
- ⁶ Kumatz and Howlett. 2006. Findings and 'Gaps' in CFL Evaluation Research: Review of the Existing Literature. London, England: Proceedings of the 2006 EEDAL Conference.
- ⁷ Opinion Dynamics Corporation 2010
- ⁸ LaPalme 2007
- ⁹ Grover et al. 2006
- ¹⁰ KEMA, Inc. 2006
- ¹¹ Quantec, LLC and Research Into Action 2005
- ¹² EMCOR Energy & Technologies, Inc. 2006
- ¹³ Tachibana and Brattesani 2003
- ¹⁴ Itron, Inc 2007
- ¹⁵ Nexus Market Research, Inc. and RLW



RESIDENTIAL END-USE SURVEY GUIDE

Hi, my name is _____, and I'm calling from Research Into Action on behalf of the Bonneville Power Administration. We are an independent research firm hired by Bonneville to conduct research about lighting efficiency efforts occurring in the Pacific Northwest.

We understand you may have received a package of energy efficient compact fluorescent light bulbs in the mail from [your local utility] and wanted to find out about your experience with those bulbs. My questions should take about 5 to 10 minutes and will provide information that Bonneville can use to improve energy efficiency efforts in the Northwest. All of your answers are confidential and will not be provided to BPA or your local utility.

Is this a convenient time to talk? [If not, ask if they'd like to schedule a better time, or accept suggestion.]

Thank you. First of all I'd like to make sure you received the bulbs.

1. Do you recall a delivery of [insert number] energy efficient compact fluorescent light bulb(s), also known as CFLs, in the mail from [your local utility] last year? [Program throughout instrument with count and utility.]
 1. Yes (continue to Q2).
 2. **No (If NO, prompt):** I am talking about those “twisty or spiral bulbs,” which save energy by having lower Wattage. Sometimes they have a bend to them. Do you remember receiving any of those in the mail last year?
 1. Yes
 2. Yes. Someone else coming to phone. REPEAT INTRO
 3. Yes. Someone else not available, schedule callback
 4. No, no one in household recalls. THANK AND TERMINATE: “We would like to talk to customers about their experience with these bulbs, so I guess you are off the hook. Thanks again for your time.”
 5. Refused (Hard Refusal)
2. Had you requested this delivery?
 - 1 Yes (ASK Q2a)
 - 2 No (SKIP TO Q2b)



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RESIDENTIAL LIGHTING PROGRAM ASSESSMENT

3 (VOL) Don't know (SKIP to Q2b)

4 (VOL) Refused (SKIP to Q2b)

Q2a. How did you request this delivery? RECORD VERBATIM: GO TO Q3

Q2b. If no/Don't Know/Refused: Had you heard beforehand that you might receive this delivery?

1 Yes

2 No

3 (VOL) Don't know

4 (VOL) Refused

3. Are all of the efficient bulbs being used in light sockets in your home right now?

1. Yes (PROGRAMMING NOTE: If Specialty Bulb Utilities (Kittitas, Lincoln, Wells Rural) skip to S4; ELSE SKIP TO Q5)

2. No

3. Don't Know

4. Refused

a. If No/DK Q3

1. How many have you used so far? RECORD VERBATIM:

(RANGE should be number of bulbs sent (read-in) minus one)
 LOGIC CHECK: If 3a1 greater than number of bulbs sent: "I'm sorry, our records show you received (read-in number of bulbs) bulbs. Your answer was higher. Earlier you said you were not using all the bulbs, so your answer must be less than (read-in) number of bulbs. Please take a moment and try to recall...(repeat 3a1).

If Q3a1 response is equal to the number of bulbs sent, auto-code Q3 as 1.

2. What did you do with the other efficient bulbs? (*Probe to code – do not read*)(*Multiple Response*)

1. Put them in a cupboard/drawer/stored them

2. Gave them away

3. Threw them away

4. Other: RECORD VERBATIM: _____

5. DON'T KNOW

6. REFUSED

Thinking about the efficient bulbs you haven't used yet...

- a. Do you expect to use them?

1. Yes 2. No 3. Don't Know Depends – will use them if I can 4.

Refused

1. If yes: how many of them do you think you'll be able to use? (RANGE: 1-number of bulbs sent (read-in)) 98. Don't Know 99. Refused

LOGIC CHECK: If sum of 3a1 and 3b1 greater than number of bulbs sent: "I'm sorry, our records show you received (read-in number of bulbs) bulbs. The total number of bulbs you're currently using, and the number you intend to use cannot be higher than the number of bulbs received. Please take a moment and recalculate...(repeat 3b1).

2. If no: why not? RECORD VERBATIM) _____

(PROGRAMMING NOTE: Ask only Specialty Bulb Utilities (Kittitas, Lincoln, Wells Rural))

You received several different types of efficient bulbs....

4. (If X) including an A-shaped CFL, which is covered so that it looks and feels like a traditional incandescent bulb; and a Globe-shaped CFL, which has a round shape. Were any of the efficient bulbs hard to use? By "hard to use," we mean that they didn't fit your fixtures, or didn't meet your needs, or are just less likely to be used at your house?) [1. Yes 2.No 3. Don't Know 4. Refused]

(If Y)...including an A-shaped CFL, which is covered so that it looks and feels like a traditional incandescent bulb; a Globe-shaped CFL, which has a round shape, and a 3-way CFL that can be used in a 3-way lamp. Were any of the efficient bulbs hard to use? By "hard to use," we mean that they didn't fit your fixtures, or didn't meet your needs, or are just less likely to be used at your house?) [1. Yes 2. No 3. Don't Know 4. Refused]

(If Z) ... including A-shaped CFLs, which are covered CFLs that look and feel like a traditional incandescent bulb; Globe-shaped CFLs, which have a round shape; 3-way CFLs that can be used in a 3-way lamp; and a Flood CFL, that you might use outside. Were any of the efficient bulbs hard to use? By "hard to use," we mean that they didn't fit your fixtures, or didn't meet your needs, or are just less likely to be used at your house?) [1. Yes 2. No 3. Don't Know 4. Refused]

- a. If YES: Which ones?

1. Standard Twister CFL



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2. A-shaped CFL
 3. Flood CFL
 4. Globe CFL
 5. 3-way CFL
- b. (Probe: What was it about these bulbs that made them less useable?) RECORD VERBATIM: (Read-in each bulb type given in S4a and ask for each)_____

Ask All:

5. Were you using any energy efficient bulbs at your house before you received the delivery?
1. Yes 2. No 3. Don't Know 4. Refused
- a. If yes: Approximately how many? (RANGE 1-96, 97=97 or more): Don't Know: 98 Refused: 99
- b. (If 5a= Don't Know, probe for range:) Would you say you were using...
1. 1 bulb
 2. 2-5 bulbs
 3. 6-10 bulbs
 4. 11-15 bulbs
 5. 15-20 bulbs
 6. More than 20 bulbs
 7. Don't Know
 8. Refused
6. Did you have any energy efficient bulbs stored in your home, for future use, before you received the delivery?
1. Yes 2.No 3. Don't Know 4. Refused
7. I'm going to list several statements, for each statement, using a one-to-five scale, where one means "strongly disagree" and five means "strongly agree" please tell me the extent to which you agree that...
- a. Energy efficient bulbs are available at stores I shop at. [1-5, 6 Not Applicable, 7. DK, 8. Refused]

- b. Energy efficient bulbs are reasonably priced at stores I shop at [1-5, 6 Not Applicable, 7. DK, 8. Refused]
- c. I plan to purchase energy efficient bulbs in the future. [1-5, 6 Not Applicable, 7. DK, 8. Refused]

Thinking about the types of lighting fixtures you have in your home...

- 8. Are there any you have not been able to fill with an energy efficient bulb? [1. Yes 2. No 3. DK 4. Refused]
 - a. If YES: What type of fixtures are these, what is it about them? [listen for dimmers, candelabra, globes, halogen, three way bulbs, recessed cans, other?]
 - 1. RECORD VERBATIM: _____
 - 2. DK
 - 3. Refused

I have a few questions about how satisfied you are with the efficient bulbs you received.

(SKIP if 3a1=0)

- 9. Using a one-to-five scale, where one is very dissatisfied and five is very satisfied...
 - a. How satisfied are you with the brightness of the light? [6. Don't Know, 7. Refused]

(if 9a less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)
 - b. How satisfied are you with how the efficient bulbs fit in your fixtures? [6. Don't Know, 7. Refused]

(if 9b less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)
 - c. How satisfied are you with the efficient bulbs' overall performance? [6. Don't Know, 7. Refused]

(if 9c less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)

(SKIP if 3a1=0)

- 10. Have any burnt out? 1. Yes 2. No 3. Don't Know 4. Refused

If yes: how many? _____ (RANGE 1-number of bulbs sent (read-in)), Don't Know: 98 Refused: 99

- 11. If your utility offered you additional free energy efficient bulbs, would you be interested in requesting them? [1. Yes 2. No 3. DK 4. Refused]



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If yes:

12. I'm going to read a list of ways you might request additional efficient bulbs, using a one-to-five scale where one is very unlikely and five is very likely, please tell me how likely would you be to request them:
- a. Through a website? [1-5, 6=no opinion, 7. DK, 8.. Refused]
(if 12a less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)
 - b. Using a telephone request line? [1-5, 6= no opinion, 7. DK, 8. Refused]
(if 12b less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)
 - c. In person at the utility office? [1-5, 6= no opinion, 7. DK, 8. Refused]
(if 12c less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)
 - d. Using a coupon for energy efficient bulbs at a local retailer [1-5, 6=no opinion, 7. DK, 8. Refused]
(if 12d less than or equal to 2) 1. Why do you say that? (RECORD VERBATIM)

Finally, I have a few demographic questions. Your answers will help us better understand the results of this survey.

13. Do you own or rent your home?
1. Own / buying
 2. Rent / lease
 3. Don't know
 4. Refused
14. What is the primary fuel used to heat your home?
[READ CODES 1-6 IF NECESSARY]
1. Electricity
 2. Natural gas
 3. Oil
 4. Propane
 5. Wood
 6. Something else [SPECIFY]

7. Don't know
 8. Refused
15. Is your home's water heater electric, natural gas, propane, or something else?
- [IF MORE THAN ONE SELECTED, ASK REGARDING HOME'S MAIN OR PRIMARY WATER HEATER. THIS DOES NOT INCLUDE SMALL UNDER-SINK ELECTRIC WATER HEATERS THAT PROVIDE "INSTANT" HOT WATER FOR A SINGLE FAUCET.]***
1. Electric
 2. Natural gas
 3. Propane
 4. Something else [SPECIFY]
 5. Don't know
 6. Refused
16. How many bedrooms are there in your home? Range= 1-9, 10=10+
98. Don't know
 99. Refused
17. What is the highest level of education you have achieved so far? [DO NOT READ LIST]
1. High school or less
 2. High school diploma
 3. Some college/associate degree/trade school
 4. Four-year college degree
 5. Some post-graduate studies
 6. Post-graduate degree/Masters, PhD, professional degree
 7. Don't Know
 8. Refused



Thank and terminate:

Those are all my questions, thank you so much for your time today on the phone. Have a great [day, morning, evening].



UTILITY INTERVIEW GUIDE

Hi, my name is _____, and I'm calling from Research Into Action on behalf of Bonneville Power Administration. I'm an independent program evaluator hired by BPA to assess how well several of the lighting program components are working for customer utilities. I'd like to talk to you about [Utility X's] experience with [DI/DM/TAN – as appropriate]. Is this a good time to talk, or should we schedule a better time?

Residential Component

First, I'd like to ask you about your residential lighting program efforts

1. What type of lighting offers did you provide to your residential customers last year?

Direct Install (Ask of “direct install and bulk shipment” utilities)

2. Did you receive any bulk shipment CFLs last year?
 - e. If yes, what type of bulbs were these: standard twistlers or specialty lamps?
3. Had you ordered CFLs for bulk shipment before?
4. What did you do with the CFLs received through bulk shipment last year?
 - a. (listen for giveaways, event promotions, direct installation, other?)
 - b. *[If yes to Q3]* Is this different from what you had done in previous years?
5. *If not mentioned in 4a:* did you complete any direct install projects last year?
6. *If mentioned direct install in 4a:* I have a few questions about your direct install activities.
 - a. What types of bulbs were installed?
 - b. Were they paired with any other measures or services? [Were these installed as part of another program or just for lighting?]



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- c. How many direct install projects did you complete last year: how frequently did they occur, and how many customers were treated, average of bulbs per home installed?
 - d. [If not clear already:] How are customers targeted or selected for direct install?
 - e. Did you implement the program directly, or did you use the services of an implementation contractor?
 - f. Is this different from direct install activities in previous years?
7. How did you verify the installation of direct install bulbs?
8. Were the verification activities manageable?
9. Do you have any suggestions for improving the BPA program offer? (How much you can claim, how much you are paid, verification requirements. Their programs can be different than BPA offer.)
10. Do you have any suggestions for streamlining the verification process?
11. Why is the direct install lighting component attractive to your utility?
 - a. [Listen for how it met the needs of their ratepayers specifically, how targets were chosen, any particular features of their service territory that came into play, meeting the needs of hard-to-reach populations, or other areas of concern for the utility.]
12. How does direct install compare to other program approaches you have tried for lighting?
13. Did you receive any feedback from your customers about this activity?
 - a. If so, what kind?
14. Do you have plans to offer additional direct install bulbs in the future?
15. Will you make any changes based on your experience this year?
16. Do you have any recommendations for BPA about this program aspect, anything that would make implementation easier?
17. Is there anything else you'd like to tell me about your experience with the direct bulk purchase or direct install option this year?

Direct Mail (Ask of DM utilities)

18. Did you directly-ship lighting products to residential customers last year?
- Had you direct mailed lighting products to customers before?
 - If yes: when?

I have a few questions about your direct mail activities last year:

- What types of products did you mail? [if CFL, clarify if they were medium/standard twister or specialty]
 - How many times (mailing events)
 - And to how many customers?
 - Can you estimate how many units were shipped? [If unclear, ask about an average number of bulbs mailed per ratepayer.]
 - Did these customers request the shipment?
 - If yes, how?
 - What assumptions do you use about the portion of bulbs that are installed immediately, within one year, or later? [***Clarify: do they assume all bulbs are installed immediately.***]
19. What was it about the direct mail lighting component that made it attractive to your utility?
- [Listen for how it met the needs of their ratepayers specifically, how targets were chosen, any particular features of their service territory that came into play, or other areas of concern for the utility.]
20. How does directly mailing bulbs compare to other program approaches you have tried for lighting?
21. Did you receive any feedback from your customers about the bulbs?
- If so, what kind?
22. Do you have plans to direct mail bulbs in the future?
23. Would you make any changes based on your experience this year?



24. Do you have any recommendations for BPA about the program offer and requirements, anything that would make implementation easier?
25. How does this compare to other program approaches you have tried for lighting?
26. Is there anything else you'd like to tell me about your experience with the direct mail option this year?