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**ATTACHMENT A**  
**Comprehensive ClimateSmart Program**  
**Evaluation Report Pursuant to Ordering**  
**Paragraph 5 of D.10-10-025**



# ClimateSmart™ Program Comprehensive Evaluation

Prepared for Pacific Gas & Electric Company  
By 3Degrees Group, Inc.

March 29, 2012





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## EXECUTIVE SUMMARY

### Background

3Degrees was contracted by Pacific Gas and Electric Company (PG&E) in consultation with the Energy Division of the California Public Utilities Commission (CPUC) to provide an objective third-party comprehensive evaluation of PG&E's ClimateSmart™ program. ClimateSmart was the voluntary carbon offset program administered by PG&E from 2007-2011. The consulting engagement began on January 11, 2012 and PG&E tasked 3Degrees with drafting a report addressing eighteen (18) questions. The questions are assembled in four categories: Marketing and Outreach Efforts; GHG Procurement; Societal, Economic and Regulatory Factors; and Summary of Lessons Learned.

### Methodology

3Degrees approached the project using a combination of quantitative and qualitative research. 3Degrees received and reviewed over 150 files from PG&E (see Appendix C for a complete list), and collected and reviewed dozens of additional documents from outside sources ranging from the California Employment Development Department, to the National Renewable Energy Laboratory, to U.S. Energy Information Administration and utility websites. Additionally, 3Degrees drew on the rich data it has from its own green power marketing partnerships with utilities for the purpose of providing benchmarks of similar programs during the same timeframe. Finally, 3Degrees supplemented data collection with 15 interviews of key internal and external stakeholders (see Appendix B for complete list).

### Preliminary Findings

The quantified performance goal of ClimateSmart was to retire at least 1.36 million metric tons of CO<sub>2</sub> equivalent reductions over the life of the Program, and this goal was met. PG&E's application to the CPUC called out forecasts for enrollment costs and participation rates, and these targets were not met.

#### A. Marketing and Outreach Efforts

- ClimateSmart goals and projections were set unrealistically high because projections were based on comparisons to the nation's Top Ten *green power* programs. Despite the attractive customer demographics in PG&E's service territory for a first-of-its-kind program like ClimateSmart, benchmarking its performance against a much more proven product (green power) and a host of programs which had been around for a decade was an aggressive target.
- The overly optimistic forecasts that followed from ClimateSmart's unrealistic benchmarking meant the Program had little chance of succeeding as scoped:
  - Average cost of acquisition was higher than forecast.
  - Participation rates were much lower than forecast.
  - Average residential energy use was lower than forecast, resulting in fewer tons purchased per customer.
- Program goals included broad customer awareness objectives, leading PG&E to spend marketing funds on broadcast media, which is ineffective in garnering enrollments.
- Marketing management and activity was inconsistent over the five year life of the Program. Marketing campaigns peaked in 2008 in terms of frequency, impressions, and spend, but were inconsistent thereafter due to the uncertain lifespan of the Program. The Program spent almost \$5 million on marketing in 2008; only to spend about a tenth of that the following year. The amount spent then decreased to \$127,000 in



2010, before expanding to \$2.4 million in 2011. Campaign results spanning 2007 – 2011 show a correlation between the growth of enrollments and marketing spend.

- Peak marketing efforts (in 2008) were on par with top performing utility green pricing programs. However, there were known utility green pricing best practices that were not adhered to, including investing primarily in direct enrollment tactics instead of broad awareness campaigns, and conducting market research via tests rather than surveys.
- PG&E could have lowered the dollars spent per customer enrolled but might have sacrificed modest gains in broad awareness by focusing its marketing budget on direct enrollment tactics such as bill inserts, targeted direct mail, and Customer Service Representative challenges. CPUC limits on use of ratepayer funds for marketing in 2009-2010 impeded marketing efforts significantly.
- Incomplete record-keeping hinders the evaluator's ability to determine campaign results, evaluate cost of acquisition by campaign, and assess marketing budget allocations.
- Customer awareness and understanding of carbon offsets was an ongoing challenge for this first-of-its-kind program.

#### *B. GHG Procurement*

- Soliciting and contracting for offsets was a learning process for both PG&E and carbon offset sellers as ClimateSmart was pioneering a new market in its early stages of development, with new carbon offset protocols developed consistently throughout the duration of the Program.
- PG&E's solicitations yielded cost-competitive procurement, given Program parameters.
- PG&E's ability to procure high-quality offsets was limited largely by external factors, namely the number of adopted protocols and, at times, scarcely available projects.
- Bidders perceived the solicitation and contracting processes as onerous, which created a barrier to increasing the number of bids.
- Learning over time led to key improvements in the solicitation and contracting processes.
- ClimateSmart procured GHG offsets were among the highest quality of, and more diverse than, other market offerings.

#### *C. Societal, Economic and Regulatory Factors*

- Overall, societal, economic, and regulatory factors had some impact on Program performance but do not appear to be the dominant driving factors.
- There is a statistically significant correlation between higher enrollments and lower unemployment rates in California.
- There is a statistically significant positive correlation between attrition and increased California employment rates. This is counter-intuitive.
- There is no correlation between Program participation and rate increase notifications by PG&E or news media.
- Natural gas rates were volatile during that period, with a large spike and decline. Electric rates went up slowly and steadily.
- The relative bill impact of ClimateSmart was lower than expected.
- Participation rates were higher in areas with full service (0.49%) than in areas with municipal electric service (0.39%).
- Participation rates were within the range of other utility carbon offset programs.



While improvements could have been made to ClimateSmart's implementation (as described further in sections B, C, and D), 3Degrees concludes PG&E met all reasonable professional standards while implementing this first-of-its-kind, market-building program.

## Background

On August 17, 2011 Pacific Gas and Electric Company ("PG&E") in consultation with the Energy Division ("ED") of the California Public Utilities Commission ("CPUC") issued a Request for Proposals (RFP) for a consulting firm with experience in sustainable products, design, and marketing, to provide an objective third-party comprehensive evaluation of the ClimateSmart program. This RFP was ultimately recalled and replaced with a subsequent RFP issued on November 9, 2011. 3Degrees Group Inc. ("3Degrees") was selected through a competitive process to execute the comprehensive evaluation of the ClimateSmart program as directed by D.10-10-025.

In January 2006, PG&E filed Application 06-01-012 ("application") with the CPUC to establish a three (3) year demonstration program offering customers a voluntary means to offset the greenhouse gas ("GHG") emissions associated with their natural gas and electricity usage.

On December 14, 2006, in Decision 06-12-032, the CPUC approved a three (3) year demonstration program with some modifications. The primary goals of the ClimateSmart program included educating PG&E customers on how their energy usage contributes to climate change, giving customers an opportunity to engage in efforts to reduce greenhouse gas emissions that contribute to climate change, and to help California develop tools and knowledge on the role of offsets and customer engagement in addressing climate change. The ClimateSmart program enabled PG&E business, residential and agricultural customers to offset or neutralize the GHG emissions associated with their own natural gas and/or electric energy use by paying a small, volumetric monthly premium on their PG&E energy bill; with these funds being used to pay for emission reductions generated by an "offset project". These could be dual gas/electric customers, gas only customers, or electricity only customers. Once the customer is enrolled in the Program, a separate charge appears on their bill informing them of their tax-deductible contribution to the ClimateSmart program. The amount charged was determined during the monthly billing cycle based upon each customer's actual energy use, using a fixed rate of \$0.06528 per therm of natural gas and \$0.00254 per kWh of electricity, as authorized by the CPUC. The average monthly amount charged for a typical residential customer ranged from \$2.79 to \$3.32 from 2007 through 2011, which is less than \$4.31 originally forecasted by PG&E in its request to the Commission. At its peak, ClimateSmart served over 30,000 participants.

Administrative and marketing ("A&M") costs to support the Program were funded by all PG&E customers between 2007 and 2009; as all customers received benefits from GHG emissions reductions from projects funded through the ClimateSmart program, all customers received educational awareness of the risks posed by climate change and the actions everyone can take to reduce their impact, and all customers benefited from the contributions this program made toward the development of California's climate change infrastructure. One-hundred percent of participants' contributions have gone toward purchasing verified GHG emission reductions from new, competitively bid offset projects in California. In addition to providing greenhouse gas emission reductions, these projects also generate valuable co-benefits, such as the preservation and restoration of California's redwood forest ecosystems. As authorized by the CPUC, all projects in which the ClimateSmart program invested must comply with the rigorous protocols established by the California Climate Action Registry ("CCAR"), now known as the Climate Action Reserve ("CAR"), and which have been approved by the CPUC for use by the ClimateSmart program.



Among the features that ensure the integrity, cost-effectiveness, and customer value of the ClimateSmart program:

- All GHG emission reduction projects supported by ClimateSmart contributions were verified under the rigorous standards-based protocols from CAR which require that projects are real, quantifiable, additional, and permanent;
- Projects were selected through a formal, competitive process based on established practices and standards used to govern the company's purchase of renewable and conventional energy supplies;
- All GHG emission reductions purchased by the ClimateSmart program were retired and cannot be used for any purpose other than making the ClimateSmart customer carbon neutral;
- 100 percent of participants' contributions went to support GHG emission reduction projects;
- The Program made participating customers' energy carbon neutral, based on the GHG emissions associated with their own natural gas and/or electric energy use;
- Monthly premiums paid by enrolled customers were considered charitable contributions and are eligible for a tax deduction;
- This Program was subject to CPUC oversight and received advice on a routine basis from a diverse External Advisory Group made up of community, environmental, business and government leaders; and
- Per Decision 10-10-025 issued by the CPUC on October 28, 2010, the CPUC reaffirmed that there was a shareholder commitment to fund the difference between the minimum performance guarantee of 1,360,777.11 metric tons of GHG emission reductions minus the total GHG reductions supported through customer collections through December 31, 2011.

The Program's demonstration period was originally scheduled to end on December 31, 2009. On May 18, 2009, PG&E requested a two-year extension of the Program and did not seek any additional funding for program administration or marketing efforts. PG&E committed to using any unspent administrative and marketing funds from the 2007-2009 period to administer the program if the extension were granted.

On November 20, 2009, the CPUC issued D.09-11-018 authorizing a day-to-day extension of the ClimateSmart program, allowing PG&E to continue to administer the Program using unspent administrative and marketing funds for only essential administrative and compliance activities. The day-to-day decision did not authorize the use of ClimateSmart program funding for program marketing and directed that any marketing costs be shareholder funded until the Commission reached a final decision on PG&E's 2-year extension request.

On October 28, 2010, the Commission granted PG&E's request for a two-year extension until December 31, 2011 and required that in lieu of an annual report for 2011, PG&E was to collaborate with the Energy Division of the CPUC and conduct a Request for Proposal (RFP) for a Comprehensive Review of the ClimateSmart program. This report is the result of that RFP.



### 3DEGREES QUALIFICATIONS

3Degrees Group, Inc. (3Degrees) is an environmental commodities sales, trading, and advisory firm that helps organizations buy, sell and market Renewable Energy Certificates (RECs) and Verified Emissions Reductions (VERs) through its utility green power program services and retail and wholesale transactions. In 2010, 3Degrees enrolled over 26,000 customers in voluntary green power programs and sold more than 6.5 million Green-e Energy Certified RECs. The green power programs 3Degrees markets boast an average participation rate of over three times the national average and have continued to grow despite the recent economic downturn. The operating roots of 3Degrees date back to 2002, when the company was part of 3Phases Energy Services.

Arguably, 3Degrees understands the renewable energy, carbon offset, and green power marketing industry better than any other firm in the nation. 3Degrees' experience includes renewable energy supply and marketing consulting engagements, and full green pricing program partnerships with over a dozen investor-owned and municipal utilities. 3Degrees is currently retained by eight utilities to provide ongoing green pricing program marketing support, four of which place on NREL's Top 10 Utility Green Power Programs list. 3Degrees is the only renewable energy marketer to have been awarded the highest recognition in this field six times by being named the DOE Green Power Supplier of the Year in 2005, 2007, 2008, 2009, 2010 and 2011. No other firm in the United States has a track record of this kind. 3Degrees also supports over 30 Fortune 500 companies with ongoing REC sales. Finally, 3Degrees provides consulting support to other utility clients as they continue to refine their product offerings and go-to-market approach.

Through these experiences, 3Degrees has assembled a database of hundreds of marketing campaigns netting tens of thousands of customers in voluntary utility green programs. This database of tightly controlled marketing tests and analyzed results is invaluable when assessing the results of new campaigns. Similarly, the 3Degrees Origination and Trading team has acquired considerable data, expertise, and market insight related to carbon offset markets. 3Degrees proprietary databases represent an excellent source of comparative industry data for the evaluation of ClimateSmart.

The heart and engine of 3Degrees, and the basis for 3Degrees' success, is its analytics. 3Degrees' three lines of business are Environmental Markets, Utility Partnerships, and Green Power and Carbon Balancing Services. In addition, 3Degrees' cross-functional teams behind the scenes include a best-in-the-business Origination and Trading desk, a seasoned Research, Strategy & Analysis team, and a "who's who" of voluntary green power markets experts including Dan Kalafatas, Adam Capage, and Dan Lieberman; all have been leading the industry for over a decade.

The Request for Proposals issued by PG&E and the CPUC sought a consulting firm with experience in sustainable products, design, and marketing to provide an objective third-party comprehensive evaluation of the ClimateSmart program. 3Degrees is a San Francisco-based firm with exactly these qualifications. Add to that 3Degrees' database of the most pertinent voluntary utility green program marketing results, a track record of helping energy utilities manage and evaluate their green pricing programs, and a deep understanding of the ClimateSmart program; and 3Degrees represents an ideal team for delivering thoughtful, quality results for this important project.



### 3Degrees Prior Engagement with PG&E and ClimateSmart

In 2007 PG&E hired 3Degrees (then doing business as 3Phases Energy Services) for a short-term engagement to help develop the right message for business and government customers most likely to adopt ClimateSmart. The Scope of work for that engagement included the following objectives:

- Develop collateral that specifically and effectively communicated the unique value propositions to enterprise and Small and Medium Businesses (SMB) customers, as well as government customers.
- Provide a message that resonated with target customers.
- Ensure the messaging and delivery were consistent with PG&E's overall environmental messaging.

3Degrees has continued to monitor the ClimateSmart program and interact with key PG&E personnel to stay abreast of program development over the years. 3Degrees was a ClimateSmart program participant for its corporate headquarters as well.

Current 3Degrees employees Dan Kalafatas and Adam Capage were involved in the 2007 engagement. Neither Dan Kalafatas nor Adam Capage billed hours to this evaluation project.



## SECTION A. MARKETING AND OUTREACH EFFORTS

This section addresses questions pertaining to the quality and quantity of Pacific Gas and Electric's (PG&E's) marketing efforts for the ClimateSmart program ("ClimateSmart" or "Program"). Key findings in this section include:

- Marketing management and activity was inconsistent over the five year life of the Program. The Program spent almost \$5 million on marketing 2008, only to spend about a tenth of that the following year, then \$127,000 in 2010, before jumping up to \$2.4 million in 2011.
- Campaign results spanning 2007 – 2011 show a correlation between the growth of enrollments and marketing spend.
- Marketing campaigns peaked in 2008 in terms of frequency, impressions, and spend, but were inconsistent thereafter due to the uncertain lifespan of the Program.
- Peak marketing efforts (in 2008) were on par with top performing utility green pricing programs. However, there were known utility green pricing best practices that were not adhered to such as investing primarily in direct enrollment tactics instead of broad awareness campaigns, and conducting market research via tests rather than surveys.
- PG&E could have lowered the dollars spent per customer enrolled but might have sacrificed modest gains in broad awareness by focusing its marketing budget on direct enrollment tactics such as bill inserts, targeted direct mail, and Customer Service Representative challenges.
- CPUC limits on use of ratepayer funds for marketing in 2009-2010 impeded marketing efforts significantly.
- Incomplete record-keeping hinders the evaluator's ability to determine campaign results, evaluate cost of acquisition by campaign, or assess marketing budget allocations.
- Customer awareness and understanding of carbon offsets was an ongoing challenge for this first-of-its-kind program.
- ClimateSmart goals and projections were set unrealistically high because projections were based on comparisons to the nation's Top Ten *green power* programs. Despite the attractive customer demographics in PG&E's service territory for a first-of-its-kind program like ClimateSmart, benchmarking its performance against a much more proven product (green power) and a host of programs which had been around for a decade was an aggressive target.
- The overly optimistic forecasts that followed from ClimateSmart's unrealistic benchmarking meant the Program had little chance of succeeding as scoped:
  - Average cost of acquisition was higher than forecast.
  - Participation rates were much lower than forecast.
  - Average residential energy use was lower than forecast, resulting in fewer tons purchased per customer.



**Question A1. Assess the reasonableness of PG&E’s marketing strategies over time for this first-of-its-kind program based on the level of awareness and customer understanding of carbon offset programs.**

**Summary of Findings**

As illustrated by customer surveys, awareness building and customer education was an uphill battle for PG&E. PG&E faced two challenges: a back-loaded marketing budget that underestimated the cost of educating PG&E’s larger customer base, and a marketing plan that struggled to provide consistent awareness and enrollment opportunities for the customer. In 2007-2008, the steady deployment of awareness tactics coordinated with regular enrollment touch points led to considerable awareness and enrollment gains. If PG&E had been able to continue with the same level of marketing activity, it likely would have been able to more effectively increase both awareness and enrollments.

**Approach**

3Degrees examined a variety of data sources to answer this question including: the Initial Filing, Saatchi & Saatchi S Report, and the Hiner & Partners survey. Several interviews were conducted with PG&E stakeholders including: Janice Berman, Gail Slocum, Molly Hoyt, Robert Parkhurst, David Woolf (former PG&E employee), and Dean Kunesh.

**Findings**

In preparation for the launch of this first-of-its-kind program, PG&E conducted market research in 2005 (Hiner) and established benchmarks based on the closest analogue available: green pricing programs. In addition, PG&E hired a marketing expert, Rick Counihan, to advise on the benchmarking process. PG&E’s tactics and budget for ClimateSmart were based in large part on the marketing programs used by green power pricing programs at other utilities as reported by the National Renewable Energy Laboratory (NREL). However, ClimateSmart’s lackluster performance was evidence that the benchmarking process did not adequately address the difficulty of marketing this complex product. The headings below reflect the programmatic categories that were researched:

**Budget<sup>1</sup>**

Prior to launch, PG&E arrived at a \$12 million marketing budget for the three year demonstration program by using an “acquisition cost methodology” (see question A5 for detail). This figure is based on how many customers PG&E believed it could attract to the Program as determined by market research (NREL & Hiner), and then subsequently assigning a dollar value to each customer. This methodology assumed a four to five percent participation rate and a cost per customer that was based on the experience of other green programs. However, while the overall budget was based on reasonable assumptions given the information available at the time, the allocation of marketing funds over the life of the demonstration project could have been improved. As pointed out in the Saatchi & Saatchi S report, by back-loading program marketing funds, PG&E was not adequately equipped to address the sizeable education gap regarding carbon offsets that existed at product launch. Awareness building and education was a key component of customer acquisition and PG&E underestimated the cost of educating such a large customer base (Interview with David Woolf).

In addition, when it came to spending the approved budget, the Program was hamstrung by the uncertainty surrounding the extension of the Program for an additional two years. In November 2009, PG&E was granted a day-to-day extension of the Program but was prohibited from using Program funds for marketing ClimateSmart. This significantly hindered marketing spending in 2009 and 2010 and seriously impacted PG&E’s awareness building capacity. The table below compares ClimateSmart’s projected expenditures with actual expenditures and illustrates

<sup>1</sup> Additional budgetary information is contained in the response to question A5.



that after four and a half years of marketing the Program, PG&E spent almost \$2 million less than its proposed marketing budget.

*Table 1: Projected vs. Actual ClimateSmart Marketing Expenditures*

Year	Marketing Expenditures (authorized)	Marketing Expenditures (actual)
2006*	\$600,000	\$0
2007	\$2,400,000	\$2,442,000
2008	\$4,000,000	\$4,733,000
2009	\$5,000,000	\$556,000
2010		\$127,000**
2011		\$2,418,697
<b>Total</b>	<b>\$12,000,000</b>	<b>\$10,276,697</b>

\*ClimateSmart was approved in December 2006.

\*\* PG&E spent \$115k from shareholder funding in 2010 for marketing and customer education for ClimateSmart.

The overall marketing budget strategy was reasonable given the information available at the time of development, however in retrospect it is clear that the marketing funds could have been allocated more judiciously over time and toward tactics that proved cost effective and successful, with less emphasis on untargeted awareness-only tactics.

#### *Awareness Tactics Over Time*

Awareness was identified as a significant challenge for ClimateSmart even before the Program launched, particularly because it was a first-of-its-kind program. In its initial testimony<sup>2</sup>, PG&E extolled the value of marketing the Program consistently over time in order to build awareness, and identified earned media (newspaper, television, and radio) and bill inserts as two channels that have proven effective awareness builders for green power marketing campaigns (Initial Filing). A discussion of earned media and bill inserts follows.

The table below outlines the number of earned media and bill insert tactics deployed over the life of the Program, along with historical website traffic information and gross enrollments. In this context, website traffic and gross enrollments are used as proxies for awareness. The total number of impressions attributed to all tactics categorized as “awareness” or “enrollment and awareness” from 2007 - 2011 amounts to 111,429,101. It is important to note that the catalogue of impressions for all “awareness” and “enrollment and awareness” tactics across the life of the Program is incomplete. The total number of impressions listed above reflects the data reported to 3Degrees which can be found in Appendix A. The table below demonstrates considerable lift in awareness in 2008, coincident with an increase in earned media and bill insert campaigns.

<sup>2</sup> PG&E Climate Protection Demonstration Program and Tariff Option Prepared Testimony, January 24, 2006 (“testimony”)



Table 2: Awareness Tactics Employed by ClimateSmart

Year	Number of Earned Media Campaigns	Number of Bill Insert Campaigns	Historical Website Traffic	Gross Enrollments
2007	27‡	1	28,610	14,859
2008	60*	4	122,663	22,216
2009	39*	1	26,426	2,797
2010	10‡	1	26,932	2,273
2011	7‡	1	34,679	3,379
<b>Total</b>	<b>143</b>	<b>8</b>	<b>239,310</b>	<b>45,524</b>

\*As reported in ClimateSmart Annual Reports  
 ‡As reported in LexisNexis search results

### Survey Results

The biggest indictment on the reasonableness of PG&E’s awareness marketing strategies over time comes from customer survey results. In 2007, 82% of those surveyed did not know what a voluntary carbon offset program is, and just 1% participated in one (Kelton 2007). Later in 2007 (after launch) Venables, Bell & Partners found that the great majority of customers had little awareness of offset programs. In 2008, a receiver/response survey of the May direct mail campaign showed that the majority of PG&E customers were unfamiliar with the terms "carbon offsets" and "carbon neutrality." By the end of the Program, a survey of non-ClimateSmart customers showed that 66% those surveyed were very unfamiliar with the ClimateSmart program.

### Messaging

Messaging is a key aspect of PG&E’s marketing strategy that has implications both for Program awareness and enrollment. PG&E devoted considerable resources to define the messaging for ClimateSmart during the early years of the program. Nearly a quarter of the A&M budget in 2007 was spent on market research (Annual Report). As one would expect, the amount dedicated to marketing research diminished in later years. However, A/B testing, a method of marketing testing by which a control sample is compared to single-variable test samples in order to improve response rates, was underutilized. While A/B testing was performed on the format of marketing collateral<sup>3</sup>, valuable learning on the performance of each message could have been gained in later years by performing A/B testing on messaging.

Early market research revealed that customers expressed greater interest in ClimateSmart upon learning that PG&E’s shareholders were contributing approximately \$1.5 million to the program (2007 Annual Report). It was also learned that independent endorsement would likely increase the likelihood of participation in the program. Thus, the research stressed the importance of using use quotes from outside “validators” like leaders of the Environmental Defense Fund, the University of California, and businesses enrolled in the program. In 2008, after further market research, messaging was differentiated by customer segment as outlined in Table 3.

<sup>3</sup> The 2008 “Ryan Letter” Direct Mail campaign tested a letter format against a self-mailer with a postcard reminder



Table 3: Messaging by Segment<sup>4</sup>

Segment	Messaging	Key Words
Residential	<ul style="list-style-type: none"> <li>• Join thousands of others</li> <li>• Together we can fight climate change</li> <li>• Do the right thing for the environment</li> <li>• For future generations</li> <li>• Feel good about doing your part</li> </ul>	Together
Large Business	<p>Be a Business Leader in the Fight Against Climate Change.</p> <p>“ClimateSmart is a program offered by PG&amp;E that allows businesses to demonstrate their environmental stewardship by paying a small premium based on your electric and gas consumption to reduce its GHG impact on the environment. One hundred percent of the ClimateSmart premiums are invested in only the highest-quality carbon offset projects in California approved and by the CCAR and audited by an independent third party.”</p>	Flexible, Credible, Predictable, Marketable, Leader
Affinity Groups	<ul style="list-style-type: none"> <li>• Together we can fight climate change.</li> <li>• Leader in the community</li> </ul>	Together, Leader
Small/Medium-Sized Business	<p>Be a Business Leader in the Fight Against Climate Change. The ability to take action in fighting climate change is as simple as a few clicks or a check of a box. “ClimateSmart is a program offered by PG&amp;E that allows businesses to demonstrate their environmental stewardship by paying a small premium based on your electric and gas consumption to reduce its GHG impact on the environment. One hundred percent of the ClimateSmart premiums are invested in only the highest-quality carbon offset projects in California approved and by the CCAR and audited by an independent third party.”</p>	Flexible, Credible, Predictable, Marketable, Leader

Once the messaging was defined, PG&E was diligent about weaving these messages throughout its marketing materials. Table 4 illustrates how PG&E implemented the market research findings throughout the life of the ClimateSmart program.

<sup>4</sup> Marketing Plan Document, ClimateSmart 2008, Created by Sonita Lontoh



Table 4: Campaign messaging and response rates

Segment	Campaign	Year	Targeted	Message	Response Rate
Residential	Direct Mail	2007	SF Bay Area	Together we can fight climate change	0.04%
Residential & Commercial	Bill Insert	2007	All customers	Together we can fight climate change	0.15%
Residential	Direct Mail	2007	Residents of Rocklin & Millbrae	Independent Endorsement: Join PG&E and the City of Rocklin/Millbrae in the fight against climate change	Data not available
Residential	Direct Mail	2008	SF Bay Area "Green Minded"	For future generations (Ryan Letter)	0.8%*
Commercial	Direct Mail	2008	SMB "Green Minded"	Simple step, invest in local offset projects	0.23%
Residential & Commercial	Bill Insert	2008	All customers	Take another action to fight climate change	0.13%
Residential & Commercial	Bill Insert	2008	All customers	Take action against climate change now	0.12%
Residential & Commercial	Bill Insert	2008	All customers	The time may come when we can't see the forest or the trees	0.06%
Residential	365 Micro site	2008	All customers	Does your home emit as much carbon as an SUV? Educational focus	1.2%
Residential	Digital Banners	2008	Pge.com	Reduce your home's carbon footprint by around \$5 per month	Data not available
Residential	Bill Insert	2009	All customers	A typical northern California home emits the same amount of GHG as an SUV over the course of a year.	Data not available
Commercial	Direct Mail	2009	SMB "Green Minded"	Join the ClimateSmart program today, and enjoy these benefits	1.25%
Residential	Bill Insert	2010	All customers except CARE and FERA	Take a step in the right direction, it's easy to take personal action against climate change	0.03%
Residential	Bill Insert	2011	All customers except CARE and FERA	Make it Earth Day 365 days a year, join your neighbors and enroll in ClimateSmart	0.03%

\*Cumulative response rate for the Ryan Letter

According to Table 4, the most successful messaging can be attributed to the "for future generations" message and the education-oriented 365 campaign that compared the carbon emitted by home energy use to carbon emitted by an SUV. As previously noted, messaging used in later years was not tested. This is unfortunate as A/B testing may have proven an insightful and cost effective way to determine which messages resonated as both the program and customer understanding matured.



## **Question A2. Did PG&E target the right customers? Did PG&E effectively leverage other program participation to maximize the effectiveness of its marketing efforts?**

### ***Summary of Findings***

The data available for specific targeted ClimateSmart campaigns is imperfect, and as such it is difficult to provide a comprehensive conclusion regarding overall targeting performance. PG&E provided campaign-level details for nine targeted direct mail campaigns. In eight cases, they disclosed how many pieces were sent, in seven cases the campaign cost was provided, and in seven cases the response rate was provided. The targeting specifics for individual campaigns tend to be generalized, making it difficult to provide deep analysis.

PG&E successfully utilized other program participation as part of the targeting model and learned valuable targeting lessons during the first year and a half of the Program. Initially, PG&E intended to meet both enrollment and carbon reductions goals by marketing primarily to the residential sector. However, when sales volumes did not match projections in late 2008, PG&E adjusted course and targeted the commercial sector. Just as PG&E was making this important course correction, the Program entered a one and half year period of uncertainty when marketing spend was very limited.

### ***Approach***

In order to answer this two-part question, 3Degrees reviewed a variety of documents pertaining to PG&E's targeting strategy, including but not limited to: Hiner & Partners Climate Protection Tariff Survey (2005), ClimateSmart PG&E Focus Group Debrief (Venabels Bell & Partners), and ClimateSmart Program Targeting: Status Update 2007(Accenture). 3Degrees also reviewed all available data pertaining to ClimateSmart's marketing campaigns, both targeted and untargeted, to assess performance. In addition, 3Degrees interviewed David Wooll, Molly Hoyt, Dean Kunesh, Jodi Stabelin, Nash Zamzow and Robert Parkhurst.

### ***Findings***

Given ClimateSmart's dual mandate to educate customers about climate change and support at least 1.36 million metric tons of CO<sub>2</sub> equivalent reductions over the life of the Program, it was necessary for the Program to target both residential and commercial customers. This section discusses the extent to which each sector was marketed to, how the marketing priorities shifted over time as PG&E learned valuable lessons from previous program years, and examines specific targeted campaign performance for the available data.

### ***Targeting Models***

PG&E started to define ClimateSmart's target audience during pre-deployment with the Hiner survey in 2005. The results of that survey, which included 300 randomly sampled residential customers and 100 randomly sampled commercial customers, are as follows.

Residential customers likely to enroll exhibit the following characteristics:

- College educated
- Household incomes over \$75,000 per year
- Two or more people in the household
- Internet users

Business customers more likely to enroll were identified as newer businesses that have been in business 10 years or less.



In 2007, Accenture developed a targeting model in order to predict the customer segments that would be most receptive to ClimateSmart. This model identified the following four PRIZM clusters.

#### *Upper Crust*

The nation's most exclusive address, Upper Crust is the wealthiest lifestyle in America and a haven for empty-nesting couples over 55 years old. No segment has a higher concentration of residents earning over \$200,000 a year or possessing a post-graduate degree. And no one has a more opulent standard of living.

#### *Money and Brains*

The residents of Money & Brains seem to have it all: high incomes, advanced degrees and sophisticated tastes to match their credentials. Many of these city dwellers – predominantly white with a high concentration of Asian Americans – are married couples who have few children and how live in fashionable homes on small, manicured lots.

#### *New Empty Nests*

With their grown-up children recently out of the house, New Empty Nests is composed of upscale older Americans who pursue active – and activist – lifestyles. Nearly three-quarters of residents are over 65 years old, but they show no interest in a rest-home retirement. This is the top-ranked segment for all-inclusive travel packages; the favorite destination is Italy.

#### *Urban Uptowns*

These immigrants and descendants of multicultural backgrounds in multiracial, multilingual neighborhoods typify the American Dream. Married couples, with and without children, as well as single parents, are affluent from working hard at multiple trades and public service jobs. They also have big families.

In 2008, PG&E evolved its residential target market to be consumers with the following characteristics (2008 Marketing Plan Document):

Age 18 – 34

Renters

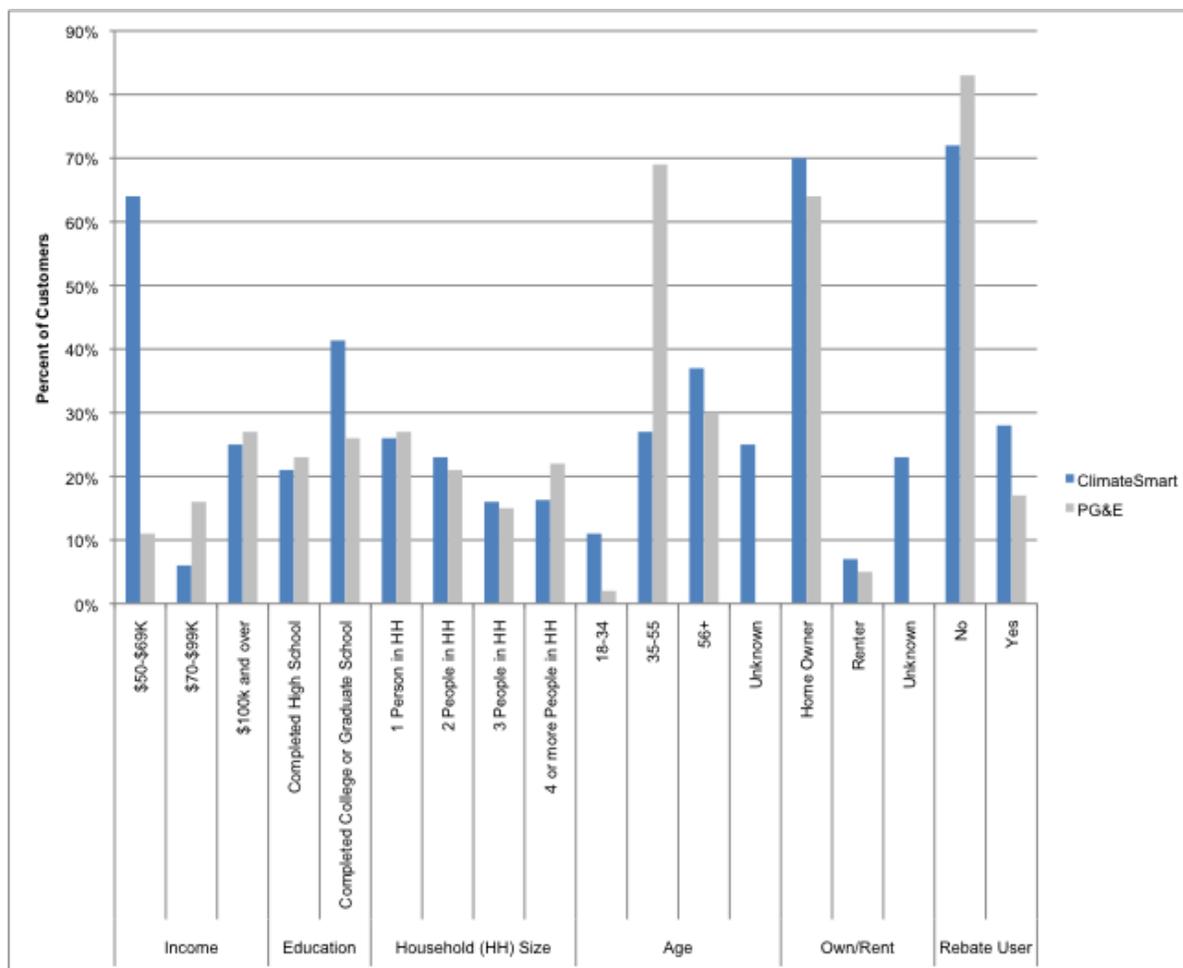
Urban

Three or more members in the household

Detailed records as to which targeting clusters and data were used in specific ClimateSmart campaigns were not made available and the targeting data outlined above is sometimes contradictory. This adds a layer of complexity when it comes to understanding the efficacy of ClimateSmart's targeting strategy. However, it is possible to contrast demographic data from ClimateSmart participants with the overall PG&E customer base. Chart 1 illustrates this comparison and illustrates that the prevalence of ClimateSmart customers that were highly educated and from a middle income bracket (\$50-69,000) was higher than that of the average PG&E customer.



Chart 1: Demographic Comparison of ClimateSmart and PG&E Customers



### Targeting Activity over Time

During the early years of the Program, PG&E focused 97% of all marketing efforts on residential customers (Saatchi & Saatchi). While this strategy was reasonable from an awareness standpoint, from a sales perspective it under-invested in attracting higher energy usage customers (typically commercial customers) that would have driven higher contributions to greenhouse gas reductions.

This became clear to PG&E in late 2008, when ClimateSmart was faced with lower than projected enrollments combined with lower than average energy use profiles of ClimateSmart participants. Faced with the possibility of not meeting its carbon reductions objective, PG&E recognized the need to engage commercial customers and was able to leverage internal resources for commercial outreach. The Integrated Demand-Side Management (IDSMS) Service and Sales team dedicated time to communicate with commercial customers to educate them on the Program with notable results. Over 120 commercial customers from a variety of sectors joined ClimateSmart in 2009, which amounted to a 20% increase in commercial enrollment from 2008. Carbon reduction volumes increased commensurately, and PG&E was able to increase the number of greenhouse gas emission reductions purchased on behalf of customers by 27 percent, even as the Program lost 903 customers due in large part to the limited marketing spending in 2009.



Just as PG&E was adjusting course in 2009, marketing activity was hindered due to uncertainty regarding a two-year extension PG&E had filed with CPUC. Marketing activity continued to be extremely limited in 2010, because as a provision of the day-to-day extension granted by the Commission in Decision 09-11-018, PG&E was prohibited from using Program funds for marketing the ClimateSmart program until a final decision was made on the two-year extension application. As a result, significant momentum was lost and only two targeted marketing campaigns were deployed in 2010.

As the table below illustrates, the final year of the Program (2011) experienced an uptick in targeting activity, particularly in the commercial sector. On the residential side, the most successful targeted tactic, an inbound call center initiative, was introduced. Please see Appendix A<sup>5</sup> for a list of targeted campaigns for which data were recorded.

Table 3: Targeted Direct Marketing Campaigns

Year	Targeted Direct Marketing Campaigns*	
	Number of Targeted Residential Campaigns	Number of Targeted Commercial Campaigns
2007	1	0
2008	3	2
2009	0	1
2010	2	0
2011	3	18
<b>Total</b>	<b>9</b>	<b>21</b>

\*Direct Marketing Campaigns include: Direct Mail, Email, ClimateSmart Business Energy Summits, Call Center Initiative and Web

After the CPUC's Decision to extend the ClimateSmart program, targeting became an essential component of PG&E's marketing strategy, particularly for commercial customers. This course correction enabled PG&E to close in on its 1.36 million metric ton performance metric<sup>6</sup> with customer premiums, but crucial time was lost in 2009 and 2010 when marketing funds were hindered.

### Targeting Performance

3Degrees evaluated targeted direct marketing campaign data, in cases when response rates were recorded, to determine if specific targeting strategies were particularly effective in garnering residential and commercial enrollments.<sup>7</sup> 3Degrees cautions that since not all marketing campaign data are available these findings cannot be considered comprehensive.

#### Residential:

Direct marketing response rates for residential targeted ClimateSmart campaigns ranged widely, from 0.05% to 20% while costs per customer enrolled ranged from \$12.50 to \$371.50. A wide range of response rates and cost per customer enrolled is not unusual for utility green pricing programs. For reference, 3Degrees reviewed 71 direct mail campaigns promoting green power programs across seven utility clients representing almost 3 million pieces. Response rates ranged from 0.02-6.4% with an average of 1.04% and cost per customer enrolled averaged \$102. 3Degrees reviewed 71 bill insert campaigns promoting green power programs across seven utility clients between

<sup>5</sup> AllConnect used the customer's zip code to determine eligibility for the ClimateSmart offer. In an effort to not compete with SmartAC offers/calls during the same period, specific zip codes were designated to receive SmartAC offers and all remaining zip codes were eligible for ClimateSmart.

<sup>6</sup> ClimateSmart contracted for 1.36 million metric tons by December 31, 2011

<sup>7</sup> Comprehensive data for all ClimateSmart campaigns was not available at the time of this report.



2007-2011, representing over 33 million pieces. Response rates ranged from 0.01% to 0.24% with an average cost per customer enrolled of \$72 (after removing top and bottom three “outlier” campaigns). Based on data supplied by PG&E, ClimateSmart’s direct mail response results ranged from 0.4% - 1%, with cost per customer enrolled ranging from \$90-\$160, which is on the higher cost end of industry norms. ClimateSmart bill insert response rates varied from 0.05%-0.12%, with cost per customer enrolled ranging from \$12.50-\$90.50, similarly considered within industry norms. For a detailed list of targeted residential campaigns, please see Appendix A.

The best performing targeted residential campaign in terms of cost per customer and response rate was the 2011 AllConnect Call Center initiative, with a cost per customer of \$25.12 and a response rate of 19.9%. Call center initiatives are a high performing, low-cost, targeted enrollment tactic used successfully by green power programs at other utilities. Had PG&E engaged their call center earlier and more often, 3Degrees expects that it would have been the source of a significant quantity of low-cost enrollments.

#### *Commercial:*

Commercial targeting peaked in 2011 when ClimateSmart hosted 18 energy summits across California [for a complete list of locations, please see Appendix A]. The most successful targeted campaign for which 3Degrees has response and cost data is a targeted direct mail piece sent out to approximately 400 small and medium-sized “green” businesses. With a response rate of 1.25% and an \$8.00 cost per acquisition, this initiative suggests that small, targeted mailings to green, local businesses is a cost effective way to gain a limited number of business enrollments.

#### *Leveraging Other Programs*

PG&E leveraged other program participation in two ways: by cross-promoting with other utility programs, and by using data on 500+ historical programs such as energy audits, CEE, and rebates<sup>8</sup> to build and refine its targeting model.

#### *Cross-promotion with other programs*

Given its mandate to educate all customers on ClimateSmart, PG&E was encouraged to reach out to customers in other utility programs such as the Family Electric Rate Assistance (FERA) and California Alternate Rates for Energy (CARE) programs. However, this tactic produced some unintended consequences, mainly in 2007 and 2008, when a disproportionate number of CARE participants enrolled in ClimateSmart<sup>9</sup>. PG&E ultimately excluded FERA and CARE participants from marketing outreach, including territory-wide bill insert campaigns in 2010 and 2011, when it became clear that these customers had difficulty understanding the Program.

PG&E’s experience with CARE customers is consistent with the experience of green power marketers. Cross-promotion with other utility programs is not a key marketing activity for green power marketing precisely because cross-promotion can have unintended consequences and confuse product messaging. In order to maximize enrollments and limit distraction, a singular focus of limited resources needs to be dedicated to program messaging.

#### *Targeting via other programs*

The second, and more successful, way in which PG&E leveraged program participation was in developing a targeted database of customers. While the Hiner survey provided a basic set of characteristics to guide the formation of the Program in 2005, once the Program launched a more systematic targeting approach was needed. PG&E worked with Accenture in 2007 to generate a predictive model to generate a list of “green minded” residential customers. This was achieved by leveraging information from other PG&E programs and evaluating it based on three key criteria:

<sup>8</sup> CS program targeting campaign optimization 7.13.2007.pdf

<sup>9</sup> Approximately 28% of all residential PG&E accounts are currently enrolled in CARE; CARE enrollments in ClimateSmart in 2007 and 2008 were 30.83% and 30.63% respectively.



indication of environmental concern, indication of personal responsibility, and willingness to donate to social programs. Several PG&E programs and surveys were identified as indicators of those sustainability-oriented customers. These indicators included: energy audit participation, Gas 10-20 participation, Natural Gas Vehicle ownership, solar customers, single family retrofit/lighting participation, and results from the ClimateSmart Customer Survey (Hiner).

While PG&E's residential targeting leveraged other program information soon after Program launch, commercial targeting models were significantly delayed. A formal commercial targeting model was developed towards the end of the Program in 2011. This model used several criteria to screen potential business customers, including: solar projects successfully completed with PG&E; customers that had a bill of over \$1 million per year; existing ClimateSmart customers with multiple accounts and only limited enrollment; participation in Demand Response; and Energy Efficiency incentives (interview with Dean Kunesh). The resulting list was distributed to local account representatives who could identify the benefits of participating and conveyed them to the most promising commercial accounts. This targeting strategy, which focused on high-touch tactics with large accounts, was a valuable improvement over previous targeted activities which focused on small and medium businesses.



**Question A3. Evaluate the advertising and marketing strategies utilized by PG&E to determine which strategies were most effective. Could PG&E have employed different marketing strategies to achieve higher customer enrollment?**

***Summary of Findings***

It is difficult to determine with certainty the effectiveness of PG&E's advertising and marketing strategies due to the limited campaign-related information available. While substantial funds were dedicated to broadly targeted media buys, in most instances the impact these campaigns had is difficult to quantify. The most successful marketing enrollment tactics deployed (as determined by number of enrollments and cost per customer) were bill inserts followed by direct mail. Other tactics like the AllConnect call center initiative in 2011 proved fruitful when deployed, but should have been more actively pursued throughout the life of the Program.

Compared to similar campaigns done by utility green pricing programs, some ClimateSmart marketing campaigns performed well, while others failed to produce substantial enrollments at a palatable cost. Top performers included email blasts for \$7 per enrollment, and a bill insert at \$16 per enrollment. Less successful efforts included a direct mail campaign to business that cost \$416 per enrollment. Part of the challenge performing the program evaluation is that there is no way for a first-of-its-kind program like ClimateSmart to bat 100%. That said, PG&E could have utilized their successful enrollment tactics such as bill inserts, the call center, and direct mail more frequently and consistently to achieve higher customer enrollment.

***Approach***

3Degrees reviewed CPUC Decisions, interviewed stakeholders and analyzed ClimateSmart marketing campaign data spanning 2007–2011 to determine which strategies were most effective. 3Degrees' evaluation of the effectiveness of ClimateSmart's advertising and marketing strategies provides some background information on the development of marketing strategies over time, and then focuses on the performance of awareness and enrollment tactics. However, it is important to note that the data pertaining to both awareness and enrollment marketing campaigns was incomplete at the time of this report. As such, observations stated in this report should be considered anecdotal as they are based on available data. Furthermore, tactics that have seen success in green power marketing at other utilities are suggested as potential tactics to achieve higher customer enrollment. 3Degrees spoke with Molly Hoyt, David Wool, Robert Parkhurst, Nash Zamzow and Dean Kunesh with regards to this question.

***Findings***

In the Initial Filing, PG&E called for seven primary marketing channels:

- Web-based marketing
- Bill Inserts
- Direct Mail
- Affinity Groups
- Customer Service Representatives
- Account Services
- Trade Shows, Industry Meetings, Conferences and Conventions

These channels, marketed consistently over time, were expected to yield a four to five percent participation rate and at least 1.5 million short tons or 1.36 metric tons of carbon reductions. However, delivering consistent marketing touch points was ongoing challenge for PG&E over the life of the ClimateSmart program. Advertising and marketing activities peaked in 2008 when the level of ClimateSmart marketing activity was commensurate with that of a NREL-



activities peaked in 2008 when the level of ClimateSmart marketing activity was commensurate with that of a NREL-ranked top ten program. Unfortunately, the Program lost momentum in 2009 and 2010 when it was unclear whether or not the Program would be extended for an additional two years.

By the time PG&E filed for an extension of the Program in 2009, it was clear that ClimateSmart did not allocate enough resources to address the education barrier that existed with customers who were most likely to participate.<sup>10</sup> PG&E proposed a new marketing strategy to the CPUC over the course of the Application, including: partnering with leading environmental organizations as well as commercial, non-profit and municipal customers, development of a merchandising program, use of social networking sites to spread awareness of the Program, and targeted direct mailings to customers most likely to enroll.<sup>11</sup> In its final decision, the CPUC interpreted PG&E's marketing strategy as not significantly different from the previous strategy and mandated that PG&E engage with the External Advisory Group, in-house staff and Commission staff experts on customer decision-making in the marketing plan development process.

PG&E engaged with the External Advisory Group several times for marketing plan development during the remaining years of the program. The results of this collaboration included: customer testimonial videos and business energy summits. Subsequent to the CPUC's decision, the commercial marketing strategy focused on high-touch, account-level marketing and developing retention tactics to whittle down commercial attrition rates (Interview with Dean Kunesh). On the residential side, the EAG recommended that PG&E align program marketing with web coverage/features on climate change stories where applicable; PG&E executed this via contextual search internet advertising.

ClimateSmart's advertising and marketing activities over the life of the Program are assessed below.

### *Advertising*

Advertising in the utility context typically refers to shareholder funded marketing activity. However, in the context of the ClimateSmart program, advertising tactics were implemented using funds allocated to the Program. In order to better draw this distinction, advertising tactics are referred to as *awareness marketing tactics* in this report.

3Degrees (and other industry experts) find that advertising helps inform customers about a product, but it is expensive and does not lead directly to a substantial quantity of enrollments. Direct enrollment tactic such as bill inserts, direct mail, door-to-door Courtesy Knocks, and utilizing the inbound call center provide the bulk of enrollments for utility green pricing programs.

Awareness marketing tactics evaluated in this report, include the following:

- Web
- Outdoor
- Video
- Email
- Postcards
- Earned Media

<sup>10</sup> Application of Pacific Gas and Electric Company for a Two-Year Extension of the ClimateSmart™ Program and Tariff Option. Application 09-05-016 (Filed May 18, 2009) Pre-Workshop Statement of PG&E. <http://docs.cpuc.ca.gov/efile/ST/108300.pdf>

<sup>11</sup> Application of Pacific Gas and Electric Company for a Two-Year Extension of the ClimateSmart™ Program and Tariff Option. Application 09-05-016 (Filed May 18, 2009)



- Print
- Conference – ClimateSmart Business Energy Summits
- Collateral
- Radio
- Social Media
- Affinity Marketing (environmental, governmental, business)
- ClimateSmart Business Energy Summits

Although the data available are incomplete, records show that awareness marketing tactics were responsible for over 111 million impressions from 2007 – 2011. A particularly noteworthy awareness campaign was the 365 Awareness Campaign, which was launched in December 2008. This campaign included television commercials, online banner advertisements and a new interactive micro-site ([www.joinclimatesmart.com](http://www.joinclimatesmart.com)), and as such was the first multi-channel campaign with coordinated touch points. While the primary objective was awareness, this campaign also drove over 1,000 enrollments. The table below summarizes awareness tactics for which information is available from 2007–2011.

*Table 4: Awareness Tactics Employed by ClimateSmart, their Cost and Results*

Goal	Tactic	Total Cost	Impressions
<b>Awareness</b>	Collateral	\$117,851.81	103,894
	Email	\$41,000.00	67,307
	Event	Unknown	300
	Print	Unknown	1,900,000
	Radio	Unknown	22,900,000
	Web	\$173,000.00	0
	Postcard	Unknown	394
	Outdoor	Unknown	0
	Earned Media	\$0.00	0
	TV Ads	\$830,500.00	13,660,000
	Video	\$215,000.00	6400
	Social Media	\$0.00	1606
	<b>Enrollment &amp; Awareness</b>	Collateral	Unknown
Event		Unknown	500,000
Web		\$150,000.00	39,080,000
Bill Insert		\$641,841.80	33,209,200
<b>Grand Total</b>		<b>\$2,169,193.61</b>	<b>111,429,101</b>



### Marketing

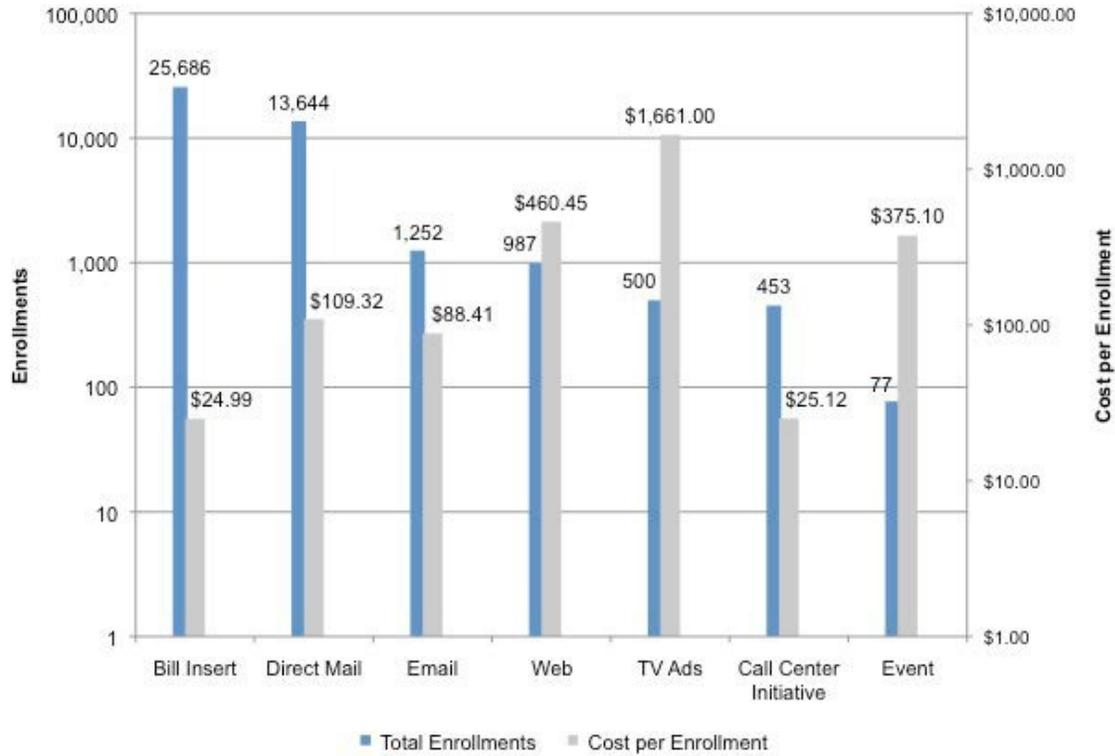
Marketing tactics in this report are referred to *enrollment marketing tactics*, and include the following:

- Bill Inserts
- Direct Mail
- Email
- Web
- TV Ads
- Collateral
- Event
- Conference – ClimateSmart Business Energy Summits
- Postcard
- Print
- Call Center Initiative
- Commercial Outreach
- Customer testimonial Videos

It is not possible to illustrate with certainty the performance of every ClimateSmart enrollment-oriented campaign but there is adequate cost and enrollment data to draw limited conclusions about the most effective tactics. As the chart below illustrates, the most successful enrollment tactics (bill inserts and direct mail) are those which garnered the highest number of enrollments at the lowest cost per customer. For an inventory of enrollment tactics for which 3Degrees has data, please see Appendix A of the report.



Chart 2: Enrollment Tactics: Cost per Enrollment and Quantity of Enrollments  
(Please note that both axes are on logarithmic scale.)



### Different Marketing Strategies

PG&E's marketing strategy employed a wide variety of tactics. However, there are a few additional tactics that PG&E could have employed consistently for ClimateSmart in an effort to achieve higher customer enrollment rates. These include:

- Customer Service Representative (CSR) Challenges:** CSRs are trained and incentivized to offer the Program during customer calls. CSR Challenges have proven to be a low-cost, high response tactic that has shown great results in utility green power programs. PG&E launched a call center initiative in 2011 with notable results (\$25.12 cost per customer and a 19.9% response rate). Deployed consistently, a call center initiative is a tactic that would enable PG&E to attain higher customer enrollment rates.
- Courtesy Knock Campaigns:** Courtesy knock is a high-touch tactic that has proven very effective in the Pacific Northwest. Utility representatives are sent door to door to communicate directly with customers about the Program and enroll them on the spot. This is a higher-touch tactic that can yield impressive response rates.



## **Question A4. Did the program have spillover impacts in terms of educating both participants and non-participants on the link between energy consumption, greenhouse gas emissions and climate change?**

### ***Summary of Findings***

PG&E did make efforts to educate participants and non-participants on the link between energy consumption, greenhouse gas emission and climate change through marketing efforts and by helping build an infrastructure for carbon markets.

### ***Approach***

3Degrees reviewed: ClimateSmart Annual Reports, specific marketing campaign data and LexisNexis in order to get a sense of the spillover impacts ClimateSmart had on both participants and non-participants.

### ***Findings***

PG&E did witness spillover impacts in terms of educating both participants and non-participants. The Program excelled in developing a knowledge base for the carbon offset industry, both programmatically by helping to develop protocols and with regards to human capital by enabling staff to gain expertise in the industry. At the customer level, it is clear that PG&E drove media coverage of climate change and carbon offsets. What is less clear is how external factors such as the shifting economic landscape affected customer attention-span and priorities.

ClimateSmart had educational spillover impacts in several respects. ClimateSmart was a first-of-its kind program launched by one of the largest natural gas and electric utilities in the country. In addition, the Program launch followed the Global Warming Solutions Act of 2006 (also known as Assembly Bill 32), and a period of increased public discourse over climate change and emissions trading schemes. As such, ClimateSmart saw earned media coverage both within California and across the country. A survey of LexisNexis shows a total of 154 news stories spanning 2005 – 2011 that contain a reference to ClimateSmart<sup>12</sup>. For a list of these news stories by publication, please see Appendix A. In addition, PG&E made a concerted effort to gain earned media by cultivating affinity partnerships. These partnerships with local government were particularly effective in garnering local media attention.

Furthermore, ClimateSmart supported the development of the Climate Action Reserve protocol and produced a body of knowledge about greenhouse gas reduction projects and offset project protocols that would not otherwise have been available to state and national policy makers, regulated entities, electric service providers, potential offset providers and to the general public<sup>13</sup>. ClimateSmart was one of the first and largest buyers of the Climate Action Reserve's verified greenhouse gas emission reductions and as such, ClimateSmart staff gained knowledge that was subsequently leveraged at the state level (interview with Gail Slocum).

However, despite these accomplishments, PG&E acknowledged that customer enrollments were difficult to obtain due to deep educational challenges associated with describing the effects of climate change, the impact of customer energy use on climate change, and in linking that to how the ClimateSmart Demonstration Program would make customers' energy use "carbon neutral." The 365 campaign, which compared the customer's carbon footprint to that of an SUV was an attempt to educate customers on the problem (home energy use emits carbon) and connect them to a solution (ClimateSmart). The campaign, which included a television ad, a micro-site and an interactive carbon calculator illustrated how the typical Northern California home emits as much greenhouse gas over the course of the year as an SUV, and had a call to action to visit the micro-site to learn more and enroll. More than 50,000 people visited the web site over the campaign period, and of those visits, approximately one percent enrolled in the Program.

<sup>12</sup> Key words used: "ClimateSmart" "PG&E"

<sup>13</sup> CPUC Decision 10-10-025, November 2010



**Question A5. What was the basis for PG&E’s initial request in the application for marketing and outreach funds for this effort and why did it fall short in reaching predicted goals?**

**Summary of Findings**

PG&E requested a \$16.3 million budget to operate ClimateSmart as a multi-year demonstration program. Of that, \$12 million was allocated to marketing. PG&E retained a reputable green power marketing expert and tapped utility green pricing industry data from NREL to develop estimates of the cost of customer acquisition, participation rate in the Program, program revenues, and the marketing budget. In benchmarking ClimateSmart against the top utility green pricing programs, PG&E was overly optimistic about the Program performance, and ultimately selling carbon offsets proved to be a more challenging endeavor than expected. Adding to the challenge was the turnover of program management, a wildly fluctuating marketing budget, and lower than anticipated purchase volumes per participating residential customer. Finally, a shift of marketing priorities toward more enrollment-oriented activities (rather than untargeted, awareness-only advertising) would likely have resulted in PG&E getting closer to its enrollment and sales forecasts as articulated in PG&E’s application.

**Approach**

3Degrees carefully reviewed background materials including PG&E’s “Application of Pacific Gas and Electric Company to Establish a Demonstration Climate Protection Program and Tariff Option”, the testimony associated with that application, and the CPUC’s final decision on the application. 3Degrees then interviewed several people who were employed by PG&E and working on the initiative at the time, including Wendy Pulling, Janice Berman, Gail Slocum, Robert Parkhurst, Molly Hoyt, Steve Kline, and David Wooll. We also contacted Greg San Martin, formerly of PG&E, and requested an interview but were unable to find mutually agreeable terms. Finally, 3Degrees compared the articulated program goals against the Program’s actual performance.

**Findings**

On January 24, 2006 PG&E filed the “Application of Pacific Gas and Electric Company to Establish a Demonstration Climate Protection Program and Tariff Option” with the California Public Utilities Commission. The program that was ultimately approved would become the ClimateSmart program. The application outlined a proposed optional premium for an “innovative three-year demonstration program”. The application requested that the CPUC authorize PG&E to collect the associated revenue requirement to cover the program’s incremental administrative and marketing costs totaling \$16.3 million over a four-year period (a one year of preliminary activities and a three-year operational period).

The proposed administrative and marketing requirements request was broken down by year as follows (in 000 dollars):

Table 5: Administrative and Marketing Budget Request by Year

Cost Category	2006	2007	2008	2009	Total
Program Administration	\$500	\$1,020	\$820	\$1,020	\$3,360
Marketing	\$600	\$2,400	\$4,000	\$5,000	\$12,000
Registry Administration and Operational	\$200	\$350	\$300	\$50	\$900
Total Budget	\$1,300	\$3,770	\$5,120	\$6,070	\$16,260

Source: PG&E Climate Protection Demonstration Program and Tariff Option Prepared Testimony, January 24, 2006, page 2-24

“Part of the inspiration for PG&E’s development of this optional tariff, which PG&E believes is the first of its kind in the nation, was the CPUC’s historic 2005 Climate Change En Banc Proceeding (all commissioners), as well as Governor Schwarzenegger’s groundbreaking leadership on climate protection.”

Source: Application of Pacific Gas and Electric Company to Establish a Demonstration Climate Protection Program and Tariff Option



The proposed marketing budget is further broken down later in the testimony:

*Table 6: Breakdown of Proposed Marketing Budget*

	Pre-Deployment	Year 1	Year 2	Year 3	Total
Market Research	\$0.6	\$0.0	\$2	\$0	\$75
Acquisition Activities	0.0	2.4	3.8	5	11.25
Overall Budget	\$0.6	\$2.4	\$4.00	\$5	\$12.00

This budget assumes that all broadcast media and customer education efforts are to be considered part of acquisition.

The rationale provided by PG&E for the budget is summarized as follows:

“This budget is proposed for several reasons. First, it is likely to result in significant customer acceptance in the 4 to 5 percent range after the end of the third year, which would place PG&E squarely in the “top performers” category of large utilities, in terms of participation rates for green power pricing programs. Second, it does not impose unreasonable rate increases... when spread over all ratepayers, the combined marketing and administrative costs for the CPT will only result in an average rate increase of \$.03 per month over the three year proposed CPT period (2007-2009) for the average combined gas and electric residential ratepayer. Third, the proposed marketing budget is comparable to, if not less than, other marketing budgets for analogous utility programs across the United States.”

The testimony goes on to examine spending on other energy-related marketing campaigns in California (“California’s Flex Your Power program plans on spending about \$13 million per year on marketing for 2004 and 2005.”) to put the budget in context. Acquisition costs are then presented, and are divided by the proposed budget to determine expected participation rates. The acquisition costs were obtained from the National Renewable Energy Laboratory report “Trends in Utility Green Pricing Programs (2004),” which was the best source of data at the time. One problem with using that report as a benchmark is that it does not indicate marketing budgets or enrollment costs for a new program as compared to an existing program. Program launch should be marked by robust marketing budgets and correspondingly high levels of enrollment. PG&E deduced their own acquisition costs as follows (actual costs also presented):

*Table 7: Acquisition Cost Case Scenarios*

Acquisition Cost Case	Year 1 (2007)	Year 2 (2008)	Year 3 (2009)	Year 4 (2010)
Low	\$35	\$35	\$35	
Medium (expected)	\$60	\$54	\$48	
High	\$85	\$75	\$65	
Actual	\$164.34	\$213.04	\$198.78	\$55.87

As is explained in question A6, ClimateSmart’s actual acquisition costs far exceeded even the high cost scenario.

The testimony continues its projections with the participation forecast.

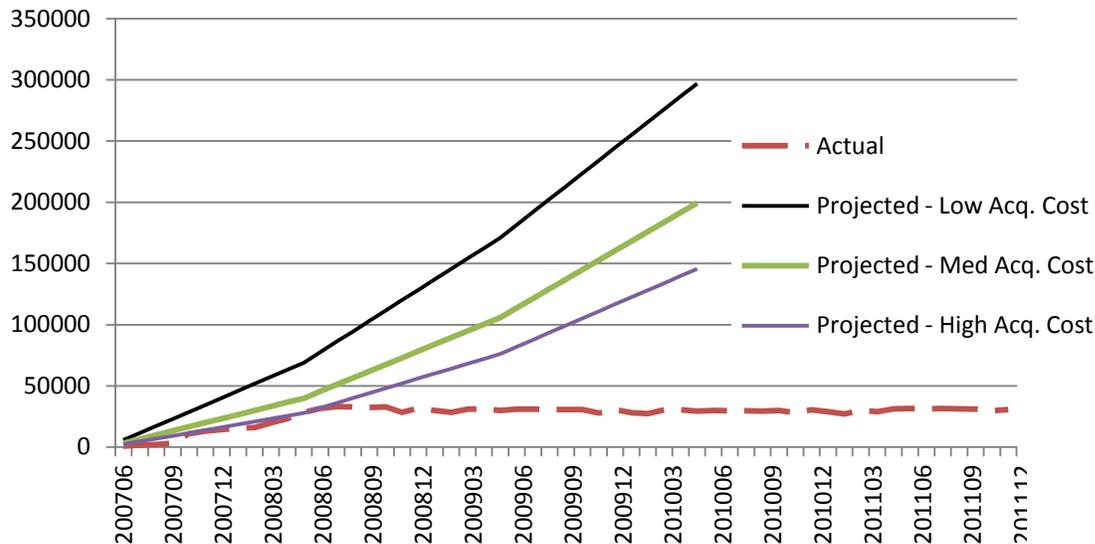
*Table 8: Enrollment Forecast*

	Year 1	Year 2	Year 3	Cumulative
Low	69,000	109,000	143,000	296,000
Medium (expected)	40,000	70,000	104,000	200,000
High	28,000	51,000	77,000	145,000



Again, when charted against actual Program results, it is clear to see that the goal was not achieved.

Chart 3: ClimateSmart Participation – Projected vs. Actual



This can also be demonstrated in terms of participation rates projected and actual:

Table 9: ClimateSmart Participation Estimates in Percent of PG&E Customers

ClimateSmart Participation Estimates in Percent of PG&E Customers					
Acquisition Cost Case	Year 1 (2007)	Year 2 (2008)	Year 3 (2009)	Year 4 (2010)	Cumulative (a)
Low	1.5	2.5	3.2		6.6
Medium (expected)	0.9	1.6	2.3		4.4
High	0.6	1.2	1.7		3.2
<b>Actual</b>	<b>0.24</b>	<b>0.52</b>	<b>0.5</b>	<b>0.49</b>	

The Program goals were articulated in the application as:

“For every one percent of PG&E customers who choose to enroll in this program, the CPT is expected to reduce GHG emissions by at least 300,000 tons of CO<sub>2</sub> per year. The cumulative GHG reduction estimate set forth above assumes a 4.5 percent enrollment by the end of the third year of the CPT program, and all estimates assume that the cost of GHG emission reduction projects would average \$9.71 per ton of CO<sub>2</sub>e over the proposed three-year demonstration program (approximately 2007-2009).”

The application goes on to state: “Although the level of enrollment cannot be predicted exactly, PG&E will strive to enroll about 4 to 5 percent of its customers by the end of the third year of the CPT demonstration program’s operations” and “After the first year of CPT demonstration program operations (approximately the first quarter of 2008), PG&E’s enrollment goal is approximately 0.8 percent, with more rapid growth projected for the second and third years as the program gets better known. PG&E’s customer enrollment goal by the end of the CPT’s third year (approximately the first quarter of 2010) is 180,000 to 210,000 enrolled customers.” The Hiner study estimated that at a 4 percent price premium, up to 20 percent of PG&E’s residential customers and 14 percent of PG&E’s business customers might be willing to sign up for a carbon offset program. The study also indicates that these estimates represent “best case” maximums and that actual sign-ups might not approach these estimates.



It is worth noting that the 4-5 percent figure is identified as a “stretch goal” in the Climate Protection Demonstration Program and Tariff Option Prepared Testimony “(PG&E’s “stretch” goal is to enroll 4-5 percent of PG&E’s over 5 million customers by the end of the third year of this program’s operation in 2009.)”

Beyond the program enrollment metrics, PG&E established several other program goals and benefits. These included the following that were identified in the application:

*“Another key benefit of PG&E’s voluntary CPT program is that it is expected to spur more rapid development of additional GHG reduction project protocols by the California Climate Action Registry (Registry). In addition, the CPT will allow California to “road test” these project measurement, reporting and certification protocols, which are currently in their infancy. A further benefit to PG&E’s CPT program is that California will gain expertise in implementing forest sequestration projects, that remove GHGs from the atmosphere thus helping to address climate change.”*

This shows that PG&E’s stated goals were beyond enrollment or sales objectives, but included creating an infrastructure for greenhouse gas markets in California. PG&E’s testimony elaborates:

*The proposed CPT program will help California develop its climate change “infrastructure” in several ways. First, the CPT’s “External Advisory Group” will provide a forum for diverse climate change stakeholders to engage in productive dialogue and develop collaborative relationships that can help develop successful climate change policies. Second, the CPT will provide PG&E’s customers—whether they enroll in the program or not—with the opportunity to learn about their climate change “footprint” and steps they can take to reduce it. Third, the CPT will provide an opportunity to develop critical tools, such as GHG emission reduction project measurement, reporting and certification protocols that largely are in their infancy. Essential expertise will be gained through pursuing and realizing a range of high quality, cost-effective GHG emissions reduction projects through this demonstration program. In particular, valuable experience will be gained in conducting forestry sequestration projects in California. In addition, the CPT is flexible, holding the prospect for a wider range of projects to receive funding as the Registry expands its GHG reduction project protocols beyond forest sequestration. Finally, because all CPT project proponents must become Registry members, the CPT will propel additional membership in the Registry, which means that more California entities will be developing certified inventories of their GHG emissions.*

In terms of meeting the “awareness goal”, as stated in question A1, the total number of impressions attributed to all tactics categorized as “awareness” or “enrollment and awareness” from 2007 - 2011 amounts to 111,427,495. PG&E conducted a 2011 Climate Smart Satisfaction Survey. They survey asked 277 customers who were non-participants in ClimateSmart about their impressions, including this question about awareness:

Table 10: Excerpt from 2011 ClimateSmart Satisfaction Survey

<b>Q4. Before today, how familiar were you with the ClimateSmart program?</b>	
	Percent
<b>Top-2-Box (Very/Somewhat Familiar)</b>	<b>14%</b>
Very Familiar	2%
Somewhat Familiar	12%
Neither Familiar nor Unfamiliar	13%
Somewhat Unfamiliar	7%
Very Unfamiliar	66%
<b>Bottom-2-Box (Very/Somewhat Familiar)</b>	<b>73%</b>
Base: Total Respondents (n=277)	



This demonstrates that, despite a 0.5% enrollment rate, 14% of those surveyed had some familiarity with the Program. However, two thirds (66%) of those surveyed were “very unfamiliar” with ClimateSmart. Compare this to the March-April 2007 Hiner survey in which 296 customers were asked “Have you heard of a program called Climate Smart that is offered by PG&E?” and 9% answered in the affirmative. Please note that the Hiner survey was conducted before the product launched and prior to any active marketing of the Program. One can speculate that the 9% who reported hearing about ClimateSmart were either misinformed, or had some awareness of the Program due to press cover of PG&E’s proposed tariff. There was some coverage of ClimateSmart by the media in late 2006<sup>14</sup> and early 2007.

In its testimony, PG&E called out how administrative funds would be used to establish greenhouse gas market infrastructure for California. Start-up funding for the registry software was estimated at \$200,000 with an additional modules and protocols costing an estimated \$50,000 each. Administration of the California Climate Action Registry was estimated at \$300,000.

Regarding the justification of the marketing and administrative fees, the application states:

*“PG&E’s proposed CPT will invest 100 percent of the funds collected from enrolled customers exclusively in projects that reduce GHG emissions. To do so, PG&E requests that the CPT program’s administrative and marketing costs over the life of this program be spread over all distribution customers for recovery through distribution rate true-ups to be consolidated through PG&E’s existing annual ratemaking proceedings. This reflects the fact that the co-benefits of the CPT program’s projects accrue to all, including by more rapidly reducing GHG emissions in the atmosphere we all share. In addition, making a commitment to enrolled CPT customers that 100 percent of their CPT premium will go to GHG reduction projects improves the marketability of the program, thus maximizing its favorable benefits for all Californians.”*

PG&E’s application projects the average purchase of ClimateSmart by a residential customer as follows: “A typical residential customer receiving combined gas and electric service who elects to support this GHG reduction program would invest about \$4.31 per month or a 3.0 percent addition to their current bill, in order to achieve “climate neutral” energy use, over time, through the CPT program.” This assumes that the average residential ClimateSmart participant will consume the average residential amount of energy. One shortfall of the Program related to sales, and one finding from program operations was that while the average PG&E customer consumes 550 kWh per month, the average ClimateSmart participant consumed only 502 kWh per month. This may be due to 1) having a very energy efficient populous participate in the Program; 2) having greater enrollments in regions where average energy consumption is lower, such as the coastal regions; and/or 3) having mild weather years with less demand for heating and cooling. In any case, the relative energy efficiency of ClimateSmart participants created a greater challenge for PG&E in meeting sales targets.

In 2009 the marketing firm Saatchi & Saatchi S was hired by PG&E to perform a marketing assessment. The report’s key findings included:

- The initial 4% performance metric was unrealistic.
- The implications of the “Pioneering” nature of the project were not adequately evaluated.
- The Program involved a difficult concept to convey and a relatively uninformed consumer.
- Operational challenges exposed a highly decentralized launch team.
- Timing required for a fully developed product and intelligent marketing launch was underestimated.

<sup>14</sup> Three examples include <http://www.renewableenergyworld.com/rea/news/article/2006/12/pg-e-expands-renewable-power-supply-and-launches-climatesmart-46871>, <http://blog.sfgate.com/nwzchik/2006/12/15/its-pgeasy-being-green/>, [http://www.mercurynews.com/ci\\_4846565](http://www.mercurynews.com/ci_4846565)



The implications of the “Pioneering” nature of the project were not adequately evaluated.

The Program involved a difficult concept to convey and a relatively uninformed consumer.

Operational challenges exposed a highly decentralized launch team.

Timing required for a fully developed product and intelligent marketing launch was underestimated.

The Program is currently in an upward trajectory.

Marketing challenges were insurmountable.

Program timing and mobilization efforts were insufficient to launch.

The assessment was an accurate portrayal of the Program at the time of the analysis. The downturn in trajectory is explained by the decrease in marketing activity after Spring 2009 (see question A1 for further detail).

There was nothing like ClimateSmart in the market when the goals were set. It was first of its kind, which made the benchmarking metrics like cost of acquisition and participation rates difficult to forecast. While PG&E hired a top expert (Counihan) to provide guidance in goal setting and conducted survey research (Hiner), hindsight shows the goals were set quite high in relation to actual costs of acquisition and the number of willing participants. However, the ClimateSmart program was successful in terms of meeting other goals, including educating customers about climate change and creating an infrastructure for carbon offset markets.

“No other utility offers a tariff similar in structure and purpose to the innovative CPT proposed in this application. Thus, comparisons to other similar tariffs do not exist. However, green power pricing programs, offered by other regulated utilities to their customers, provide a close analogy which can inform the discussion of marketing PG&E’s proposed CPT.”

— Source: PG&E’s testimony



**Question A6. Could PG&E have lowered the dollars spent per customer enrolled, including, but not limited to marketing, enrollment and administration costs? If so, how and with what result?**

**Summary of Findings**

PG&E could have lowered the dollars spent per customer enrolled by focusing its marketing budget on direct enrollment tactics such as bill inserts, targeted direct mail, and Customer Service Representative challenges. These are tactics that proved to be in line with green pricing industry averages in terms of response rates and cost per customer enrolled.

Regarding administrative costs, PG&E's far exceeded utility green pricing program averages for large utilities. From 2007-2010 ClimateSmart's administrative costs (not including CAR-related expenses) represented 40% of program revenues. This is in large part due to lower than expected revenue. Another reason for the substantial administrative fee was to ensure that the process for procuring the offsets was thorough (i.e. 3Degrees is unaware of any other voluntary green program that funded such a thorough protocol as CAR), though even netting out the CAR-related expenses, PG&E's administrative fees were well above green pricing industry averages. PG&E had the most robust annual reporting of among its peers.

It is not surprising to see marketing and administrative costs meet or exceed green pricing program revenues in the first year or two of operation. These are times when there are few participants and considerable marketing and administrative expenses. ClimateSmart followed the typical green pricing program trajectory of decreasing marketing and administrative costs coupled with increasing revenues.

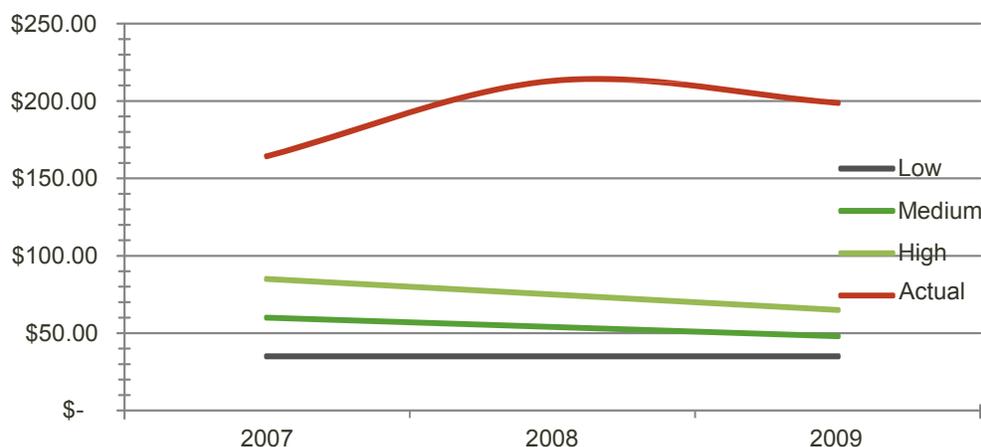
**Approach**

3Degrees compared ClimateSmart cost per customer enrolled, marketing budget per meter served, and Selling, General and Administrative Expenses (SG&A) ratio to those in the market.

**Findings**

3Degrees believes PG&E could have lowered the dollars spent per customer enrolled. As described in question A5, the dollars spent per customer enrolled in ClimateSmart were far greater than anticipated and several categories of expenses were higher than the industry average.

*Chart 4: ClimateSmart Cost per Customer Enrolled – Projected vs. Actual*





These costs are also considerably greater than what has been experienced by utilities offering green pricing programs.

As demonstrated in question A3, ClimateSmart’s cost per enrollment varied considerably by tactic. This is typical for utility green pricing programs. Several tactics employed by ClimateSmart such as bill inserts and direct mail had costs that 3Degrees would consider in the normal range for a green pricing program. However, if the top priority of ClimateSmart was to reduce enrollment costs, then the robustness of general awareness campaigns and market research seems too high in relation to enrollment tactics.

Looking at the budget breakdown for 2007 (year of launch), one can see the distribution of funds weighted toward awareness tactics rather than enrollment tactics. The market research funds are also considerable, which may be expected in the year of product launch. However, if cost-effective enrollments were the top priority, then market research could have been performed as test-cells of a campaign. In other words, rather than asking customers their preferences in a survey, test the hypothesis by sending different marketing pieces to batches of customers and see how they respond. In this way, market research budgets yield real-world results and enrollments.

Table 11: 2007 ClimateSmart Marketing Budget Distribution

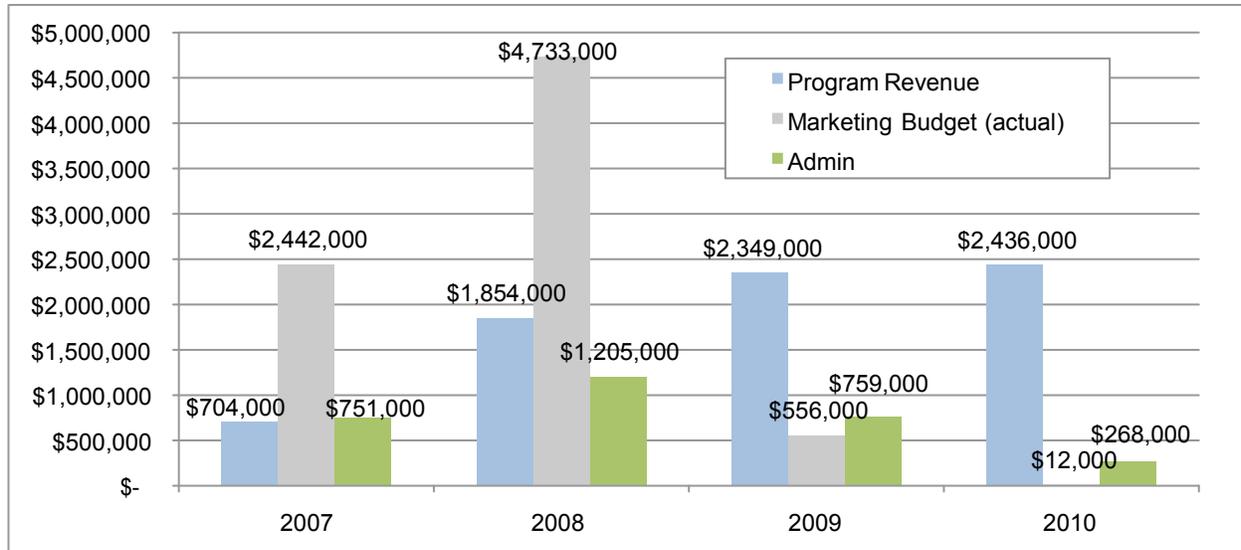
Year	Market Research, Messaging & Training	Advertising	Media	Collateral	Events
2007	\$569,000	\$290,000	\$740,000	\$762,000	\$81,000

According to NREL’s 2009 report [“Green Pricing Program Marketing Expenditures: Finding the Right Balance”](#) programs reporting data to NREL spent a median of 18.8% of program revenues on marketing their programs in 2008 and 16.6% in 2007. The smallest utilities (those with less than 25,000 in their eligible customer base) spent 49% of revenues on marketing, significantly more than the overall median. Therefore, it can be inferred that larger utilities would spend a smaller portion of program revenues on marketing. NREL’s data are suspect because all information is self-reported and accounting procedures vary widely across utilities. For example, some utilities do not “charge” programs for bill inserts since monthly inserts are considered standard operating procedure. Others do not charge staff time from a shared marketing function; or advertising dollars from a shared advertising budget. These different procedures yield significantly different survey responses. In addition, the data points provided to NREL include mature programs with very large revenue streams – these programs spend a lower percentage on marketing in part because absolute revenue numbers are higher.

Reviewing the ClimateSmart annual reports and comparing marketing costs to program revenue shows that for 2007-2010 program revenue (\$7,343,000) did not quite match the marketing costs (\$7,743,000). The graph below shows year over year performance. The trend is positive in that revenues increased while marketing costs decreased. However, as described earlier in the report, the Program would have seen improved performance overall had the marketing budget not atrophied to such an extent in 2009 and 2010.



Chart 5: Comparison of Revenue, Marketing Budget, and Administrative Costs



For administrative costs, NREL's survey of utility green pricing programs found that for utilities that serve more than a million customers, administrative expense were 10.6% of program revenue. From 2007-2010 ClimateSmart's administrative costs (not including CAR-related expenses) represented 40% of program revenues.



## SECTION B: GHG PROCUREMENT

This section addresses questions pertaining to the procurement of tons of greenhouse gas emission reductions to supply the ClimateSmart program. The questions ask how PG&E could have lowered supply costs, whether the procurement process could have been improved, and how ClimateSmart's supply compared to that of other utility carbon offset programs.

Key findings in this section include:

- Soliciting and contracting for offsets was a learning process for both PG&E and carbon offset sellers as ClimateSmart was pioneering a new market in its early stages of development, with new carbon offset protocols developed by CCAR<sup>15</sup> throughout the duration of the Program.
- PG&E's solicitations yielded cost-competitive emission reductions, given Program parameters.
- PG&E's ability to procure high-quality offsets was limited largely by external factors, namely the number of adopted protocols and, at times, scarcity of available projects.
- Bidders perceived the solicitation and contracting processes as onerous, which created a barrier to increasing the number of bids.
- Learning over time led to key improvements in the solicitation and contracting processes.
- ClimateSmart procured GHG offsets were among the highest quality of, and more diverse than, other market offerings.

The following two pages of this report provide a detailed market overview with background information on precedent for CAR.

### Background: Market Overview and Precedent for the California Climate Action Registry

In 2000, the California Legislature passed Senate Bill (SB) 1771 to enable the creation of the California Climate Action Registry (CCAR) to, among other goals, "[e]ncourage voluntary actions to increase energy efficiency and reduce greenhouse gas emissions" and to "[e]nsure that sources in the state receive appropriate consideration for verified emissions reductions under any future federal regulatory regime relating to greenhouse gas emissions."<sup>16</sup> Two years later, the Legislature further refined its intent by passing SB 812<sup>17</sup> by requiring CCAR, in consultation with state agencies, to adopt procedures and protocols for reporting and certification of reductions of greenhouse gas emissions. In particular, SB 812 singled out the creation of a protocol to measure and report the storage of carbon dioxide emissions from the conservation and conservation-based management of California native forests. The stated intent was to allow CCAR participants to "include the results of those activities as a participant's registered emissions results." In April of 2003 – a few months after the governor signed SB 812 into law – CCAR began work on its Forest Project Protocol.

In May of 2003, the Public Utilities Commission (CPUC), Energy Commission (CEC), and the Consumer Power and Conservation Financing Authority (now defunct) adopted California's Energy Action Plan (EAP I)<sup>18</sup> in which one of its proposed actions was to "[e]ncourage companies that invest in energy conservation and resource efficiency to

<sup>15</sup> The California Climate Action Registry (CCAR) became the Climate Action Reserve (CAR) during the ClimateSmart program. It will be referred to as CAR going forward except in the Background section below. Additional information can be found at <http://www.climateactionreserve.org/> and <http://www.climateactionregistry.org/>

<sup>16</sup> SB 1771. Available at [http://www.leginfo.ca.gov/pub/99-00/bill/sen/sb\\_1751-1800/sb\\_1751-1800\\_sb\\_1771\\_bill\\_20000930\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/99-00/bill/sen/sb_1751-1800/sb_1751-1800_sb_1771_bill_20000930_chaptered.pdf)

<sup>17</sup> Available at: [http://www.leginfo.ca.gov/pub/01-02/bill/sen/sb\\_0801-0850/sb\\_812\\_bill\\_20020909\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/01-02/bill/sen/sb_0801-0850/sb_812_bill_20020909_chaptered.pdf)

<sup>18</sup> Available at: [http://www.energy.ca.gov/energy\\_action\\_plan/2003-05-08\\_ACTION\\_PLAN.PDF](http://www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.PDF)



register with the state's Climate Change Registry." The 2005 version of the EAP<sup>19</sup> (EAP II) reaffirmed and encouraged "all participants in the electricity, natural gas, and transportation fuels industries, as well as other regulated industries, to participate in the California Climate Action Registry..." CPUC actions that were cited as contributing to ongoing achievement of this goal were:

- In conjunction with other state agencies, the CPUC held an en banc in February 2005, to explore climate change issues and sent letters to CPUC-regulated entities encouraging them to join the Registry; and
- The CPUC issued a decision in April 2005, directing the Investor Owned Utilities to include marketing and outreach activities to support the Registry in their energy efficiency program plan applications.<sup>20</sup>

The same month that the EAP II was released, September, CCAR adopted Forest Project Protocol Version 1.0.<sup>21</sup>

These developments were situated within and flowed out of a growing state, regional, and national awareness of the issues surrounding climate change. At the federal level, a number of bills were introduced during the 109<sup>th</sup> Congress to focus on aspects related to climate change.<sup>22</sup> Proposed legislation covered a range of areas, including climate change research, GHG reduction technologies, GHG reporting and registries, and GHG emission reduction bills. In the summer of 2005 – amid a host of other political and policy developments surrounding climate change issues – an early version of what would eventually become California's landmark Global Warming Solutions Act of 2006 was introduced in the Legislature. This activity, along with the many other policy sources cited in PG&E's January 2006 application for approval of a Climate Protection Tariff,<sup>23</sup> forecasted a policy landscape in which PG&E could reasonably expect that (a) California policy makers were motivated to take steps to address climate change issues through mandatory and voluntary measures and that (b) the California Climate Action Registry was at the forefront of policy-makers' minds and closely aligned with the eventual policy outcome. Given this policy context, it was therefore reasonable and prudent for PG&E to purchase emission reductions that were verified according to protocols developed by CCAR.

It is within this context that PG&E's ClimateSmart program helped create and support the development of carbon market knowledge and infrastructure. Over the four years of the Program, PG&E helped develop four protocols with CAR, educated project developers, and learned a great deal along the way. By the time the ClimateSmart Program 2010 Annual Report was written, contracts had been signed for eight different projects from four different protocols by PG&E. In addition, the project counterparties were diverse, including two non-governmental organizations, three private businesses, and a local government. The ClimateSmart program helped fund the development of the urban forest and livestock manure protocols, and contributed to road-testing the forest, urban forest, livestock manure, and Ozone Depleting Substances (ODS) protocols approved by the California Air Resources Board (CARB) for use under its cap-and-trade regulations.

In addition, ClimateSmart's six competitive solicitations generated considerable voluntary demand for CAR GHG emission reductions where before, barely any existed. In addition to the projects that were under development with the CAR, the ClimateSmart program educated hundreds of potential project developers about the project development process, the applicable CAR protocols and worked closely with project developers through the contracting and verification processes.

The following analysis of ClimateSmart's GHG procurement takes these market dynamics and evaluation as a baseline for evaluation.

<sup>19</sup> EAP II. Available at: [http://www.energy.ca.gov/energy\\_action\\_plan/2005-09-21\\_EAP2\\_FINAL.PDF](http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF)

<sup>20</sup> EAP II, Appendix A: EAP I Progress Report

<sup>21</sup> Available at: <http://www.climateactionreserve.org/how/protocols/forest/dev/#version1>

<sup>22</sup> The 109<sup>th</sup> Congress ran from January 3, 2005 to January 3, 2007. Both the House and Senate had a Republican majority. Source: Congressional Research Service. <http://www.au.af.mil/au/awc/awcgate/crs/rl32955.pdf>

<sup>23</sup> Application 06-01-012



**B1) How could PG&E have lowered the dollars per ton reduced? How did the costs of the offsets procured under the program compare to offsets of a similar grade (i.e. subject to the same or similar protocols) available in offset markets both nationally and internationally?**

**Summary of Findings**

- The cost of CAR offsets procured under ClimateSmart aligned with publicly available price data for similar project types in both national and international markets.
- Soliciting and contracting for offsets was a learning process for both buyer and seller as the CAR offset market was new and in early stages of development with new protocols developed throughout the duration of the Program.
- Allowing broader geographic sourcing may have enabled carbon offsets to be procured at lower prices, however, the narrower geographic scope of California-based projects was important politically and likely beneficial to marketing even if it limited the pipeline of potential bidders.
- PG&E contracted for the most competitive bids from each solicitation while also managing to procure from a diverse group of protocols.
- Some elements of the contract served to decrease the costs of offsets procured including pre-payment, no collateral requirement and a right of first refusal.

**Approach**

In order to answer this two-part question, 3Degrees compiled, summarized, and analyzed publicly available and confidential documents to evaluate whether the dollars paid by PG&E per ton reduced could have been lowered. Documents reviewed include ClimateSmart annual reports, documentation from each solicitation including unselected bids, executed contracts, and contract amendments. In addition, notes and data from the External Advisory Group (EAG) meetings were mined for procurement related data, information, and selection criteria. In addition to the documentation above, ClimateSmart costs were compared to publicly available sources for carbon offset pricing and availability including the “State of the Voluntary Markets” reports from 2007 through 2010. In addition, 3Degrees interviewed staff from PG&E, the CPUC, CAR and others, as referenced in Appendix B.

**Findings**

When the first ClimateSmart Request for Proposal (RFP) was issued in October, 2007, there were no projects listed under the two approved CAR protocols. Given the scarcity of market price data, the ClimateSmart solicitation served as one of the earliest forms of price discovery in this new CAR market. As described above, given the policy context at the inception of the Program, it was reasonable and prudent for PG&E to purchase emission reductions that were verified according to protocols developed by CAR. As such, the evaluation of dollars per ton reduced is limited to only CAR protocols. PG&E projected that reductions would cost \$9.71 per short ton (\$10.70 per metric ton), but by the end of the Program PG&E had secured 1,360,777 metric tons at an average price of \$8.46 per short ton (\$9.32 per metric ton). Overall, PG&E was able to procure offsets from each solicitation below the weighted average offer price for that solicitation as shown in Table 12 below.



Table 12: Solicitation History<sup>24</sup>

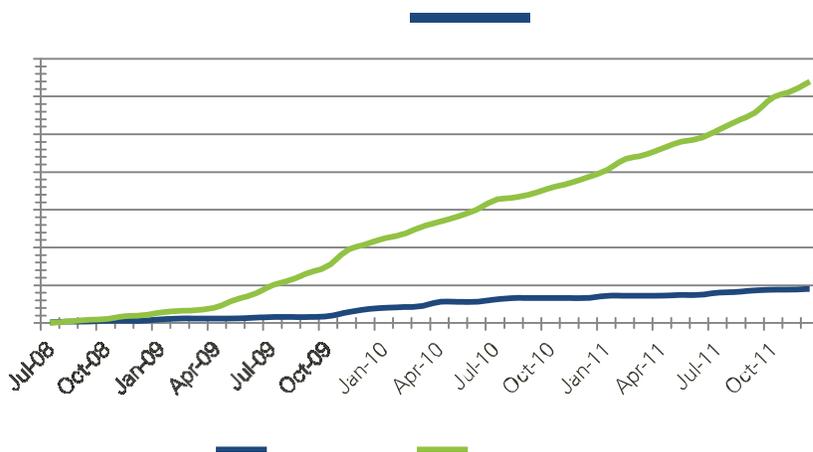
Solicitation Number	1	2	3	4	5	6
Average Offer Price	\$ 10.37	\$ 17.89	\$ 11.85	\$ 14.98	\$ 10.12	\$ 7.23
Average Contract Price	\$ 10.06	\$ 10.82	\$ 9.00			\$ 4.75
Difference	\$ (0.31)	\$ (7.08)	\$ (2.85)			\$ (2.48)

Further, evaluation of offset costs is addressed in the sections that follow divided into four subcategories below: geography, project diversity, contracts, and benchmark cost.

### Geography

ClimateSmart’s projects were geographically diverse throughout California, however, the narrow allowable geographic sourcing range of California-based projects restricted the already constrained pool of potential projects for ClimateSmart. A lack of publicly available project pricing data, especially in the earlier years of ClimateSmart, makes quantifying the impact of allowing broader geographic sourcing problematic. Given that the goal of the program was to offset emissions associated with PG&E’s customer’s natural gas and electricity consumption, and knowing that the majority of that electricity and gas originated from the Western Electricity Coordinating Council (WECC), could PG&E have lowered the cost per ton reduced by sourcing from projects from this same geographic footprint? An assessment of the pool of eligible projects at various geographic levels including CA, the WECC and all CAR projects helps to shed light on this. This is not a perfect proxy given that ClimateSmart solicited for “projects in California which are certified or which can demonstrate the ability to meet all the requirements of certification under the relevant Registry protocols.”<sup>25</sup> As such, projects needed only to show that they had the ability to meet CAR requirements prior to bidding. An analysis of CAR project data indicates that limiting eligible projects to those located in California may have limited the project pool to 15% of the total potential projects between the 3<sup>rd</sup> and 6<sup>th</sup> solicitation as shown in Graph 2 below.

Chart 6: Cumulative Eligible Projects



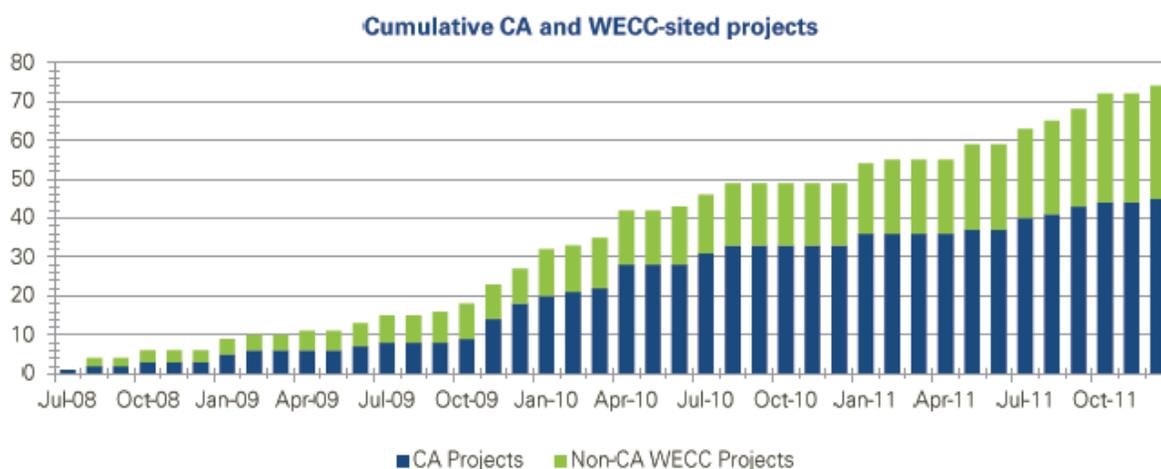
<sup>24</sup> Average bid price is a volumetrically weighted average per metric ton and excludes three high-priced outliers, one each from solicitations three and four. Average contract price is the weighted average price for contracts originating from bids from each solicitation.

<sup>25</sup> Solicitation language found under “Project Screening Criteria: 2. Type, Location and Timing of Project” page 1 of the 2007 RFO.



However, broadening geographic sourcing to include the entire Western Electricity Coordinating Council (WECC) showed a less dramatic increase in listed projects as shown below in Graph 3.

Chart 7: Cumulative Regional Projects



Since projects listed on CAR serve only as a proxy for total eligible projects the impact of allowing greater geographic sourcing is difficult to quantify. The data does suggest that including WECC-wide projects had the potential to increase the eligible project pool by nearly 50% and increasing geography to all CAR listed projects may have increased the eligible project pool by a multiple of over 6X.

However, part of the motivation for ClimateSmart<sup>26</sup> was to serve customers' interests by accelerating GHG emissions reductions in California and to benefit all Californians by helping our state more rapidly develop its climate change "infrastructure," including, but not limited to, the development and "road testing" of critical tools, such as new GHG emission reduction project measurement, reporting and certification protocols. ClimateSmart was designed not only to provide early learning that will be useful as more comprehensive climate policies are developed and implemented but to provide "co-benefits" to California's environment. The development of in-state California projects may not have increased as rapidly given wider geographic sourcing, yet Peter Miller of Natural Resources Defense Council (NRDC) noted that "broader geographic sourcing could have been environmentally good as well." Given the political importance, need for broad support, and importance of connecting to customers, to narrowing eligible projects to California was a reasonable program design decision.

### Project Diversity

One goal of ClimateSmart was to "road test" different protocols to help promote broad market development and to diversify the ClimateSmart portfolio for risk mitigation.<sup>27</sup> This goal had the potential to increase the cost of tons reduced if project diversity took precedence over cost minimization. 3Degrees analysis of bids from each solicitation indicated that selecting project diversity didn't increase costs in any of the six solicitations. PG&E selected the most cost competitive bids in every solicitation except the second where PG&E selected a higher priced Forestry bid over another Forestry bid, however the final contracted price ended up well below the higher priced bid. In addition, the lower-cost forestry bid was for a lower volume and thus a smaller contributor towards PG&E's mandated procurement target.

<sup>26</sup> Application summary. File ID 6, ClimateProtectionTariff\_Plea\_PGE\_20060124-01.pdf

<sup>27</sup> CPUC Order, pdf page 63.



Another key factor in the ability to lower the dollars per ton reduced was the development and approval of protocols. PG&E was purchasing offsets while CAR was learning to write clear, consistent and implementable protocols. As discussed further in the response to question B2 below, there were few protocols and limited numbers of CAR listed projects at the inception of ClimateSmart. PG&E contributed money and staff time toward CAR protocol development, but this project scarcity remained a bottleneck for procurement. Even in the first RFP, PG&E solicited for Livestock but was unable to contract for this project type since the bid did not have a specific project and could not find one after several months and subsequently dropped out of the solicitation. A timeline of CAR protocol adoption and PG&E RFP dates can be seen in Graph 4 below. NOTE: Text above timeline refers to PG&E ClimateSmart RFP dates; text below timeline refers to CAR New Protocol Adoption Dates.

Chart 8: Timelines of ClimateSmart RFPs and CAR Protocol Adoption Dates

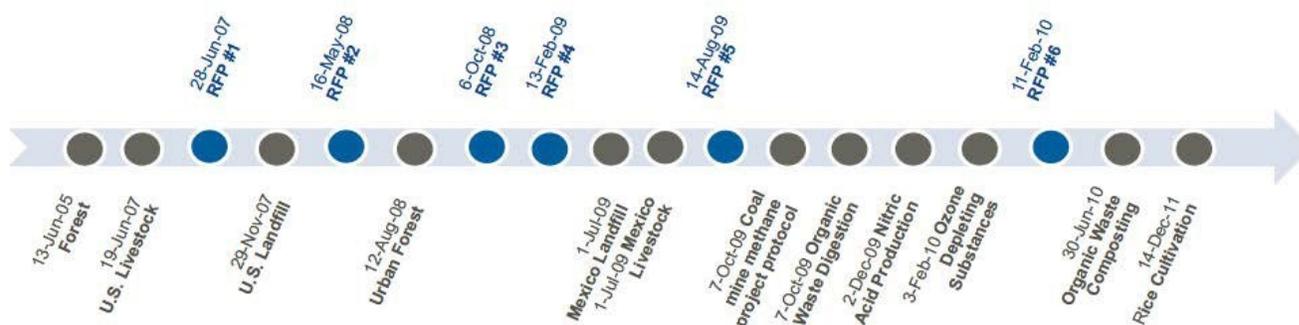


Table 13 below shows the growth in protocols solicited in each RFP, track closely with the adoption of new protocols by CAR.

Table 13: Offset Type Eligibility by RFP

Protocols	RFP #1	RFP #2	RFP #3	RFP #4	RFP #5	RFP #6
Forest	x	x	x	x	x	x
Livestock	x	x	x	x	x	x
Landfill			x	x	x	x
Urban forest				x	x	x
Organic waste digestion					x	x
Ozone depleting substance						x

The limited number of available CAR protocols created a bottleneck for procurement, but this was mostly outside PG&E’s control. Perhaps PG&E could have increased its support of CAR and protocol development, but from the perspective of Gary Gero, CAR’s President, “PG&E got the ball rolling, provided funding and technical staff on workgroups and perhaps most importantly, demonstrated that there was a market for CAR projects and protocols.”<sup>28</sup>

<sup>28</sup> Interview with Gary Gero on 2/6/2012



### *Contracts*

PG&E's solicitation and contracting process was perceived as onerous by many project developers. As will be discussed in further detail in question B2, potential bidders thought the solicitation process was too complex and that they lacked the time and resources to put a proposal together. In many cases, the offsetting activity was not part of the core business, which meant that project owners needed to learn how to develop a project. Chris Kelly, California Program Director at the Conservation Fund (TCF), noted that their "offsets were sold through contracts ranging from twelve to fifteen pages which was far shorter and simpler than PG&E's contract" which led to his need to internally justify the resources required to respond to the solicitation. However, many elements of the contract served to decrease the costs of offsets procured. These include but are not limited to pre-payment, no collateral requirement, and a right of first refusal (ROFR). Chris specifically noted that "pre-payment was a beneficial element of the contract"<sup>29</sup> and also noted that subsequent sales to PG&E were very easy. In addition, PG&E actively renegotiated prices during contracting based on subsequent RFP results which helped lessen the cost per ton; one example being the lower price contracted for in the Sempervirons amendment. This review did not identify elements of the contract that directly contributed to increasing the cost per ton reduced.

### *Benchmarking Costs*

3Degrees does not believe there are "same or similar protocols" against which to benchmark ClimateSmart's offset costs. This view was supported in our research and interviews with key stakeholders. Peter Miller, Senior Scientist at the Natural Resources Defense Council noted that "CAR is the gold standard, which makes comparison to other programs problematic given differences in program design and credibility."<sup>30</sup> Compounding this, there were limited CAR protocols and projects at the beginning of ClimateSmart and little to no market pricing data existed at the time. Each solicitation served as price discovery and PG&E consistently procured below the weighted average price of all bids from each RFP as highlighted above in Table 13. Quality aside, the Ecosystem Marketplace's "State of the Voluntary Markets"<sup>31</sup> reported prices served as a proxy to benchmark offset prices by year and project type. The results of this comparison are below in Chart 9. ClimateSmart's offset costs fell between the Min and Max values for every contract, and were very close to the Benchmark Average for all contracts.

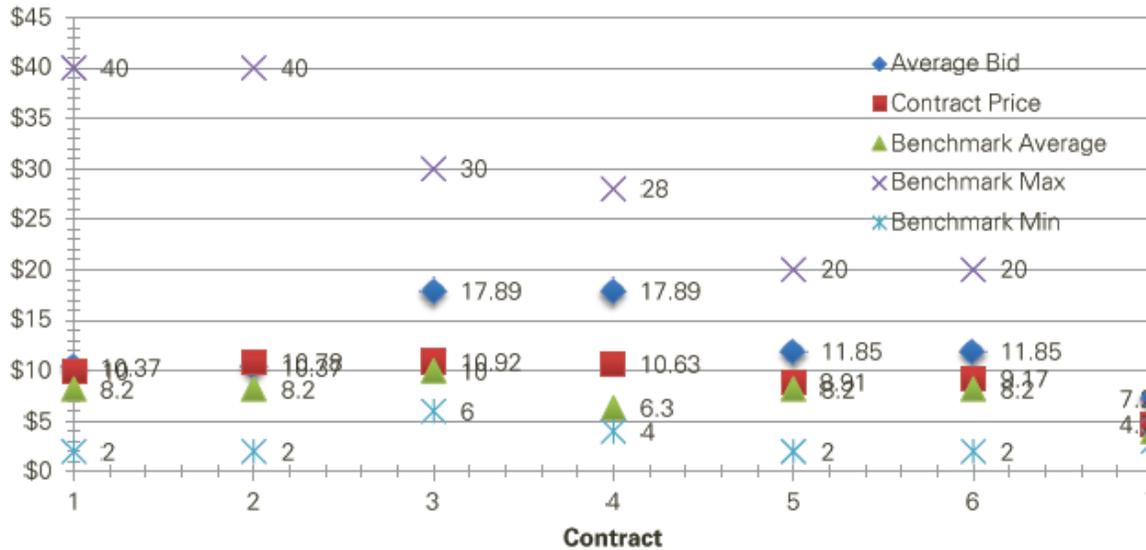
<sup>29</sup> Interview with Chris Kelly on 2/6/2012

<sup>30</sup> Interview with Peter Miller on 2/6/2012

<sup>31</sup> Ecosystem Marketplace surveyed over 182 suppliers from 28 different countries involving all stages of the supply chain: developers, aggregators, brokers and retailers in their "State of the Voluntary Carbon Markets 2009" report.



Chart 9: PG&E Offset Prices Compared to Benchmarks<sup>32</sup>



As noted above, 3Degrees does not believe there were “same or similar protocols” to compare PG&E’s offset prices to. The analysis in Chart 9 above highlights that PG&E’s offset prices were well within the range of reported offset transactions for every executed contract. Given the above, PG&E’s cost of offsets procured for the Program were in line with offsets of a similar project type. In addition, the Ecosystem Marketplace reports group offset pricing according to approximately 20 countries and regions around the world. Internationally, ClimateSmart’s average cost of offsets placed it directly in the middle of the pack as 10<sup>th</sup> out of 21 locations reporting an Average, High and Low Price in the 2009 Ecosystem Marketplace report<sup>33</sup>. ClimateSmart was the top ranked program from the perspective of the high price, meaning that the highest price it paid for offsets was lower than every other region’s highest price. ClimateSmart was 12<sup>th</sup> out of 21 when ranked by the lowest price. This further supports that ClimateSmart procured offsets at a competitive cost to other US offsets as well as internationally.

<sup>32</sup> Benchmark Pricing taken from Ecosystem Marketplace’s “State of the Voluntary Carbon Markets” Reports from 2007 through 2011. Additional data and information on these calculations can be found in Appendix D.

<sup>33</sup> Data in the 2009 report is for 2008 OTC transactions.



## **Question B2. Could the greenhouse gas offset procurement process have been improved in order to streamline the purchase of offsets? If so, how and with what result?**

### ***Approach***

3Degrees compiled, summarized, and analyzed public and non-public documents to evaluate whether the procurement process could have been improved. Documents reviewed include ClimateSmart Annual Reports and documentation from each RFP: all bids, executed contracts, and amendments. In addition, notes and data from the External Advisory Group (EAG) meetings were mined for procurement related information. In addition, 3Degrees interviewed staff from PG&E, CPUC, CAR, TCF and NRDC.

### ***Summary of Findings***

- PG&E actively adapted and improved its procurement process to the rapidly developing market in order to streamline its purchase of offsets.
- Soliciting and contracting for offsets was a learning process for both buyer and sellers as CAR was a new market entrant with new protocols.
- Solicitations yielded cost-competitive procurement given Program parameters.
- Bidders perceived the solicitation and contracting processes as onerous which created a barrier to increasing the number of bids.
- Learning over time led to key improvements in the solicitation and contracting processes.

### ***Findings***

PG&E actively adapted and improved its procurement process for the rapidly developing CAR market in order to streamline its purchase of offsets. The procurement process was a learning experience for PG&E, CAR, project developers and other interested parties. On June 28, 2007 when the first ClimateSmart RFP was issued there were two CAR-approved protocols included in the solicitation and yet no projects were listed by CAR. By February 2008, PG&E had completed the first Request for Offers (RFO) and signed the first contracts there under. In the sixth and final solicitation there were 144 projects listed on CAR and ten approved CAR protocols. Over the course of four years the market grew substantially and market participants grew increasingly knowledgeable. The analysis below divides the procurement process into two parts, solicitation and contracting.

### ***Solicitation***

PG&E was required “to use a solicitation process”<sup>34</sup> to select projects for the Program which was consistent with the way PG&E procures other commodities (renewables, gas, conventional electricity, etc.). As such, alternative procurement models, such as accepting offers from brokers directly in sealed bids, falls beyond the scope of this evaluation. As part of its project solicitation efforts, PG&E developed and conducted outreach with an ever growing network of potential project developers. At the time PG&E issued its first RFP, there were no CAR offsets in existence and revenues from sales of GHG emission reductions represented a new funding stream. As such, PG&E devoted substantial time to educating potential bidders about this opportunity for them to finance projects. PG&E also publicized the opportunity to sectors that may not be aware of this emerging revenue stream, and spoke at numerous conferences throughout the year to encourage people to bid into the RFPs.

Table 14 shows the evolution of the solicitations and shows the growth in outreach and education and highlights the persistent shortfall of bidders given the number that indicated their intent to bid.

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<sup>34</sup> Prepared testimony page 2-25



Table 14: Solicitation Metrics Over Time

	RFP #1	RFP #2	RFP #3	RFP #4	RFP #5	RFP #6
Date Launched	Jun-28-07	May-16-08	Oct-06-08	Feb-13-09	Aug-14-09	Feb-11-10
Date Bids Due	Jul-30-07	Jul-02-08	Nov-20-08	Apr-02-09	Oct-8-09	Mar-11-10
Distribution List	210	300	350	390	840	853
# of Bidder Interviews			8	20	7	7
Notices of Intent to Bid	8	23	19	24	6	9
Bids	6	3	4	6	3	4

After the second RFP attracted twenty-three potential bidders indicating their intent to bid and yet only three bids, PG&E hired SustainAbility to survey potential bidders that did not bid in order to address this gap. The survey concluded that potential bidders found the competitive solicitation process too complicated and cumbersome. Respondents noted that the application was overly complex, the agreement too long and that they didn't have the people and time to pull a proposal together<sup>35</sup>. Additionally, potential bidders wanted more flexibility in the rules and requirements, and more support from PG&E. This sentiment was highlighted by Chris Kelly at The Conservation Fund who noted that prior to engaging PG&E they had sold offsets on a single-page confirmation letter and that "the [PG&E] solicitation response and contracting was a lot of work." In response, PG&E continued to broaden its outreach, added a bidder's information session and offered bidder "interviews," consisting of one-on-one discussions to educate potential bidders. In addition to the contributing factors above, potential bidders were encouraged to submit their intent to bid in order to remain eligible to bid, which contributed to this gap. An example of PG&E's procurement outreach messaging is below:

**Why should you be interested in ClimateSmart?**

- **Alternative/additional source of revenue**
  - Current contracts are more than \$2 million
- **Press and events on projects**
  - > 29 print media stories, 6 television segments, and 1 radio story
  - > 75 events reaching more than 500,000 attendees
- **Outreach to customers**
  - Direct mailers (1.9 million)
  - Bill inserts (20 million)
  - e-Newsletters
  - Website
- **Branded with an environmental leader**

Together we can fight climate change.

Through outreach and additional contact with bidders, PG&E learned that only a few of the parties interested in submitting a bid had complete understanding of what was required to develop and verify a GHG emission reduction project<sup>36</sup>; it responded by increasing its outreach and education. It is difficult to quantify the results of these efforts given the broadening of CAR protocols and other externalities, however, Chris Kelly highlights these efforts in that "the biggest lesson carried forward is that it takes a lot to do this right, PG&E was very thorough and became a partner in the process."

<sup>35</sup> Notes from SustainAbility Interviews, received via e-mail from Robert Parkhurst on 2/13/2012. Interviews were conducted with 8 parties that submitted an intent to bid but did not bid in the second RFP.

<sup>36</sup> 2008 Annual Report, Page 24



### *Contracting*

As with solicitation, the limiting factor to streamlining contracting was knowledge and experience on the part of both counterparties. One of the largest challenges of contracting was the learning curve of the counterparties. PG&E needed to learn the business of the bidder and the bidder needed to better understand the CPUC mandated requirements of the program. PG&E modified their renewable energy power purchase agreement (PPA) for GHG procurement through ClimateSmart. Negotiating these first purchase agreements for ClimateSmart presented a significant learning opportunity for both PG&E and the sellers of the GHG emission reductions. This was one of the first times the non-profit counterparties had negotiated a commercial contract and the first time anyone had negotiated a contract for CAR verifiable GHG emission reductions.<sup>37</sup> As noted above, contracting was perceived as an onerous process by project developers and so PG&E subsequently included only the term sheet, as opposed to the full contract, in solicitations two through six. The term sheet allowed PG&E and the bidder to agree on the key parameters, such as price and delivery term, prior to engaging lawyers and negotiating the full contract.

Issues arose in contracting, such as specifying the permanence period for forestry projects which the parties negotiated since the first CAR forestry protocol did not specify a permanence period or a process to maintain permanence and left this determination up the buyer and seller. Compounding this, project developers were still learning about CAR's project protocols and trying to determine their projects eligibility for the ClimateSmart program. At the same time, PG&E was actively seeking a diverse group of projects to test, each with their own contracting nuances, which compounded this complexity. One example of this is the commercial operation date, which did not apply to many project types such as forestry.<sup>38</sup> Together, these forces complicated contracting and required that PG&E work closely with successful bidders in order to negotiate contracts. Contracting was a learning experience from the perspective of PG&E as well as project developers.

The small sample size of seven executed contracts makes it difficult to derive meaningful trends for efficiency gains in contracting. Contracting for the eight projects took between seven and fifteen months, but no trends are apparent, overall or within project protocol groupings. Chris Kelly noted that only the "buffer set-aside of 10% of each delivery caused us [TCF] to pause," but added that the contracts were designed to ensure ClimateSmart sourced the highest quality offsets available and that PG&E worked closely with TCF throughout contracting. In addition, a right of first refusal (ROFR) was part of the contract, which enabled PG&E to procure an additional 100,000 MtCO<sub>2</sub>e from Garcia River Forest through two amendments to the original contract. Thus the flexibility built into the contracts greatly reduced the time and cost of additional procurements. One example of contract flexibility is apparent with the original contract with TCF that was first amended to include the Big River/Salmon Creek project. In addition, PG&E used the results of subsequent procurements to gauge the market and incorporated that market intelligence to reduce the price in unexecuted contracts and in the negotiation of amendments to existing contracts.

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<sup>37</sup> 2007 Annual Report, page 52

<sup>38</sup> Interview with Robert Parkhurst on 1/23/2012



**Question B3. Compare/contrast the ClimateSmart program project offerings with those of other market offerings; include evaluation of diversity of projects/quality of offsets/requirements of program, etc.**

**Summary of Findings**

ClimateSmart GHG offsets were among the highest quality and more diverse than other market offerings.

ClimateSmart was one of the first programs that took the initiative and helped build this market. Other programs may have learned from the ClimateSmart experience.

A rolling RFP for GHG offset procurement is likely to promote project diversity and quality since this process avoids excluding GHG offset projects that fall outside of fixed RFP dates.

**Approach**

Comparison of PG&E's project offerings with other program offerings using publicly available data for each of the following seven programs:

- NW Natural's Smart Energy
- SMUD's Carbon Offsets
- Duke Energy's Balance Your Equation
- NC Green Power's Carbon Offset Program
- Washington Gas Energy Service's CleanSteps Carbon Offsets
- Entergy's Make an Impact
- Just Energy's JustGreen

Each of the above programs' project offerings were catalogued based on protocols, project types and location, and procurement strategy. A summary table of the program comparison data can be found in Appendix D.

**Findings**

ClimateSmart GHG offsets were among the highest quality and more diverse than other market offerings. In addition, ClimateSmart charged customers less than the benchmark programs at \$0.06528/therm versus \$0.1/therm and \$0.820/therm for the highest and lowest cost programs, respectively.<sup>39</sup> Please see Section C for a discussion of benchmark prices for renewable electricity programs.

Of the programs compared to ClimateSmart, two programs offered on usage basis (matching a specified percent of a customer's monthly energy use), two programs offered a fixed monthly charge basis, two programs offered on per block basis (fixed quantity and price per month), one program offered both fixed and usage basis.

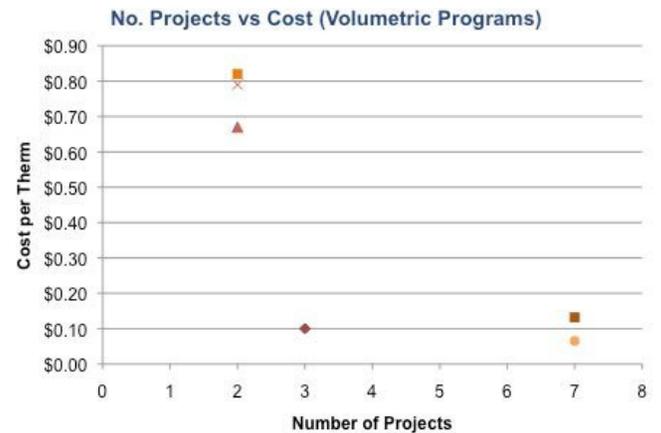
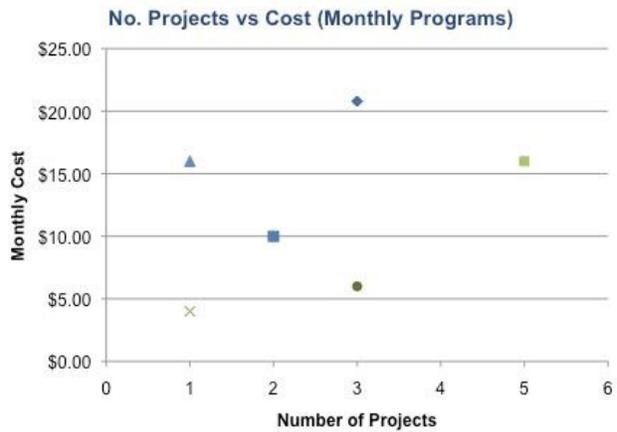
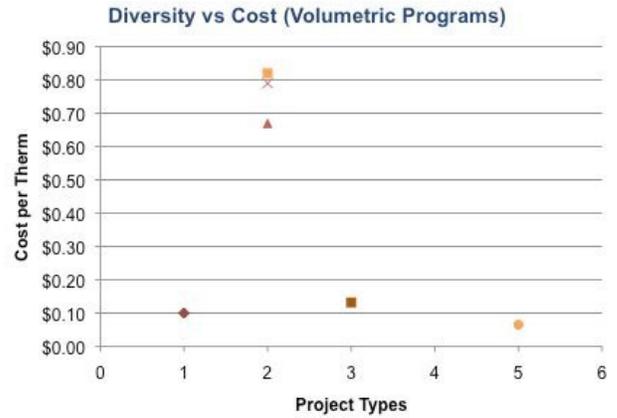
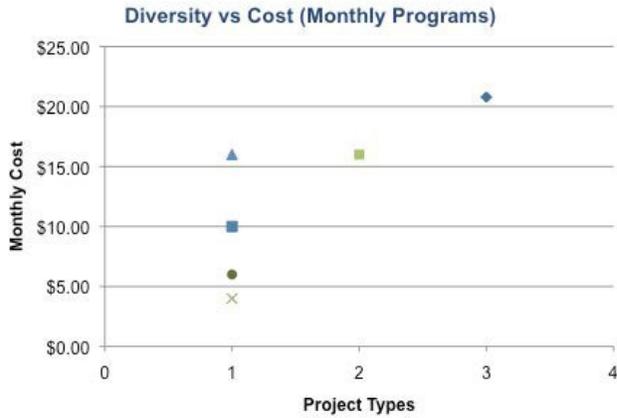
One program administrator, NC Greenpower, has issued a rolling RFP for GHG offset procurement, a practice likely to promote project diversity and quality. Through the rolling RFP, the program avoids excluding GHG offset projects outside of fixed RFP dates.

Several GHG offset programs have outsourced program administration to varying degrees. NW Natural uses The Climate Trust to procure offsets on its behalf, while Duke Energy (NC and SC only) has outsourced all program

<sup>39</sup> From Program Comparison table for Question C7 of this report



administration activities to NC Greenpower. Washington Gas Energy Service jointly administers its carbon offsets program in conjunction with Sterling Planet, a third party marketer.



- ◆ Entergy Make an Impact (50,000 lbs/year - 100% offset)
- SMUD Carbon Offsets
- ▲ Duke Energy Balance Your Equation (NC & SC - 4 offsets)
- × Duke Energy Balance Your Equation (IN & KY - 1 offset)
- NC Green Power's Carbon Offset Program (4 blocks)
- NW Natural Smart Energy

- ◆ NW Natural Smart Energy
- Washington Gas Energy Service CleanSteps Carbon Offsets (DC)
- ▲ Washington Gas Energy Service CleanSteps Carbon Offsets (VA)
- × Washington Gas Energy Service CleanSteps Carbon Offsets (MD)
- Just Energy (Calgary, Canada)
- PG&E ClimateSmart

**Diversity**

ClimateSmart procured a broad range of project types including forestry, livestock, landfill, and ODS and was even with Just Energy for the highest number of projects among its peers with 8 by 2011. Just Energy and Entergy emerged as reasonable benchmarks for diversity, the former for geographic diversity and the latter for project type diversity. Just Energy procured offsets from 7 projects in 4 US States and 3 Canadian Provinces making it more geographically diverse than ClimateSmart. Entergy's Make an Impact program was the second most diverse in project type with 3 project types supported.



Energy's Make an Impact program also facilitated the greatest degree of choice amongst the programs reviewed. Subscribers are able to determine, on a percentage or lbs of CO<sub>2</sub>e basis, the allocation of their contributions across the available projects. In addition, during enrollment customers are provided with options to make donations to a selection of environmental organizations.

### *Quality*

Only two other programs relied solely on CAR, two relied on CAR and VCS [spell out], one program relied on CSA Standards, CAR and American Carbon Registry, and information was unavailable for one program. CAR was by far the most prevalent program used, either on its own or in conjunction with other programs.

A best practice identified was the secondary reliance on VCS by SMUD, available in the event of insufficient quality GHG offsets under the CAR protocol (CAR offsets are given first preference). Where necessary, this alternative procurement procedure allows for the consideration and assessment of a broader population of GHG offset projects.

To facilitate inclusion of internationally based projects, it will likely be necessary to include additional recognized registries and standards.

### *Requirements of program*

The requirements of the ClimateSmart program were equal or greater than the requirements of the other programs evaluated. ClimateSmart looked for "Additional Additionality" in its projects and deliberately created a process using the highest standards that would stand up to scrutiny in this new market.

On an annual basis, JustEnergy engages accounting firm Grant Thornton to conduct a review of the company's green purchases to verify that they match their green sales. This serves as verification that customers' funds were appropriately and accurately directed to GHG offset projects. As per the original ClimateSmart testimony, PG&E also conducted annual independent financial and operational reviews by an accounting firm.<sup>40</sup>

### *Procurement Section Challenges*

The small sample size of contracts and lack of robust market pricing data limited the ability to compare procurement trends and performance over time. The nascence of the market and absence of "same or similar" protocols further reduced the value in comparing CAR offsets to other programs. Project developers had limited experience in this type of transaction and thus had little or nothing to compare the procurement process to. In addition, the benefits of contracting may vary widely between counterparties, from cash flow to learning how to develop a project to relationship development. Thus, the value may not be there for certain entities, which creates a self-selection bias in executed contracts.

The general lack of publicly available information on many of the other programs presented a key challenge in gathering and comparing ClimateSmart to this peer group. The second challenge is that ClimateSmart pre-dated many of these programs and thus may have influenced the development of other programs, which makes it difficult to benchmark given the rapid development and increased sophistication of all market participants.

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<sup>40</sup> Climate Protection and Tariff Option Prepared Testimony, A.06-01-012, January 26, 2006, p. 5-3



## SECTION C. SOCIETAL, ECONOMIC, AND REGULATORY FACTORS

This section addresses questions pertaining to external factors that impacted ClimateSmart's ability to meet its goals. The questions address the impact of the economic downturn on enrollments and attrition, whether rate increases played a role in participation, the difference in participation rates in areas with municipal electric service, comparisons of various utility green programs, and customer preferences for the vendor of carbon offsets.

Key findings in this section include:

- Overall, societal, economic, and regulatory factors had some impact on program performance but do not appear to be the dominant driving factors.
- There is a statistically significant correlation between higher enrollments and lower unemployment rates in California.
- There is a statistically significant positive correlation between attrition and increased California employment rates. This is counter-intuitive.
- There is no correlation between Program participation and rate increase notifications by P&GE or news media.
- Natural gas rates were volatile during that period, with a large spike and decline. Electric rates went up slowly and steadily.
- The relative bill impact of ClimateSmart was lower than expected.
- Participation rates were higher in areas with full service (0.49%) than in areas with municipal electric service (0.39%).
- Participation rates were within the range of other utility carbon offset programs.

An overlay of key ClimateSmart program milestones, program participation, and unemployment shows that the economic downturn became a significant background factor after the Program launch in 2007. See Appendix D for a chart and table of the data detail.



## Question C1. Did the economic downturn play a role in new customer enrollment?

### Summary of Findings

3Degrees' analysis suggests that the economic downturn played at least a small role in program enrollment rates. However, new customer enrollments appear to be more strongly correlated with enrollment-oriented marketing activity.

Nationally, voluntary green pricing and carbon program managers share anecdotal evidence and belief that the economic downturn has reduced program enrollment rates and increased program attrition rates. This view also comports with intuition: as discretionary income declines, demand for discretionary, premium-priced products like carbon offsets would naturally decline.

### Approach

3Degrees considered a variety of economic indicators against which to measure program performance, deciding on California unemployment rates as the most relevant metric. In addition to being broadly accepted as a general economic gauge, unemployment rates represent the health of both the commercial and residential sectors. The California Employment Development Department provided a seasonally-unadjusted unemployment chronology for the Program term. PG&E supplied time-series data of ClimateSmart participation, new enrollments, and attrition.

3Degrees eliminated the first year of the Program from the economic analysis, since the early stages of a program's growth are presumed not to be representative of the program's status quo. The initial rush of ClimateSmart enrollments suggests that this is the case, and one may assume that the initial rush was due to pent-up demand rather than macroeconomic forces. 3Degrees also excluded December 2011, which reflects the clearing of the ClimateSmart participant roster. This left an evaluation window from April 2008 to November 2011. These 44 monthly data points provide sufficient data for statistical analysis. Over this period, 3Degrees quantified marketing activity, PG&E rate increase publicity, and season data to refine the analysis. 3Degrees then ran a multivariate regression analysis on new ClimateSmart program enrollments, correcting for those factors.

For comparison purposes, 3Degrees compiled participation growth rates for five green pricing products from around the country, with an emphasis on West Coast programs. 3Degrees selected established programs (for which data were available) in an effort to isolate the impact of economic factors from the fits and starts of program startup. The Bureau of Labor Statistics provided national unemployment rates, against which non-PG&E program data were compared. 3Degrees averaged these participation growth rates on a monthly basis. This averaging reduces program-level "noise" for purposes of correlation to economic indicators, and preserves anonymity of the data. For comparison purposes, 3Degrees ran a regression analysis on the average growth rates (using gross monthly new enrollments) of five green pricing programs run by utilities around the country over a 32 month period from April 2009 to November 2011, correcting for seasons.

### Findings

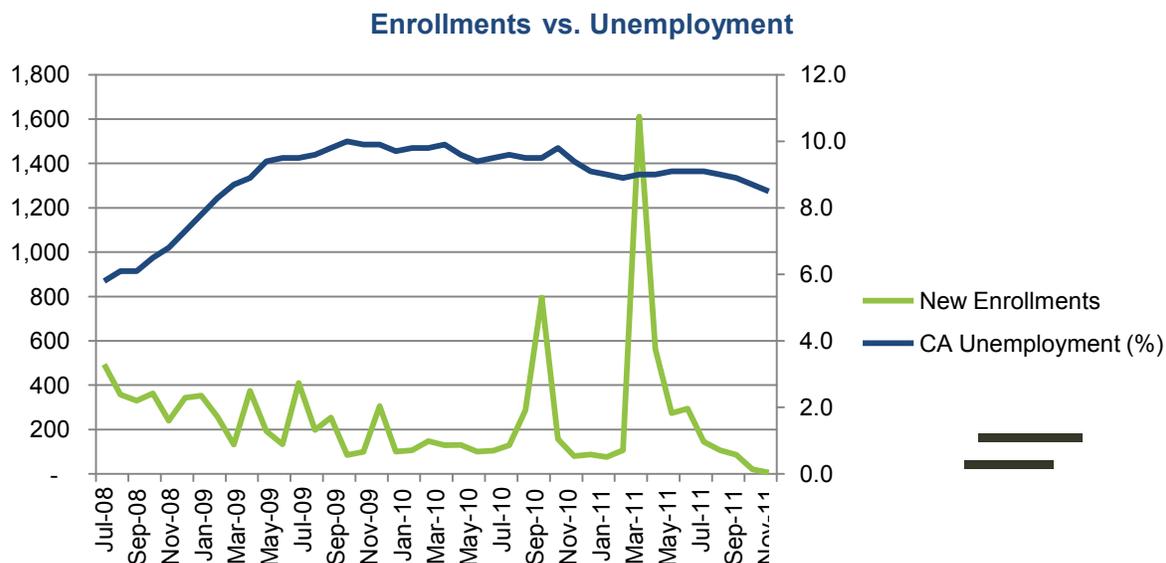
A regression analysis provides strong evidence<sup>41</sup> that program enrollment is negatively correlated with unemployment. In other words, higher unemployment levels correlate with lower enrollment rates, which is intuitive.

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<sup>41</sup> P-value = 0.0025, Adjusted R Square = 0.30, t Stat = -3.29



Chart 10: New Enrollments vs. California Unemployment



For purposes of the above chart, 3Degrees excluded April '08 through June '08 for readability. Those months featured high enrollment levels (ranging from 1500 to 7600 new enrollments), which suggests that they were a part of the fulfillment of the built-up demand that presumably contributed significantly to the initial stages of program growth.

Note: the sharp increases in new enrollments in 2010 and 2011 coincided with Program marketing activity. In September 2010, PG&E sent a bill insert to 3,200,000 customers, resulting in approximately 900 enrollments. In the spring of 2011, PG&E implemented bill inserts, outgoing email, and a call center initiative. The regression analysis attempts to take marketing activity into account.

The line fit plot (see Appendix A) visually confirms that new enrollments negatively correlated with unemployment. The R squared value of 0.30 indicates that approximately 30% of the month-to-month variation in new enrollments can be explained by the variations in the factors included in the regression.

For comparative purposes 3Degrees also evaluated the economy's impact on five green power products offered at other investor owned utilities. The average enrollment rates for those programs also correlated with unemployment<sup>42</sup> to a statistically significant degree. However, those variables displayed positive correlation, which is counterintuitive; one would not expect enrollments to go up when unemployment goes up. These results highlight that there were many factors at play; even when eliminating data "noise" by averaging across programs, enrollment rates are not driven solely by the economy. For instance, voluntary green program marketing expertise and best practices grew significantly more robust over recent years, as comparison program data may signify.

<sup>42</sup> P-value = 0.00025, Adjusted R Square = 0.30, t Stat = 4.2



### **Conclusions**

This analysis suggests that the economic downturn did play a role in Program enrollments.

Nationally, voluntary green pricing and carbon program managers share anecdotal evidence and belief that the economic downturn has reduced Program enrollment rates and increased Program attrition rates. This view also comports with intuition: as discretionary income declines, demand for discretionary, premium-priced products like carbon offsets would naturally decline.

However, these findings should be taken in context. 3Degrees maintains that causation is difficult to confirm with authority, since there are many variables impacting Program enrollments at any given time. Though the new ClimateSmart enrollment trends correlate with unemployment, the narrative arc of the Program is such that uncertainty about its future led to sharply lower investment in program marketing just at the time that the economy worsened. Therefore, the correlation with the economy may not be causal to the degree implied by the data.



**Question C2. Did increases in PG&E’s electric rates and natural gas costs (pass through) play a role in customer participation? How much did residential rates increase during the ClimateSmart program period? What about other customer classes? What is the relative (bill) impact of ClimateSmart program participation as compared to the rate increases experienced during this period?**

**Key Findings**

*Did increases in PG&E’s electric rates and natural gas costs (pass through) play a role in customer participation?*

Per regression analysis, there is no discernible correlation between ClimateSmart participation and rate increase notifications in bill inserts or in newspaper coverage. Likewise, new enrollments and attrition also do not correlate with either form of rate increase publicity. Having said this, 3Degrees has observed anecdotal evidence that over time program performance has suffered in some voluntary green pricing programs offered by utilities with above average frequencies of rate increases.

*Table 15: How much did residential rates increase during the ClimateSmart program period?*

	<b>Non-CARE Residential Baseline Gas per Therm</b>	<b>Residential Average Total Rate per kWh</b>
April 2007	\$1.14837	\$0.16342
December 2011	\$0.95166	\$0.18299

Residential natural gas rates were volatile during that period, with a large spike and decline. Residential electric rates went up slowly and steadily.

*Table 16: What about other customer classes?*

	<b>Small Commercial Summer Baseline Gas per Therm</b>	<b>Small Com. Average Total Rate per kWh</b>
April 2007	\$1.01642	\$0.16716
December 2011	\$0.80252	\$0.18098

Commercial natural gas rates were volatile during that period, with a large spike and decline. Residential electric rates went up slowly and steadily.

*What is the relative (bill) impact of ClimateSmart program participation as compared to the rate increases experienced during this period?*

The bill impact averaged \$3.16 from 2007-2010 for residential customers and was smaller than anticipated because average residential energy use was lower than expected. The relative bill impact was lower than expected on the electric side of the bill, because electric rates increased over time. The relative bill impact on gas varied, as gas rates were volatile.

These monthly average residential premiums for ClimateSmart are not high when compared to voluntary green pricing and carbon programs around the country, where program participants are often paying \$10-\$20 additional each month.



### **Approach**

In regard to rate increases' effect on participation, 3Degrees focused analysis on customer-facing notifications and publicity of rate changes, using the rationale that customers are more likely to be aware of them when they are proactively brought to their attention. PG&E staff agreed. Focus on publicity of rate increases provided a more accurate real-world gauge of customer awareness than simply evaluating the effective dates of the rate changes.

3Degrees gathered and analyzed two relevant time series data sets: first, 3Degrees looked at headlines in the three newspapers with the highest circulations in PG&E's service territory<sup>43</sup>, and noted the number of months over the program term when they published articles prominently featuring rate increases. Methodologically, 3Degrees searched media web sites for keywords "rate increase" and "PG&E" from May 2007 to November 2011 and included the story if the headline would lead a reader to believe that there is a pending rate increase. Seven months of the program lifespan included stories that met this criterion.

Second, 3Degrees scrutinized customer bill inserts over the program lifespan, noting which months included information about rate increases. Thirty-two of the fifty-six months under evaluation included bill inserts with a reference to a rate increase.

3Degrees also analyzed the following information provided by PG&E:

- ClimateSmart premium amounts
- Average PG&E customer electricity and gas usage levels
- Time series data for residential and commercial electric and gas rates
- Time series data of program participation, new enrollment, and attrition
- PG&E's original summary of the Climate Protection Tariff's impact on the rates for non-participants

### **Benchmarking**

3Degrees collected correlating participation and rate increase media coverage data for two additional programs that displayed characteristics that made them interesting case studies.

One is a relatively mature voluntary green product at an investor-owned utility that faced significant media scrutiny of its rate increases in recent years. This was chosen because the customers are relatively attuned to – and potentially responsive to – rate increases at this utility (as gauged by a high frequency of relevant letters-to-the-editor published in the newspaper of record in the region).

The other comparison program is a mature program administrated by an investor-owned utility that has had relatively little scrutiny of the modest changes in its commodity pass-through rates.

3Degrees did not receive permission to publicly identify each of these programs, but they nonetheless provide comparative analyses against which to gauge ClimateSmart results.

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<sup>43</sup> San Francisco Chronicle, Sacramento Bee, and San Jose Mercury News



### Analytics

3Degrees ran regression analyses on ClimateSmart program participation levels and the two comparable programs in order to evaluate correlation between rate increase notifications and participation metrics (i.e. total participation, monthly new enrollments, and monthly drops).

3Degrees charted the magnitude of rate increases and the relative impact of ClimateSmart participation costs compared to rate increases.

### Findings

#### Effect of Rate Increases on Participation

Based on a regression analysis, there is no discernible correlation between ClimateSmart participation and rate increase notifications in bill inserts or in newspaper coverage. Likewise, new enrollments and attrition also do not correlate with either form of rate increase publicity. Having said this, 3Degrees has observed anecdotal evidence that over-time program performance has suffered in some voluntary green pricing programs offered by utilities with above average frequencies of rate increases. This also comports with intuition: When energy bills are rising, utility customers are less likely to enroll in a premium-priced, discretionary program and more likely to drop out of that program if they are participating as a means of containing their energy costs. 3Degrees' regressions corrected for program awareness building activity, enrollment mechanism distribution, and seasonality.

Table 17 below shows the P-values of the relevant ClimateSmart regressions. A P-value 0.05 or less represents the generally accepted point at which data provide sufficient confidence of a correlation between the two respective variables; none of these P-values reach that threshold. In fact, in five of the six cases, the data inconclusively suggest that rate increase publicity **boosts** program participation.

Table 17: P-values of Regressions Involving Rate Increase Publicity

	Y = Program Participants	Y = New Enrollments	Y = Attrition Rate
X = Rate increase mentioned in bill insert	0.49 (with a counterintuitive positive coefficient)	0.74 (with a counterintuitive positive coefficient)	0.08 (with a counterintuitive negative coefficient)
X = Newspaper coverage of rate increases	0.58 (with a counterintuitive positive coefficient)	0.83 (with a negative coefficient)	0.96 (with a counterintuitive negative coefficient)

Analyses of the other voluntary green programs exhibited similar results; P-values for correlations between media coverage and program participation fell above the 0.05 threshold. The Investor Owned Utility with significant media coverage of rate increases was more likely to be correlated (with a P-value of 0.11), but 3Degrees finds the direction of that inconclusive correlation to be counterintuitive. One would expect participation to be negatively correlated with rate increase publicity – in this case, as with ClimateSmart, it was weakly positive. The other comparison program, which received relatively little newspaper coverage of its commodity pass-through rate increases, has a P-value of 0.94 for this correlation, indicating practically no evidence of correlation.



### Rate History During ClimateSmart Program

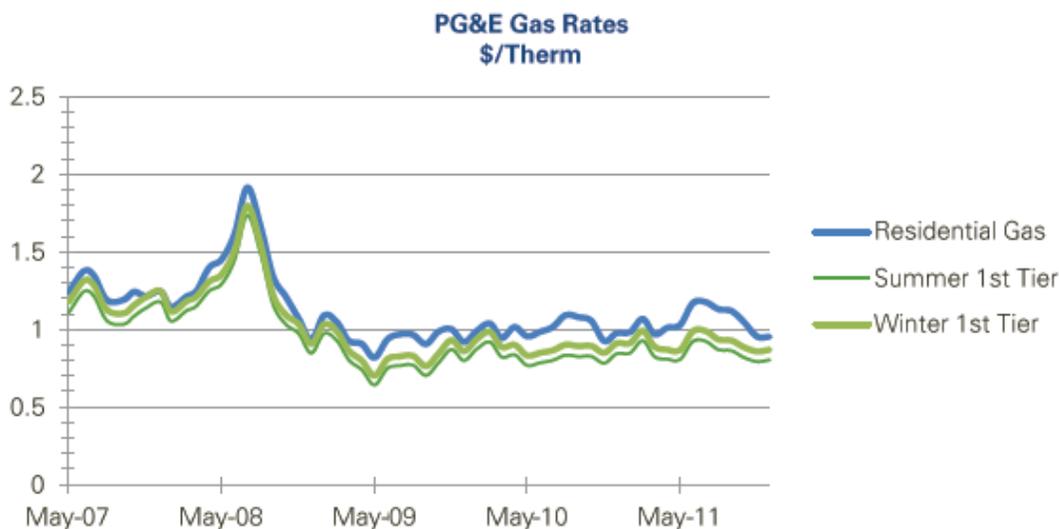
As demonstrated in the graph below, residential and commercial electric rates increased during the temporal period of ClimateSmart. Please note that 3Degrees reviewed a limited subset of customer rate classes for this analysis.

Graph 11: Residential & Commercial Electric Rates



The graph below demonstrates that gas rates were highly volatile during the temporal period of ClimateSmart. Please note that 3Degrees reviewed a limited subset of customer rate classes for this analysis.

Graph 12: Residential & Commercial Gas Rates





### Relative Bill Impact of ClimateSmart Participation

Typical PG&E residential customers use 550 kWh/month for a cost of about \$77.40 (depending on location and season), and an average of 37 therms per month for about \$45.23 (2011). The ClimateSmart premium (proposed and actual, constant throughout the life of the program) was:

\$0.00254 Cost per kWh for electricity

\$0.06528 Cost per therm for natural gas

Residential bill impacts were expected to be \$4.31 per month on average. However, actual bill impacts proved to be lower than expected. The following table was assembled from data presented in ClimateSmart annual reports.

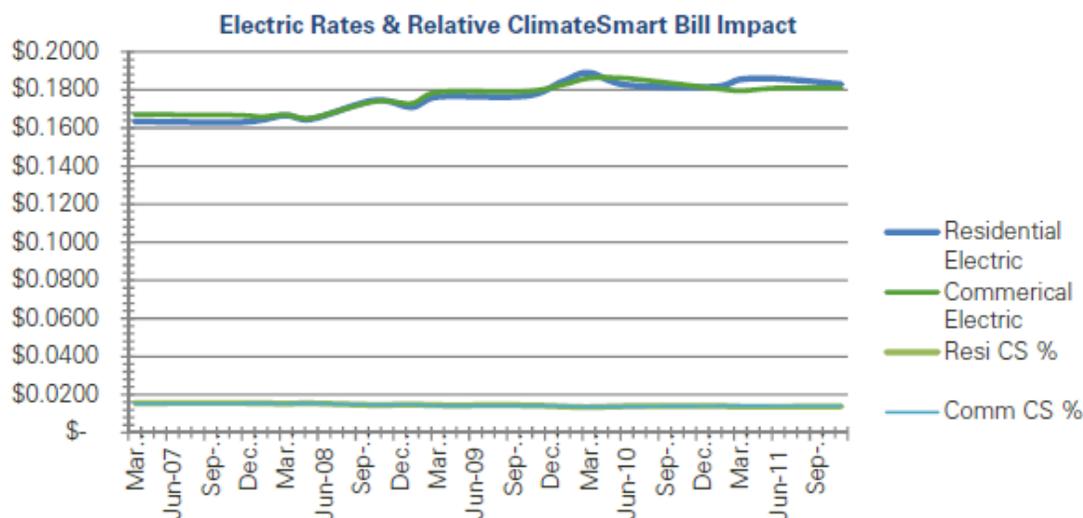
Table 18: Expected & Actual Monthly Bill Impact of Participation

	Proposed/Expected	2008	2009	2007-2010
Avg. monthly residential bill impact	\$4.31 a month for the typical gas & electric customer	\$2.89	\$3.27	\$3.16

These monthly amounts are not high when compared to voluntary green pricing and carbon programs around the country, where program participants are often paying \$10-\$20 additional each month.

Comparing the fixed premium of ClimateSmart to the increasing electric rates created the following graph. As one would expect, the relative bill impact of ClimateSmart decreases as electric rates increase.

Chart 11: Electric Rates & Relative ClimateSmart Bill Impact



In advance of the Program launch, PG&E evaluated the effect of the Program's administrative costs on non-participants, and determined that they would result in a bill increase of only 4 cents a month (or less), or at most about 48 cents each year. (Source: PG&E's Application to the CPUC)



### *Additional Related Findings*

*To what extent was program enrollment affected by the cost of the offset products offered?*

The per-unit cost of ClimateSmart over the lifetime of the program did not change, making it impossible to conduct historical analysis of the effect of changes to program cost, but a look at the broader utility green pricing program marketplace suggests that price was likely not a significant barrier to entry.

The costs of the ClimateSmart program were low, with an average monthly residential bill impact of \$3.16. This represents a 2.6% increase over the sum of the average PG&E electric bill (\$77.40 depending on location and season) and gas bill (\$45.23 per month in 2011).

The average monthly residential cost of green power pricing programs across the country in 2009 was \$5.40 [NREL; Green Power Marketing in the United States: A Status Report (2009 Data); Lori Bird and Jenny Sumner]. Many of these programs offer their product in a block structure which does not offset 100% of a participant's usage. ClimateSmart offered 100% coverage for a lower cost.

Results of PG&E commissioned studies support the theory that the program's price was not a significant barrier to enrollment. The Hiner & Partners, Inc. pre-program survey (2005) suggested that any additional cost would be the primary barrier to entry, but 64% of residential customers and 49% of business customers suggested that they would pay 2% more.

ClimateSmart participant focus group studies conducted by Talley Research Group in 2008 suggested that participation was viewed as quite inexpensive.

*Did PG&E conduct any testing, as part of its marketing efforts, to determine how enrollment rates might vary depending on the retail price of the offset product?*

The 2005 Hiner survey evaluated price premiums of 2%, 4%, 7%, and 10%. Over these levels, residential survey participants ranged in their hypothetical willingness to pay at rates between 64% and 31%, and business customers ranged from 49% to 14%.

The fact that actual program participation leveled off below one percent may be primarily attributed to the trend of traditionally optimistic response rates in such willingness-to-pay studies<sup>44</sup>.

*Was there any indication from marketing efforts that enrollment levels would have been higher had the retail price of offsets been lower?*

There is no indication that reducing the price of ClimateSmart from its already-low cost to a lower, above-zero level would have greatly boosted enrollment.

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<sup>44</sup> See, for example, Farhar, Barbara C. 1998. Willingness to Pay for Renewable Electricity: A Review of Utility Market Research. NREL/TP-555-25765, Topical Issue Brief, Golden, CO: National Renewable Energy Laboratory, 22 pp.



### *Conclusions*

There is no evidence that rate increases measurably impacted ClimateSmart participation. 3Degrees maintains that there are many variables impacting program participation at any given time, so this represents a difficult question to answer with certainty, but the data do not imply a correlation.

Results from analyses of similar programs corroborate these findings.

Nevertheless, common sense suggests that negative publicity about rate increases may impede program voluntary green program growth.



### **Question C3. Did the economic downturn play a role in the ClimateSmart program's customer attrition rate and if so, how large a role did it play?**

#### ***Summary of Findings***

The economic downturn did not appear to play a significant role in ClimateSmart attrition. The most significant factor affecting attrition rate appears to be program growth, since the initial spike of program enrollments was followed by more customer drops than later in the Program when there were fewer new enrollments. In addition, a mailing to CARE customers about the Program's premium price resulted in a considerable spike in attrition in late 2008.

A statistical analysis indicates that the Program's attrition rate is counter-intuitively positively correlated with macroeconomic performance, but one may assume that this is a coincidental result, rather than a causal one, and that more impactful factors were at play.

#### ***Approach***

As with question C1, 3Degrees selected the seasonally-unadjusted California unemployment rate as the most appropriate economic indicator, as supplied by the California Employment Development Department.

PG&E provided attrition numbers on a monthly frequency for the duration of the Program along with other program participation metrics.

As with the other regression analyses in questions in this section, 3Degrees used marketing activity timelines, PG&E rate increase publicity, and seasonal data to refine the analysis.

#### ***Benchmarking***

For comparison purposes, 3Degrees compiled gross drop rates from five green pricing programs from around the country, with an emphasis on West Coast programs. 3Degrees averaged these gross drop rates on a monthly basis in order to reduce program-level "noise" for purposes of correlation to economic indicators and to preserve anonymity of the data. 3Degrees compared non-PG&E program data to national unemployment rates provided by the Bureau of Labor Statistics.

#### ***Analytics***

As with questions C1 & C2, 3Degrees eliminated the first year of the Program and the final month of the Program from the economic analysis, leaving an evaluation window of April 2008 to November 2011. These 44 monthly data points provide sufficient data for statistical analysis.

3Degrees ran a multivariate regression analysis on attrition and unemployment, correcting for marketing activity, PG&E rate increase publicity, and season.

For comparison purposes, 3Degrees ran a regression analysis on the effect of unemployment on the average attrition rates of five green pricing programs run by investor owned utilities around the country over a 32 month period from April 2009 to November 2011, correcting for seasons.

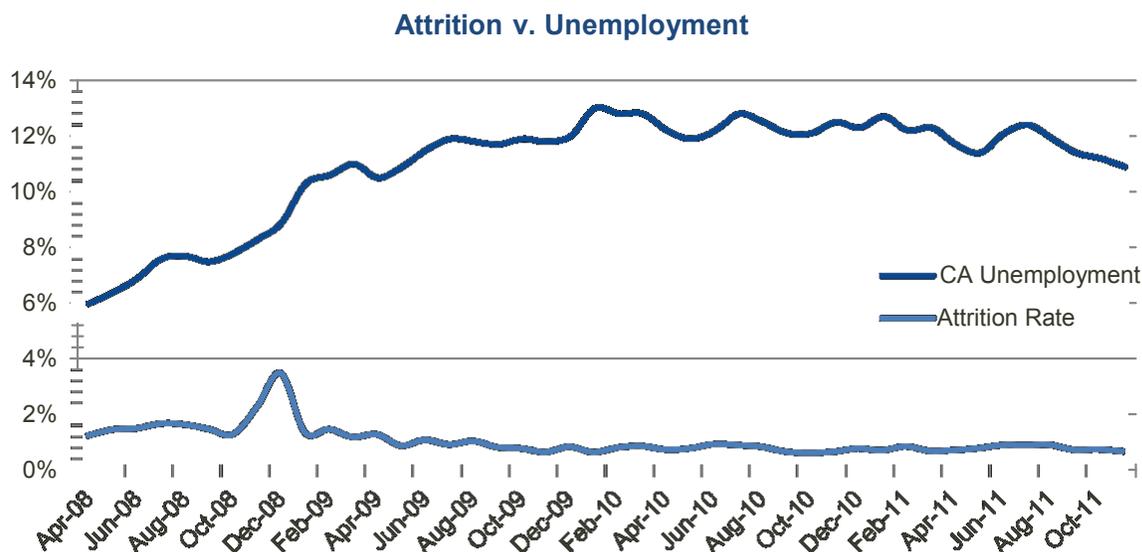
#### ***Findings***

The average monthly attrition rate of the five comparison programs over the period between April 2009 and November 2011 was 1.2%, compared to ClimateSmart's average attrition of 0.8% over that same period. (Each rate remaining relatively consistent over that time, with a standard deviation of 0.2% and 0.1%, respectively).



Regression analysis finds a statistically significant correlation between attrition rate and unemployment<sup>45</sup>. However, the correlation is the opposite of what one would expect. If the broader economic climate were a significant driving factor in drops, we would see the attrition rate rise and fall with the unemployment rate. In fact, statistically speaking, the inverse happened. While this may appear to be a surprising finding, looking at the chart below one can see that for the most part these are small monthly fluctuations in unemployment and attrition. Even a month lag in reporting either employment or attrition data could reverse the correlation, making the regression analysis results unreliable.

Chart 12: Attrition Rate vs. California Unemployment



The above chart shows an overlay of California unemployment (left axis) and the attrition rate (right axis). Note that the spike in attrition rate in late 2008 coincided with PG&E's proactive mailing intended to clarify the voluntary nature of the Program to CARE customers who had enrolled in ClimateSmart. The regression analysis corrects for that one-time educational activity. Line fit plots of the regression analyses can be found in Appendix A.

The line fit plot (see Appendix A) shows the counterintuitive negative correlation between unemployment and ClimateSmart participant attrition.

Comparison program attrition rate does not correlate with unemployment to a statistically significant degree<sup>46</sup>. A regression analysis suggests that a weakly positive correlation may exist, though.

### Conclusions

There is a statistically significant correlation between attrition rate and unemployment. However, the correlation is the opposite of what one would expect. If the broader economic climate were a significant driving factor in drops, we would see the attrition rate rise and fall with unemployment. In fact, the opposite happened.

One may assume that more significant factors were at play. For instance, green program managers regularly find that the biggest driver of drops is recent program growth, which typically happens when a program is new. A customer

<sup>45</sup> P-value =  $1.1 \times 10^{-6}$ , Adjusted R Square = 0.53, t Stat = -6.01

<sup>46</sup> P-value = 0.14, Adjusted R Square = 0.50, t Stat = 1.5



who has been enrolled in a program for multiple years is less likely to drop than a customer who is new to a program and still evaluating their interest in participating. In ClimateSmart's case, a look at the attrition curve implies a winnowing of shorter-term participants who enrolled during the program's initial enrollment boom. This left longer-term participants who remained more likely to continue their participation (e.g. customers who move infrequently). This leads to lower and more stable attrition rates as a program matures, which is what one observes here.

Though inconclusive, the five comparison programs' data suggested a weak positive correlation between economic health and retention of program participants. The larger sample size, the relative maturity of the programs in question, and the smoothing of the attrition curve provided by averaging multiple programs may have helped set the stage for this (more intuitive) result.

3Degrees maintains that causation is difficult to confirm with authority by statistical analysis, since there are many variables impacting program enrollments at any given time. Nevertheless, common sense indicates that economically pinched participants who look for ways to streamline their personal expenses are more likely to drop their participation in a voluntary green program.



## Question C4. Was the participation rate different in areas with Muni Electric Service and PG&E Gas Service?

### Summary of Findings

Setting areas with Community Choice Aggregation (CCA) aside, dual-commodity (gas and electric) customers enrolled at a rate 26% higher than those served by municipal electric providers. The overall participation rate of those muni-served customers was 0.39%, versus 0.49% for dual commodity customers.

### Approach

PG&E provided ClimateSmart customer participation counts for areas with municipal electric service and dual-commodity (gas & electric) service. Per 3Degrees' request, data for areas that CCA options were broken out, since muni and CCA service are mutually exclusive. The sample size of the regions without CCA provides ample statistical confidence to respond to the question.

These participation data represent customers who enrolled at any point over the course of the Program's life. PG&E also provided total customer counts for each of the above customer service levels.

3Degrees calculated the participation rate of each of the customer service levels. 3Degrees evaluated the statistical confidence of the findings using the Teasley Statistical Calculator.

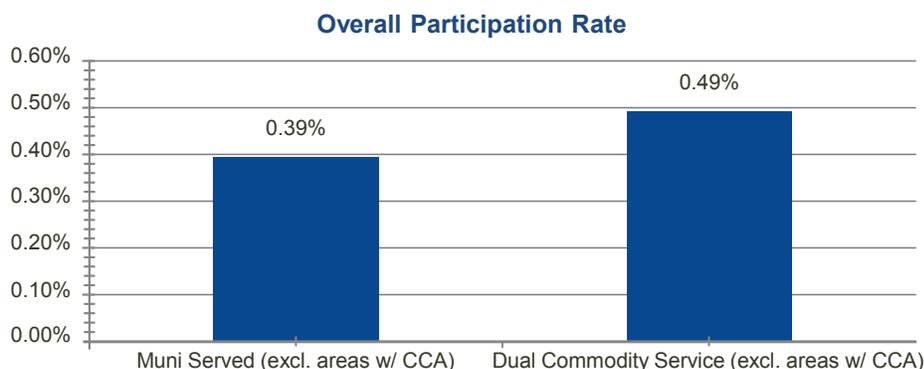
### Findings

Setting areas with Community Choice Aggregation (CCA) aside, dual-commodity customers enrolled at a rate 26% higher than those served by municipal electric providers. The overall participation rate of those muni-served customers was 0.39%, versus 0.49% for dual commodity customers (see table and chart).

Table 19: ClimateSmart Participation Rates by Customer Fuel Service Type

Service Type	Number of Accounts	Number of CS Participants (ever enrolled 2007-2011)	Any-Time Participation Rate
Muni Served	1,359,627	5,359	0.39%
Dual Commodity Service	8,237,178	40,450	0.49%

Chart 13: Overall Participation Rate





### **Conclusions**

ClimateSmart participation rates differed between areas with muni electric service and those with PG&E gas service.

While customer survey data would be required to investigate the underlying reasons for higher participation in dual commodity service territory, one may speculate potential causes:

- Several munis within PG&E's service area offer green pricing programs (including Palo Alto, Santa Clara, and Sacramento). Customers who enroll in those programs may feel they have already "greened-up" their energy supply.
- Similarly, if a potentially receptive customer only receives gas service from PG&E, they may not feel as great a need to mitigate the environmental impact of only a portion of their energy supply.
- The demographics of dual commodity service areas may have been more favorable to ClimateSmart than those of muni-served areas.



## **Question C5. What, if any, is the relationship between customer enrollment in green tariff programs versus customer enrollments in carbon offset programs, or participation in energy efficiency or distributed generation programs?**

### **Summary of Findings**

Residential participation rates in Demand Side Management (DSM) programs tend to be higher than participation rates in utility green pricing or carbon offset programs. This is likely because energy efficiency and DSM programs offer an economic return on the customer's investment providing an opportunity for financial gain in addition to environmental gain. Green pricing and carbon offset programs are almost always a premium priced option with no opportunity for financial gain.

PG&E's customer participation in net energy metering exceed participation in ClimateSmart by a factor of two. Like DSM and energy efficiency, net metering may afford customers an opportunity for financial return.

Participation rates for ClimateSmart surpassed those of most carbon offset options offered by utilities. ClimateSmart's participation rate, after stabilizing, fell behind the rate of the industry leader.

### **Approach**

3Degrees compared the participation rate of utility green pricing programs, utility carbon offset programs, and utility Demand Side Management (DSM) programs. Data were compiled from the National Renewable Energy Laboratory, Energy Information Administration's 861 Annual Electric Utility Database<sup>47</sup>, and carbon offset program data collected from individual utilities that offer such programs. 3Degrees also contacted Edison Electric Institute, Solar Energy Industries Association, and American Council for an Energy Efficient Economy, to try to obtain more robust data sets.

### **Findings**

According to the National Renewable Energy Laboratory<sup>48</sup>, participation rates in utility voluntary green pricing programs (customers voluntarily purchasing renewable energy from their utility) have remained in the low single-digits:

*At the end of 2010, the average participation rate in utility green pricing programs among eligible utility customers was 2.1% with a median of 1.0%. These industry-wide rates have shown little change in recent years. Top-performing programs have demonstrated improvement over time, with participation rates ranging from 5.3% to 21.5% in 2010, compared to a range of 3.9% to 11.1% in 2003, though participation rates in top performing programs have remained relatively unchanged since 2007.*

NREL's report does not provide participation rates for non-residential customers.

Customer participation in DSM programs had higher participation rates, averaging around 10% for the residential sector. EIA's data for 2010 included 41 utility DMS programs with an average residential participation rate of 9.99%. Among those utilities, residential participation rates ranged from 0.5% to 37%. Commercial participation rates averaged 1.57% while industrial participation rates averaged 2.83%. For comparison, PG&E reported its blended residential & nonresidential rate as 3.8%. Note that there is an enormous amount of variability in how utilities account for participation in their energy efficiency programs. Some include home energy reports, low-income programs, demand response, etc.<sup>49</sup> PG&E's figure is strictly related to DSM.

<sup>47</sup> <http://www.eia.gov/cneaf/electricity/page/eia861.html>

<sup>48</sup> Status and Trends in U.S. Compliance and Voluntary Renewable Energy Certificate Markets (2010 Data)

<sup>49</sup> As described in EIA's file note: File3 contains information on electric utility demand-side management programs, including energy efficiency and load management effects and expenditures, and (2007 forward) the number of customers in time- and incentive-based rate programs (peak data is in megawatts for 2001 forward – in previous years the data are in kilowatts).



Finally, PG&E reported that approximately 60,000 of their customers enrolled in Net Energy Metering, representing about 1% of customers. 3Degrees was unable to obtain industry average data for participation in net metering programs.

Finally, regarding participation in carbon offset programs there is no single source of industry data. However, 3Degrees was able to collect participation data from a number of utilities offering carbon offset programs. For comparative purposes, participation rates for ClimateSmart hovered around 0.5% for most of the Program's duration.



Table 20: Comparative Performance of Select Utility Voluntary Green Programs

Note that this table contains all years a program was offered to customers, except NC Green Power, for which 3Degrees only has one year of available data.

	Program / Year	Customers Enrolled	Tons Sold	Participation Rate	# of Accounts	Note
<b>NW Natural</b>						Of these offset programs, NW Natural is the only one that hired a third party marketer.
	2008	6300	14,000	1.05%	599285	
	2009	8290	44,000	1.38%	601989	
	2010	11076	79,505	1.82%	607645	
	2011	13726	135,364	2.24%	613354	Accounts estimated based on prior year's growth rate
<b>Duke</b>						
<b>NC Carbon Offsets</b>						
	2007	0	0.0	0.00%	1796044	
	2008	125	511.7	0.01%	1822021	
	2009	212	960.7	0.01%	1832284	
	2010	268	1205.6	0.01%	1841907	
<b>SC Carbon Offsets</b>						
	2007	0	0.0	0.00%	526956	
	2008	3	13.6	0.00%	535118	
	2009	3	10.9	0.00%	537223	
	2010	7	35.4	0.00%	539476	
<b>Indiana Carbon Offsets</b>						
	2007			0.00%	771086	
	2008	0	0.0	0.00%	773805	
	2009	15	119.7	0.00%	773331	
	2010	25	198.7	0.00%	779029	
<b>Kentucky Carbon Offsets</b>						
	2007	0	0.0	0.00%	133476	
	2008	0	0.0	0.00%	134313	
	2009	0	0.0	0.00%	134436	
	2010	7	38.1	0.01%	134831	
<b>NC Green Power</b>						
	2011	400	3900	0.01%	4000000	Accts estimated by program management
<b>Puget Sound Energy</b>						
	2011	128	1872	0.02%	700000	Accts estimated by program management



## **Question C6. Would PG&E customers have preferred to enroll in a third-party carbon offset program versus a program offered through a utility?**

### **Summary of Findings**

It is impossible to determine with authority whether PG&E's customers would have preferred to enroll in a third-party carbon offset program versus a program offered through a utility. Primary customer research would not likely yield reliable results as the questions would be need to be asked of participants and non-participants about a decision made in the past (in some cases many years in the past) about their preferences at the time. The passage of time clouds the logic behind past decision making.

Further, 3Degrees' experience in customer "willingness to pay" surveys shows that what customers tell you often bares little connection to what they do. This "cognitive dissonance" of a respondent's answer may lead to incorrect interpretation of the survey results.

However, there are some relevant data points to consider that may inform the discussion about the relative merits customers see in a utility-run program as compared to that offered by a third party.

- Third party programs tend to offer offsets that cover the customer's entire lifestyle, such as offsets for cars, air travel, etc, rather than solely offsetting the carbon emissions associated with electricity and gas use as was the case with ClimateSmart. This broad scope would have appeal to some customers.
- Some customers distrust PG&E. That segment of the customer base would likely not choose to purchase an intangible product from PG&E.
- On the other hand, 3Degrees experience in the market has shown that customers also have considerable skepticism regarding purchasing offsets and renewable energy certificates in general from relatively unknown private companies, and that having a known brand and local presence would likely work to PG&E's advantage, even if some customers distrust PG&E.

If PG&E is considering offering another voluntary green program, they should consider NREL's findings<sup>50</sup> of interest, and investigate using the services of a third party marketer, while retaining the program administration within PG&E.

### **Approach**

3Degrees attempted to find industry data on participation in third-party carbon offset programs, or survey research to determine whether a comparison has been done on customer preferences between utility-run carbon offset programs and third-party carbon offset programs. 3Degrees was unable to locate such data, and doubts it exists. The likely source of data, Ecosystem Marketplace's annual "State of the Voluntary Carbon Markets" report does not contain participation rate data or customer preference information.

Primary customer research, while interesting, would not likely yield reliable results. 3Degrees is familiar with the willingness-to-pay research done for voluntary renewable energy programs, and has seen how inaccurate the predictions have been. While PG&E's RFP allowed for "A limited amount of primary research may be performed to assess PG&E customer perceptions in regards to the above questions, as needed," 3Degrees advised PG&E to exercise caution in basing program performance conclusions on ex post-facto customer research. Therefore, no primary customer research was performed.

3Degrees determined that the best available approach would be to assess surveys of PG&E customers on the subject.

<sup>50</sup> See report "[Utility-Marketer Partnerships: An Effective Strategy for Marketing Green Power?](http://www.nrel.gov/docs/fy06osti/39730.pdf)" by L.A. Bird and E.S. Brown. NREL/TP-620-39730. April 2006. Available at <http://www.nrel.gov/docs/fy06osti/39730.pdf>.



## Findings

In March and April 2007 (two months prior to ClimateSmart program launch) Hiner & Partners, a marketing diagnostics and strategies firm, conducted survey research for PG&E on the ClimateSmart program. 300 residential and 300 business customers were surveyed. Some survey responses provide at least anecdotal evidence of customer preferences related to the vendor of carbon offsets.

In a question soliciting reasons customers give not to sign up for ClimateSmart, top responses included:

- (1) Cost,
- (2) Distrust of PG&E,
- (3) Don't believe global warming is really a problem, and
- (4) It's the government's or PG&E's responsibility to resolve it (and pay for resolving).

"Distrust of PG&E" is a barrier to participation that may be overcome by third-party vendors.

The Hiner survey also provided "the top statements based on their positive influence on customer interest in the tariff suggest that customers want to know":

- What is PG&E going to do with the money?
- Will it help the problem?
- Is there something in it for me?
- How is PG&E committed?
- How can I trust the program (and PG&E)?

This final question reinforces the issue of trust in PG&E being a barrier to participation in ClimateSmart.

Trust is also a top criterion that people use to evaluate the non-profits that they contribute to. It might be that PG&E's customers think about this tariff as a charitable donation (which it is, given ClimateSmart's non-profit status).

Finally, the Hiner survey addressed "Why wouldn't you consider signing up for the PG&E program?" The second most common response was "Do not trust PG&E" – given by 11% of residential and 15% of business customers.

PG&E commissioned a series of four focus groups in 2008 by Talley Research Group. The research found that ClimateSmart participants "feel that PG&E is an appropriate company that is uniquely able to make a difference" because PG&E:

- Understands energy and the relevant issues
- Is seen as being on the front lines for dealing with these issues
- Is motivated to take action
- Regulatory agency involvement
- Mandated to take action
- Oversight of company activities
- Good citizen
- Business realities dictate the need

The focus groups also revealed that some ClimateSmart participants also bought carbon offsets from third parties including TerraPass, LiveNeutral, and DriveNeutral.



National Renewable Energy Laboratory issued a report in 2006 entitled [“Utility-Marketer Partnerships: An Effective Strategy for Marketing Green Power?”](#) The report points out that more than 25 utilities either voluntarily team with marketers to offer green power options or do so under legal or regulatory requirements. The report found that:

*“...partnership programs are outperforming other utility green power programs nationally in terms of average customer participation and renewable energy sales rates. Based on preliminary data for year-end 2005, average customer participation rates for utility-marketer programs were twice those of other utility green power programs (2.6% versus 1.2%, respectively). Further, the average green power sales rate (green power sales as percentage of each utility’s total electric sales) was 0.73% for partnership programs, compared to 0.38% for other utilities.”*

NREL explains this track record as resulting from: “Partnerships offer the advantage of leveraging the marketer’s experience with selling green power and procuring renewable energy supplies, and the utility’s reputation and access to customers. Further, partnerships can create greater incentives for success because marketers have a vested financial interest in maximizing customer participation and green power sales.”



**Question C7. How does the ClimateSmart program compare to other voluntary green programs? What are the key differentiating factors?**

***Summary of Findings***

ClimateSmart remains unique compared to its peers.

***Approach***

3Degrees reviewed websites and contacted some utility green program managers in order to assemble a table comparing the program characteristics of:

- 1) Every utility carbon offset program offered in the United States
- 2) Several other utility voluntary green programs that represent a broad portfolio of program structures.

***Findings***

There are more than 860 utilities in the U.S. that offer a green pricing option, with the number of distinct green pricing programs at about 160 according to NREL. There are eight utilities in the U.S. that offer a carbon offset option. Each of these programs is slightly different in terms of product design (is the product sold in fixed quantities or by a percent of the customer's monthly use), what the supply type is (solar, wind, biomass, low-impact hydro, offsets, or a blend), what the pricing structure is, whether the program is certified and/or audited by a third party, and whether a third party marketing partner is involved. There are as many ways to structure a green program as there are energy utilities.

3Degrees assembled a table that provides a comparison of program attributes of some leading and noteworthy programs. The table provides a comparison of every utility carbon offset program currently in the market, along with some notable green power products that were selected because they represent the breadth of offerings. The table is not intended to represent the top programs, but rather show a broad portfolio of options that PG&E may wish to consider in the future. This table can be found in Appendix F.



## SECTION D. SUMMARY OF LESSONS LEARNED

### Question D1. From the consultant's perspective, what are the lessons learned from the ClimateSmart program?

PG&E's ClimateSmart program is a fascinating case study of one way that energy utilities can provide options for customers that want to do everything they can to reduce their impact on the environment. The ClimateSmart program was the first to offer customers the options to offset their carbon emissions early in the development of the carbon market, and it was difficult for customers to understand or embrace. However, the ClimateSmart program provided valuable overall market insights to PG&E and voluntary green programs nationally. In the end, PG&E employees feel much better positioned to manage the marketing and procurement components for another voluntary green program should that opportunity be developed.

This section of the report serves to supplement the findings detailed in the balance of the report, rather than re-state what is contained in the Executive Summary.

#### *Marketing and Outreach*

PG&E's marketing and sales projections were optimistic, and had to be based on something, yet there was no suitable likeness in the market for benchmarking. One illustrative example relates to average residential purchase quantity. PG&E used average residential energy consumption to project sales volume. This is a reasonable assumption. 3Degrees experience shows that some utility green pricing program participant consumption is greater than the utility's average customer, and some is less than average. The ClimateSmart results were that participants' energy consumption was lower than that of the average customer. This led to lower than expected results, but the projection methodology was generally sound.

Throughout the life of ClimateSmart, there was turnover of Program management and marketing functions. There was inconsistency of leadership. These disruptions caused time lags that resulted in delays in implementing some marketing tactics, and prevented the building of forward momentum.

The quantified performance goal of ClimateSmart was to retire at least 1.36 million metric tons of CO<sub>2</sub> equivalent reductions over the life of the Program, and this goal was met. PG&E's application to the CPUC called out forecasts for enrollment costs and participation rates, and these targets were not met. The CPUC also called for broad awareness raising tactics. For example, in the CPUC's approval of the program, it directs "...to the extent that there is an educational component to the marketing campaign, it is appropriate for PG&E to consider outreach to all customers regardless of income level."<sup>51</sup> Typical green pricing program goals include maximizing enrollments, minimizing cost of enrollments, and maximizing sales. To meet those traditional goals, PG&E should have stuck more firmly to enrollment tactics. As the stated program goals were beyond these typical performance metrics, and included broad customer awareness objectives, PG&E was essentially directed to spend marketing funds on broadcast media, which is ineffective in garnering enrollments. The money spent on activities such as TV and radio increased the average cost per enrollment significantly.

The ClimateSmart case study confirms the hypothesis that that you cannot hang a "green option" shingle on a website and expect customers to enroll. These programs do not sell themselves – they succeed only with a robust marketing strategy focused on enrollment tactics. A utility cannot expect Top 10 performance without acting like a Top 10 utility: that means lots of bill inserts, direct mail, constant marketing, door knocking, CSR challenges, etc. PG&E benchmarked itself against the top utility green pricing programs, but then failed to replicate their high level of consistent marketing activity.

<sup>51</sup> CPUC Decision 06-12-032. December 14, 2006.



PG&E would have learned more lessons if they had been able to keep better track of marketing costs and results. Better analytics would have shown the way to more effective and efficient tactics. PG&E should have tracked the enrollment channel of each customer (i.e. web, phone, email, paper). Knowing this would help target program resources. PG&E did ask terminating customers to complete an online survey asking "...the reason for your de-enrollment" and "Is there anything PG&E could do to make it easier for you to remain on the program?" These surveys began in 2009. 3Degrees understands that during ClimateSmart's operations, a new customer database was implemented that collects more data on enrollments and drops. There were IT challenges of implementing the database, and those may have created some delay of tactics until the bugs were resolved. Now that database should now bear fruit. Similarly, all campaign costs should be carefully tracked so that costs per customer can be ascertained for every marketing initiative.

### ***GHG Procurement***

PG&E was required to meet the minimum greenhouse gas reduction goals of 1.36 million metric tons, whether or not customers enrolled. On the one hand, this approach ensures that environmental benefits are accrued. On the other hand, it provides a disincentive to participate, and late in the program it may have created a disincentive to spend on marketing. The CPUC's decision states, "Given the program's expense and the allocation of A&M costs across all ratepayers, PG&E should guarantee that the program achieves a certain minimum of GHG reductions."<sup>52</sup> Perhaps a more effective approach would have been to set aside funds to purchase that minimum amount, and then have customer voluntary purchases be additional. That way customers would be ensured that their purchase helped make a difference.

PG&E selected supply that was locally-sourced (within California) and appealing project type (forestry). This made ClimateSmart more tangible, and therefore more attractive to customers. If PG&E pursues another voluntary green offering, similar care should be taken to select at least some supply that is locally-sourced and has customer appeal.

### ***Societal, Economic and Regulatory Factors***

If you have a two-fold goal of educating and enrolling customers, then use ratepayer funds for the educational activities and program funds for enrollment. The CPUC's Decision Granting Application with Modification (Decision 06-12-032 issued December 14, 2006) instructed PG&E "PG&E shall coordinate with the Commission and the External Advisory Group on marketing its program to ensure that California consumers are educated about the risks of global warming and how they can make a difference." It is unfair to criticize PG&E's high cost of enrollment when PG&E was specifically called upon to educate all customers about climate change. Separate metrics and budgets should be used for educational tactics and enrollment tactics. In some cases, those bins can be combined, such as for attending events at which enrollments may occur.

PG&E filed an application to seek extension of the ClimateSmart program on May 18, 2009. CPUC's November 20, 2009 order that "During the day-to-day extension period of the ClimateSmart Program, Pacific Gas and Electric Company may not expend any of the unspent administrative and marketing funds collected from ratepayers for marketing expenses"<sup>53</sup> put significant limitations on program marketing activity. It would have been irrational for PG&E (and a poor use of funds) to invest in marketing a product that was certain to be terminated in the near term.

PG&E retained Rick Counihan to advise them on preparing the application. Mr. Counihan is a true industry expert and is well respected.

To PG&E's credit, they were the only utility to respond to Commissioner Peevey's call in 2005 to do something beyond regulatory compliance in terms of taking action on climate change. 3Degrees hopes that the internalize message at PG&E is not "when the CPUC asks you to do something voluntarily, don't stick your neck out." In sum, it is 3Degrees assessment that PG&E has acted both rationally and in good faith in developing, marketing, and administering the ClimateSmart program.

<sup>52</sup> CPUC Decision 06-12-032. December 14, 2006.

<sup>53</sup> [http://docs.cpuc.ca.gov/PUBLISHED/FINAL\\_DECISION/110206-03.htm](http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/110206-03.htm)



### ***Other Lessons Learned***

The Program may not have achieved all the goals set out in the application, but it positively touched tens of thousands of customers, resulted in environmental benefits, and performed at par with other utility carbon offset programs. Throughout the Program's life, feedback from customers about the program was positive. Indeed, when ClimateSmart was terminated, customers expressed their disappointment that they could no longer participate. With 30,000 customers enrolled, the Program would have made the NREL Top 10 list for number of customers. In fact, based on the current NREL Top 10 ranking<sup>54</sup>, ClimateSmart would rank 6<sup>th</sup> most participants compared to utility green pricing programs nationally. This proves that there is a segment of PG&E's customers that want a voluntary green program, and 3Degees expects that if PG&E launches a voluntary green energy program utilizing industry best practices for product design and marketing, it will be a national top performer.

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<sup>54</sup> <http://apps3.eere.energy.gov/greenpower/markets/pricing.shtml?page=3>



## **Question D2. From PG&E's perspective, identify lessons learned from the ClimateSmart program.**

While the ClimateSmart program may not have achieved its enrollment goals, it did provide myriad other benefits to customers and lessons learned to PG&E. 3Degrees conducted interviews with current and former PG&E employees. Their opinions were compiled and summarized below. Their opinions revealed that the lessons learned include:

### ***Marketing and Outreach***

PG&E underestimated the challenge of the notion of selling offsets. Carbon offsets are a complete abstraction to most people. It is easier to sell green power programs. The focus groups that were conducted demonstrated that PG&E's customers did not understand carbon offsets.

There were not many established offset programs at the time, and none housed at energy utilities. Being first to market is a challenge. On the positive side, PG&E helped lead the way for other utilities, and helped socialize the idea of carbon offsets.

PG&E used the best analog they could think of (utility green pricing programs) to predict response rates. But offsets are more abstract and difficult to sell. This forecasting approach resulted in overly optimistic enrollment projections.

The marketing process utilized by PG&E was also a first. When ClimateSmart was conceived, PG&E did not have a centralized marketing function. ClimateSmart was one of the first programs offered by PG&E to be managed through a central marketing function. ClimateSmart was out in front internally and externally. This test case helped PG&E understand how to be efficient and effective with its marketing tactics, and it can now apply these lessons to other voluntary options for PG&E customers.

Some environmentalists expressed frustration with the Program because they saw it as PG&E providing an alternative to other environmental actions, even though this was not the case. PG&E could have emphasized from product launch the importance of energy efficiency and renewables, and stress that the Program is one tool of many for customers to use to reduce their environmental footprint. ClimateSmart was meant to build upon energy efficiency efforts, not replace them.

PG&E seemed surprised at how limited the potential market for customers to enroll in a carbon offset program is, given the potentially attractive northern California demographics. While small, there does exist a subpopulation of committed environmental customers in this area. On the other hand, PG&E learned more about customer demographics and interests. For example, while Bakersfield is not known as a hotbed of environmental activism, the city consistently placed in the top 10 cities for participation in ClimateSmart. PG&E also learned lessons about communicating with customers about climate change, and gained insight regarding which messages work and which marketing channels work, when communicating with customers about climate change. These lessons can now be applied to programs such as energy efficiency and distributed generation.

### ***GHG Procurement***

ClimateSmart served as a bridge to AB 32 (The Global Warming Solutions Act of 2006) compliance. This will help all PG&E customers. At the same time, the introduction of AB 32 (signed into law by Governor Arnold Schwarzenegger on September 27, 2006) also created some customer confusion. The Program helped PG&E get an understanding of carbon offset markets, and it helped build the offset market infrastructure in California. Customers helped fund the CAR protocols, which provide public benefits.

ClimateSmart gave PG&E some experience in contracting for offsets, which was groundbreaking from a contracting perspective. Utilities were not contracting for offsets at that time. PG&E learned about the GHG protocols and how to use them, while retaining key procurement safeguards such as competitive RFPs and transparency. PG&E will



continue to utilize that knowledge to benefit all customers. PG&E counterparties for offsets also gained institutional knowledge from their participation in supplying offsets to ClimateSmart.

Offsets have been institutionalized since ClimateSmart was conceptualized, in good part thanks to ClimateSmart. Using voluntary programs to build initial infrastructure is a valid enterprise, just as voluntary renewable energy markets have been used to get utilities comfortable with those emerging technologies.

Keeping the offset supply as local, accessible, and tangible as possible helped build and retain customer support of the Program.

### ***Societal, Economic and Regulatory Factors***

The few carbon offset options that were in the market included some whose reputations were being challenged. This resulted in press coverage of “are offsets real”<sup>55</sup> at a time when PG&E was entering the market.

Even in the non-residential sector, it was expected that ClimateSmart would perform better with leading clean tech firms (it is worth noting that Cisco and Ebay were participants in the Program). Clean tech firms tended to invest in on-site solar photovoltaics (PV) with their discretionary dollars rather than in ClimateSmart. This may be in part due to the decrease in PV prices and rise in solar leasing during ClimateSmart.

PG&E faced some challenges in the non-residential sector where master-metered buildings contained several tenants. If one tenant wanted to join ClimateSmart, that may not have been negotiable with the building owner and the individual tenants would not be able to enroll.

Using the EAG helped legitimize the Program. The quality and diversity of its members helped inform PG&E, and helped socialize the Program among EAG member organizations and their constituents. This extended beyond PG&E’s service area because some of the members were from national organizations.

These programs need more regulatory certainty. The 4.5 year life of the Program was fraught with starts and stops. If the marketing implementation would have been consistent throughout the program at the pace of 2007-2008, PG&E may have met the enrollment targets. By 2009 it was difficult to argue that shareholders should fund marketing efforts that were not having sufficient financial payback to break even, much less have a financial return. PG&E learned that the payback on the marketing investment is very long; it can take several years to recuperate the marketing investment in terms of customer revenue (above the cost of offset supply). In the event of a future voluntary green program, more care should be paid to the program duration and also the renewal process to minimize interference with the marketing activities and maximize the “long view” of the program.

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<sup>55</sup> For example, see “[Undoing Your Daily Damage to the Earth, for a Price](#)” in the November 11, 2007 issue of The New York Times or “[Can you be traveling green by buying offsets?](#)” in the March 2, 2007 issue of USA Today.



## APPENDIX A: APPENDICES FROM QUESTIONS

### Awareness Tactics

GOAL	YEAR	TACTIC	TACTIC DESCRIPTION	TOTAL COST <sup>56</sup>	IMPRESSIONS
Awareness				<b>\$1,377,351.81</b>	<b>38,638,295</b>
	<b>2007</b>				
		Collateral		\$33,488.85	103,200
			Bookmark	\$20,883.98	60,000
			Brochure	\$0.00	-
			Fact Sheets	\$0.00	-
			Launch	\$0.00	-
			Magnet	\$0.00	-
			Pin	\$9,792.13	-
			Temporary Tattoo	\$2,812.74	43,200
		Email		\$0.00	3,000
			E-newsletter	\$0.00	3,000
		Print		\$0.00	1,900,000
		Radio		\$0.00	22,900,000
		Outdoor		\$0.00	-
			Digital billboard	\$0.00	-
	<b>2008</b>				
		Collateral		\$8,938.96	-
			Certificate	\$0.00	-
			Fact Sheets	\$0.00	-
			Jar opener	\$0.00	-
			Reusable bags	\$7,942.96	-
			Table tent	\$0.00	-
			Wall Mount Poster	\$0.00	-
			Window cling	\$996.00	-
			Window Sticker	\$0.00	-
		Event		\$0.00	-
			49er sponsorship	\$0.00	-
		TV Ads		\$830,500.00	13,660,000
			"365" Campaign	\$830,500.00	13,660,000
	<b>2009</b>				
		Collateral		\$0.00	-
			Fact Sheets	\$0.00	-
		Web		\$0.00	-
			2009 Digital banner ad	\$0.00	-
			Social media - Facebook	\$0.00	-
		Postcard		\$0.00	-
		Outdoor		\$0.00	-
			Roadside Billboards	\$0.00	-
	<b>2010</b>				
		Email		\$0.00	26,173
			E-newsletter	\$0.00	26,173
		Event		\$0.00	300

<sup>56</sup> In cases where zero cost is indicated, it is because no cost breakdown was provided. Exceptions (items with no direct cost) are noted.



		Event		\$0.00	300
			Event - California Academy of Sciences Nightlife Program	No direct cost	300
		Earned Media		\$0.00	-
	<b>2011</b>				
		Collateral		\$75,424.00	694
			End of program plaque & notecard	\$75,424.00	694
		Email		\$41,000.00	38,134
			2011 Email - End of program	\$20,000.00	13,776
			E-newsletter	\$21,000.00	24,358
		Web		\$173,000.00	-
			2011 Social media	\$0.00	-
			Website	\$173,000.00	-
		Postcard		\$0.00	394
		Video		\$215,000.00	6,400
		<b>Enrollment &amp; Awareness</b>		<b>\$791,841.80</b>	<b>72,789,200</b>
	<b>2007</b>				
		Collateral		\$0.00	-
			Events	\$0.00	-
		Event		\$0.00	500,000
			Outreach	\$0.00	-
			Outreach events	n/a	500,000
		Web		\$0.00	39,000,000
			Banner Ad	\$0.00	39,000,000
			Website	\$0.00	-
		Bill Insert		\$124,488.00	5200000
	<b>2008</b>				
		Web		\$150,000.00	80,000
			2008 "365" Campaign Microsite	\$150,000.00	80,000
		Bill Insert		\$373,276.80	15609200
	<b>2009</b>				
		Event		\$0.00	-
			Outreach	\$0.00	-
		Bill Insert		\$0.00	6000000
	<b>2010</b>				
		Bill Insert		\$92,000.00	3200000
	<b>2011</b>				
		Bill Insert		\$52,077.00	3200000
<b>Grand Total</b>				<b>\$2,169,193.61</b>	<b>111,427,495</b>



## Appendix to Question A2

### List of Targeted Campaigns

SEGMENT	YEAR	TACTIC	TACTIC DESCRIPTION	TOTAL COST	IMPRESSIONS	COST PER CUSTOMER	PERCENT RESPONSE RATE
<b>Business</b>	2008	<b>Direct Mail</b>	March 2008 Business Direct Mail	\$66,930.92	70000	\$415.72	0.23%
	2008	<b>Direct Mail</b>	May 2008 Business Direct Mail	\$66,601.08	70000	\$0.00	0.19%
	2009	<b>Direct Mail</b>	2009 Direct Mail - Small & Medium Business	\$400.00	400	GHG 0	1.25%
	2011	<b>Conference</b>	18 ClimateSmart Business Energy Summits	\$313,000.00	938	333	0.00%
<b>Residential</b>	2007	<b>Direct Mail</b>	September 2007 Direct Mail	\$330,012.96	516000	\$159.89	0.40%
	2008	<b>Email</b>	2008 Email Co-marketing West Coast Green	\$0.00	0	\$0.00	0.00%
	2008	<b>Email</b>	Co-Marketing: Rivercats	\$53,644.80	15000	\$0.00	0.55%
	2008	<b>Direct Mail</b>	May 2008 Direct Mail - Co-marketing City of Rocklin	\$13,359.14	2900	\$371.50	1.24%
	2010	<b>Email</b>	"ClimateSmart Program Springtime Challenge"	No direct cost	12,000	\$0.00	0.42%%
	2010	<b>Event</b>	"Employee Enrollment Challenge"	No direct cost	n/a	\$0.00	n/a
	2011	<b>Event</b>	Draft FCB Community Outreach	\$28,883.00	150	\$375.10	51.33%
	2011	<b>Phone Order</b>	2011 Allconnect Call Center - Inbound Calls Establishing Service	\$11,380.00	2276	\$25.12	19.90%
<b>Residential &amp; Business</b>	2011	<b>Web</b>	Online search	\$39,464.00	15386	\$9,866.00	0.03%



**List of Energy Summits Hosted by PG&E**

<b>2011 ENERGY SUMMITS</b>	
<b>Completed Event/Workshop</b>	<b>Attendance</b>
Lodi Energy Summit	34
Bakersfield Energy Summit	35
Silicon Valley Leadership - Santa Clara	123
Silicon Valley Leadership Summit	28
Solyndra Workshop	97
Livermore Energy Summit	40
Oakland Energy Summit	24
ACWA Event	80
SFU Small Business Week Workshop	25
Kern Green Energy Summit	37
Sacrament Energy Summit	40
Stockton State of Sustainability	60
Sustainable Wine Growers	38
Solar Leaders Circle	107
Chico Energy Summit	45
Yuba City Energy Summit	35
Stockton Green Step	50
Fresno Energy Summit	40
<b>Total</b>	<b>938</b>



**Appendix to Question A3.**

GOAL	TACTIC	TOTAL COST	COST PER ENROLLMENT	IMPRESSIONS	TOTAL ENROLLMENTS
<b>Awareness</b>	Collateral	\$117,851.81	n/a	103,894	0
	Email	\$41,000.00	n/a	67,307	0
	Event	\$0.00	n/a	300	0
	Print	\$0.00	n/a	1,900,000	0
	Radio	\$0.00	n/a	22,900,000	0
	Web	\$173,000.00	\$144.17	-	1200
	Postcard	\$0.00	n/a	394	0
	Outdoor	\$0.00	n/a	-	0
	Earned Media	\$0.00	n/a	-	0
	TV Ads	\$830,500.00	\$1,661.00	13660000	500
	Video	\$215,000.00	n/a	6,400	0
	<b>Awareness Total</b>		<b>\$1,377,351.81</b>	<b>\$810.21</b>	<b>38,638,295</b>
<b>Enrollment &amp; Awareness</b>	Collateral	\$0.00	n/a	-	0
	Event	\$0.00	n/a	500,000	0
	Web	\$150,000.00	\$152.59	39080000	983
	Bill Insert	\$641,841.80	\$24.99	33209200	25686
<b>Enrollment &amp; Awareness Total</b>		<b>\$791,841.80</b>	<b>\$29.69</b>	<b>72,789,200</b>	<b>26669</b>
<b>Enrollment</b>	Collateral	\$0.00	n/a	-	0
	Email	\$69,644.80	\$55.65	2,463,000	1251.5
	Event	\$28,883.00	\$375.10	150	77
	Print	\$1,364,000.00	n/a	8,200,048	0
	Web	\$131,464.00	\$32,866.00	27,358,122	4
	Misc	\$0.00	n/a	-	0
	Direct Mail	\$1,491,534.10	\$109.32	2,423,057	13643.96
	Phone Order	\$11,380.00	\$25.12	2,276	453
	Postcard	\$0.00	n/a	-	0
	Conference	\$313,000.00	n/a	938	0
<b>Enrollment Total</b>		<b>\$3,409,905.90</b>	<b>\$221.00</b>	<b>40,447,591</b>	<b>15429.46</b>
<b>Grand Total</b>		<b>\$5,579,099.51</b>	<b>\$127.38</b>	<b>151,875,086</b>	<b>43798.46</b>



## Appendix to Question A4.

### News Stories

YEAR AND PUBLICATION TYPE	FREQUENCY
<b>2005</b>	<b>1</b>
<b>Industry</b>	<b>1</b>
Energy Resource	1
<b>2006</b>	<b>16</b>
<b>Industry</b>	<b>1</b>
Energy Resource	1
<b>Newspaper</b>	<b>13</b>
Contra Costa Times	1
East Bay Business Times	2
Inside Bay Area	5
Los Angeles Times	1
Monterey County Herald	1
Oroville Mercury Register	1
San Francisco Chronicle	1
San Jose Mercury News	1
<b>Wire</b>	<b>2</b>
PR Newswire	1
The Associated Press State & Local Wire	1
<b>2007</b>	<b>28</b>
<b>Industry</b>	<b>7</b>
CQ Congressional Testimony	1
Greenwire	1
Power Magazine	1
SNL Power Week West	1
UPI Energy	1
Waste News	2
<b>Newspaper</b>	<b>15</b>
Chico Enterprise-Record	1
Contra Costa Times	1
Inside Bay Area	4
Modesto Bee	1
New York Times	1
Record Searchlight	1
Sacramento Bee	3
Sacramento Business Journal	2
Space Daily	1
<b>Wire</b>	<b>6</b>
PR Newswire	1
PR Newswire US	2
Targeted News Service	1
The Associated Press	1
U.S. Newswire	1



<b>2008</b>	<b>69</b>
<b>Industry</b>	<b>17</b>
Carbon Control News	2
ClimateWire	2
Econews	2
Electric Utility Week	2
Greenwire	3
Inside Cal/EPA	2
SNL Electric Utility Report	1
SNL Power Week West	2
Waste News	1
<b>Newspaper</b>	<b>26</b>
Contra Costa Times	1
Eureka Times Standard	1
Fresno Bee	1
Inside Bay Area	1
Monterey County Herald	2
Monterey County Weekly	1
Pacific Sun	1
Press Democrat	1
Sacramento Bee	1
Sacramento Business Journal	1
San Francisco Business Times	1
San Francisco Chronicle	3
San Jose Mercury News	8
San Mateo County Times	1
The Californian	1
The San Francisco Chronicle	1
<b>Radio</b>	<b>2</b>
KVEC San Luis Obispo	1
KDEE Sacramento	1
<b>Wire</b>	<b>24</b>
Datamonitor Newswire	1
PR News	2
PR Newswire	8
States News Service	1
Targeted News Service	6
Targeted News Service,	1
The Associated Press State & Local Wire	1
U.S. Newswire	2
US State News	1
US States News	1
<b>2009</b>	<b>27</b>
<b>Industry</b>	<b>11</b>
American Forests	1
Carbon Control News	1
ClimateWire	2



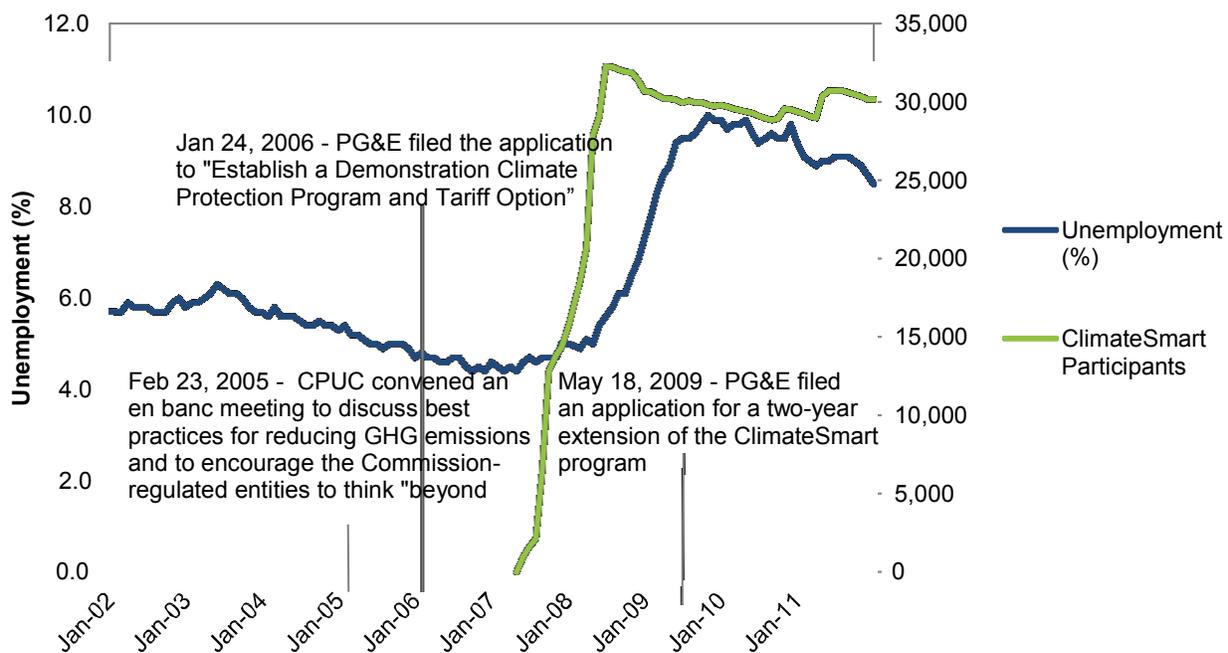
Electric Utility Week	1
EnergyWashington Week	1
Greenwire	1
Inside Cal/EPA	3
Wines & Vines	1
<b>Newspaper</b>	<b>9</b>
Eureka Times Standard	3
Sacramento Business Journal	1
San Jose Mercury News	2
The Bakersfield Californian	2
The San Francisco Chronicle	1
<b>Wire</b>	<b>7</b>
Business Wire	1
Targeted News Service	1
TendersInfo	3
The Associated Press State & Local Wire	1
US State News	1
<b>2010</b>	<b>10</b>
<b>Industry</b>	<b>3</b>
Carbon Control News	1
ClimateWire	1
Inside Cal/EPA	1
<b>Newspaper</b>	<b>4</b>
Contra Costa Times	1
Marin Independent Journal	1
San Jose Mercury News	1
Santa Cruz Sentinel	1
<b>Wire</b>	<b>3</b>
Datamonitor Newswire	1
ENP Newswire	1
Targeted News Service	1
<b>2011</b>	<b>7</b>
<b>Industry</b>	<b>3</b>
Greenwire	1
India Energy News	1
SNL Power Daily with Market Report	1
<b>Newspaper</b>	<b>4</b>
Contra Costa Times	2
Fresno Bee	1
San Francisco Chronicle	1
<b>Grand Total</b>	<b>154</b>



## Appendix to Section C

### Participation, Key Program Dates, and Unemployment

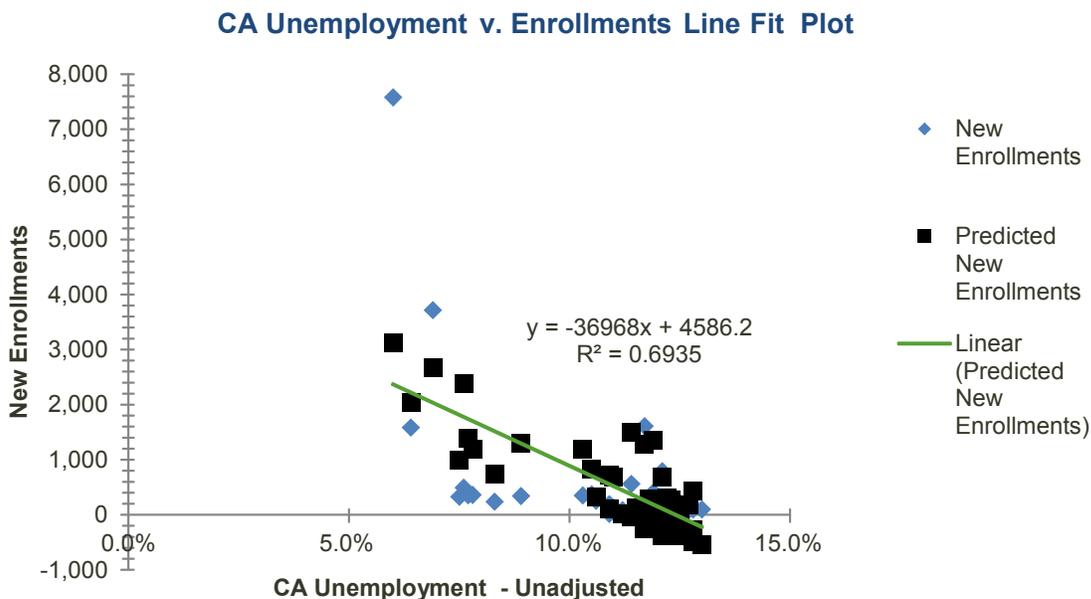
#### Unemployment and ClimateSmart Participation



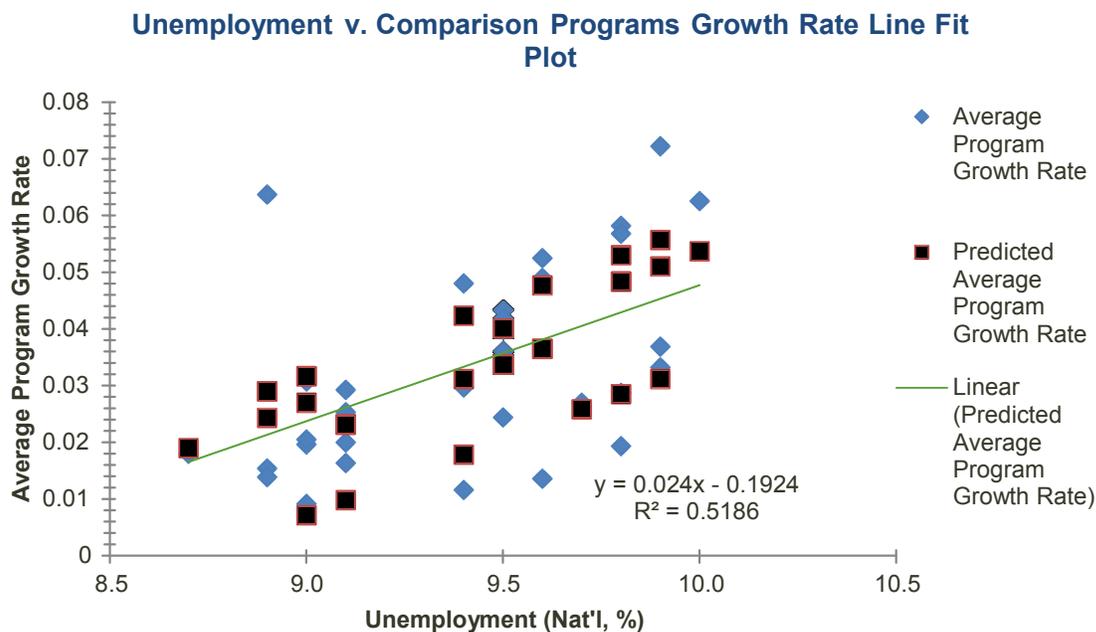


## Appendix to Question C1

### New Enrollments vs. California Unemployment Line Fit Plot

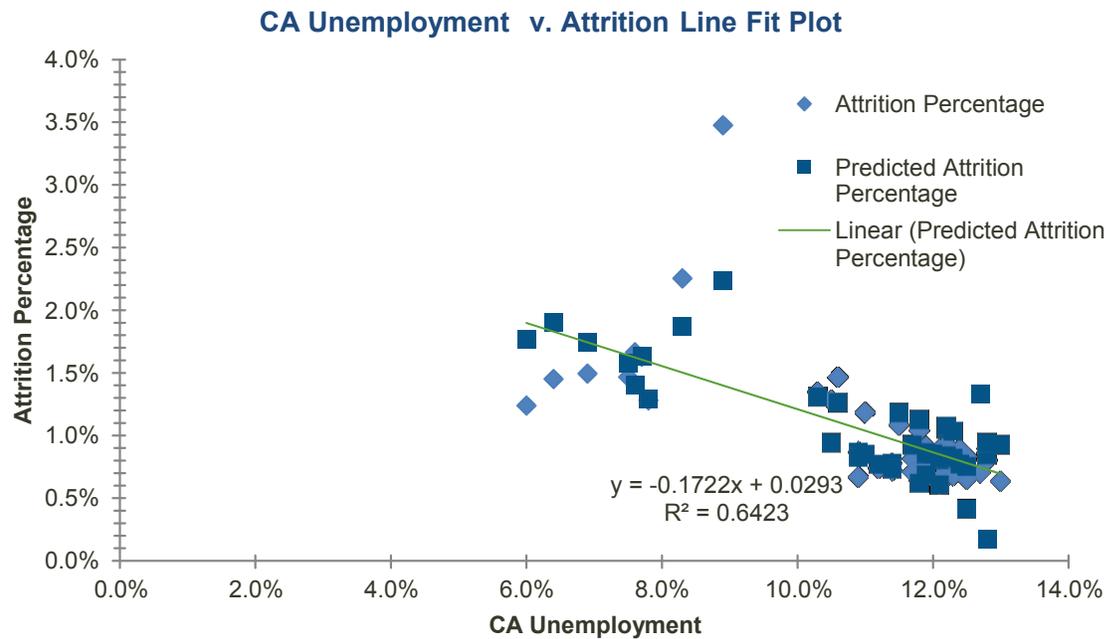


### National Unemployment vs. Comparison Programs Growth Rate Line Fit Plot





California Unemployment vs. Attrition Rate Line Fit Plot

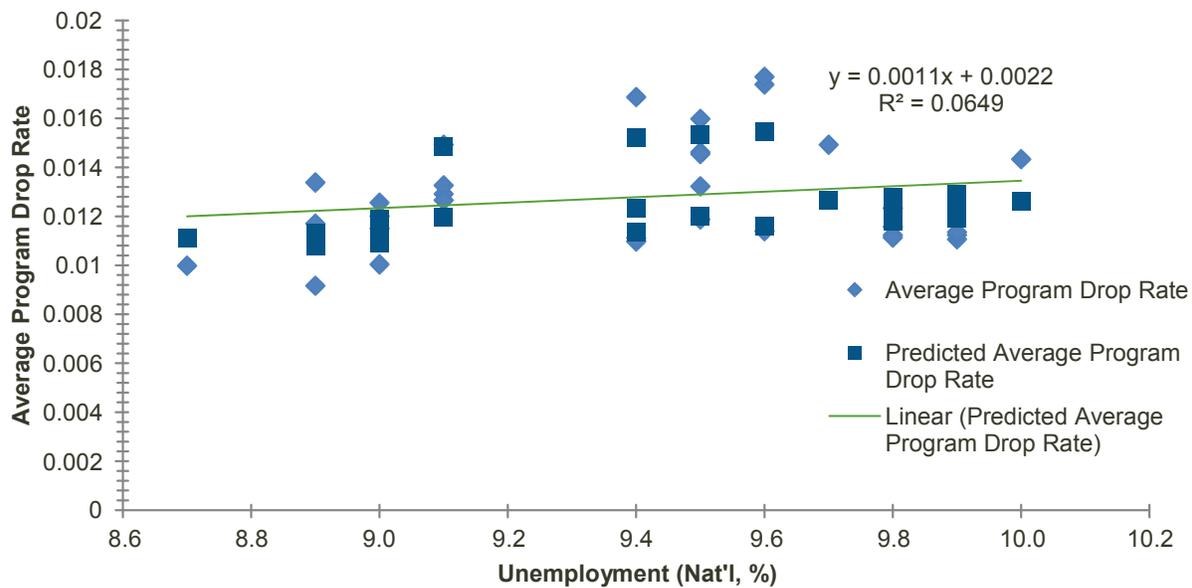




### Appendix to Question C3

#### National Unemployment vs. Comparison Programs Drop Rate Line Fit Plot

#### Unemployment (Nat'l, %) Line Fit Plot





## APPENDIX B: INTERVIEWS CONDUCTED

Name	Title	Organization	Date of Interview	Interview Mode
Robert Parkhurst	Principal	PG&E	January 23, 2012	In person
Gary Gero	President	CAR	February 3, 2012	Phone
Chris Kelly	California Program Director	The Conservation Fund	February 3, 2012	Phone
Steve Kline	VP, Corporate Environmental & Federal Affairs and Chief Sustainability Officer	PG&E	February 6, 2012	Phone
Peter Miller	Senior Scientist	National Resources Defense Council	February 7, 2012	In person
Michael Colvin	Advisor	CPUC	February 7, 2012	In person
Robert Parkhurst	Principal	PG&E	February 7, 2012	In person
Molly Hoyt	Principal Product Manager, Program Marketing	PG&E	February 7, 2012	In person
Wendy Pulling	Director of Conservation Programs	The Nature Conservancy (formerly of PG&E)	February 9, 2012	In person
Gail Slocum	Law Department	PG&E	February 14, 2012	In person
David Wooll	Consultant	Formerly PG&E	February 15, 2012	Phone
Jan Berman	Senior Director, Customer Energy Solutions	PG&E	February 17, 2012	In person
Dean Kunesh	Senior Business Segment Manager	PG&E	February 22, 2012	In person
Jodi Stablein	Director, Customer Insight and Strategy	PG&E	February 23, 2012	In person
Matt Freedman	Attorney	TURN	February 23, 2012	Phone



## APPENDIX C: LIST OF DATA RESOURCES

The following files were provided by PG&E and reviewed by 3Degrees. All files are available upon request subject to any confidentiality provisions related thereto.

File name
CS Org Charts.ppt
ClimateSmart_TerminateTariffs_3261-G_3958-E.pdf
ClimateSmart2010_Plea_PGE_20090427-01.pdf
ClimateProtectionTariff_Test_PGE_20060606-01.pdf
ClimateProtectionTariff_Test_PGE_20060124-01.pdf
ClimateProtectionTariff_Plea_PGE_20060124-01.pdf
ClimateProtectionTariff_CPUC_Final-Dec_20061214_D-06-12-032_63046.pdf
2007 Bidder's Conference
2007 Request for ClimateSmartT Greenhouse Gas Emission Reduction Project Offers
Att A - Solicitation Agreement
Att B - Notice of Intent to Bid
Att C - Form of Letter of Credit
Att D - Offer Form
Att E - Manure Mgmt Advice Letter
ClimateSmart 2007 RFO
Selection Criteria for CS RFO 08-01-07
2008 Bidder's Conference
ClimateSmart Agreement
RFP Evaluation Criteria_Scorecard MB
RFP Package
Technical Contract Evaluation 7-08
Bidder's Information Session
Bidder's Workshop
RFP Evaluation Criteria_Scorecard
RFP No 5585
Technical Contract Evaluation 11-08
Bidder's Information Session
Bidder's Workshop
ClimateSmart RFP AD
RFP Evaluation Criteria_Scorecard
RFPNo5617
Technical Contract Evaluation 03-09
Bidder's Information Session RFP V
Bidder's Workshop
Request for Proposal 5656
RFP Evaluation Criteria_Scorecard oct 2009
Technical Contract Evaluation 10-09
Bidder's Information Session RFP VI
Bidder's Workshop
Request for Proposal



RFP Evaluation Criteria Scorecard
RFP VI Confidentiality Agreement
RFP VI Term Sheet
Technical Contract Evaluation
EAG List 2007 to 2011
Saatchi marketing assessment report
Saatchi summary report
Folder of press releases
Customer counts by zip
ClimateSmart overview set (marketing materials)
Ecopinion_Climate Change and Consumers - the Challenge Ahead 2008
Ecopinion_Green Gap Redux - Green Words Gone Wrong
Ecopinion_Branding Green but Seeing Red - Consumer Perceptions of Green Brands
2011 Satisfaction Survey Topline
Ad Tracking pre-wave report pub 1-09
ClimateSmart Small Business Focus Groups - Final Report 01-09-08
ClimateSmart_2011_Customers_Verbatims
Copy of ClimateSmart_2011_NonCustomers_Verbatims
CS Qual Research Nov08
FINAL Focus Group June 2007CSFindings
PG&E 2007 Climate Smart Survey Report HINER
PGE - ClimateSmart Qual08
PGE 2005 Climate Protection Tariff Topline v2
PGE 2007 Climate Smart Survey Report v1
PGE_ClimateSmart_final
PGECSSGreenbergTVRexsearchCreativeEvalTopline
SurveyMonkeyEnrollment_12282011
City Summary
County Summary
Zipcode Summary
Climate Smart Targeting - Final Status 071307
Climate Smart Targeting - campaign recommendations vFinal
Climate Smart Multi Variate Profile - V2.0
Climate Smart - brown bag 042507
FINAL ClimateSmart Survey Results - Kelton
ClimateSmart overview 1.23.12
ClimateProtectionTariff_Other-Doc_PGE_20060301-01.pdf
ClimateProtectionTariff_Plea_AECA_20060714-01.pdf
ClimateProtectionTariff_Plea_AECA_20060728-01.pdf
ClimateProtectionTariff_Plea_Aglet_20060225-01.pdf
ClimateProtectionTariff_Plea_Aglet_20060714-01.pdf
ClimateProtectionTariff_Plea_Aglet_20060718-01.pdf
ClimateProtectionTariff_Plea_Aglet_20060727-01.pdf
ClimateProtectionTariff_Plea_Aglet_20061120-01.pdf
ClimateProtectionTariff_Plea_Aglet_20061127-01.pdf
ClimateProtectionTariff_Plea_Aglet_20061202-01.pdf
ClimateProtectionTariff_Plea_Aglet_20061208-01.pdf



ClimateProtectionTariff_Plea_CCSF_20060227-01.pdf
ClimateProtectionTariff_Plea_CCSF_20060714-01.pdf
ClimateProtectionTariff_Plea_CCSF_20060721-01.pdf
ClimateProtectionTariff_Plea_CCSF_20060728-01.pdf
ClimateProtectionTariff_Plea_ORA_20060227-01.doc
ClimateProtectionTariff_Plea_ORA_20060714-01.pdf
ClimateProtectionTariff_Plea_ORA_20060728-01.pdf
ClimateProtectionTariff_Plea_ORA_20061120-01.pdf
ClimateProtectionTariff_Plea_ORA_20061127-01.pdf
2008DirectMailer.pdf
2008responserateslide.ppt
CBEY Leiserowitz_Dec08_2009_Part Two.ppt
ClimateSmart_2008 Campaign Summary_(SD).ppt
Jan08BillInsert.pdf
ClimateProtectionTariff_Plea_PGE_20060309-01.pdf
ClimateProtectionTariff_Plea_PGE_20060606-01.pdf
ClimateProtectionTariff_Plea_PGE_20060714-01.pdf
ClimateProtectionTariff_Plea_PGE_20060728-01.pdf
ClimateProtectionTariff_Plea_PGE_20061120-01.pdf
ClimateProtectionTariff_Plea_PGE_20061120-01Atch01.pdf
ClimateProtectionTariff_Plea_PGE_20061127-01.pdf
ClimateProtectionTariff_Plea_PGE_20061211-01.pdf
ClimateProtectionTariff_Plea_TURN_20060227-01.pdf
ClimateProtectionTariff_Plea_TURN_20060714-01.pdf
ClimateProtectionTariff_Plea_TURN_20060728-01.pdf
ClimateProtectionTariff_Plea_TURN_20061120-01.pdf
ClimateProtectionTariff_Plea_TURN_20061127-01.pdf
ClimateProtectionTariff_Plea_TURN_20061204-01.pdf
ClimateProtectionTariff_Plea_TURN_20061211-01.pdf
ClimateProtectionTariff_Trans_CPUC_20060316.pdf
ClimateProtectionTariff_Trans_CPUC_20060607.pdf
ClimateProtectionTariff_Trans_CPUC_20060608.pdf
ClimateProtectionTariff_Trans_CPUC_20060609.pdf
ClimateProtectionTariff_Trans_CPUC_20060612.pdf
CS Workshop 102209_v2_etc.ppt
ClimateSmart DTD_1116_Final.ppt
CS Closedown Plan_Timeline Key Facts_hxsu (2).ppt
ClimateSmart Jan 2011 CPUC_Program History_2011 Outreach Strategy_1_12_2011_finala .ppt
2007_CustomerAnnualReport.pdf
2008_CustomerAnnualReport.pdf
2009_CustomerAnnualReport.pdf
2010_customer annual report.pdf
C.4.climatesmart customer counts by zip w muni.xls
CA Unemployment - Seasonally Adjusted
CA Unemployment - Unadjusted
Retail Sales
Ameren rate history



Pure Power Stats Inception thru Current
CS Enroll Data PTD
CS Accts by Service Type
CS 2008 marketing updatespdf
CS communications summary 4.18.2007
CS creative development research 2.38.06 VBP
CS customer exp strategies and enablement march 2008
CS Marketing Brainstorm Prioritization 7.9.2008
CS Marketing brainstorm session 7.2.2008
CS marketing update first half 2008
PAMF SS v7 2008
CS program targeting campaign optimization 7.13.2007pdf
CS program targeting status update 7.13.2007
CS round 2 research overview VBP 6.8.2007
CS Status 6.12.2007



*Pacific Gas and  
Electric Company.*

**THE FOLLOWING TABLES INCLUDE PROGRAM METRICS FROM THE  
2007-2010 CLIMATESMART ANNUAL REPORTS,  
WITH AN UPDATE THROUGH DECEMBER 31, 2011**

**PACIFIC GAS AND ELECTRIC COMPANY  
CLIMATESMART PROGRAM METRICS  
2007-2011**

**TABLE 1  
NUMBER OF ACTIVE CLIMATESMART PROGRAM CUSTOMERS  
(CUMULATIVE AS OF DECEMBER 31)**

Line No.	Customer Type	2007	2008	2009	2010	2011
1	Residential	14,378	30,305	29,273	28,866	29,645
2	Commercial/Agricultural/Government/Non-Profits/Faith Communities	176	642	771	756	705
3	PG&E (Buildings System-wide, Using Shareholder Funds)	1(a)	1	1	1	1
4	Total	14,555	30,948	30,045	29,623	30,351

(a) In the 2007 ClimateSmart Annual Report, PG&E was shown as having 18 accounts. However, in this Table, PG&E is shown as one participant (which currently has 19 accounts). Therefore, the total number of 2007 participants has been adjusted downward to reflect the change in terminology from 18 accounts to one participant).

**TABLE 2**  
**CLIMATESMART ENROLLMENT**

Line No.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	New Enrollments											
	2007(a)											
					17	1,360	544	1,409	3,433	6,465	1,241	629
	1,747	3,093	2,357	7,584	–	–	494	358	330	364	240	343
	2008	2009	2010	2011								
	353	252	131	373	193	133	351	182	203	83	99	304
	101	106	151	130	132	104	105	130	288	798	159	168
	89	76	107	1,612	563	276	296	146	107	87	20	6
2	Monthly Attrition											
	2007(a)											
					1	11	23	32	52	146	128	133
	160	372	342	346	422	483	537	523	469	409	709	1,068
	2008	2009	2010	2011								
	412	421	342	383	249	303	287	299	223	217	183	241
	201	252	262	223	233	278	270	244	207	194	196	234
	216	258	209	219	243	281	282	284	223	231	211	30,351
3	Attrition Percentage											
	2007(a)											
					6.3	0.8	1.2	1.0	0.8	1.1	0.9	0.9
	1.1	2.3	1.8	1.7	1.5	1.7	1.7	1.6	1.5	1.3	2.2	3.4
	2008	2009	2010	2011								
	1.33	1.36	1.11	1.26	0.82	1.00	0.95	0.99	0.74	0.72	0.61	0.80
	0.67	0.84	0.88	0.75	0.79	0.94	0.92	0.84	0.84	0.67	0.66	0.79
	0.73	0.87	0.71	0.75	0.79	0.91	0.91	0.92	0.72	0.75	0.69	100.0
4	Cumulative Active Enrollments											
	2007											
					16	1,365	1,886	3,263	6,644	12,963	14,076	14,572
	16,159	18,880	20,895	28,133	29,298	32,534	32,491	32,326	32,187	32,142	31,673	30,948
	2008	2009	2010	2011								
	30,889	30,720	30,509	30,499	30,443	30,273	30,337	30,220	30,200	30,066	29,982	30,045
	29,945	29,799	29,688	29,595	29,494	29,320	29,155	29,041	29,122	29,726	29,689	29,623
	29,496	29,314	29,212	30,605	30,925	30,920	30,934	30,796	30,680	30,536	30,345	30,351

(a) The May numbers are for the period January through May 2007.

**TABLE 3**  
**CUMULATIVE CONTRIBUTIONS TO THE CLIMATESMART PROGRAM**  
**AS OF DECEMBER 31 - (\$000S)**

Line No.	Customer Type	12/31/07	12/31/08	12/31/09	12/31/10	12/31/11
1	Residential (Including PG&E Employees)	\$129	\$1,037	\$2,175	\$3,294	\$4,455
2	Commercial/Agricultural	73	543	1,248	2,062	3,077
3	PG&E Buildings (Through Shareholder Funds)	502	978	1,484	1,996	2,494
4	Total	\$704	\$2,558	\$4,907	\$7,352(a)	\$10,026

(a) Table 3-4 in the 2010 ClimateSmart Annual Report incorrectly showed Commercial/Agricultural contributions of \$2,054, and PG&E Buildings of \$1,995 (rounding issue). These numbers have been updated to show a corrected Total of \$7,352 for 2010.

**TABLE 4**  
**CLIMATESMART PROGRAM ANNUAL EXPENDITURES**  
**THROUGH DECEMBER 31, 2011 - (\$000S)**

Line No.		2007	2008	2009	2010	2011
1	Marketing	\$2,442	\$4,733	\$556	\$12	\$2,407
2	Program Administration (a)	751	1,205	759	268	258
3	Climate Action Reserve	192	383	186	127	—
4	Total	\$3,385	\$6,321	\$1,501	\$407	\$2,665

(a) Program Administration does not include expenditures to support the Climate Action Reserve and are reported separately.

**TABLE 5**  
**CLIMATESMART ANNUAL PROGRAM ADMINISTRATION AND MARKETING ACTIVITY**  
**(\$000S)**

Line No.		2007	2008	2009	2010	2011
1	Annual Authorized Revenue Requirement	(\$5,070)	(\$5,120)	(\$6,070)	-	-
2	Unspent Funds		(1,740)	(584)	(\$5,160) <sup>a</sup>	(\$4,764)
3	Administration Expense-Excluding CAR	751	1,205	759	268	258
4	CAR Expense	192	383	186	127	0
5	Marketing Expense	2,442	4,733	556	12	2,407
6	Interest (income)/Expense	(56)	(45)	(7)	(11)	(6)
7	Balance to Carry Forward (Credit)/Debit	(\$1,740)	(\$584)	(\$5,160)	(\$4,764)	(\$2,105)

(a) D.10-10-025 authorized PG&E to use 2008 and 2009 unspent funds.

**TABLE 6**  
**CLIMATESMART BALANCING ACCOUNT – PREMIUM SUB-ACCOUNT**  
**ANNUAL BALANCE AS OF DECEMBER 31 – (\$000S)**

Line No.		2007	2008	2009	2010	2011
1	Beginning Balance January 1	\$0	\$731	\$2,546	\$3,766	\$4,436
2	ClimateSmart Premiums – Residential	129	908	1,138	1,120	1,161
3	Commercial/Agricultural	73	470	705	814	1,015
4	PG&E Buildings (Through Shareholder Funds)	502	476	506	511	498
5	Total Premiums	704	1,854	2,349	2,445	2,674
6	Allocated GHG Reduction Project Expense (a)	0	(173)	(1,420)	(2,116)	(3,624)
7	Interest (at Cost of Capital Rate)	27	137	291	341	364
8	Ending Balance December 31 (Credit)/Debit	\$731	\$2,546	\$3,766	\$4,436	\$3,850

(a) Payments to vendors during the year were made out of the escrow account.

**TABLE 7**  
**METRIC TONS AND DOLLARS UNDER CONTRACT – CUMULATIVE**

Line No.		2007	2008	2009	2010	2011	2012 YTD
1	Metric Ton Performance Standard	1,360,777	1,360,777	1,360,777	1,360,777	1,360,777	
2	Metric Tons Under Contract	0	214,148	1,166,898	1,326,898	1,360,777(a)	
3	Dollars Under Contract	0	\$2,152,532	\$11,525,479	\$12,279,570	\$12,682,633	
4	Average Price Per Metric Ton (b)	0	\$10.05	\$9.88	\$9.25	\$9.32	
5	Metric Tons Delivered to PG&E	0	0	140,000	389,248	847,213	946,855
6	Metric Tons Retired	0	0	140,000	389,248	847,213	946,855

(a) Per the ClimateSmart Servicing Agreement approved in Resolution G-3429, the ClimateSmart Charity is required to use the funds in the Premium Subaccount to reduce or avoid GHG emissions under the ClimateSmart Program

(b) 2009 - \$9.88/metric ton = \$8.96/short ton  
 2010 - \$9.25/metric ton = \$8.40/short ton  
 2011 - \$9.32/metric ton = \$8.46/short ton

**TABLE 8**  
**PROTOCOL DIVERSITY**

Line No.	Year	Protocols Solicited in Bids	Regulatory Approval		
			Document	Filed	Approved
1	2007	Forest Project	A.06-01-012	1/24/2006	12/14/2006
2	2007	Livestock Manure Management	AL 3075-E/2846-G	6/27/2007	6/12/2008
3	2008	Landfill Project	AL 3299-E-A/2939-G-A	7/22/2008	12/8/2008; Supplement filed and approved 12/8/2008
4	2009	Urban Forest Project	AL 3374-E/2977-G	12/8/2008	2/11/2009
5	2009	Organic Waste Digestion	No bids received		N/A
6	2010	Ozone Depleting Substance	AL 3642-E/3106-G	3/26/2010	5/5/2010

**TABLE 9**  
**CLIMATESMART BALANCING ACCOUNTS, 2012 STATUS (\$000s)**

**Administration and Marketing Subaccounts (Electric and Gas):**

	<u>2012 YTD</u>
Beginning Balance	\$(2,105)
Administration & Marketing	144
Interest	<u>(2)</u>
Ending Balance through May 31	\$(1,963)*

\*Balance transferred to ClimateSmart Charity on June 11, 2012

Advice Letter 4051-E/3305-G filed on May 30, 2012 to close the *Administrative and Marketing Subaccount* effective July 1, 2012. Any interest earned during this interim period will be transferred to the ClimateSmart Charity in accordance with the Servicing Agreement.

**Premium Subaccounts/Segregated Accounts (Electric and Gas):**

	<u>2012 YTD</u>
Beginning Balance	\$3,850
Premiums	165
Interest	29
Transferred to Charity	<u>(4,044)</u>
Ending Balance through May 31	\$ 0

Resolution G-3429 dated December 15, 2011, retains the “Premium Subaccounts (Electric and Gas)” as the “Segregated Account” as defined in the Servicing Agreement executed on December 20, 2011 between PG&E and the Charity, to track contributions from PG&E to the Charity and any related billing adjustments.

APPENDIX D: Program Comparison

Program	Location	Protocols (Eligibility)	Registry / 3rd Party Oversight	Procurement	Procurement (Continued)	Products/Projects	Compare/contrast the ClimateSmart program project offerings with those of other market offerings; include evaluation of diversity of projects/quality of offsets/requirements of program, etc.
NW Natural Smart Energy	WA, OR	Smart Energy offset projects must:  Meet a credible additionality standard (i.e., The Climate Trust or Climate Action Reserve) that clearly demonstrates how carbon finance helps the project overcome financial, technological, or institutional barriers or how it is not common practice.  Have a credible monitoring plan in place that quantifies emissions reduction performance and subject it to third-party verification.  Permanently reduce or avoid emissions.  Demonstrate clear title to the emission reductions to guarantee that offsets have clear and defensible ownership rights and are not subject to double counting.	The Climate Trust  Through the Smart Energy program, NW Natural and The Climate Trust will invest in carbon offset projects that are most compatible with NW Natural's business - natural gas distribution. The major focus will be investments in biogas development.	When buying offsets, two criteria are important.  The first criteria is called "additionality." Does the offset funding help a project go forward and operate successfully?  The second criteria is verification. Smart Energy, through its partner The Climate Trust, only invests in projects with third-party verification. An independent source must verify the amount of greenhouse gas reduction achieved.	The Climate Trust has established a set of criteria for choosing the projects it invests in.  In addition to using these established criteria, NW Natural and the Climate Trust will look for projects that are most compatible with NW Natural's business - natural gas distribution. The major focus of Smart Energy investments will be biogas development.  <u>Climate Trust 2008 Annual Report</u>  We helped NW Natural conceive, design, and gain regulatory commission approval for this program, and now manage the funds and acquire the offsets. In late 2008, we acquired the first project for Smart Energy, a manure-to-energy project with two participating dairy farms in Mount Vernon, Washington.	Biodigester projects:  Farm Power Rexville, Mt. Vernon, WA  Farm Power Lynden, Lynden, WA  Revolution Energy Solutions Lochmead Farms, Junction City, OR  <u>Climate Trust 2008 Annual Report</u>  The Climate Trust, which also helped design the pro- gram, contracted to buy methane emission reductions from a Farm Power biodigester project in Mount Ver- non, Washington. Manure from two small dairy farms is being piped to a covered tank, which will capture and combust the methane.	The Climate Trust procures offsets on behalf of NW Natural, on the basis of Climate Trust's own criteria.  Offset projects procured during 2010 were limited in type and diversity, covering only 3 biodigester projects.  <a href="https://www.nwnatural.com/Residential/SmartEnergy">https://www.nwnatural.com/Residential/SmartEnergy</a> <a href="http://www.climatetrust.org/pdfs/2008%20Annual%20Report.pdf">http://www.climatetrust.org/pdfs/2008%20Annual%20Report.pdf</a>
SMUD Carbon Offsets	Sacramento	SMUD's Carbon Offset Program meets guidelines set by the Climate Action Reserve ensuring that your dollars are really helping the environment.	Climate Action Reserve  SMUD's Carbon Offset Program meets guidelines set by the Climate Action Reserve ensuring that your dollars are really helping the environment.  Voluntary Carbon Standard (in limited cases)	<u>Solicitation 12/12/2008 (45,000 tonnes)</u>  Projects which meet CCAR offset protocols given first preference. In the event SMUD does not receive sufficient CCAR qualified offers, SMUD will consider projects that meet Voluntary Carbon Standard (VCS).  In either case, projects must undergo third party verification.  SMUD will also consider proposals for projects of the types currently under consideration by CCAR for protocol development, however contracting may be delayed depending on the relative certainty of protocol guidelines.  Solicitation is limited to projects that can be developed according to robust project accounting methodologies and that will remain eligible for crediting in the fluid regulatory environment that governs carbon offsets.  Ensuring project additionality, credibility, and permanence are of paramount importance to SMUD when making procurement decisions.  Any offsets sold to customers will be retired via CAR or appropriate offset registry.	<u>Solicitation 10/26/2009</u>  50,000 tonnes of carbon offsets meeting the rigorous quality standards of the Climate Action Reserve.  Only projects which meet the rigorous standards of the Climate Action Reserve (CAR) offset protocols, and are verified and registered with CAR will be considered. Projects which are under development and will be verified and registered with CAR are eligible.  The RFO is soliciting offers for carbon offset projects developed in accordance with the CAR protocols, including both approved protocols: dairy manure digesters, landfill gas, forestry and urban forestry, organic waste digestion, coal mine methane, and protocols near completion: ozone depleting substances and N2O reduction in acid plants.  Projects which are local to the Sacramento region will be given preference in scoring over projects located outside the Sacramento region. Projects constructed outside the U.S. will not be evaluated in this RFO.	2 projects procured only - one is a dairy digester (other project unspecified)	The program "meets" CAR guidelines.  In the event of insufficient CCAR projects, SMUD will accept VCS projects.  Limited diversity and number of projects.  <a href="https://www.smud.org/en/residential/environment/carbon-offsets.htm">https://www.smud.org/en/residential/environment/carbon-offsets.htm</a> <a href="https://usage.smud.org/EBSESExt/Solicitations/Solicitation.aspx?solnum=80579">https://usage.smud.org/EBSESExt/Solicitations/Solicitation.aspx?solnum=80579</a> <a href="https://www.smud.org/en/about-smud/news-media/news-releases/documents/2009%20archive/carbon-offsets-10-27-09.pdf">https://www.smud.org/en/about-smud/news-media/news-releases/documents/2009%20archive/carbon-offsets-10-27-09.pdf</a>
Duke Energy Balance Your Equation	IN, KY NC, SC	No renewable energy credits  Additionality  Accurate quantification  Clarity on permanence  Appropriate timeline  Demonstration of ownership  Serialization and tracking  Verified and verifiable  Net positive impact	Climate Action Reserve	NC, SC - Duke Energy gives 100 percent of our customers' contributions to NC GreenPower, a nonprofit organization, which uses the funds to purchase carbon offsets.  All offset programs are being evaluated using the criteria established by the Environmental Defense Fund.	N/A	IN, KY - Duke Energy uses 100 percent of the contributions made by IN and KY customers to administer the program and support a landfill gas sequestration program through CAR.	NC Green Power is a third party administering the carbon offset program for NC and SC.  Offset programs evaluated using EDF criteria.  Limited diversity of number of projects.  <a href="http://www.balanceyoureuation.com/">http://www.balanceyoureuation.com/</a>
NC Green Power's Carbon Offset Program	NC, SC	In addition to other resources, NC GreenPower will take the following types of producers into consideration:  Forestry Projects - reforestation and avoiding deforestation; and Methane Collection and Combustion - from farm animals, landfills or other industrial waste.  No RECs as carbon offsets Additionality Accurate Quantification Clarity on Permanence Appropriate Timeline Demonstration of Ownership Serialization and Tracking Verified and Verifiable Net Positive Impact	N/A	<u>Rolling RFP</u>  Priority will be given to purchasing carbon offsets from participating utility service territories in North Carolina, South Carolina and Virginia; however, if no acceptable carbon offsets are available, other regions will be considered. In order to ensure that NC GreenPower acquires only reputable and certifiable carbon offsets, NC GreenPower has nine quality criteria for offsets.  Projects will be evaluated by a third party verifier of these nine criteria.  NC GreenPower seeks to purchase verifiable emission reductions generated since 1997 with preference given to newer resources.  NC GreenPower is currently seeking to purchase up to 8,000 Metric Tons of CO2e.  NC GreenPower will strive to use greenhouse gas reduction projects primarily within North Carolina and with the most valid verification methodology.	In general, the proposals will be evaluated using the following criteria (in no particular order of importance):  • Meets requirements of nine quality criteria • Compatibility with NC GreenPower Program Plan • The location of the project • Completeness of information supplied • How well the project is defined • If the project is not existing, how likely it is to reach completion • How quickly the project can begin mitigating greenhouse gases • Demonstrated experience in delivering verifiable carbon dioxide equivalent reductions • Premium requested from NC GreenPower	Past projects include a South Carolina landfill and North Carolina landfill and hog lagoon methane capture projects.  Current projects are methane capture from the Anson County landfill and Lillington hog farms.	Limited diversity and number of projects.  <a href="http://www.ncgreenpower.org/">http://www.ncgreenpower.org/</a> <a href="http://www.ncgreenpower.org/documents/NCGP_CarbonRollingRFP_09.pdf">http://www.ncgreenpower.org/documents/NCGP_CarbonRollingRFP_09.pdf</a> <a href="http://www.ncgreenpower.org/rfp/rfp_faq.html#CO">http://www.ncgreenpower.org/rfp/rfp_faq.html#CO</a>

APPENDIX D: Program Comparison

Program	Location	Protocols (Eligibility)	Registry / 3rd Party Oversight	Procurement	Procurement (Continued)	Products/Projects	Compare/contrast the ClimateSmart program project offerings with those of other market offerings; include evaluation of diversity of projects/quality of offsets/requirements of program, etc.	
Washington Gas Energy Service CleanSteps Carbon Offsets	DE, DC, MD, NY, PA, VA and WV MD	Real, additional, verifiable, permanent.	CSA Standards / Ruby Canyon Engineering (transportation projects)  Climate Action Reserve / First Environment (landfill gas)  American Carbon Registry / Ecofor (Chesapeake Bay Foundation projects)  Green-e (Sterling Planet)	No information available via internet searches. Procurement appears to be largely limited and flexible (only two projects, including one from transportation).	N/A	Reducing Truck Emissions: J.B. Hunt Transport Services takes trucks off of our highways and moves the goods via existing railways. Over 80% of the initial project supply will come from this project.  Limiting Landfill Greenhouse Gases: Methane produced by a landfill near Ocean City, Maryland is captured and destroyed.  <u>Future Project</u>  CBF-Managed Projects Funded by Program Partners WGES and Sterling Planet: A carbon reduction fund, administered by WGES and Sterling Planet, invests in new carbon reduction projects such as tree planting along Chesapeake Bay tributaries and adoption of new farming practices to slow nitrogen runoff.	Unusual "transportation" based project comprises majority of carbon offsets.  Joint funding and administration of projects with Sterling Planet.  Since the program's inception, \$150,000 in combined contributions from WGES and Sterling Planet have been made to the Carbon Reduction Fund managed by Chesapeake Bay Foundation. The funds have been used to plant 4,400 trees on 22 acres in Anne Arundel and Baltimore counties, and to start a new nutrient management grant program and research project.  Limited diversity and number of projects.	<a href="http://www.wges.com/cmp/cleansteps/carbonoffsets/">http://www.wges.com/cmp/cleansteps/carbonoffsets/</a> <a href="http://www.wges.com/cmp/cleansteps/carbonoffsets/pdfs/CSO_projects.pdf">http://www.wges.com/cmp/cleansteps/carbonoffsets/pdfs/CSO_projects.pdf</a> <a href="http://www.marketwatch.com/story/washington-gas-energy-services-cleansteps-carbon-offsets-shows-small-steps-can-have-a-big-impact-on-the-environment-2012-01-26">http://www.marketwatch.com/story/washington-gas-energy-services-cleansteps-carbon-offsets-shows-small-steps-can-have-a-big-impact-on-the-environment-2012-01-26</a>
Entergy Make an Impact	CA TX MI	Offsets purchased through the Double Your Difference Program are sourced from specific projects that result in real, quantifiable and permanent greenhouse gas (GHG) reductions.	Climate Action Reserve	No information available via internet searches.  Check with 3Degrees program manager?	N/A	Denton Landfill Gas project - Captures and destroys landfill gas. Average of 52,000 Metric tons CO2e/year over the next 10 years (commenced May 2006).  Garcia River Conservation Project - Conserves redwood forest for increased carbon storage. 77,000 metric tons CO2e per year (commenced 2005).  Green Meadows Farm - Agricultural Methane Capture. 20,000 Metric tons CO2e/year (commenced March 2008).  <u>News Release January 2010</u>  Entergy today announced the purchase of 100,000 metric tons of GHG offsets. The offsets are generated by capturing and combusting methane at a wastewater treatment facility in Texas.  Entergy purchased the offsets from Blue Source. Originally certified by VCS, and listed on the Markit Environmental Registry, the offsets were re-verified to the American Carbon Registry Standard, delisted from Markit and reissued on the American Carbon Registry.	Through Entergy's Double Your Difference Offset Matching program, individuals can purchase carbon offsets to reduce their carbon footprint beyond what is typically possible with efficiency. When you purchase an offset, Entergy will double the impact of your purchase by matching up to five tons of carbon offsets purchased per individual.  Signup also includes options to donate additional amounts to environmental organizations.  Pricing is on an annual basis.  Subscriber can choose allocation of funds between (currently) 3 carbon offset projects (percentage or pounds CO2).	<a href="http://entergy.c2es.org/carbon-offsets">http://entergy.c2es.org/carbon-offsets</a> <a href="http://www.energy.com/news_room/newsrelease.aspx?NR_ID=1659">http://www.energy.com/news_room/newsrelease.aspx?NR_ID=1659</a>
Just Energy	US Canada	Just Energy's carbon offset products come from emission reduction projects in Canada and the United States that are third party verified and meet the Climate Action Reserve, Voluntary Carbon Standard, or the ISO 14064-2 standard for greenhouse gas reduction projects.	Climate Action Reserve  Voluntary Carbon Standard  ISO 14064-2	The company utilizes an independent third party firm, Grant Thornton LLP, to conduct an annual review of the company's green energy related purchases.	<u>News Release - July 2011</u>  Quebec's L2I Financial Solutions, a specialist in the field of alternative financing and climate and environmental finance, is pleased to announce that it has sold 300,000 tons of carbon dioxide equivalent (carbon credits) over six years to Just Energy. The sale represents one of the biggest transactions ever in the Canadian Voluntary Carbon Market.  The carbon credits originate from various GHG reduction projects in Ontario that are generated mainly by waste management facilities. A total of 50,000 carbon credits will be traded per year for a period of six years, from 2011 to 2016.	OH: Erie County Landfill  MI: Scenic View Dairy  NY: Clinton County Landfill Methane Destruction, Development Authority of the North Country (DANC) Landfill Gas Destruction  IL: Clinton Landfill #2 Gas Collection and Combustion  Ontario: Essex-Windsor Regional Landfill Gas Capture and Destruction, East Landfill Gas Recovery and Utilization  Saskatchewan: Terra Grain Fuels Ethanol Plant  BC: Heffley Creek Biomass Gasification	Canada-based projects (using ISO 14064-2, except in BC)	<a href="http://www.justenergy.com/green-energy.html">http://www.justenergy.com/green-energy.html</a> <a href="http://www.justenergy.com/files/carbon_offsets_projects.pdf">http://www.justenergy.com/files/carbon_offsets_projects.pdf</a> <a href="http://www.marketwire.com/press-release/2i-financial-solutions-sells-300000-carbon-credits-to-just-energy-tax-ic-1541265.htm">http://www.marketwire.com/press-release/2i-financial-solutions-sells-300000-carbon-credits-to-just-energy-tax-ic-1541265.htm</a>

APPENDIX E: Marketing Chronology

	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	
<b>Economic Indicators</b>																					
CA Unemployment - Unadjusted	5.0%	4.8%	5.2%	5.7%	5.4%	5.4%	5.3%	5.5%	5.8%	6.4%	6.2%	6.5%	6.0%	6.4%	6.9%	7.6%	7.7%	7.5%	7.8%	8.3%	
CA Unemployment - Seasonally Adjusted	5.1%	5.2%	5.3%	5.4%	5.5%	5.6%	5.7%	5.7%	5.8%	5.9%	6.0%	6.1%	6.4%	6.6%	6.9%	7.3%	7.5%	7.8%	8.2%	8.6%	
Retail Sales (National)	330526	335001	331630	332663	334116	338375	337100	340786	338755	338980	335238	336272	337817	338765	339708	337305	335807	329799	315543	304483	
CA CPI	217.704	217.554	217.404	217.442	217.480	218.220	218.959	219.276	219.593	220.475	221.357	222.840	224.323	226.324	228.324	228.174	228.024	227.298	226.572	223.174	
National Unemployment	4.5%	4.4%	4.6%	4.7%	4.6%	4.7%	4.7%	4.7%	5.0%	5.0%	4.9%	5.1%	5.0%	5.4%	5.6%	5.8%	6.1%	6.1%	6.5%	6.8%	
<b>Marketing Activity</b>																					
Awareness Building	0	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	0	1	0	0	
Enrollment Mechanism	0	0	0	0	0	1	1	1	1	1	0	1	0	1	1	0	0	0	0	1	
Both	0	0	1	0	0	2	2	2	2	2	0	2	0	2	2	0	0	1	0	1	
<b>Program Performance</b>																					
New Enrollments		17	968	679	519	4,476	6,385	1,203	612	1,747	3,093	2,357	7,584	1,587	3,719	494	358	330	364	240	
Attrition		1	3	13	25	37	125	129	172	160	372	342	346	422	483	537	523	469	409	709	
Attrition percentage		6.3%	0.3%	0.8%	1.2%	0.6%	1.0%	0.9%	1.2%	1.0%	2.0%	1.7%	1.2%	1.5%	1.5%	1.7%	1.6%	1.5%	1.3%	2.3%	
Cumulative Active Enrollments		16	965	1631	2125	6564	12824	13898	14338	15925	18646	20661	27899	29064	32300	32257	32092	31953	31908	31439	
<b>Other Metrics</b>																					
Rate increase in bill insert		1	1	0	0	0	0	0	0	1	0	1	0	1	1	1	1	0	0	0	
Other notable events																					
Month	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	
Newspaper covers rate increase		0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
<b>Comparison Programs</b>																					
Average Growth Rate of Five Voluntary Green Products																					
Average Drop Rate of Five Voluntary Green Products																					

APPENDIX E: Marketing Chronology

	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09
<b>Economic Indicators</b>												
CA Unemployment - Unadjusted	8.9%	10.3%	10.6%	11.0%	10.5%	10.9%	11.5%	11.9%	11.8%	11.7%	11.9%	11.8%
CA Unemployment - Seasonally Adjusted	9.1%	9.7%	10.1%	10.6%	10.9%	11.2%	11.5%	11.7%	11.9%	12.0%	12.1%	12.2%
Retail Sales (National)	295647	300579	299791	294890	295492	298400	303065	303304	311629	303984	306248	310161
CA CPI	219.775	220.978	222.181	222.539	222.896	223.945	224.994	225.216	225.438	225.737	226.035	225.192
National Unemployment	7.3%	7.8%	8.3%	8.7%	8.9%	9.4%	9.5%	9.5%	9.6%	9.8%	10.0%	9.9%
<b>Marketing Activity</b>												
Awareness Building	1	1	0	0	0	0	0	0	0	0	1	1
Enrollment Mechanism	1	0	0	0	0	0	0	0	0	0	1	1
Both	2	1	0	0	0	0	0	0	0	0	2	2
<b>Program Performance</b>												
New Enrollments	343	354	257	132	375	192	134	411	198	254	85	99
Attrition	1068	412	446	358	387	263	325	275	312	245	232	192
Attrition percentage	3.5%	1.3%	1.5%	1.2%	1.3%	0.9%	1.1%	0.9%	1.0%	0.8%	0.8%	0.6%
Cumulative Active Enrollments	30714	30656	30467	30241	30229	30158	29967	30103	29989	29998	29851	29758
<b>Other Metrics</b>												
Rate increase in bill insert	0	0	0	1	1	1	0	1	0	0	1	1
Other notable events	PG&E filed for extension											
Month	December	January	February	March	April	May	June	July	August	September	October	November
Newspaper covers rate increase	0	0	0	0	0	0	0	1	0	0	0	0
<b>Comparison Programs</b>												
Average Growth Rate of Five Voluntary Green Products				0.063730056	0.048046053	0.043641468	0.040199145	0.049006759	0.058208445	0.062579133	0.072244358	
Average Drop Rate of Five Voluntary Green Products				0.009170035	0.010977311	0.013229209	0.014629791	0.017391537	0.011580254	0.014342341	0.011065996	

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	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10
<b>Economic Indicators</b>											
CA Unemployment - Unadjusted	12.0%	13.0%	12.8%	12.8%	12.2%	11.9%	12.2%	12.8%	12.5%	12.1%	12.1%
CA Unemployment - Seasonally Adjusted	12.2%	12.3%	12.4%	12.4%	12.4%	12.4%	12.4%	12.4%	12.4%	12.5%	12.5%
Retail Sales (National)	311924	313304	313681	321187	322993	320633	320045	320747	324572	327451	331514
CA CPI	224.349	224.988	225.626	226.317	227.007	227.060	227.113	227.257	227.401	227.569	227.737
National Unemployment	9.9%	9.7%	9.8%	9.8%	9.9%	9.6%	9.4%	9.5%	9.6%	9.5%	9.5%
<b>Marketing Activity</b>											
Awareness Building	0	0	1	0	1	0	0	0	0	1	0
Enrollment Mechanism	0	0	0	0	1	0	0	0	0	1	0
Both	0	0	1	0	2	0	0	0	0	2	0
<b>Program Performance</b>											
New Enrollments	306	101	106	148	130	131	101	105	130	288	795
Attrition	249	190	238	254	216	227	270	260	241	191	182
Attrition percentage	0.8%	0.6%	0.8%	0.9%	0.7%	0.8%	0.9%	0.9%	0.8%	0.7%	0.6%
Cumulative Active Enrollments	29815	29726	29594	29488	29402	29306	29137	28982	28871	28968	29581
<b>Other Metrics</b>											
Rate increase in bill insert	1	1	1	1	1	0	0	0	1	1	0
Other notable events										San Bruno pipeline explosion	
Month	December	January	February	March	April	May	June	July	August	September	October
Newspaper covers rate increase	1	0	0	0	0	0	0	0	0	1	0
<b>Comparison Programs</b>											
Average Growth Rate of Five Voluntary Green Products	0.036897208	0.027005477	0.019340727	0.056814181	0.03323181	0.052509216	0.029697537	0.024411868	0.013598703	0.036260186	0.042100136
Average Drop Rate of Five Voluntary Green Productis	0.011240073	0.014929388	0.012340671	0.011238074	0.011359717	0.011401784	0.016877506	0.015985048	0.017703429	0.014548975	0.011879442

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	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11
<b>Economic Indicators</b>											
CA Unemployment - Unadjusted	12.5%	12.3%	12.7%	12.2%	12.3%	11.7%	11.4%	12.1%	12.4%	11.9%	11.4%
CA Unemployment - Seasonally Adjusted	12.5%	12.5%	12.4%	12.1%	12.0%	11.8%	11.7%	11.8%	12.0%	12.1%	11.9%
Retail Sales (National)	334586	336857	339647	343733	346195	347316	346741	347349	348967	349904	354319
CA CPI	227.612	227.487	228.913	230.338	232.226	234.113	233.699	233.285	233.271	233.256	233.787
National Unemployment	9.8%	9.4%	9.1%	9.0%	8.9%	9.0%	9.0%	9.1%	9.1%	9.1%	9.0%
<b>Marketing Activity</b>											
Awareness Building	1	0	0	0	1	1	0	0	0	0	0
Enrollment Mechanism	0	1	0	0	1	1	0	0	0	0	0
Both	1	1	0	0	2	2	0	0	0	0	0
<b>Program Performance</b>											
New Enrollments	157	81	88	76	106	1612	563	275	294	146	106
Attrition	194	227	207	246	199	217	240	274	274	276	221
Attrition percentage	0.7%	0.8%	0.7%	0.8%	0.7%	0.7%	0.8%	0.9%	0.9%	0.9%	0.7%
Cumulative Active Enrollments	29544	29398	29279	29109	29016	30411	30734	30735	30755	30625	30510
<b>Other Metrics</b>											
Rate increase in bill insert	1	1	0	1	1	0	0	1	1	1	1
Other notable events											
Month	November	December	January	February	March	April	May	June	July	August	September
Newspaper covers rate increase	0	0	0	0	0	1	0	1	0	0	0
<b>Comparison Programs</b>											
Average Growth Rate of Five Voluntary Green Products	0.028735599	0.011606204	0.016359125	0.009136704	0.015393922	0.019643332	0.030750106	0.029273411	0.025315507	0.019990799	0.02049885
Average Drop Rate of Five Voluntary Green Productis	0.011138677	0.01112145	0.012918599	0.012012932	0.013387751	0.012563366	0.010042265	0.013270621	0.012662644	0.014933343	0.011509253

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	Oct-11	Nov-11	Dec-11
<b>Economic Indicators</b>			
CA Unemployment - Unadjusted	11.2%	10.9%	10.9%
CA Unemployment - Seasonally Adjusted	11.7%	11.3%	11.1%
Retail Sales (National)	356544	357923	357975
CA CPI	234.317	233.651	232.985
National Unemployment	8.9%	8.7%	8.5%
<b>Marketing Activity</b>			
Awareness Building	0	0	0
Enrollment Mechanism	0	0	0
Both	0	0	0
<b>Program Performance</b>			
New Enrollments	87	20	6
Attrition	225	203	26505
Attrition percentage	0.7%	0.7%	718.3%
Cumulative Active Enrollments	30372	30189	3690
<b>Other Metrics</b>			
Rate increase in bill insert	1	1	1
Other notable events			Program terminated
Month	October	November	December
Newspaper covers rate increase	0	0	0
<b>Comparison Programs</b>			
Average Growth Rate of Five Voluntary Green Products	0.013886786	0.017986315	
Average Drop Rate of Five Voluntary Green Productis	0.011710068	0.009989923	

APPENDIX F: Voluntary Green Program Attributes

	Description (Supply Type)	Location	Protocols (Eligibility)	Marketing Partner?	Program Options (i.e. block, % of use, etc.)	Estimated monthly cost for residential customer and unit cost	Available to all customers in their service area?	Certification	3rd Party Oversight	Notable similarities and differences vs. ClimateSmart	Why selected	URL
PG&E ClimateSmart	Forestry, biogas	CA	Climate Action Reserve	No	Residential: 100% of gas and electric	\$4.31/month (ave. user) \$0.0625 per therm of natural gas and \$0.00254 per kilowatt-hour (kWh) of electricity.	Yes	CAR	CAR		Base case	
NW Natural Smart Energy	Biogas	WA, OR	Smart Energy offset projects must:  Meet a credible additionality standard (i.e., The Climate Trust or Climate Action Reserve) that clearly demonstrates how carbon finance helps the project overcome financial, technological, or institutional barriers or how it is not common practice.  Have a credible monitoring plan in place that quantifies emissions reduction performance and subject it to third-party verification.  Permanently reduce or avoid emissions.  Demonstrate clear title to the emission reductions to guarantee that offsets have clear and defensible ownership rights and are not subject to double counting.	No	Business: % of use (those at 100% receive marketing benefits)  Residential: \$6/month (ave. user) or \$0.11/therm	\$6/month (ave. user) or \$0.11/therm	Yes	N/A	The Climate Trust  Through the Smart Energy program, NW Natural and The Climate Trust will invest in carbon offset projects that are most compatible with NW Natural's business - natural gas distribution. The major focus will be investments in biogas development.	Nearly 70 percent of all Smart Energy contributions will be used to fund offset projects. The remaining 30 percent will be used for overall program administration and to educate customers about Smart Energy and climate change issues.	Utility carbon offset	<a href="https://www.nwnatural.com/Residential/SmartEnergy">https://www.nwnatural.com/Residential/SmartEnergy</a>
SMUD Solar Shares	You pay a flat monthly fee to subscribe to SolarShares. You will receive energy credits to your bill for the amount of solar power your SolarShare generates.	SMUD Service Area	N/A	No	You pay a flat monthly fee to subscribe to SolarShares. The fee is based upon your historical energy use and the share size you select.	\$5 to \$65/month (after electricity savings)  From \$10.75 per month for a 0.5kW system	Yes	N/A	N/A	Facilitates sharing in solar electric systems.  100% solar generation 100% local generation 1 year minimum enrollment	Leading example of solar shares approach	<a href="https://www.smud.org/en/residential/environmental/solar-for-your-home/solarshares/">https://www.smud.org/en/residential/environmental/solar-for-your-home/solarshares/</a>
SMUD Carbon Offsets	Your participation will support projects that reduce or sequester greenhouse gas emissions, including local projects that help develop green jobs in Sacramento. We recently completed our second project - a dairy digester.	Sacramento	SMUD's Carbon Offset Program meets guidelines set by the Climate Action Reserve ensuring that your dollars are really helping the environment.	No	Fixed fee	\$10/month	Yes	N/A	Climate Action Reserve  SMUD's Carbon Offset Program meets guidelines set by the Climate Action Reserve ensuring that your dollars are really helping the environment.	Participation includes membership in SMUD's GreenEnergy® which provides electricity from renewable energy sources (usually \$3 for 50% and \$6 for 100% option)  SMUD is number 4 utility green power program (NREL - Dec 2010)	Utility carbon offset	<a href="https://www.smud.org/en/residential/environmental/carbon-offsets.htm">https://www.smud.org/en/residential/environmental/carbon-offsets.htm</a>
Austin Energy's Green Choice	Wind  Biogas (not part of the GreenChoice program)  Provides customers with a fixed charge instead of a traditional fuel charge during the term of subscription.	TX	N/A	No	Residential customers subscribe for 100% of actual annual usage at the current batch price through the ending date of the current batch.	Current batch priced at \$0.057/kWh (fixed through 2014)	Yes	Green-e		Number 1 Utility Green Power Program (NREL - Dec 2010)  Customers sign up for GreenChoice by subscribing to a specific "batch" for a fixed charge per kWh for a fixed period.	Leading example of fixed-price offering	<a href="http://www.austinenenergy.com/energy%20efficiency/Programs/Green%20Choice/index.htm">http://www.austinenenergy.com/energy%20efficiency/Programs/Green%20Choice/index.htm</a>
Duke Energy Balance Your Equation	Landfill gas sequestration  100% of contributions given to NC Green Power, to purchase carbon offsets.  NREL info: biomass, hydro, landfill gas, PV, wind	IN, KY, NC, SC	No renewable energy credits  Additionally  Accurate quantification  Clarity on permanence  Appropriate timeline  Demonstration of ownership  Serialization and tracking  Verified and verifiable  Net positive impact	NC Green Power	Customers can purchase 1 to 20 carbon offsets each month.  Recommended purchase is 4 offsets to cover 1,000 kWh of average energy use per month.  For NC & SC recommended purchase is 1 offset to cover 1,000 kWh of average energy use per month.	In NC and SC, each carbon offset costs \$4, and balances 1,000 pounds of CO2 (or 1,000 kWh of energy use).  In IN and KY, each carbon offset costs \$4, and balances 500 pounds of CO2 (or 250 kWh of energy use).	IN, KY, NC, SC only	N/A	Climate Action Reserve	NC Green Power is a third party administering the carbon offset program for NC and SC.  Cost per pound of CO2 varies from state to state.	Utility carbon offset	<a href="http://www.balanceyourequality.com/">http://www.balanceyourequality.com/</a>
NC Green Power's Carbon Offset Program	Recent projects include landfill gas and methane capture.  Types of carbon offset projects include methane collection and combustion from farm animals, landfills or other industrial waste and forestry projects (reforestation and avoiding deforestation), and Methane Collection and Combustion - from farm animals, landfills or other industrial waste.  Priority for project selection will be given to the participating utility service territories in NCS&VA for acquiring carbon offsets; however, if no acceptable carbon offsets are available, other regions will be considered.  NREL info: biomass, hydro, landfill gas, PV, wind	NC, SC	In addition to other resources, NC GreenPower will take the following types of producers into consideration: Forestry Projects - reforestation and avoiding deforestation; and Methane Collection and Combustion - from farm animals, landfills or other industrial waste.  No RECs as carbon offsets  Additionally  Accurate Quantification  Clarity on Permanence  Appropriate Timeline  Demonstration of Ownership  Serialization and Tracking  Verified and Verifiable  Net Positive Impact	No	\$4/block - no limit on purchase.	A \$4 monthly contribution will mitigate 1,000 pounds of CO2.  (Increase from 500 pounds as of August 1, 2011 due to market changes)	Yes	N/A	N/A	The Brokered Bids product provides customers interested in annually spending \$15,000 or more on renewable energy credits or carbon offsets with a more competitive North Carolina option. NC GreenPower accepts bids for renewable energy credits on a continual basis. When available, NC GreenPower offers them to customers meeting the minimum spending requirement.  NC GreenPower offers a gift card program.	Utility carbon offset	<a href="http://www.ncgreenpower.org/">http://www.ncgreenpower.org/</a>
Washington Gas Energy Service CleanSteps Carbon Offsets	Reducing Truck Emissions: J.B. Hunt Transport Services takes trucks off of our highways and moves the goods via existing railways.  Limiting Landfill Greenhouse Gases: Methane produced by a landfill near Ocean City, Maryland is captured.	MD	Real, additional, verifiable, permanent.	Sterling Planet	5% (standard) or 100% match.	Baltimore, MD: \$0.750/therm (1-year contract) \$0.790/therm (2-year contract)  Richmond, VA: \$0.610/CCF (1-year contract) \$0.670/CCF (1-year contract)  Washington, DC: \$0.790/therm (1-year contract) \$0.820/therm (2-year contract)  All options above are 100% match.	No - MD, VA, DC only	CSA Standards/ Ruby Canyon Engineering (transportation projects)  Climate Action Reserve (landfill gas)  American Carbon Registry (Chesapeake Bay Foundation projects)  Green-e (Sterling Planet)	N/A	All standard natural gas offers include a baseline 5% (residential) and 2.5% (commercial) match.  The nonprofit Chesapeake Bay Foundation manages the carbon offsets fund. WGES contributes \$4 to the Fund and Sterling Planet contributes \$2 for every carbon offset purchased.  Reducing Truck Emissions: J.B. Hunt Transport Services takes trucks off of our highways and moves the goods via existing railways, cutting transportation-related emissions nearly in half.	Utility carbon offset	<a href="http://www.wges.com/cmp/cleansteps/carbonoffsets/">http://www.wges.com/cmp/cleansteps/carbonoffsets/</a>
Xcel Energy Windsource	Purchase helps increase renewable energy production in Colorado.  Purchase helps increase renewable energy production on our grid in the Midwest.  Purchase helps increase renewable energy production in Minnesota.  Purchase helps increase renewable energy production in New Mexico.	CO  MI & WI  MN  NM	N/A	No	You can sign up for one block or opt to have 100% of your electricity provided through Windsource	CO - Windsource subscriptions are available in 100 kWh blocks for \$2.16 per block.  MI - Windsource subscriptions are available in 100 kWh blocks for \$1.20 per block.  MN - Windsource subscriptions are available in 100 kWh blocks for \$3.53 per block, less a credit for fuel costs. In 2010, the average fuel cost credit was \$2.63, making the average net charge for Windsource \$0.90 per block.  NM - Windsource subscriptions are available in 100 kWh blocks for \$3 per block, less a credit for fuel costs.  WI - Windsource subscriptions are available in 100 kWh blocks for \$1.37 per block.	No - CO, MI, MN, NM, WI only	Green-e	N/A	Fuel cost credit available in MN, NM  Xcel Energy is number 5 utility green power program (NREL - Dec 2010)	Leading example of fossil fuel adjustment fee exemption	<a href="http://www.xcelenergy.com/Save_Money_&amp;_Energy/For_Your_Home/Renewable_Energy_Programs">http://www.xcelenergy.com/Save_Money_&amp;_Energy/For_Your_Home/Renewable_Energy_Programs</a>

APPENDIX F: Voluntary Green Program Attributes

	Description (Supply Type)	Location	Protocols (Eligibility)	Marketing Partner?	Program Options (i.e. block, % of use, etc.)	Estimated monthly cost for residential customer and unit cost	Available to all customers in their service area?	Certification	3rd Party Oversight	Notable similarities and differences vs. ClimateSmart	Why selected	URL
<b>Pacific Power Blue Sky Renewable Energy</b>	Currently, 100% wind generation  Renewable energy sources supported in 2012 are likely to be a blend of solar (5%), wind (75%) and biomass (20%) from the West, however the blend is subject to change.	OR, WA, ID, WY	Renewable energy associated with the Blue Sky Block program comes from newly developed regional wind sources with preference given to resources within the Pacific Power/Rocky Mountain Power six state service area, but can extend throughout the western region.  Renewable energy associated with the Blue Sky Usage and Habitat options comes from a blend of sources with the majority usually coming from wind. Preference is given to resources within Oregon or the western region of the US, but a minority of the renewable energy may come from wind farms that are located to the west of the Mississippi River.	3Degrees	CA & WA - block only  OR - block and actual use (100% match option only)	CA, OR & WA - 100 kWh blocks for \$1.95 (homes and businesses)  CA, OR & WA - "Quantity Savings" for buying at least 101 blocks of Blue Sky per month for a period of one year (or more). The cost starts at \$1.94 per 100 kilowatt-hours and is based on a sliding scale. The more you buy, the less the per unit (block) cost. (businesses only)  OR - "Blue Sky Usage" actual use \$0.012 more per kWh, about \$10 extra per month (homes)  OR - "Blue Sky Habitat" Same as Blue Sky Usage and also helps restore and preserve native fish habitats in Oregon. Costs \$0.012 more per kWh, and a \$2.50 monthly donation (homes)	No - CA, WA, OR only	Green-e	N/A	PacificCorp is number 3 Utility Green Power Program (NREL - Dec 2010)	Typical approach - 3rd party marketer	<a href="http://www.pacificpower.net/bluesky">http://www.pacificpower.net/bluesky</a>
<b>CT Clean Energy Options</b>	Northeast Clean Power supports wind, biomass and other renewable energy projects located in the Northeast, including New England and other regional states.  Community Energy product consists of 99% wind and 1% solar from Northeast regional sources.	Northeast	N/A	3Degrees  Community Energy	100% or 50% of use options.	100% renewable energy at \$0.0099 per kWh or 50% renewable energy at \$0.00495 kWh.	Yes	Green-e	N/A	Two suppliers offered: 3Degrees and Community Energy	Example of check-box program	<a href="http://www.ctcleanenergyoptions.com/">http://www.ctcleanenergyoptions.com/</a>
<b>Entergy Make an Impact</b>	The offsets used for the Double Your Difference program are sourced from the:  Garcia River Conservation-Based Forest Management project  Denton Landfill Gas project  Green Meadows Farm Methane Capture project	CA  TX  MI	Offsets purchased through the Double Your Difference Program are sourced from specific projects that result in real, quantifiable and permanent greenhouse gas (GHG) reductions.	3Degrees	10% (5,000 lbs), 25% (12,500 lbs), 50% (25,000 lbs), or 100% offset (50,000 lbs) (all annual estimates - subsequently doubled by Entergy offer)	10% costs \$24.95 25% costs \$62.37 50% costs \$124.74 100% costs \$249.48 (all annual charges)  The carbon offsets sold through the Double Your Difference program cost \$9.80 per metric ton, plus a \$0.20 per transaction processing fee. Through the Double Your Difference initiative, Entergy will purchase offsets to match participants' new reduction pledges ton-for-ton, and will also match up to 5 tons of each participant's offset purchases.	Yes	N/A	Climate Action Reserve	Through Entergy's Double Your Difference Offset Matching program, individuals can purchase carbon offsets to reduce their carbon footprint beyond what is typically possible with efficiency. When you purchase an offset, Entergy will double the impact of your purchase by matching up to five tons of carbon offsets purchased per individual.  Signup also includes options to donate additional amounts to environmental organizations.  Pricing is on an annual basis.  Subscriber can choose allocation of funds between (currently) 3 carbon offset projects (percentage or pounds CO2).		<a href="http://entergy.c2es.org/carbon-offsets">http://entergy.c2es.org/carbon-offsets</a>
<b>Puget Sound Energy's Carbon Balance Program</b>	Biodigester/methane capture.  The carbon offsets for PSE's Carbon Balance Program are sourced from a methane capture project at the George DeRuyter and Sons Dairy, a family farm located in Outlook, WA. Instead of the traditional method of storing manure in outdoor storage ponds where methane is created and naturally released into the atmosphere, the DeRuyter Dairy digester captures methane, a greenhouse gas more than 21 times more potent than carbon dioxide generated naturally from the manure of dairy herds. The captured methane, which creates the carbon offsets, is then burned in an on-site generator to produce electricity outside of PSE's service area.	WA	Puget Sound Energy purchases carbon offsets through the Bonneville Environmental Foundation (BEF), one of the nation's leading offset suppliers. PSE works with BEF to make certain that your carbon offset purchase helps fund new renewable energy or other emission reduction projects that would not otherwise happen.  Bonneville Environmental Foundation works with carbon offset projects that have been certified or verified by independent certification/verification organizations. The carbon offsets from George DeRuyter's dairy farm have been verified by The Climate Action Reserve. Climate Action Reserve projects are reviewed and verified by an independent, accredited third party verification body, and approved by the Reserve.	No	Residential customers can purchase carbon offset blocks at \$4 each, added to your monthly gas bill. One block is equivalent to removing 400 pounds of carbon dioxide from the environment. The average residential customer can make their natural gas use carbon neutral for \$8 month.	One block at \$4 each (equivalent to 400 pounds/1 metric ton of CO2)  Average user at \$8/month	Yes	Climate Action Reserve	Bonneville Environmental Foundation (BEF)	Limited number/range of projects (only 1 project active at time of review).  3rd Party oversight from BEF.		