



## MEMORANDUM

**TO:** California Public Utilities Commission  
**CC:** DDB, Interbrand, Southern California Edison  
**FROM:** The Opinion Dynamics Evaluation Team  
**DATE:** December 10, 2009  
**RE:** Market Segmentation Findings

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This memo provides the California Public Utilities Commission (CPUC) with the final statewide segmentation scheme developed to inform the 2010-2011 Statewide Marketing and Outreach Program's (SWM&O) efforts for the state's investor owned utilities' (IOUs) future program development, marketing and outreach efforts. This memo provides an overview of our segmentation approach, methods, and final statewide segmentation design.

### Executive Summary

The Opinion Dynamics team identified five unique segments for the CPUC and IOU outreach efforts. These segments were developed to allow for strategic and tailored branding and marketing and outreach strategy. Figure 1 provides a snapshot summary of each segment's level of energy efficiency importance (as a factor of personal relevance and awareness), their primary non-monetary motivations, and their potential behavioral movement (indicated by the direction of the arrows in the "behavioral movement potential" column). We make the following over-arching recommendations based on these findings and our on-going evaluation of previous energy marketing and outreach reach campaigns:

California is an extremely diverse state, both in terms of demographic and ideological make-up. Thus, a single marketing and outreach strategy and messaging appeal is unlikely to generate substantive and measurable behavioral movement. Therefore,

- Outreach efforts should be tailored, in format, content, and depth of information to each segment. The same marketing strategy or a single mass media campaign is unlikely to maximize movement among all groups.
- Outreach efforts should constitute non-traditional as well as traditional media formats to enlist all segments in a call to action campaign, aimed at moving each segment to the next energy saving step.

As shown by our evaluation efforts and our ethnographic research, the depth of knowledge, understanding, and personal concern for energy efficiency and conservation

is greatly varied.

- To move households to action, outreach activities need to address misunderstandings on what constitutes an energy “efficient” behavioral choice through substantive education and outreach.

Further, marketing and outreach efforts risk skimming the surface with awareness-raising campaigns and may not effectively inform, educate, and motivate Californians beyond their current levels of commitment and behavioral adoption.

- Moving individuals to action does not require changing their fundamental belief systems or generating new concern for issues that are not currently relevant to a given consumer. Rather, outreach activities should leverage the *current* attitudes and beliefs of each target audience and speak to them in their terms, from their perspective, and with messaging that directly appeals to them.

Traditional mass media advertising has its place for marketing and outreach, however, other outreach strategies, including using community action groups, online resources, and point-of-purchase materials must also be incorporated to generate a successful behavior-change campaign.

- Due to their localized and tailored content, grassroots and community-based groups, as well as information-driven web formats, have a strong role in helping to mobilize segments to action and to generate a *behavior change*, above and beyond the limited, awareness-generating capacity of mass media.

We provide our detailed segmentation findings and segment specific recommendations in the “Results” section of this memo.

Figure 1. Final Five Statewide Segments

| SEGMENT                   | E.E. IMPORTANCE | MOTIVATION RANK  | BEHAVIORAL MOVEMENT POTENTIAL | OUTREACH RECOMMENDATIONS |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
|---------------------------|-----------------|--|-------------------------------|--------------------------|-------------------------|---------------|---|------------------|-------------------|---|-------------------------|---------------|--|--|---------------|--|--|--|--|
| <b>LEADING ACHIEVERS</b>  |                 | <table border="0"> <tr> <td>1 Money</td> <td>→</td> <td>1 Climate chg.</td> </tr> <tr> <td>2 Environment</td> <td>→</td> <td>2 Healthy env.</td> </tr> <tr> <td>3 Foreign oil</td> <td>→</td> <td>3 Future gen.</td> </tr> <tr> <td>4 Future gen.</td> <td></td> <td></td> </tr> <tr> <td>5 Health</td> <td></td> <td></td> </tr> </table>               | 1 Money                       | →                        | 1 Climate chg.          | 2 Environment | → | 2 Healthy env.   | 3 Foreign oil     | → | 3 Future gen.           | 4 Future gen. |  |  | 5 Health      |  |  |  | <p>APPEAL</p> <ul style="list-style-type: none"> <li>➤ Engage as peers and leaders in movement</li> </ul> <p>OUTREACH APPROACH</p> <ul style="list-style-type: none"> <li>➤ Sophisticated, info-driven, available online</li> </ul>  |
| 1 Money                   | →               | 1 Climate chg.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 2 Environment             | →               | 2 Healthy env.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 3 Foreign oil             | →               | 3 Future gen.  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 4 Future gen.             |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 5 Health                  |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| <b>PRACTICAL SPENDERS</b> |                 | <table border="0"> <tr> <td>1 Money</td> <td>→</td> <td>1 Energy independence</td> </tr> <tr> <td>2 Foreign oil</td> <td>→</td> <td>2 Nat'l security</td> </tr> <tr> <td>3 Future gen.</td> <td>→</td> <td>3 Help economy</td> </tr> <tr> <td>4 Health</td> <td></td> <td></td> </tr> <tr> <td>5 Environment</td> <td></td> <td></td> </tr> </table>     | 1 Money                       | →                        | 1 Energy independence   | 2 Foreign oil | → | 2 Nat'l security | 3 Future gen.     | → | 3 Help economy          | 4 Health      |  |  | 5 Environment |  |  |  | <p>APPEAL</p> <ul style="list-style-type: none"> <li>➤ Straightforward, no-nonsense messaging</li> </ul> <p>OUTREACH APPROACH</p> <ul style="list-style-type: none"> <li>➤ IOU programs, traditional media</li> </ul>                |
| 1 Money                   | →               | 1 Energy independence  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 2 Foreign oil             | →               | 2 Nat'l security   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 3 Future gen.             | →               | 3 Help economy   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 4 Health                  |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 5 Environment             |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| <b>STRIVING BELIEVERS</b> |                 | <table border="0"> <tr> <td>1 Money</td> <td>→</td> <td>1 Climate chg.</td> </tr> <tr> <td>2 Environment</td> <td>→</td> <td>2 Resources</td> </tr> <tr> <td>3 Future gen.</td> <td>→</td> <td>3 Animal and plant life</td> </tr> <tr> <td>4 Foreign oil</td> <td></td> <td></td> </tr> <tr> <td>5 Health</td> <td></td> <td></td> </tr> </table>        | 1 Money                       | →                        | 1 Climate chg.          | 2 Environment | → | 2 Resources      | 3 Future gen.     | → | 3 Animal and plant life | 4 Foreign oil |  |  | 5 Health      |  |  |  | <p>APPEAL</p> <ul style="list-style-type: none"> <li>➤ Social capital-driven media with "us" appeal</li> </ul> <p>OUTREACH APPROACH</p> <ul style="list-style-type: none"> <li>➤ Web-based formats with clear information</li> </ul> |
| 1 Money                   | →               | 1 Climate chg.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 2 Environment             | →               | 2 Resources  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 3 Future gen.             | →               | 3 Animal and plant life  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 4 Foreign oil             |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 5 Health                  |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| <b>THRIFTY CONSERVERS</b> |                 | <table border="0"> <tr> <td>1 Money</td> <td>→</td> <td>1 Climate chg.</td> </tr> <tr> <td>2 Environment</td> <td>→</td> <td>2 Healthy env.</td> </tr> <tr> <td>3 Foreign oil</td> <td>→</td> <td>3 Resources</td> </tr> <tr> <td>4 Health</td> <td></td> <td></td> </tr> <tr> <td>5 Future gen.</td> <td></td> <td></td> </tr> </table>                 | 1 Money                       | →                        | 1 Climate chg.          | 2 Environment | → | 2 Healthy env.   | 3 Foreign oil     | → | 3 Resources             | 4 Health      |  |  | 5 Future gen. |  |  |  | <p>APPEAL</p> <ul style="list-style-type: none"> <li>➤ Efficiency barrier-reduction messaging</li> </ul> <p>OUTREACH APPROACH</p> <ul style="list-style-type: none"> <li>➤ IOU programs, point-of-purchase messaging</li> </ul>      |
| 1 Money                   | →               | 1 Climate chg.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 2 Environment             | →               | 2 Healthy env.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 3 Foreign oil             | →               | 3 Resources  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 4 Health                  |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 5 Future gen.             |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| <b>DISCONNECT-ED</b>      |                 | <table border="0"> <tr> <td>1 Money</td> <td>→</td> <td>1 Animal and plant life</td> </tr> <tr> <td>2 Environment</td> <td>→</td> <td>2 Healthy env.</td> </tr> <tr> <td>3 Help state lead</td> <td>→</td> <td>3 Climate chg.</td> </tr> <tr> <td>4 Health</td> <td></td> <td></td> </tr> <tr> <td>5 Foreign oil</td> <td></td> <td></td> </tr> </table> | 1 Money                       | →                        | 1 Animal and plant life | 2 Environment | → | 2 Healthy env.   | 3 Help state lead | → | 3 Climate chg.          | 4 Health      |  |  | 5 Foreign oil |  |  |  | <p>APPEAL</p> <ul style="list-style-type: none"> <li>➤ Community health and well-being messaging</li> </ul> <p>OUTREACH APPROACH</p> <ul style="list-style-type: none"> <li>➤ Community or faith-based local outreach</li> </ul>     |
| 1 Money                   | →               | 1 Animal and plant life  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 2 Environment             | →               | 2 Healthy env.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 3 Help state lead         | →               | 3 Climate chg.   |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 4 Health                  |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |
| 5 Foreign oil             |                 |  |                               |                          |                         |               |   |                  |                   |   |                         |               |  |  |               |  |  |  |  |

\* The circles in these diagrams indicate where each segment is now. Arrows show the direction for movement. Disconnect-ed has low adoption overall, and needs to be moved in both directions.

## Overall Segmentation Approach

Our team utilized a multi-method segmentation approach to identify the most appropriate and descriptive segmentation scheme to divide the state's population into targetable groups. We used the following over-arching criteria while developing the segmentation scheme. Namely, the segments must:

1. Effectively represent the State of California's diversity – geographically, demographically, politically, and attitudinally.
2. Provide detailed insight into the barriers, motivations, and attitudes that inform *daily* energy use practices and energy efficiency purchases.
3. Differentiate groups based on behaviors, not attitudes alone, to determine the current behavioral trends for each segment *and* provide insight into the segment's potential to move to increasingly more energy-saving behaviors.
4. Provide sufficient demographic distinction to identify and target the segments in IOU and other databases and within the population for strategic program and marketing and outreach intervention.

We provide our methods for developing the final segmentation approach relying on the aforementioned criteria.

## Methodology

We used two primary methods to develop the segmentation schemes for consideration: (1) a cluster analysis approach to segmentation; and (2) an alternative approach to segmentation known as response-based segmentation, using CART analysis. Using these two approaches, we developed multiple models (in excess of 15) for comparison. We then reduced our models to three primary models for consideration.

First, using cluster analysis, we identified groups of people who share similar attitudes and behaviors toward energy efficiency. Using cluster analysis, we developed 2 of the 3 segmentation schemes for consideration for our final model:

- The first scheme is an attitudes<sup>1</sup> only scheme that is indirectly linked to behaviors using regression analysis.
- The second scheme incorporates both attitudes and behaviors through two sets of clusters, one for behaviors and the other for attitudes.

The second general segmentation approach is known as response-based segmentation, and we use this to create the last of the three segmentation schemes for consideration. Rather than finding groups of people with similar characteristics (which is the goal of cluster analysis), response-based segmentation involves a predictive model to determine the characteristics of people most likely to take an action, which requires the selection of a

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<sup>1</sup> We use the term “attitudes” as a shorthand to represent awareness, knowledge, motivations, social influences, and barriers.

response or target variable, in this case energy-saving behaviors.<sup>2</sup> We use CART (Classification and Regression Trees) to perform this analysis.<sup>3</sup> Table 1 summarizes the methods used in each of the 3 segmentation schemes.

**Table 1. The 3 Segmentation Schemes**

|   | Attitudes Clusters | Behavior Clusters | CART Analysis |
|---|--------------------|-------------------|---------------|
| 1: Attitudes Only Segmentation          | X                  |                   |               |
| 2: Attitudes and Behaviors Segmentation | X                  | X                 |               |
| 3: CART Analysis Segmentation           |                    |                   | X             |

Ultimately, all schemes performed well in providing descriptive and adequately differentiated segments; however one scheme was predicted well by our demographic variables (a necessary selection criterion to ensure that the segmentation is actionable) and incorporated behaviors directly.

We found that scheme #2, the one involving both attitudes and behavior clusters, was the best and we adopt this as our final scheme.<sup>4</sup> We describe our approach in greater detail in the following sections.

## Survey Development

To develop the preliminary survey instrument, our team relied on four sources of information: (1) previous research conducted by Opinion Dynamics on marketing and outreach’s effects on behavior change; (2) an extensive review of behavior change literature; (3) a library of segmentation surveys, studies, and question batteries used in energy, environment, and behavior change focused efforts; and (4) ethnographic research on energy-saving practices and purchases conducted by Opinion Dynamics throughout the state of California.

Drawing on this qualitative and quantitative information and resources, our team developed a preliminary survey instrument. The survey explored attitudes and barriers toward taking energy efficiency and conservation actions with the aim of identifying barriers to be eliminated and providing better motivations to action. The survey also contained questions about current behaviors. Further, the survey included demographics, media habits, and standard psychographics to allow the CPUC to effectively find the segments in the population. This survey was then thoroughly pre-tested.

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<sup>2</sup> SPSS Inc. 2006. *Market Segmentation Using SPSS*. Chicago: SPSS Inc.

<sup>3</sup> Other methods to perform this type of analysis include binary and multinomial logistic regression, as well as CHAID analysis.

<sup>4</sup> The final scheme we adopt is most similar to the approach found in: Yankelovich, Inc. 2007. *Section 3: Green Segmentation, Yankelovich MONITOR Perspective: Going Green*.

## Pre-Test Analysis

The initial questionnaire was too long and, in order to determine which questions to cut, the Opinion Dynamics team conducted an online pre-test of the questionnaire in July 2009 with a sample size of 112. Using the pretest data, our team carried out the following analyses to determine which questions to cut:

- Performed scaling analyses on all of the original concepts in the survey (specifically on all the motivations and barriers). Scaling analysis involves calculating the Cronbach's alpha<sup>5</sup> of the scales, and allowed us to determine the questions that are needed and not needed to measure these concepts.
- Calculated the skewness statistic of each attitudes question to check the normality of the distribution.
- Performed principle components analysis (PCA) on the revised list of questions to determine whether the questions hung together to the point of redundancy and allow us to determine whether the components form new, more general attitude scales. Seven components were extracted as a result of this PCA.
- Finally, we determined which of the attitude scales predicted two kinds of behavior: no cost measures (e.g. turning off the lights, unplugging the computer when not in use) and high cost measures (e.g. appliances, HVAC). This involved two separate regression analyses with behavior as the dependent variable and the component scores from the PCA as the independent variables. This analysis was not definitive and future work would have been needed to be done to make the results definitive, however it was treated as one consideration in making deletions.

## Final Survey

The final fielding of the survey was conducted in August 2009. Our team conducted a phone survey with English-speaking California residents aged 18 years and over. The sample was drawn using the random digit dial (RDD) methodology and then controlled using carefully selected quotas. To ensure that the sample was representative of English-speaking California on certain variables, our team controlled the number of respondents filling the following quota groups: ethnicity, age, homeownership, IOU territory, and income. The percentages on each of these variables for the California population can be found in Appendix A. The final sample size was 752. The final survey can be found in Appendix B.

Table 2 below shows how many questions from the final survey fell into each of the areas we are examining.

**Table 2. Number of Questions by Topic Area**

| Area                    | Number of Questions |
|-------------------------|---------------------|
| Awareness and Knowledge | 2                   |
| Motivations             | 12                  |
| Barriers                | 20                  |

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<sup>5</sup> Cronbach's alpha is a measure of the internal consistency of a scale.

|                          |    |
|--------------------------|----|
| Social Influences        | 8  |
| Behaviors                |    |
| ➤ EE behaviors           | 20 |
| ➤ Conservation behaviors | 8  |
| ➤ IOU Participation      | 4  |
| Psychographics           | 12 |
| Information Sources      | 5  |
| Demographics             | 23 |

## Segmentation Methodology

Prior to carrying out the analyses involving cluster analysis and CART, we needed to take some steps to prepare the data. Specifically, this involved treating missing values, carrying out a principle components analysis (PCA) on attitudes, and creating indices of the behavior variables. We discuss each of these separately in the next three sections.

### *Treatment of Missing Values*

Before carrying out the analysis, it was necessary to consider whether and how to treat missing values such as responses of “don’t know” or “refused” as well as skips. We outline our decisions below:

- For scales of 1-7 or 1-6,<sup>6</sup> responses of “don’t know” or “refused” were set to 0. We reasoned that if the respondent felt favorable about the issue, they would have indicated this.
- For yes/no questions about having taken action or being aware, responses of “don’t know” and “refused” were set to 2 (no).
- In other cases where it did not make sense to assign “don’t know” or “refused” values to 0 or no, e.g. a question about how one’s energy use compares to others, we set them to the modal value.

### *Attitudes: Principle Components Analysis*

Before carrying out the cluster analysis on the attitudes, it was necessary to reduce the initial set of variables into a smaller group. If many variables that measure the same thing are included in a cluster analysis, then it can cause problems with the analysis as these variables will then have greater weight.<sup>7</sup> The purpose of performing a principle components analysis (PCA) is to reduce a larger group of correlated variables into a smaller group of uncorrelated variables, known as components, which contain the majority of information of the original set of variables.<sup>8</sup>

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<sup>6</sup> This included questions about the frequency of taking certain behaviors (1-7), questions about barriers and social influences (1-7), and motivations variables (1-6).

<sup>7</sup> SPSS Inc. 2006. *Market Segmentation Using SPSS*. Chicago: SPSS Inc.

<sup>8</sup> Bartholomew, D.J., F. Steele, I. Moustaki, and J.I. Galbraith. 2002. *The Analysis and Interpretation of Multivariate Data for Social Scientists*. Boca Raton: Chapman & Hall.

In order to reduce the initial set of variables to a smaller group, we performed a principle components analysis (PCA) with orthogonal rotation (specifically Varimax) for ease of interpretation on 35 variables<sup>9 10 11</sup>. More specifically, these were 6 variables about motivations, 19 on barriers, 6 questions on social influence, a question about willingness to reduce energy use, a question about interest in a home energy audit, and 2 dichotomous questions about awareness. We then created the new variables that went into the cluster analysis by taking the mean of the variables strongly related to each component,<sup>12</sup> and used these as variables in the subsequent cluster analysis.

Several criteria were used to determine the number of components to retain: keeping components with eigenvalues over 1, examination of the scree plot, the percent of total variance, and the interpretability of the components. Ten components were retained which, when combined, explained 52% of the total variance<sup>13</sup>.

Table 3 shows the results of this analysis for scales that were intercorrelated (as determined by their Cronbach’s alphas). We came up with names for the components based on the variables that loaded highly on each component. The loadings represent the correlation coefficient between the variable and the component.

**Table 3. Results of the PCA – Rotated Component Matrix**

| Component   | Loadings |
|---|----------|
| <b><i>Not important</i> α =0.76</b>   |          |
| My day-to-day life is so busy that I often forget to take actions that save energy.           | 0.68     |
| It is difficult to find energy efficient products that meet my needs.                         | 0.67     |
| Information about saving energy is never around when I need it or it comes at the wrong time. | 0.61     |
| I would like to do more to use less energy, but I don’t often think of it.                    | 0.60     |

<sup>9</sup> Originally 36 variables were put into the PCA, however one was removed as it did not load highly on any component.

<sup>10</sup> Before carrying out the PCA, we examined the distributions of the variables and found that several had skewed distributions. After performing transformations, we were able to eliminate the skew for some variables and not others. We carried out two PCA analyses, one on the best possible version of each of the variables (transformed or not) and one on the original, non-transformed set of variables. The results were generally similar and for ease of interpretation, we decided to go with the analysis on the original variables.

<sup>11</sup> We had two dichotomous variables, both relating to knowledge, in the PCA. Although technically this violates an assumption of PCA, it was decided that it would be worse to lose the information these variables provide.

<sup>12</sup> Unlike creating factor scores, this approach allows the new set of variables to be on the same scale as the original set, and also makes the interpretation of the results easier. (SPSS Inc. 2006. *Market Segmentation Using SPSS*. Chicago: SPSS Inc.)

<sup>13</sup> Although the percentage explained is low, the PCA was a first step and the Cronbach’s alphas were the next step in assuring ourselves that the scales were reasonably reliable. When the Cronbach’s alphas were too low, we used individual items instead of scales. It is possible that the percentage of variance explained would increase if we redid the PCA without the items that did not scale well.



|  |      |
|--|------|
| I will only save energy if it does not require too much effort.  | 0.52 |
| Where I live, energy efficient products are hard to find.  | 0.52 |
| I am not willing to sacrifice my personal comfort in order to save energy.   | 0.51 |
| It is important to me that my home is kept at a comfortable temperature, even if it requires using a lot of heating and/or air conditioning. | 0.49 |
| <b>Not My Job <math>\alpha = 0.67</math></b>   |      |
| I do NOT feel responsible for conserving energy because my personal contribution is very small.  | 0.69 |
| I do NOT feel a personal responsibility to reduce greenhouse gases.  | 0.66 |
| There is no use worrying about energy supplies because I can't do anything about them anyway.  | 0.65 |
| It is the responsibility of the government, not individuals, to make sure we have enough energy resources.                                   | 0.59 |
| A product that saves energy won't look as good as the non-energy efficient alternative.  | 0.52 |
| <b>Resource-minded <math>\alpha = 0.62</math></b>  |      |
| I compare prices of at least a few brands before I choose one.   | 0.70 |
| It is important for me to get the best price for the products I buy.   | 0.65 |
| I find myself checking the prices even for small items.  | 0.61 |
| If you can re-use an item you already have, there's no sense in buying something new.  | 0.51 |
| Making better use of my resources makes me feel good.  | 0.49 |
| There are many things that are normally thrown away that are still quite useful.   | 0.46 |
| <b>Crusader <math>\alpha = 0.64</math></b>   |      |
| I regularly try to convince my friends and family to use less energy.  | 0.74 |
| I am often the first among my friends and family to adopt energy efficient practices.  | 0.67 |
| People who waste energy are irresponsible.   | 0.53 |
| <b>Follower <math>\alpha = 0.62</math></b>   |      |
| I am more likely to change my actions if people I respect have already taken action.   | 0.79 |
| I am more likely to change my personal behaviors if other people are doing their part.   | 0.75 |
| Most people are working hard to reduce their personal energy use.  | 0.42 |

| <b>Altruistic <math>\alpha = 0.46</math></b>   |      |
|--|------|
| For the benefit of future generations is the strongest motivation to change daily actions to save energy.  | 0.7  |
| On a scale of 1 to 7...how willing would you be to make changes to reduce your home's energy use by that amount?   | 0.58 |
| Protecting the environment is the strongest motivation to change daily actions to save energy.   | 0.51 |
| On a scale of 1-7 where 1 is "not at all interested" and 7 is "extremely interested," please rate your interest in having someone come to your home FOR FREE to provide you with information about how you could save additional energy. | 0.48 |

Table 4 shows the results of the PCA for components that we ended up not treating as scales.

**Table 4. Results of the PCA (continued) – Not Treated as Scales**

| <b>Component 7</b>   |       |
|--|-------|
| Saving money is the strongest motivation to change daily actions to save energy.                                     | 0.66  |
| <b>Component 8</b>   |       |
| Helping California lead the way on saving energy is the strongest motivation to change daily actions to save energy. | 0.76  |
| Heard of carbon footprint?   | 0.46  |
| <b>Component 9</b>   |       |
| Reducing our dependence on foreign oil   | 0.77  |
| Heard of carbon footprint?   | -0.51 |
| <b>Component 10</b>  |       |
| Are you familiar with smart meters?  | 0.71  |
| Health is the strongest motivation to change daily actions to save energy.   | 0.49  |

### ***Behaviors: Creation of Indices***

Prior to carrying out the cluster analysis on the behavior variables, we created a series of indices from the behavior questions in the survey. We did this to reduce the number of behavior questions to put into the cluster analysis and to better capture each segments' propensity to take a suite of actions, rather than running our analysis on a series of discrete behavior choices. We crafted the behavior indices to allow for a common metric across respondents: not all behavior questions were asked of respondents as some actions are, for example, specific to homeowners (such as installing insulation), specific to having purchased an item (which not all respondents would have done) or having a device (e.g. a cell phone or TV). The indices were defined as the number of actions taken by the

household divided by the total number possible for that respondent. More specifically, behaviors taken were dichotomized to yes/no<sup>14</sup> (if not already a yes/no variable) and summed (Yes=1 and No=0) to create a numerator. A denominator was then created by summing the number of behaviors the household could potentially take. The numerator was then divided by the denominator to create a percentage of possible actions taken for that household.

Six behavior indices were created to group behaviors based on similar adoption thresholds: one for all behaviors combined, practices, low cost energy-efficient equipment purchases, low-medium-cost equipment requiring installation by a knowledgeable person, high-cost equipment purchases, and participation in utility programs. Table 5 below shows the 5 indices other than all behaviors, and which questions were used to create the indices.

**Table 5. Questions that Fall into Each Behavior Index**

| Behavior Indices   | Questions   |
|--|---|
| Practices  | <ul style="list-style-type: none"> <li>➤ Calculated your carbon footprint (y/n)</li> <li>➤ How often TV turned off when not watching (1-7)</li> <li>➤ How often keep only minimum lights on (1-7)</li> <li>➤ How often lights turned off when leaving room (1-7)</li> <li>➤ How often computer turned off when not in use (1-7)</li> <li>➤ How often computer unplugged when not in use (1-7)</li> <li>➤ How often cell phone unplugged when not in use (1-7)</li> <li>➤ How often other electronic devices turned off when not in use (1-7)</li> </ul> |
| Low-Cost Energy-Efficient Equipment Purchases                            | <ul style="list-style-type: none"> <li>➤ Installed low-flow showerheads (y/n)</li> <li>➤ Maintains HVAC system at least once a year (y/n)</li> <li>➤ Either 75% or 100% of sockets have CFLs installed (y/n)</li> <li>➤ Installed light timers (y/n)</li> <li>➤ Installed water heater wrap (y/n)</li> <li>➤ Installed window film (y/n)</li> </ul>   |
| Low-Medium-Cost Equipment Requiring Installation by Knowledgeable Person | <ul style="list-style-type: none"> <li>➤ Installed programmable thermostats (y/n)</li> <li>➤ Installed motion detectors (y/n)</li> <li>➤ Installed ceiling fans (y/n)</li> <li>➤ Installed attic vent (y/n)</li> </ul>  |

<sup>14</sup> Behaviors on a 1-7 scale (frequency of taking behaviors) were dichotomized with a 5 or higher taking the value of 1 and less than 5 the value of 0.

|                                   |  |
|-----------------------------------|--|
| High Cost Equipment Purchases     | <ul style="list-style-type: none"> <li>➤ Smart meter (y/n)</li> <li>➤ Solar panels (y/n)</li> <li>➤ Purchased heating/cooling equipment advertised as using less energy (y/n)</li> <li>➤ Purchased large appliance advertised as using less energy (y/n)</li> <li>➤ Purchased water heater advertised as using less energy (y/n)</li> <li>➤ Installed double-paned windows (y/n)</li> <li>➤ Installed insulation (y/n)</li> <li>➤ Added something to shade house (y/n)</li> <li>➤ Installed cool roof (y/n)</li> <li>➤ Purchased TV or computer advertised as using less energy (1-7)</li> </ul> |
| Participation in Utility Programs | <ul style="list-style-type: none"> <li>➤ Taken a course in energy efficiency (y/n)</li> <li>➤ Signed up for alerts to reduce energy use to avoid blackouts (y/n)</li> <li>➤ Had an energy audit (y/n)</li> <li>➤ Reduced energy use when asked by utility (y/n)</li> </ul>   |

## Cluster Analyses

Once the data was prepared for analysis using the steps outlined above, we moved on to developing the segmentation schemes. In this section, we discuss the two separate segmentation schemes created using cluster analysis, the attitudes only segmentation scheme<sup>15</sup> involving one cluster analysis and the attitudes/behaviors segmentation scheme involving two separate cluster analyses: one on attitudes and one on behaviors.<sup>16</sup>

### Cluster Analyses Approach

The type of cluster analysis we used was two-step cluster analysis. Two-step cluster analysis allows for a mixture of continuous and categorical variables unlike other kinds of cluster analysis (appropriate here as we include a binary variable), and allows the researcher the flexibility to either specify the number of clusters in advance or have the technique determine the “optimal” number of clusters.<sup>17</sup>

The criteria for the final cluster solutions were the following: the number of clusters was reasonable, not having very small groups (so that marketing to the groups is worthwhile), the clusters being well separated, and most importantly, a solution that is interpretable and useful.

In the table below we outline the input variables that went into each of the cluster analyses:

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<sup>15</sup> Although known as the “attitudes only” segmentation, the input variables to this cluster analysis were all found to be statistically significantly related to behaviors.

<sup>16</sup> We performed two separate cluster analyses rather than one with both behaviors and attitudes, because the items that go into a cluster analysis should be intrinsically linked. It is not necessarily the case that attitudes correspond directly to behaviors.

<sup>17</sup> One of assumptions of two-step cluster analysis is normality for continuous variables. We performed transformations and carried out analyses using the transformed versions of the variables, however we decided to use the original, non-transformed set for ease of interpretation.

**Table 6. Input Variables to Each Cluster Analysis<sup>18</sup>**

| Cluster Analysis   | Input Variables  |
|--|--|
| Cluster Analysis on Attitudes for Attitudes Only Scheme      | <ul style="list-style-type: none"> <li>➤ Scales developed from the PCA, starting from Not important to Altruistic in Table 3</li> <li>➤ Separate variables for saving money, California as a leader, and reducing dependence on foreign oil as motivators to save energy</li> <li>➤ Separate variables for heard of a carbon footprint and heard of a smart meter</li> </ul> |
| Cluster Analysis on Attitudes for Attitudes/Behaviors Scheme | All the variables shown above plus the variable Health as a motivator  |
| Cluster Analysis for Behaviors                               | <ul style="list-style-type: none"> <li>➤ Index for Practices</li> <li>➤ Index for low cost purchases</li> <li>➤ Index for low-medium cost equipment</li> <li>➤ Index for high cost equipment</li> <li>➤ Index for participation in a utility program</li> </ul>  |

After running the cluster analysis, the attitudes-only segmentation scheme was complete. The behavior/attitudes scheme required two additional steps:

- The attitudes clusters and the behavior clusters were combined, creating 9 segments in total.
- The 9 segments were then consolidated into 5 based on behavioral and attitudinal similarities. The 5 segments constituted the final segmentation scheme.

## **CART Analysis**

The third segmentation scheme for consideration was developed using the CART analysis technique. For this effort, we use CART in two ways:

- To develop a segmentation scheme. This is discussed in this section.
- To determine which of the segmentation schemes was best predicted by demographics. This is discussed in the next section, “Profiling.”

As mentioned earlier, the CART approach differs from the cluster analysis approach by using a predictive model to identify the characteristics of people likely to take an action. The final

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<sup>18</sup> As outlined in the table, the difference between the attitudes cluster analysis for the attitudes only segmentation and the attitudes cluster analysis for the behaviors/attitudes scheme is the variable health as a motivator. Health was retained in the behaviors/attitudes scheme specifically because it was important in differentiating one of the clusters.

CART analysis had as the target variable a trichotomy of the index of total behaviors taken (other than the variables having to do with utility participation). In other words, we collapsed the behavior index into three levels: those who had action percentages from 0 to 33%, 33.01% to 60%, 60.01%<sup>19</sup> to 100%).<sup>20</sup> The predictor variables in the final analysis were: the scales from the PCA, 3 attitudes clusters, and the index of utility participation.

CART (Breiman, et al., 1984)<sup>21</sup> is a specific algorithm and software, belonging to a class of decision tree methodologies sometimes referred to as recursive partitioning methods. It is a non-parametric technique that can select from among a large set of categorical and continuous variables, regardless of their distributional characteristics, those that individually, or in combination, best predict the outcome variable of interest by splitting the sample into progressively more parsimonious subgroups using multiple predictors (or *splitters*, as they are called in CART).

## Profiling

After having developed the three segmentation schemes described earlier, we then used CART analysis to determine which of segmentation schemes was predicted best by the demographic variables in order to identify and target the segments in the population and in IOU databases. Using CART, we assessed which of the 3 segmentation schemes was the best for the purposes of targeting.

We compared the “explained variance” of the 3 segmentation schemes. Our findings are outlined in the table below.

**Table 7. Explained Variance of the Three Segmentation Schemes for Consideration**

| Scheme   | Variance Explained | f <sup>2</sup> |
|--|--------------------|----------------|
| Cluster Analysis on Attitudes - Attitudes Only Scheme            | 20%                | 0.25           |
| Cluster Analysis - Attitudes/Behaviors Scheme (Final 5 segments) | 18%                | 0.22           |
| CART Analysis  | 4%                 | 0.04           |

The “explained variance<sup>22</sup>” figure is interpreted in the way an R<sup>2</sup> is interpreted, i.e., reduction in prediction errors. This similarity makes it possible to evaluate this overall model

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<sup>19</sup> The reason for cutting at 60.01% rather than 66% is that cutting at 66% would have left only 10% in the top group.

<sup>20</sup> We ran several CART models, including the following as target variables: practices, low cost energy-efficient equipment purchases, low-medium-cost equipment requiring installation by a knowledgeable person, high-cost equipment purchases, and total energy saving behavior.

<sup>21</sup> Breiman, L., Friedman, J.H., Olshen, R.A., & Stone, C.J. 1984. *Classification and regression trees*. Monterey, CA: Wadsworth.

<sup>22</sup> This term is used for intuitive purposes. The actual figure that we refer to as “explained variance” is based on CART’s Cross-Validated Relative Cost, which is subtracted from 1 to show the percent of prediction errors

assessment figure as an effect size like Cohen's (1988)<sup>23</sup>  $f^2$  which is the percent of variance explained divided by the percent unexplained. As defined by Cohen (1988), a medium effect size is 0.15, a small effect is .02, and a large effect is .35.

As mentioned earlier, we chose the attitudes/behaviors segmentation scheme for our final segmentation profile because of the high explained variance and the fact that behaviors are incorporated directly into the scheme, unlike with the attitudes-only segmentation. The detailed findings from our final segmentation approach are provided in the "Results" section.

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that is reduced by the model. To get a figure analogous to  $f^2$  we calculated  $(1 - \text{Cross-Validated Relative Cost}) / \text{Cross-Validated Relative Cost}$ .

<sup>23</sup> Cohen, J. 1988. *Statistical power analysis for the behavioral sciences* 2nd ed. Hillsdale, NJ: Lawrence Erlbaum.

# Results: Final Segmentation Scheme: Attitudes and Behaviors Segmentation

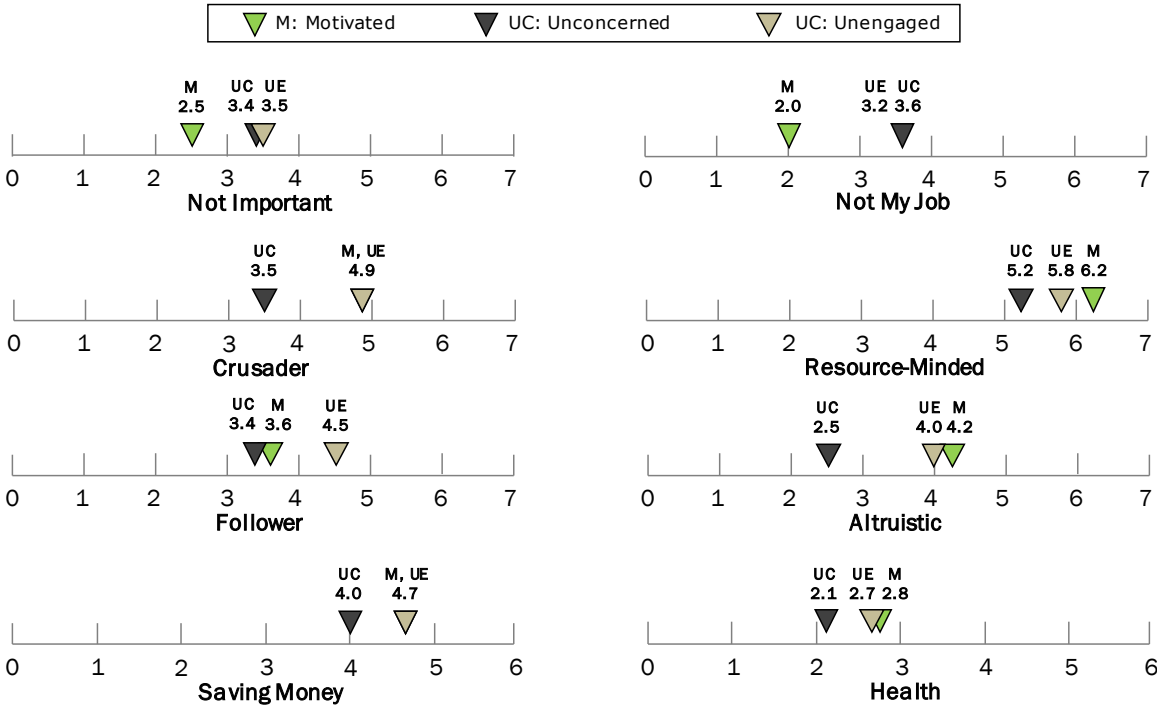
Our team elected to use the attitudes/behaviors segmentation profile developed through cluster analysis as it best fit our model selection criteria outlined above. In this section, we further outline our approach and provide the detailed findings of the Statewide segmentation scheme.

## Generating the Final Five Segments

### Cluster Analysis on Attitudes Variables

Our final attitudes analysis resulted in three clusters: the Motivated (47% of the sample), the Unconcerned (19%), and the Unengaged (34%). The figure below provides the detailed results for each cluster.

Figure 2. Attitude Clusters' Mean Values on Inputs

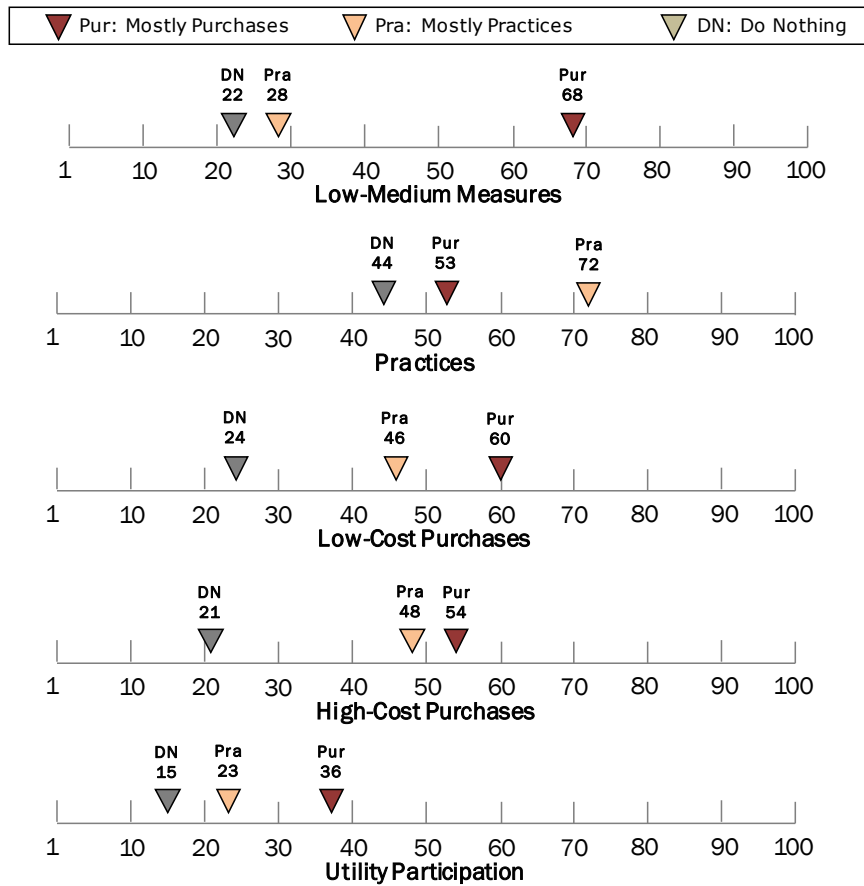


### Cluster Analysis on Behaviors

Our final behavioral cluster analysis resulted in three behavioral clusters as outlined in the figure below, the Do Nothing (36%), Mainly Practices (25%), and the Mainly Purchases (40%) clusters.



**Figure 3. Behavior Clusters' Mean Values on Behavioral Indices**



**Combined Behaviors/Attitudes Segmentation**

After we developed our final behaviors/attitudes clusters, we crossed the clusters by one another to develop 9 segments. The table below presents the results of the 3 cluster behavior solution crossed with the 3 cluster attitudes solution.

**Table 8. Combined Attitudes and Behaviors Clusters**

|                     |  | Attitudes Clusters                      |   |   |
|---------------------|--|---|---|---|
|                     |  | Cluster A, Motivated<br>(47% of Sample) | Cluster B, Unconcerned<br>(19% of Sample) | Cluster C, Unengaged<br>(34% of Sample) |
| Behavioral Clusters | Cluster 1, Do Nothing<br>(36% of Sample)       | Segment A<br>(14% of Sample)            | Segment B<br>(7% of Sample)               | Segment C<br>(15% of Sample)            |
|                     | Cluster 2, Mainly Practices<br>(25% of Sample) | Segment D<br>(11% of Sample)            | Segment E<br>(4% of Sample)               | Segment F<br>(9% of Sample)             |
|                     | Cluster 3, Mainly Purchases<br>(40% of Sample) | Segment G<br>(22% of Sample)            | Segment H<br>(7% of Sample)               | Segment I<br>(10% of Sample)            |

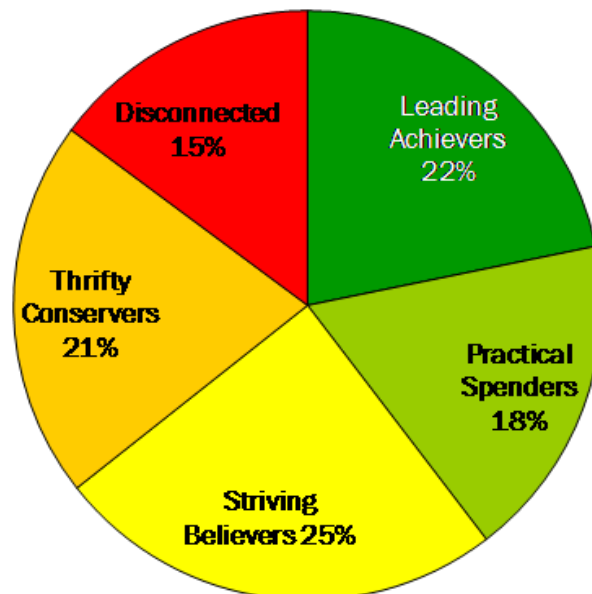
## Segment Reduction from Nine to Five Segments

To generate an effective marketing and outreach strategy, we reduced our nine segments to a more targetable five segments. We began by retaining those segments whose attitudes and behaviors aligned: Segments C (15% of the sample) and Segments G (22% of the sample) in the table above. We then reduced the remaining seven segments into three segments by determining those whose behaviors and attitudes were most similar to one another. We then re-ran these segments through CART analysis to confirm that the resulting segments were sufficiently linked to behaviors. The findings from our final five segments are provided in the subsequent sections.

## Final Five Statewide Segment Profiles

In order to develop clear descriptions of each segment, we “profiled” segments by other variables in the survey (cross-tabs) including demographics and others. The segments were compared to all remaining segments combined and the following segmentation descriptions were developed drawing only on those differences that are statistically significant with 95% confidence. Using these profiles, we developed names and marketing and outreach recommendations for our final five: Leading Achievers, Practical Spenders, Striving Believers, Thrifty Conservers, and the Disconnected.

Figure 4. Final Five Statewide Segments



Our final five segments are ordered in this report by their relative levels of behavioral adoption and their attitudes towards energy use. We begin with the Leading Achievers, who have both a high level of energy efficiency adoption and high levels of personal concern and interest in saving energy. They are followed by the Practical Spenders, who have high levels of energy efficiency adoption but lower personal concern for saving energy and conservation as an issue. Next, we describe the Striving Believers, who adopt energy conservation practices, have a high personal concern for saving, but fail to move to the next tier of

behavior change (i.e., installing energy efficiency measures). The Striving Believers are then followed by the Thrifty Conservers, who also engage in conservation practices, but have little to no personal interest in saving energy and are less likely to reduce their energy use. Finally, we have the Disconnected, who take little to no energy saving actions (including energy efficiency and conservation) relative to the other segments and have low personal interest in saving energy.

The table below provides a snap-shot summary these final five segments.

**Table 9. Segmentation Snapshot<sup>24</sup>**

|                                  | Leading Achievers | Practical Spenders | Striving Believers | Thrifty Conservers | Disconnected    |
|----------------------------------|-------------------|--------------------|--------------------|--------------------|-----------------|
| % of Sample                      | 22%               | 18%                | 25%                | 21%                | 15%             |
| Own/Rent                         | Mostly owners     | Mostly owners      |                    |                    | Mostly renters  |
| Urban/Rural                      |                   | More rural         | More urban         |                    |                 |
| Income                           | Higher Income     |                    |                    | Lower income       | Lowest Income   |
| Ethnicity                        | Mostly white      |                    |                    |                    | AA and Hispanic |
| Age                              | Older             | Older              |                    |                    | Younger         |
| Education                        | More educated     | Less educated      | More educated      | Less educated      | Less educated   |
| Political Affiliation            | Liberal           | Conservative       | Liberal            | Conservative       |                 |
| Not important                    | ↓                 | ↑                  | ↓                  | ↑                  | ↑               |
| Not my job                       | ↓                 | ↑                  | ↓                  | ↑                  | ↑               |
| Resource-minded                  | ↑                 | ↓                  | ↑                  | ↓                  | ↓               |
| Crusader                         | ↑                 |                    |                    | ↓                  |                 |
| Follower                         | ↓                 |                    | ↓                  |                    | ↑               |
| Altruistic                       | ↑                 | ↓                  | ↑                  | ↓                  |                 |
| Practices                        |                   | ↓                  | ↑                  | ↑                  | ↓               |
| Low cost EE                      | ↑                 | ↑                  | ↓                  | ↓                  | ↓               |
| Low cost with Install            | ↑                 | ↑                  | ↓                  | ↓                  | ↓               |
| High Cost EE                     | ↑                 | ↑                  | ↓                  | ↓                  | ↓               |
| IOU Participation                | ↑                 | ↑                  | ↓                  | ↓                  | ↓               |
| Willingness to Reduce Energy Use | ↑                 |                    | ↑                  | ↓                  |                 |

<sup>24</sup> Arrows indicate statistical significance at 95% confidence compared to all remaining segments.

## **Leading Achievers: 22% of Sample**

### ***Segment Profile***

The Leading Achievers have the means and will to take energy saving actions. The Leading Achievers are generally willing to reduce their energy use and are resource-minded, recycle regularly, and index highly compared to other segments on energy-related altruism. Further, this group is the most likely, of all segments, to actively engage others on issues related to energy and energy efficiency. The Leading Achievers have a strong sense of self-efficacy and indexed highly on feeling “happy” with their life. Politically this group is liberal and is most motivated to change their energy-related behaviors due to a concern for the environment and climate change in particular.

The Leading Achievers are one of our two homeowner-driven segment (with Practical Spenders being the other), and like Practical Spenders, they index highly compared to other segments on energy efficiency purchases and IOU program participation. This group skews older, with more 45-64 year-old than all other segments combined and is the most ethnically homogenous segment of all groups, with 76% of the segment being white (compared to 49% of all others) and statistically fewer minorities.

This group is also more affluent than most other segments, with more than half of the respondents' (54%) household income at \$75k or greater. Further, this segment is highly educated, with 56% of the Leading Achievers holding at least a college degree (and 33% of the segment holding a graduate or professional degree, compared to 17% of the remaining segments).

Behaviorally, the Leading Achievers are very similar to their homeowner counterparts, the Practical Spenders, indexing higher on energy efficiency purchases and installations but not on energy conservation practices. However, they differ from the Practical Spenders in terms of their fundamental motivations, values, and beliefs: the Leading Achievers are more liberal than the Practical Spenders, driven by the environment (rather than foreign oil), and index highly on altruism. Further, the Leading Achievers are not driven by comfort or convenience, indicating that they are likely to consider the “bigger picture” when making decisions. Also, the Leading Achievers are slightly younger, more educated, and more affluent than the Practical Spenders.

### ***Behavioral Targets***

The Leading Achievers are on board with energy efficiency purchases, but have room to grow on energy conservation practices. Of all conservation practices, they index lower than all other segments on taking plug load-related actions, specifically related to unplugging household appliances and computers when not in use. Primary behavioral interventions should target plug load energy efficient measures and practices, emerging energy efficiency technologies, and daily, non-lighting focused conservation practices.

### ***Potential Outreach Challenges***

Compared to all other segments, the Leading Achievers are most likely to take action;

however their potential for movement may be limited due to the number of energy saving behaviors this group has already adopted. Further, the Leading Achievers may have an underlying sense of moral superiority around energy-related issues and the environment. This group is likely to feel that they are already “doing enough” and it may be difficult to continually inspire and move this segment further as they are likely to feel that messaging and outreach is targeted at others, not them.

### ***Outreach Recommendations***

**The Leading Achievers are the state’s potential energy evangelists.** The Leading Achievers are attitudinally and behaviorally primed to serve as leaders in California’s movement towards net zero energy households. To enlist this group in an energy-saving movement, the Leading Achievers should be addressed as leaders and the State’s *peers and allies* in reaching the net zero energy goal. This group is actively engaged and most likely to influence others if they are given the tools and opportunity to do so. The primary outreach objectives should be to:

- *Move the Leading Achievers to adopt more practices by directing them to detailed, credible information sources.* The Leading Achievers are highly educated and informed and are more likely to be weary of mass media advertisements or view them as targeted at others, not themselves. Direct Leading Achievers to more sophisticated information sources, such as the portal, to move them to adopt emerging energy efficiency actions. Outreach strategies should increase the relevance of conservation practices in the net zero energy goal.
- *Engage the Leading Achievers in open, public dialogue on energy saving practices and measures.* As a highly educated, web-savvy group, the Leading Achievers may be mobilized using the portal or other social networking online groups to form localized, grassroots participation in the net zero energy movement and to educate and inform other segments as volunteers. Enlist the Leading Achievers to run community-based events, facilitate teach-ins, and develop other volunteer-managed education and outreach forums.

# Leading Achievers

22% of sample

| Psychographics (Top 2 Box)        |         |        |
|-----------------------------------|---------|--------|
|                                   | Segment | Others |
| Recycles                          | 90%     | 74%    |
| Deals well with unexpected events | 68%     | 56%    |
| Can solve problems                | 78%     | 67%    |
| Happy with life                   | 69%     | 59%    |
| Practical outlook                 | 84%     | 72%    |

| Political Affiliation (% of Total) |         |        |
|------------------------------------|---------|--------|
|                                    | Segment | Others |
| Liberal                            | 39%     | 32%    |
| Moderate                           | 25%     | 31%    |
| Conservative                       | 36%     | 37%    |

| Perceived Energy Use Compared to Neighbors (% of Total) |         |        |
|---|---------|--------|
|   | Segment | Others |
| Uses more energy  | 16%     | 12%    |
| Uses as much energy                                     | 25%     | 30%    |
| Uses less energy  | 52%     | 47%    |
| Don't know  | 6%      | 11%    |

## Demographics and Geographic Location (% of Total)

|                               | Segment | Others |                                | Segment | Others |
|-------------------------------|---------|--------|--------------------------------|---------|--------|
| <b>Gender</b>                 |         |        | <b>Children in Household</b>   |         |        |
| Male                          | 43%     | 44%    | None                           | 61%     | 53%    |
| Female                        | 57%     | 56%    | 1                              | 19%     | 17%    |
| <b>Age</b>                    |         |        | 2-3                            | 17%     | 26%    |
| 24 or younger                 | 5%      | 14%    | 4 or more                      | 3%      | 3%     |
| 25-34                         | 9%      | 20%    | <b>Annual Household Income</b> |         |        |
| 35-44                         | 20%     | 21%    | Less than \$30K                | 15%     | 27%    |
| 45-54                         | 30%     | 17%    | \$30K-\$49,999                 | 17%     | 28%    |
| 55-64                         | 22%     | 11%    | \$50K-\$74,999                 | 15%     | 16%    |
| 65 or older                   | 14%     | 17%    | \$75K-\$99,999                 | 19%     | 11%    |
| <b>Ethnicity</b>              |         |        | \$100K-\$149,999               | 18%     | 12%    |
| White or Caucasian            | 76%     | 49%    | \$150K-\$249,999               | 11%     | 6%     |
| Black or African American     | 3%      | 8%     | \$250,000 or more              | 5%      | 1%     |
| Hispanic or Latino            | 13%     | 31%    | <b>Annual Income Level</b>     |         |        |
| Asian                         | 5%      | 10%    | Low (State standard)           | 21%     | 41%    |
| Other                         | 2%      | 2%     | Medium (>L.I.-\$200K)          | 69%     | 55%    |
| <b>Education</b>              |         |        | High (\$200K+)                 | 10%     | 3%     |
| High school or less           | 7%      | 30%    | <b>IOU Territory</b>           |         |        |
| Some college/associate degree | 37%     | 35%    | PG&E                           | 42%     | 37%    |
| College graduate              | 23%     | 18%    | SCE                            | 40%     | 42%    |
| Graduate degree               | 33%     | 17%    | LADWP                          | 4%      | 8%     |
| <b>Own/Rent</b>               |         |        | SDG&E                          | 10%     | 9%     |
| Own                           | 84%     | 58%    | Other                          | 3%      | 5%     |
| Rent                          | 16%     | 42%    | <b>Urban/Rural</b>             |         |        |
|                               |         |        | Urban                          | 83%     | 85%    |
|                               |         |        | Rural                          | 16%     | 15%    |

Arrows indicate statistically significant difference at 95% confidence



# Leading Achievers - 22% of sample

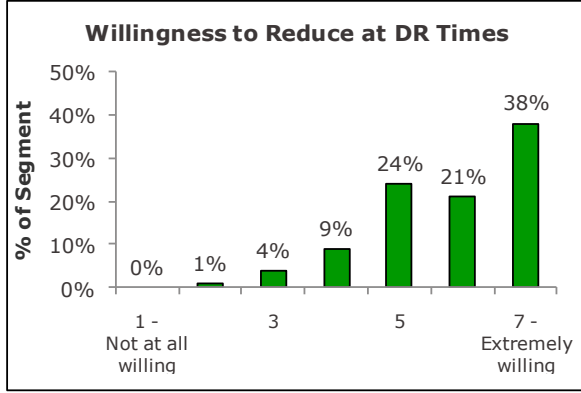
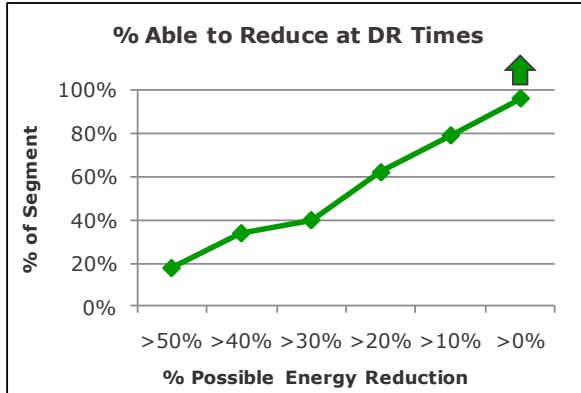
|   |                            |
|---|----------------------------|
| Primary Non-Money Motivation:                 | Protecting the environment |
| Willingness to Reduce Energy Use at DR Times: | 5.8 ↑                      |

| Motivation Rank      |                    |
|----------------------|--------------------|
| Segment              | Others             |
| 1 Saving money       | Saving money       |
| 2 Environment        | Environment        |
| 3 Foreign oil        | Future generations |
| 4 Future generations | Health             |
| 5 Health             | Foreign oil        |

| Primary Non-Money Motivations (% of Total) |         |
|--|---------|
|  | Segment |
| Climate change                             | 38%     |
| Healthy environment                        | 23%     |
| Future generations                         | 10%     |

| Barriers (Top 2 Box)             |         |        |
|----------------------------------|---------|--------|
|                                  | Segment | Others |
| Small contribution to energy use | 4% ↓    | 17%    |
| Gov't responsibility             | 11% ↓   | 24%    |
| Don't think to save              | 10% ↓   | 29%    |
| Too busy                         | 9% ↓    | 23%    |
| Too much effort                  | 4% ↓    | 16%    |
| Products hard to find            | 5% ↓    | 16%    |
| No information                   | 6% ↓    | 17%    |

| Behaviors (% of Total Possible) |         |        |
|---------------------------------|---------|--------|
|                                 | Segment | Others |
| Practices                       | 54%     | 55%    |
| Low cost purchases              | 61% ↑   | 39%    |
| Medium cost purchases           | 66% ↑   | 34%    |
| High cost purchases             | 54% ↑   | 37%    |
| IOU programs                    | 38% ↑   | 22%    |



| Attitudes (Means, Scale 1-7) |         |        |
|------------------------------|---------|--------|
|                              | Segment | Others |
| Not important                | 2.5 ↓   | 3.2    |
| Not my job                   | 2.0 ↓   | 2.9    |
| Crusader                     | 5.0 ↑   | 4.5    |
| Resource-minded              | 6.2 ↑   | 5.8    |
| Follower                     | 3.6 ↓   | 3.9    |
| Altruistic                   | 4.2 ↑   | 3.7    |

| Social Influences (Top 2 Box)                  |         |        |
|--|---------|--------|
|  | Segment | Others |
| Try to convince family and friends to use less | 33%     | 33%    |
| Among first to adopt                           | 39%     | 32%    |
| Change if others they respect do               | 20% ↓   | 31%    |
| Others are saving                              | 14% ↓   | 21%    |
| Change if others do their part                 | 24%     | 31%    |
| Wrong to waste                                 | 60%     | 54%    |

| Information Sources (% of Total) |                 |                 |
|----------------------------------|-----------------|-----------------|
|                                  | Segment         | Others          |
| Most trusted                     | Utility (34%)   | Utility (34%)   |
| Least trusted                    | Retailers (28%) | Retailers (24%) |
| Online                           | ↑               |                 |

Arrows indicate statistically significant difference at 95% confidence

# Leading Achievers\* – 22% of sample

| Practices (No Cost)   |     | Low-Med Cost Requiring Knowledge or Installation (% Yes) |     |
|---|-----|--|-----|
| Turn off TV when not in use (Top 3 Box)                         | 82% | Programmable thermostat                                  | 81% |
| Turn on min number of lights (Top 3 Box)                        | 90% | Motion detectors   | 45% |
| Turn off computer (Top 3 Box)                                   | 57% | Ceiling fans   | 83% |
| Unplug cell phone chargers (Top 3 Box)                          | 60% | Attic vent   | 62% |
| Unplug other electronics and power strips (Top 3 Box)           | 33% | <b>Purchases (% Yes)</b>                                 |     |
| Unplug computer when not in use (Top 3 Box)                     | 14% | Solar panels installed                                   | 9%  |
| Turn off lights when leave a room (Top 3 Box)                   | 90% | Smart meter installed                                    | 25% |
| Calculated carbon footprint (% Yes)                             | 11% | Double-paned windows                                     | 76% |
| <b>Low-Cost EE Equipment</b>                                    |     | EE HVAC  | 81% |
| Low flow shower heads (% Yes)                                   | 84% | EE large appliance                                       | 94% |
| HVAC maintenance (maintains it at least once a year)            | 78% | EE consumer electronics                                  | 44% |
| % CFLs installed (75% or 100% CFLs)                             | 61% | Insulation   | 72% |
| Installed light timers (% Yes)                                  | 27% | Cool roofs   | 25% |
| Installed water-heater wrap (% Yes)                             | 68% | EE Water heater  | 77% |
| Installed window film or weather stripping (% Yes)              | 57% | Added something to help shade home                       | 70% |
| <b>IOU Participation (Excluding Low-Income Energy Programs)</b> |     |  |     |
| Energy Audits (had any type of audit)                           | 27% | Signed up for DR alerts (% Yes)                          | 36% |
| Use less energy when asked by power company (Top 3 Box)         | 80% | Signed up for EE course (% Yes)                          | 10% |

\* Behaviors stated for all those able to take action (e.g. have device or own home)

Arrows indicate statistically significant difference at 95% confidence

## **Practical Spenders – 18% of Sample**

### ***Segment Profile***

Practical Spenders, like the Leading Achievers, index higher than all other segments combined on energy efficiency purchases. However, the Practical Spenders are most likely of all segments to feel they use more energy than their neighbors. This is likely because the Practical Spenders are motivated by the here and now. Overall, members of this segment are convenience and comfort-driven, and are generally more concerned with the quality of their daily lives than concern for the future or resources. They index lower on altruism and resource-mindedness compared to all other segments and are more likely to feel that energy saving is not important day-to-day.

Of all potential motivations to save energy, the Practical Spenders are most likely to change their actions in order to reduce dependence on foreign oil – ultimately with the goal of securing the nation’s energy independence and promoting national security. However, this segment is less likely than other segments to feel a personal responsibility to reduce their usage, rather attributing the responsibility of energy management to others.

This group is comprised mostly of homeowners (83%) and is the most politically conservative of all segments. Compared to the other homeowner segment, the Leading Achievers, this group skews lower in education (with 32% of the segment having high school education or less). Practical Spenders are an ethnically diverse segment and more closely resembles the California population. This group’s income skews lower than the Leading Achievers, with the majority (77%) of its households earning less than \$75k annually and has fewer high-income (\$200k+) households than the remaining segments combined. This group trends older (with 55% of the segment over 55 years of age) and has a greater proportion of rural Californians than other segments (21% of Practical Spenders are in rural areas, compared to 13% of all other segments combined).

Behaviorally, the Practical Spenders do not stand out in conservation practices from other segments, similar to the Leading Achievers. While Practical Spenders share a relatively high sense of self-efficacy generally with the Leading Achievers when compared to other segments, the two homeowner segments represent polar political views and attitudes towards their personal responsibility to take action.

### ***Behavioral Targets***

Practical Spenders are adopting many energy efficiency measures, with the exception of purchasing energy efficient HVAC systems. This may represent a good energy-reduction target for this segment, as they tend to be more concentrated in Southern California and in less temperate rural areas. Further, this segment should be targeted with energy efficiency information for emerging technologies, as they may be more likely to purchase energy efficient version of lifestyle-enhancing technologies.

### ***Potential Outreach Challenges***

Since Practical Spenders index low on personal responsibility to take action and resource

consciousness, this segment may be difficult to move beyond their current actions unless they are targeted specifically at the point of adoption. Further, this segment will likely be turned off by messaging promoting environmentalism and climate change issues, and may distance themselves from campaigns that leverage these themes. Thus, this group above all other segments, will likely require a unique outreach message. Also, Practical Spenders are more likely than all other segments to feel that there is not enough or appropriately timed energy efficiency information, and may require different outreach tactics and approaches.

### ***Outreach Recommendations***

**Practical Spenders will take action if it directly benefits them.** The Practical Spenders will be difficult to engage in mass media messaging if altruistic or environmental appeals are made. Messaging that does not speak to this group on their terms and from their point of view will be dismissed as paternalistic or liberal rhetoric. Rather, Practical Spenders should be addressed through straight-forward outreach initiatives alerting them to the practical and lifestyle benefits of conservation practices and energy efficiency measures.

- *Move Practical Spenders through IOU program outreach.* Practical Spenders are already taking advantage of IOU programs. This group may be further targeted by IOU programs and messaging that alerts them to new rebate offers and emerging efficiency technologies.
- *Engage Practical Spenders through traditional media formats promoting the lifestyle-enhancing benefits of saving energy.* Practical Spenders make decisions with their own lifestyle in mind, not others'. To further engage this group, traditional communications and outreach tools such as local TV spots, point of purchase, and mail should be utilized to promote energy efficient measures as premium, lifestyle enhancing products.

# Practical Spenders

## 18% of sample

| Psychographics (Top 2 Box)  |     |     |
|---|-----|-----|
| Practical Spenders did not stand out from the overall group on any of the psychographic questions. Compared to Striving Believers, Practical Spenders were significantly higher on: |     |     |
| Can find ways to get what want  | 36% | 22% |
| Don't worry about future  | 21% | 11% |

| Political Affiliation (% of Total) |         |        |
|------------------------------------|---------|--------|
|                                    | Segment | Others |
| Liberal                            | 17%     | 37%    |
| Moderate                           | 34%     | 29%    |
| Conservative                       | 49%     | 34%    |

| Perceived Energy Use Compared to Neighbors (% of Total) |         |        |
|---|---------|--------|
|   | Segment | Others |
| Uses more energy  | 19%     | 12%    |
| Uses as much energy                                     | 30%     | 29%    |
| Uses less energy  | 42%     | 49%    |
| Don't know  | 8%      | 10%    |

### Demographics and Geographic Location (% of Total)

|                                  | Segment | Others |                                | Segment | Others |
|----------------------------------|---------|--------|--------------------------------|---------|--------|
| <b>Gender</b>                    |         |        | <b>Children in Household</b>   |         |        |
| Male                             | 47%     | 43%    | None                           | 50%     | 56%    |
| Female                           | 53%     | 57%    | 1                              | 14%     | 18%    |
| <b>Age</b>                       |         |        | 2-3                            | 30%     | 23%    |
| 24 or younger                    | 7%      | 13%    | 4 or more                      | 6%      | 3%     |
| 25-34                            | 16%     | 18%    | <b>Annual Household Income</b> |         |        |
| 35-44                            | 18%     | 21%    | Less than \$30K                | 19%     | 25%    |
| 45-54                            | 14%     | 21%    | \$30K-\$49,999                 | 34%     | 23%    |
| 55-64                            | 20%     | 12%    | \$50K-\$74,999                 | 25%     | 14%    |
| 65 or older                      | 25%     | 15%    | \$75K-\$99,999                 | 7%      | 14%    |
| <b>Ethnicity</b>                 |         |        | \$100K-\$149,999               | 12%     | 13%    |
| White or Caucasian               | 54%     | 56%    | \$150K-\$249,999               | 4%      | 8%     |
| Black or African American        | 6%      | 7%     | \$250,000 or more              | 1%      | 2%     |
| Hispanic or Latino               | 29%     | 27%    | <b>Annual Income Level</b>     |         |        |
| Asian                            | 10%     | 9%     | Low (State standard)           | 38%     | 37%    |
| Other                            | 2%      | 2%     | Medium (>L.I.-\$200K)          | 61%     | 58%    |
| <b>Education</b>                 |         |        | High (\$200K+)                 | 2%      | 5%     |
| High school or less              | 32%     | 23%    | <b>IOU Territory</b>           |         |        |
| Some college or associate degree | 42%     | 35%    | PG&E                           | 34%     | 39%    |
| College graduate                 | 13%     | 20%    | SCE                            | 50%     | 40%    |
| Graduate degree                  | 12%     | 23%    | LADWP                          | 2%      | 8%     |
| <b>Own/Rent</b>                  |         |        | SDG&E                          | 8%      | 9%     |
| Own                              | 83%     | 60%    | Other                          | 5%      | 4%     |
| Rent                             | 17%     | 40%    | <b>Urban/Rural</b>             |         |        |
|                                  |         |        | Urban                          | 79%     | 86%    |
|                                  |         |        | Rural                          | 21%     | 13%    |

Arrows indicate statistically significant difference at 95% confidence

# Practical Spenders – 18% of sample

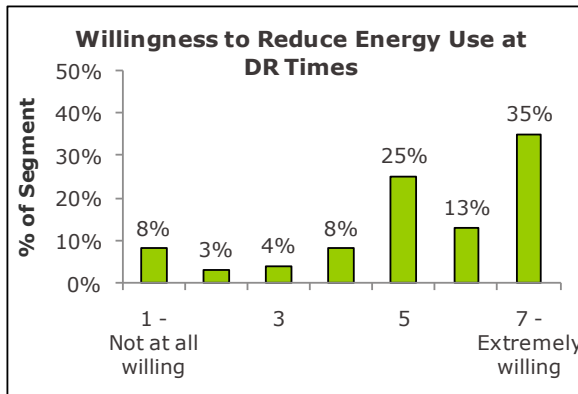
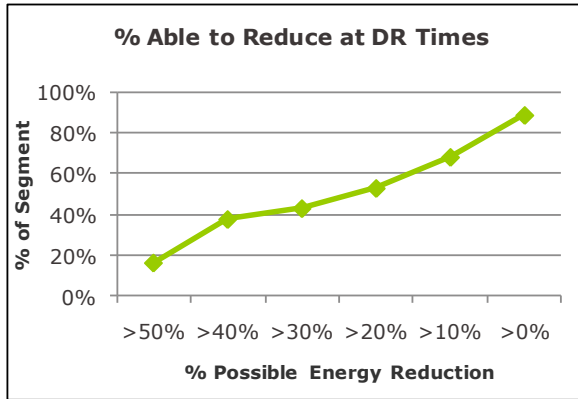
|   |                      |
|---|----------------------|
| Primary Non-Money Motivation:                 | Reducing foreign oil |
| Willingness to Reduce Energy Use at DR Times: | 5.3                  |

| Motivation Rank      |                    |
|----------------------|--------------------|
| Segment              | Others             |
| 1 Saving money       | Saving money       |
| 2 Foreign oil        | Environment        |
| 3 Future generations | Foreign oil        |
| 4 Health             | Future generations |
| 5 Environment        | Health             |

| Primary Non-Money Motivations (% of Total) |         |
|--|---------|
|  | Segment |
| Energy independence                        | 42%     |
| National security                          | 17%     |
| Bolster economy                            | 13%     |

| Barriers (Top 2 Box)                          |         |        |
|---|---------|--------|
|   | Segment | Others |
| No personal responsibility for global warming | 30% ↑   | 14%    |
| Gov't responsibility                          | 33% ↑   | 19%    |
| Comfortable temp                              | 29% ↑   | 18%    |
| Not willing to sacrifice comfort              | 18% ↑   | 10%    |
| No information                                | 22% ↑   | 13%    |

| Behaviors (% of Total Possible) |         |        |
|---------------------------------|---------|--------|
|                                 | Segment | Others |
| Practices                       | 51% ↓   | 55%    |
| Low cost purchases              | 59% ↑   | 40%    |
| Medium cost purchases           | 69% ↑   | 36%    |
| High cost purchases             | 54% ↑   | 38%    |
| IOU programs                    | 35% ↑   | 24%    |



| Attitudes (Means, Scale 1-7) |         |        |
|------------------------------|---------|--------|
|                              | Segment | Others |
| Not important                | 3.3 ↑   | 3.0    |
| Not my job                   | 3.3 ↑   | 2.6    |
| Crusader                     | 4.5     | 4.7    |
| Resource-minded              | 5.7 ↓   | 5.9    |
| Follower                     | 4.0     | 3.8    |
| Altruistic                   | 3.4 ↓   | 3.9    |

| Social Influences (Top 2 Box)                  |         |        |
|--|---------|--------|
|  | Segment | Others |
| Try to convince family and friends to use less | 33%     | 33%    |
| Among first to adopt                           | 31%     | 34%    |
| Change if others they respect do               | 30%     | 29%    |
| Others are saving                              | 23%     | 18%    |
| Change if others do their part                 | 32%     | 29%    |
| Wrong to waste                                 | 56%     | 55%    |

| Information Sources (% of Total) |                   |                 |
|----------------------------------|-------------------|-----------------|
|                                  | Segment           | Others          |
| Most trusted                     | Utility (38%)     | Utility (33%)   |
| Least trusted                    | State of CA (22%) | Retailers (27%) |
| Online                           | ↓                 |                 |

Arrows indicate statistically significant difference at 95% confidence

# Practical Spenders\* – 18% of sample

| Practices (No Cost)   |     | Low-Med Cost Requiring Knowledge or Installation (% Yes) |     |
|---|-----|--|-----|
| Turn off TV when not in use (Top 3 Box)                         | 75% | Programmable thermostat                                  | 71% |
| Turn on min number of lights (Top 3 Box)                        | 73% | Motion detectors   | 51% |
| Turn off computer (Top 3 Box)                                   | 68% | Ceiling fans   | 88% |
| Unplug cell phone chargers (Top 3 Box)                          | 59% | Attic vent   | 71% |
| Unplug other electronics and power strips (Top 3 Box)           | 34% | <b>Purchases (% Yes)</b>                                 |     |
| Unplug computer when not in use (Top 3 Box)                     | 21% | Solar panels installed                                   | 6%  |
| Turn off lights when leave a room (Top 3 Box)                   | 81% | Smart meter installed                                    | 38% |
| Calculated carbon footprint (% Yes)                             | 5%  | Double-paned windows                                     | 70% |
| <b>Low-Cost EE Equipment</b>                                    |     | EE HVAC  | 74% |
| Low flow shower heads (% Yes)                                   | 78% | EE large appliance                                       | 91% |
| HVAC maintenance (at least once a year)                         | 79% | EE consumer electronics                                  | 52% |
| % CFLs installed (75% or 100% CFLs)                             | 56% | Insulation   | 72% |
| Installed light timers (% Yes)                                  | 27% | Cool roofs   | 33% |
| Installed water-heater wrap (% Yes)                             | 72% | EE Water heater  | 78% |
| Installed window film or weather stripping (% Yes)              | 53% | Added something to help shade home                       | 71% |
| <b>IOU Participation (Excluding Low-Income Energy Programs)</b> |     |  |     |
| Energy Audits (had any type of audit)                           | 19% | Signed up for DR alerts (% Yes)                          | 27% |
| Use less energy when asked by power company (Top 3 Box)         | 79% | Signed up for EE course (% Yes)                          | 14% |

\* Behaviors stated for all those able to take action (e.g. have device or own home)

Arrows indicate statistically significant difference at 95% confidence

## **Striving Believers – 25% of Sample**

### ***Segment Profile***

The Striving Believer segment has a high stated willingness to reduce their personal energy use, but this sense of willingness has not resulted in greater than average energy efficiency measure adoption. Overall, Striving Believers are on board with the energy saving movement, but relative to all other segments, this group has adopted fewer energy efficiency measures given their high sense of personal responsibility to take action, strong sense of altruism, and high concern for resources. As a group, the Striving Believers index low on all barriers to action. They have low stated concerns for convenience and comfort, and are not susceptible to energy efficiency-specific barriers such as low performance and poor aesthetics.

Striving Believers are most driven to save energy due to a concern for the environment, namely due to concern for climate change and preserving natural resources and tend to feel that other people are not actively saving energy.

Behaviorally, the Striving Believers index lower on all purchases and energy efficiency measures compared to all other segments, but they do index higher on conservation practices, specifically related to lighting. While Striving Believers are less affected by most barriers compared to all other segments, specific lifestyle barriers emerge that may be preventing them from taking more action when we compare Striving Believers to the other highly motivated segment – the Leading Achievers. When compared to Leading Achievers, the Striving Believers indicate in greater numbers that they often do not think of saving energy or are too busy day-to-day to remember it, revealing a primary barrier for this driven, but relatively inactive, group.

The Striving Believers are a highly educated group, with 54% of Striving Believers holding at least a college degree. This group is the most liberal leaning of all segments; 48% of them indicate they are liberal and an additional 26% indicate they are moderate. 90% of Striving Believers live in urban areas (compared to 83% of all other segments) and they have a higher proportion of renters compared to all others (43% compared to 34%). Further, this group is more likely than all other segments to have no children in the home (63% compared to 53%) and to be middle income (67% compared to 56%). Ethnically, this group is generally diverse, but has a lower population of Hispanics/Latinos compared to all other segments combined.

### ***Behavioral Targets***

The Striving Believers can benefit from a number of energy efficiency targets, specifically those that are renter-friendly, such as programmable thermostats, weatherization, and lighting timers. Striving Believer owners perform lower than all other segments on double-paned windows, energy efficient consumer electronics, insulation, and shading measure installation, and may benefit from greater outreach and education around these measures specifically.



## **Potential Outreach Challenges**

Members of the Striving Believer segment are more likely to indicate that they can reduce their energy use by as much as 20% and are very motivated to take action. However, the daily relevance of energy efficiency, when compared to the Leading Achievers, is low. This may indicate that the Striving Believers segment, in particular, is taking other non-energy actions to assuage their concern for the environment. Further, this group thinks they are doing generally more work to reduce their energy use than others. As such, a primary outreach challenge will be effectively convincing this group that they have more work to do and should prioritize energy efficiency.

## **Outreach Recommendations**

**Striving Believers will take action if standard efficiency and conservation actions are made easy and more relevant.** Striving Believers are motivationally primed to take action, have the awareness and knowledge to do so, and feel it is their personal responsibility to act. However, this group is young, living busy lives, and may not include energy efficiency and conservation on their list of “do-gooder” actions. To reach this group, outreach activities need to make saving energy simpler to adopt and matter more than other environmentally-friendly actions.

- *Move Striving Believers through utilizing credible, interactive formats that clearly communicate the environmental benefits of saving energy.* Striving Believers are clearly engaged in energy-saving issues, but have yet to be moved to substantive actions. Use interactive media formats with innovative and information-driven communications tools to educate this group and enhance the relevance of household energy use.
- *Engage Striving Believers in peer-driven and socially visible energy reduction efforts that enhance the social capital of saving energy.* This group, due to their age and interest in green issues, is likely to be motivated by identity-enhancing outreach strategies. Comparing energy conservation and efficiency actions to other lifestyle decisions on the basis of ease of adoption and emissions savings may further motivate this group.

# Striving Believers

## 25% of sample

| Psychographics (Top 2 Box)             |         |        |
|--|---------|--------|
|  | Segment | Others |
| Recycles                               | 83%     | 75%    |
| Worried about pollution caused by cars | 62%     | 49%    |
| Can find ways to get what want         | 22%     | 34%    |
| Not worried about future               | 11%     | 18%    |

| Political Affiliation (% of Total) |         |        |
|------------------------------------|---------|--------|
|                                    | Segment | Others |
| Liberal                            | 48%     | 29%    |
| Moderate                           | 26%     | 31%    |
| Conservative                       | 26%     | 40%    |

| Perceived Energy Use Compared to Neighbors (% of Total) |         |        |
|---|---------|--------|
|   | Segment | Others |
| Uses more energy  | 10%     | 13%    |
| Uses as much energy                                     | 21%     | 32%    |
| Uses less energy  | 61%     | 44%    |
| Don't know  | 8%      | 10%    |

| Demographics and Geographic Location (% of Total) |         |        |                                |         |        |
|---|---------|--------|--------------------------------|---------|--------|
|   | Segment | Others |                                | Segment | Others |
| <b>Gender</b>                                     |         |        | <b>Children in Household</b>   |         |        |
| Male  | 47%     | 43%    | None                           | 63%     | 53%    |
| Female  | 53%     | 57%    | 1                              | 15%     | 18%    |
| <b>Age</b>  |         |        | 2-3                            | 21%     | 25%    |
| 24 or younger                                     | 12%     | 12%    | 4 or more                      | 1%      | 4%     |
| 25-34   | 18%     | 18%    | <b>Annual Household Income</b> |         |        |
| 35-44   | 25%     | 19%    | Less than \$30K                | 18%     | 26%    |
| 45-54   | 24%     | 19%    | \$30K-\$49,999                 | 21%     | 27%    |
| 55-64   | 9%      | 15%    | \$50K-\$74,999                 | 17%     | 16%    |
| 65 or older                                       | 13%     | 18%    | \$75K-\$99,999                 | 17%     | 11%    |
| <b>Ethnicity</b>                                  |         |        | \$100K-\$149,999               | 15%     | 12%    |
| White or Caucasian                                | 61%     | 54%    | \$150K-\$249,999               | 9%      | 6%     |
| Black or African American                         | 8%      | 6%     | \$250,000 or more              | 2%      | 2%     |
| Hispanic or Latino                                | 18%     | 30%    | <b>Annual Income Level</b>     |         |        |
| Asian   | 11%     | 8%     | Low (State standard)           | 28%     | 40%    |
| Other   | 2%      | 2%     | Medium (>L.I.-\$200K)          | 67%     | 56%    |
| <b>Education</b>                                  |         |        | High (\$200K+)                 | 5%      | 4%     |
| High school or less                               | 14%     | 28%    | <b>IOU Territory</b>           |         |        |
| Some college or associate degree                  | 32%     | 37%    | PG&E                           | 40%     | 37%    |
| College graduate                                  | 24%     | 17%    | SCE                            | 35%     | 44%    |
| Graduate degree                                   | 30%     | 18%    | LADWP                          | 11%     | 6%     |
| <b>Own/Rent</b>                                   |         |        | SDG&E                          | 12%     | 8%     |
| Own   | 57%     | 66%    | Other                          | 3%      | 5%     |
| Rent  | 43%     | 34%    | <b>Urban/Rural</b>             |         |        |
|   |         |        | Urban                          | 90%     | 83%    |
|   |         |        | Rural                          | 9%      | 17%    |

Arrows indicate statistically significant difference at 95% confidence

# Striving Believers – 25% of sample

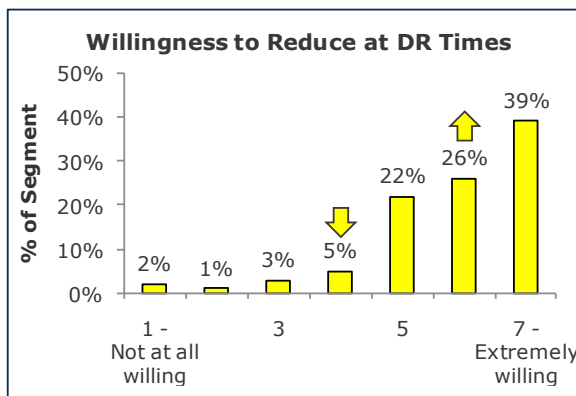
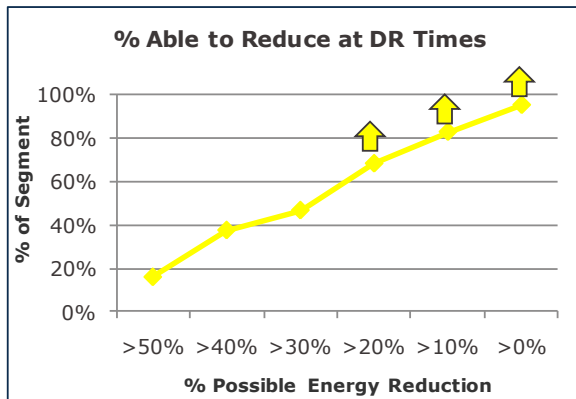
|   |                            |
|---|----------------------------|
| Primary Non-Money Motivation:                 | Protecting the environment |
| Willingness to Reduce Energy Use at DR Times: | 5.8                        |

| Motivation Rank      |                    |
|----------------------|--------------------|
| Segment              | Others             |
| 1 Saving money       | Saving money       |
| 2 Environment        | Environment        |
| 3 Future generations | Foreign oil        |
| 4 Foreign oil        | Health             |
| 5 Health             | Future generations |

| Primary Non-Money Motivations (% of Total) |         |
|--|---------|
|  | Segment |
| Climate change                             | 24%     |
| Natural resources                          | 21%     |
| Animal and plant life                      | 17%     |

| Barriers (Top 2 Box)             |         |        |
|----------------------------------|---------|--------|
|                                  | Segment | Others |
| EE won't look as good            | 6%      | 21%    |
| No personal responsibility       | 6%      | 21%    |
| Small contribution to energy use | 5%      | 17%    |
| Can't do anything about supply   | 1%      | 15%    |
| Not willing to sacrifice comfort | 3%      | 14%    |

| Behaviors (% of Total Possible) |         |        |
|---------------------------------|---------|--------|
|                                 | Segment | Others |
| Practices                       | 58%     | 54%    |
| Low cost purchases              | 37%     | 46%    |
| Medium cost purchases           | 27%     | 46%    |
| High cost purchases             | 32%     | 43%    |
| IOU programs                    | 19%     | 28%    |



| Attitudes (Means, Scale 1-7) |         |        |
|------------------------------|---------|--------|
|                              | Segment | Others |
| Not important                | 2.6     | 3.2    |
| Not my job                   | 1.9     | 2.9    |
| Crusaders                    | 4.8     | 4.6    |
| Resource-minded              | 6.2     | 5.8    |
| Follower                     | 3.6     | 4.0    |
| Altruistic                   | 4.2     | 3.7    |

| Social Influences (Top 2 Box)                  |         |        |
|--|---------|--------|
|  | Segment | Others |
| Try to convince family and friends to use less | 34%     | 33%    |
| Among first to adopt                           | 36%     | 33%    |
| Change if others they respect do               | 28%     | 29%    |
| Others are saving                              | 13%     | 21%    |
| Change if others do their part                 | 26%     | 30%    |
| Wrong to waste                                 | 52%     | 56%    |

| Information Sources (% of Total) |                 |                 |
|----------------------------------|-----------------|-----------------|
|                                  | Segment         | Others          |
| Most trusted                     | Utility (27%)   | Utility (36%)   |
| Least trusted                    | Retailers (34%) | Retailers (22%) |
| Online                           |                 |                 |

Arrows indicate statistically significant difference at 95% confidence

## Striving Believers\* – 25% of sample

| Practices (No Cost)   |       | Low-Med Cost Requiring Knowledge or Installation (% Yes) |       |
|---|-------|--|-------|
| Turn off TV when not in use (Top 3 Box)                         | 87% ↑ | Programmable thermostat                                  | 40% ↓ |
| Turn on min number of lights (Top 3 Box)                        | 87% ↑ | Motion detectors   | 16% ↓ |
| Turn off computer (Top 3 Box)                                   | 60%   | Ceiling fans   | 44% ↓ |
| Unplug cell phone chargers (Top 3 Box)                          | 60%   | Attic vent   | 19% ↓ |
| Unplug other electronics and power strips (Top 3 Box)           | 42%   | <b>Purchases (% Yes)</b>                                 |       |
| Unplug computer when not in use (Top 3 Box)                     | 24%   | Solar panels installed                                   | 7%    |
| Turn off lights when leave a room (Top 3 Box)                   | 88%   | Smart meter installed                                    | 9% ↓  |
| Calculated carbon footprint (% Yes)                             | 12%   | Double-paned windows                                     | 48% ↓ |
| <b>Low-Cost EE Equipment</b>                                    |       | EE HVAC  | 69%   |
| Low flow shower heads (% Yes)                                   | 59%   | EE large appliance                                       | 74%   |
| HVAC maintenance (maintains it at least once a year)            | 49% ↓ | EE consumer electronics                                  | 29% ↓ |
| % CFLs installed (75% or 100% CFLs)                             | 45%   | Insulation   | 36% ↓ |
| Installed light timers (% Yes)                                  | 13% ↓ | Cool roofs   | 8% ↓  |
| Installed water-heater wrap (% Yes)                             | 40% ↓ | EE Water heater  | 67%   |
| Installed window film or weather stripping (% Yes)              | 28% ↓ | Added something to help shade home                       | 48% ↓ |
| <b>IOU Participation (Excluding Low-Income Energy Programs)</b> |       |  |       |
| Energy Audits (had any type of audit)                           | 4% ↓  | Signed up for DR alerts (% Yes)                          | 9% ↓  |
| Use less energy when asked by power company (Top 3 Box)         | 62%   | Signed up for EE course (% Yes)                          | 1% ↓  |

\* Behaviors stated for all those able to take action (e.g. have device or own home)

Arrows indicate statistically significant difference at 95% confidence

## **Thrifty Conservers – 21% of Sample**

### ***Segment Profile***

Like the Striving Believers, the Thrifty Conservers are taking mostly conservation actions, and index lower on many energy efficiency installations. Drawing on their stated motivations, their propensity to adopt practices is due mostly to a concern for climate change (30%) and natural resources (21%). While this group shares relatively the same level of action and the same motivations as the Striving Believers segment, Thrifty Conservers more closely resemble the Practical Spenders in terms of their underlying attitudes, beliefs, and barriers to saving energy.

Like Practical Spenders, the Thrifty Conservers have a relatively low concern for conserving resources, low daily concern for saving energy, and a low sense of altruism around saving energy. Further, Thrifty Conservers are more likely to feel that saving energy is not their personal responsibility. Relative to all other segments combined, Thrifty Conservers feel that their household energy use is small and that their actions will have little to no impact on energy supplies. Like Practical Spenders, this group is Conservative-leaning, with fewer self-declared liberals than all other segments combined (25% vs. 36%). Further, Thrifty Conservers are generally unwilling to sacrifice personal comfort to save energy and are more susceptible to product-specific barriers when it comes to purchasing energy efficient appliances.

Behaviorally, Thrifty Conservers take slightly more energy saving practices than the other conservation-driven segment, Striving Believers, and score generally higher on energy efficiency measures than Striving Believers. However unlike the Striving Believers segment, the Thrifty Conservers are less likely to feel that they can reduce their energy use during a demand response event and have a lower willingness to do so when compared to all other segments.

Thrifty Conservers also tend to have lower levels of education, with 72% of the segment holding an associate's degree or less. They have a greater proportion of renters compared to all other segments combined (45% vs. 34%) and have a greater proportion of low income individuals (approximately 47% of the Thrifty Conservers are low income compared to 34% of all other segments combined). However, they generally have higher earnings than the Disconnected segment (with 62% of its members in the low income category).

### ***Behavioral Targets***

Given the potential financial constraints of this segment, behavioral targets should focus on low to medium, upfront-costing energy efficient measures and purchases. Efforts should center on measures where Thrifty Conservers have a low uptake in particular, namely programmable thermostats, motion detectors, attic vents, weatherization, CFLs, and water heater wraps.

### ***Potential Outreach Challenges***

Thrifty Conservers' low willingness to act may be due in part to the financial limitations its

members face. In addition, this segment is appearance-conscious, and more likely to feel that energy efficient appliances won't look as good as standard appliances. Thus, Thrifty Conservers may be more susceptible to product-specific barriers when considering energy efficiency. Further, they appear to be the most likely of all segments to feel that they cannot reduce their current energy use during demand response times, indicating the greatest challenge in moving Thrifty Conservers to action will be broadening their idea of what can be done to save energy and making it more accessible (in terms of ease and finances).

### ***Outreach Recommendations***

**Thrifty Conservers will take more action if actions are accessible, cheap, and simple to adopt.** Thrifty Conservers focus their efforts on practices and refrain from energy efficiency purchases. This group is not likely to be moved to action through altruistic appeals and it is unlikely that they can be made to feel more personally responsible to take action. Rather, this group will take action if barriers to energy efficiency are reduced.

- *Move Thrifty Conservers by addressing product and lifestyle barriers to energy efficiency adoption.* Of the two groups with great potential for movement, Thrifty Conservers have the greatest number of barriers prohibiting them from taking action. Simple messaging that takes on barriers directly will help to move Thrifty Conservers to action.
- *Engage Thrifty Conservers through IOU and traditional media outreach that reduces perceptions that energy efficient options are inferior, more costly, or more difficult to adopt than standard options.* Engage them through point of purchase advertisements and information. Also this group may be reached through traditional product marketing techniques to sell energy efficiency at the decision-making point. Outreach should make efficiency a top-of-mind consideration when Thrifty Conservers are *in the market* because conserving energy is likely to be low on their daily to-do list.

# Thrifty Conservers 21% of sample

## Psychographics (Top 2 Box)

|  | Segment | Others |
|--|---------|--------|
| Recycles                               | 68% ↓   | 80%    |
| Worries about pollution caused by cars | 43% ↓   | 55%    |

## Political Affiliation (% of Total)

|              | Segment | Others |
|--------------|---------|--------|
| Liberal      | 25% ↓   | 36%    |
| Moderate     | 33%     | 28%    |
| Conservative | 42%     | 35%    |

## Perceived Energy Use Compared to Neighbors (% of Total)

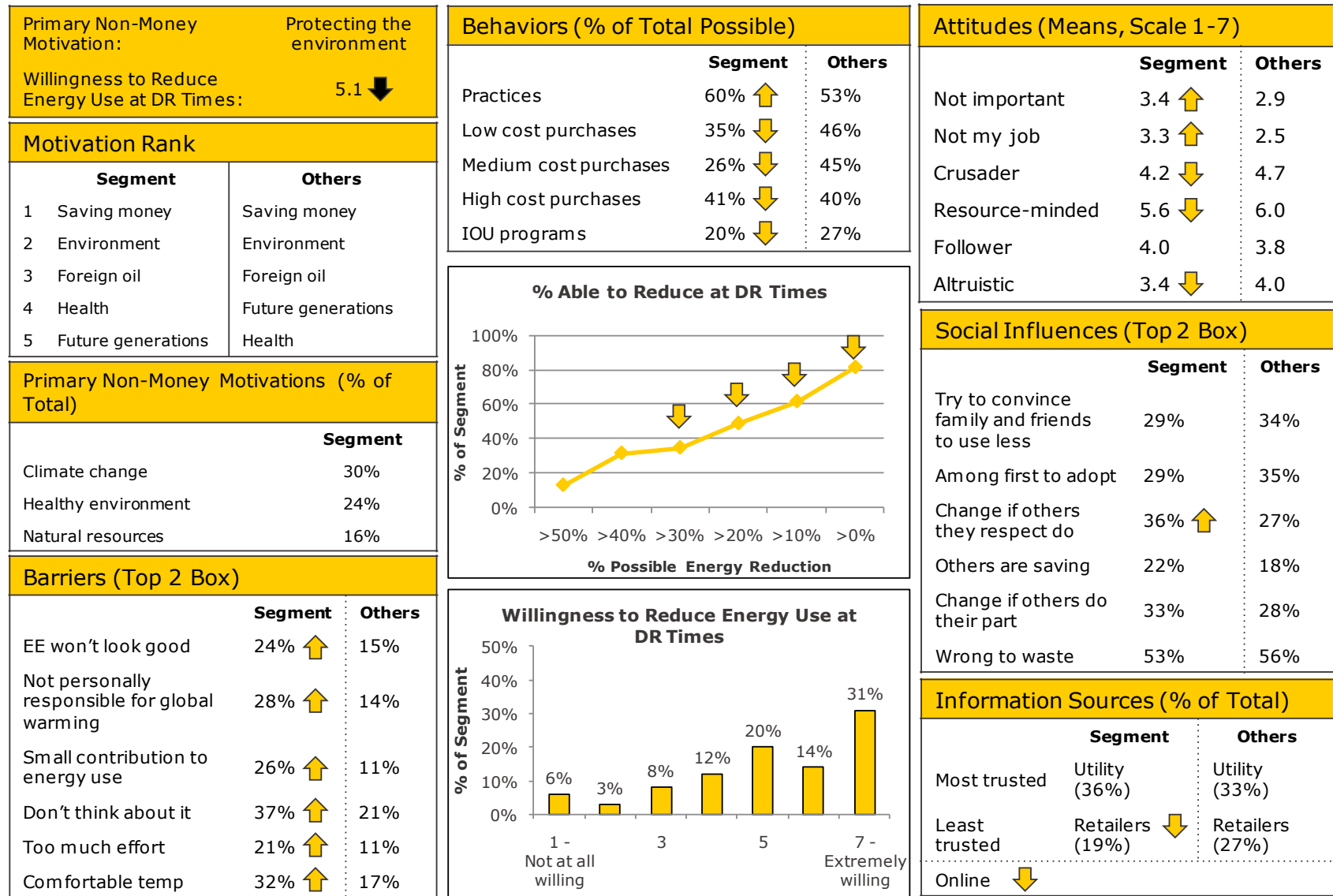
|                     | Segment | Others |
|---------------------|---------|--------|
| Uses more energy    | 10%     | 14%    |
| Uses as much energy | 37% ↑   | 27%    |
| Uses less energy    | 40% ↓   | 50%    |
| Don't know          | 13%     | 9%     |

## Demographics and Geographic Location (% of Total)

|                                  | Segment | Others |                                | Segment | Others |
|----------------------------------|---------|--------|--------------------------------|---------|--------|
| <b>Gender</b>                    |         |        | <b>Children in Household</b>   |         |        |
| Male                             | 40%     | 45%    | None                           | 55%     | 55%    |
| Female                           | 60%     | 55%    | 1                              | 15%     | 18%    |
| <b>Age</b>                       |         |        | 2-3                            | 27%     | 23%    |
| 24 or younger                    | 11%     | 12%    | 4 or more                      | 3%      | 3%     |
| 25-34                            | 23%     | 16%    | <b>Annual Household Income</b> |         |        |
| 35-44                            | 18%     | 21%    | Less than \$30K                | 34% ↑   | 22%    |
| 45-54                            | 13% ↓   | 22%    | \$30K-\$49,999                 | 26%     | 25%    |
| 55-64                            | 13%     | 14%    | \$50K-\$74,999                 | 14%     | 16%    |
| 65 or older                      | 21%     | 15%    | \$75K-\$99,999                 | 12%     | 13%    |
| <b>Ethnicity</b>                 |         |        | \$100K-\$149,999               | 9%      | 14%    |
| White or Caucasian               | 49%     | 57%    | \$150K-\$249,999               | 3% ↓    | 8%     |
| Black or African American        | 4%      | 7%     | \$250,000 or more              | 2%      | 2%     |
| Hispanic or Latino               | 35% ↑   | 25%    | <b>Annual Income Level</b>     |         |        |
| Asian                            | 11%     | 8%     | Low (State standard)           | 47% ↑   | 34%    |
| Other                            | 1%      | 2%     | Medium (>L.I.-\$200K)          | 51% ↓   | 6%     |
| <b>Education</b>                 |         |        | High (\$200K+)                 | 2% ↓    | 5%     |
| High school or less              | 34% ↑   | 22%    | <b>IOU Territory</b>           |         |        |
| Some college or associate degree | 38%     | 35%    | PG&E                           | 38%     | 38%    |
| College graduate                 | 15%     | 20%    | SCE                            | 41%     | 42%    |
| Graduate degree                  | 13% ↓   | 23%    | LADWP                          | 8%      | 6%     |
| <b>Own/Rent</b>                  |         |        | SDG&E                          | 7%      | 10%    |
| Own                              | 55% ↓   | 66%    | Other                          | 6%      | 4%     |
| Rent                             | 45% ↑   | 34%    | <b>Urban/Rural</b>             |         |        |
|                                  |         |        | Urban                          | 83%     | 85%    |
|                                  |         |        | Rural                          | 16%     | 14%    |

Arrows indicate statistically significant difference at 95% confidence

# Thrifty Conservers – 21% of sample



Arrows indicate statistically significant difference at 95% confidence



# Thrifty Conservers\* – 21% of sample

| Practices (No Cost)   |       | Low-Med Cost Requiring Knowledge or Installation (% Yes) |       |
|---|-------|--|-------|
| Turn off TV when not in use (Top 3 Box)                         | 85%   | Programmable thermostat                                  | 29% ↓ |
| Turn on min number of lights (Top 3 Box)                        | 85%   | Motion detectors   | 21% ↓ |
| Turn off computer (Top 3 Box)                                   | 71% ↑ | Ceiling fans   | 64%   |
| Unplug cell phone chargers (Top 3 Box)                          | 63%   | Attic vent   | 14% ↓ |
| Unplug other electronics and power strips (Top 3 Box)           | 52% ↑ | <b>Purchases (% Yes)</b>                                 |       |
| Unplug computer when not in use (Top 3 Box)                     | 34% ↑ | Solar panels installed                                   | 6%    |
| Turn off lights when leave a room (Top 3 Box)                   | 87%   | Smart meter installed                                    | 33%   |
| Calculated carbon footprint (% Yes)                             | 6%    | Double-paned windows                                     | 55%   |
| <b>Low-Cost EE Equipment</b>                                    |       | EE HVAC  | 65%   |
| Low flow shower heads (% Yes)                                   | 59%   | EE large appliance                                       | 78%   |
| HVAC maintenance (at least once a year)                         | 54% ↓ | EE consumer electronics                                  | 45%   |
| % CFLs installed (75% or 100% CFLs)                             | 40% ↓ | Insulation   | 51%   |
| Installed light timers (% Yes)                                  | 14%   | Cool roofs   | 17%   |
| Installed water-heater wrap (% Yes)                             | 42% ↓ | EE Water heater  | 66%   |
| Installed window film or weather stripping (% Yes)              | 20% ↓ | Added something to help shade home                       | 48% ↓ |
| <b>IOU Participation (Excluding Low-Income Energy Programs)</b> |       |  |       |
| Energy Audits (had any type of audit)                           | 6% ↓  | Signed up for DR alerts (% Yes)                          | 9% ↓  |
| Use less energy when asked by power company (Top 3 Box)         | 63%   | Signed up for EE course (% Yes)                          | 2% ↓  |

\* Behaviors stated for all those able to take action (e.g. have device or own home)

Arrows indicate statistically significant difference at 95% confidence

## **Disconnected**

### ***Segment Profile***

Of all segments, the Disconnected are the most limited financially in their ability to take action and have the greatest barriers overall to action. This segment also performs lower than all other segments each on behavioral index, including no-cost practices as well as energy efficiency measures and purchases.

Attitudinally, and much like Practical Spenders and Thrifty Conservers, the Disconnected are more likely to feel it is not their job to save energy, to be less resource-minded, and to be convenience and comfort focused. Like Thrifty Conservers, they tend agree with product-specific barriers to efficiency purchases, indicating that efficient products do not look as good as or perform as well as standard products.

Despite their lower level of adoption compared to all other segments, this group tends to perceive their energy use as normal (same usage as others), and are likely unaware of the breadth of energy-saving options available to them. They are motivated to save energy for environmental reasons, but differ from other segments when this motivation is investigated further; the Disconnected segment is more likely to cite concern for plant and animal life and health as their primary environmental motivations. Further, they are more likely than all other segments to be influenced by others and will take action if they think others are doing their part.

Overall, this group is politically diverse, with near equal representation among conservatives, moderates, and liberals (35%, 32%, and 32% respectively). They tend to have a low sense of self efficacy overall, but appear to be less risk-averse than all other segments. Further, our data indicates that this group is less price-focused than other segments, and may not be motivated by financial savings.

Of all groups, the Disconnected have the greatest number of low-income individuals (at 62% compared to all other segments combined at 33%) and the greatest number of individuals with a high school education or less (48% compared to 21% for all other segments combined). The Disconnected have a greater proportion of Hispanic/Latino households (50% to all others at 23%) and African-American Households (14% to all others at 5%), and have the greatest number of renters of all segment (67% compared to all others at 31%).

### ***Behavioral Targets***

Due to this group's limited resources, the primary behavioral targets should include greater adoption of no to low cost behaviors and participation in low-income programs that directly subsidize energy efficiency measures (preferably those programs with direct installs).

### ***Potential Outreach Challenges***

Since the Disconnected are convenience-driven (likely due to their financially constrained lifestyle) and have high barriers to energy efficiency purchases, this group will need to be convinced of the ease of changing their behaviors and the value of energy efficiency. This

may be communicated by leveraging their inclination to “follow” others who are taking action, and personalizing energy efficiency through health-related concerns (which is the least partisan of all motivations and most unlikely to offend this politically diverse group).

### ***Outreach Recommendations***

**The Disconnected will take action if reached through direct community-based efforts.** The Disconnected segment is extremely limited financially and has the greatest number of barriers to action of all segments. This group requires direct engagement from programs and community-based organizations to move them beyond their current level of adoption.

- *Move the Disconnected through energy audits with direct installs, free give-aways, and targeted program outreach.* Moving this segment requires more direct action and targeting than all other segments. This group, if they are going to take action, will require direct education, subsidized or reduced-cost measures, and clear and simple communication.
- *Engage the Disconnected through community-driven education and outreach targeting the simplest practices and efficiency measures.* This group, of all segments, is most likely to follow others. Identifying those organizations that are most trusted in the community and/or local community leaders will help to engage them in the zero net energy goal. A grassroots and targeting outreach campaign may be the most effective way to engage this population and most able to direct them to the resources necessary to move them to action.

# Disconnected

## 15% of sample

### Psychographics (Top 2 Box)

|                         | Segment | Others |
|-------------------------|---------|--------|
| Enjoy taking risks      | 36%     | 23%    |
| Can solve most problems | 60%     | 71%    |
| Recycles                | 65%     | 79%    |
| Practical outlook       | 62%     | 76%    |

### Political Affiliation (% of Total)

|              | Segment | Others |
|--------------|---------|--------|
| Liberal      | 32%     | 34%    |
| Moderate     | 32%     | 29%    |
| Conservative | 35%     | 37%    |

### Perceived Energy Use Compared to Neighbors (% of Total)

|                     | Segment | Others |
|---------------------|---------|--------|
| Uses more energy    | 9%      | 14%    |
| Uses as much energy | 38%     | 28%    |
| Uses less energy    | 38%     | 50%    |
| Don't know          | 15%     | 9%     |

### Demographics and Geographic Location (% of Total)

|                                  | Segment | Others |                                | Segment | Others |
|----------------------------------|---------|--------|--------------------------------|---------|--------|
| <b>Gender</b>                    |         |        | <b>Children in Household</b>   |         |        |
| Male                             | 41%     | 44%    | None                           | 39%     | 58%    |
| Female                           | 59%     | 56%    | 1                              | 27%     | 16%    |
| <b>Age</b>                       |         |        | 2-3                            | 30%     | 23%    |
| 24 or younger                    | 30%     | 9%     | 4 or more                      | 5%      | 3%     |
| 25-34                            | 24%     | 16%    | <b>Annual Household Income</b> |         |        |
| 35-44                            | 21%     | 20%    | Less than \$30K                | 41%     | 21%    |
| 45-54                            | 14%     | 21%    | \$30K-\$49,999                 | 34%     | 24%    |
| 55-64                            | 3%      | 16%    | \$50K-\$74,999                 | 8%      | 14%    |
| 65 or older                      | 9%      | 18%    | \$75K-\$99,999                 | 3%      | 14%    |
| <b>Ethnicity</b>                 |         |        | \$100K-\$149,999               | 8%      | 13%    |
| White or Caucasian               | 26%     | 61%    | \$150K-\$249,999               | 4%      | 8%     |
| Black or African American        | 14%     | 5%     | \$250,000 or more              | 1%      | 2%     |
| Hispanic or Latino               | 50%     | 23%    | <b>Annual Income Level</b>     |         |        |
| Asian                            | 8%      | 9%     | Low (State standard)           | 62%     | 33%    |
| Other                            | 3%      | 2%     | Medium (>L.I.-\$200K)          | 35%     | 63%    |
| <b>Education</b>                 |         |        | High (\$200K+)                 | 3%      | 5%     |
| High School or less              | 48%     | 21%    | <b>IOU Territory</b>           |         |        |
| Some college or associate degree | 30%     | 37%    | PG&E                           | 32%     | 39%    |
| College Graduate                 | 15%     | 19%    | SCE                            | 45%     | 41%    |
| Graduate degree                  | 7%      | 23%    | LADWP                          | 9%      | 6%     |
| <b>Own/Rent</b>                  |         |        | SDG&E                          | 7%      | 10%    |
| Own                              | 33%     | 69%    | Other                          | 6%      | 4%     |
| Rent                             | 67%     | 31%    | <b>Urban/Rural</b>             |         |        |
|                                  |         |        | Urban                          | 86%     | 84%    |
|                                  |         |        | Rural                          | 14%     | 15%    |

Arrows indicate statistically significant difference at 95% confidence

# Disconnected – 15% of sample

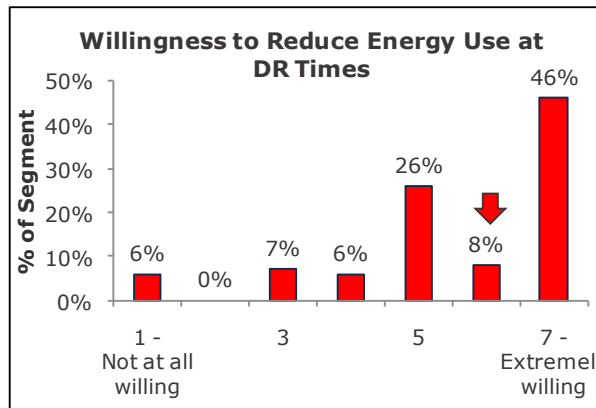
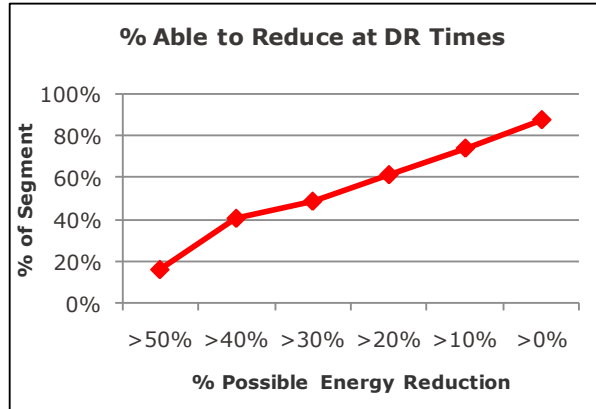
|   |                            |
|---|----------------------------|
| Primary Non-Money Motivation:                 | Protecting the environment |
| Willingness to Reduce Energy Use at DR Times: | 5.6                        |

| Motivation Rank      |                    |
|----------------------|--------------------|
| Segment              | Others             |
| 1 Saving money       | Saving money       |
| 2 Environment        | Environment        |
| 3 Helping state lead | Foreign oil        |
| 4 Health             | Health             |
| 5 Foreign oil        | Future generations |

| Primary Non-Money Motivations (% of Total) |         |
|--|---------|
|  | Segment |
| Animal and plant life                      | 25%     |
| Healthy environment                        | 19%     |
| Climate change                             | 16%     |

| Barriers (Top 2 Box)           |         |        |
|--------------------------------|---------|--------|
|                                | Segment | Others |
| Lower EE performance           | 40% ↑   | 17%    |
| EE won't look as good          | 32% ↑   | 15%    |
| Gov't responsibility           | 34% ↑   | 19%    |
| Can't do anything about supply | 23% ↑   | 10%    |
| Don't think about it           | 38% ↑   | 22%    |
| Too much effort                | 25% ↑   | 11%    |
| EE doesn't meet needs          | 28% ↑   | 11%    |

| Behaviors (% of Total Possible) |         |        |
|---------------------------------|---------|--------|
|                                 | Segment | Others |
| Practices                       | 46% ↓   | 56%    |
| Low cost purchases              | 23% ↓   | 47%    |
| Medium cost purchases           | 17% ↓   | 46%    |
| High cost purchases             | 18% ↓   | 45%    |
| IOU programs                    | 16% ↓   | 27%    |



| Attitudes (Means, Scale 1-7) |         |        |
|------------------------------|---------|--------|
|                              | Segment | Others |
| Not important                | 3.8 ↑   | 2.9    |
| Not my job                   | 3.4 ↑   | 2.6    |
| Crusader                     | 4.6     | 4.6    |
| Resource-minded              | 5.6 ↓   | 6.0    |
| Follower                     | 4.4 ↑   | 3.8    |
| Altruistic                   | 3.8     | 3.8    |

| Social Influences (Top 2 Box)                  |         |        |
|--|---------|--------|
|  | Segment | Others |
| Try to convince family and friends to use less | 39%     | 32%    |
| Among first to adopt                           | 32%     | 34%    |
| Change if others they respect do               | 32%     | 28%    |
| Others are saving                              | 28% ↑   | 18%    |
| Change if others do their part                 | 35%     | 28%    |
| Wrong to waste                                 | 54%     | 55%    |

| Information Sources (% of Total) |                 |                 |
|----------------------------------|-----------------|-----------------|
|                                  | Segment         | Others          |
| Most trusted                     | Utility (37%)   | Utility (33%)   |
| Least trusted                    | Retailers (24%) | Retailers (25%) |
| Online                           | ↓               |                 |

Arrows indicate statistically significant difference at 95% confidence

# Disconnected\* – 15% of sample

| Practices (No Cost)   |       | Low-Med Cost Requiring Knowledge or Installation (% Yes) |       |
|---|-------|--|-------|
| Turn off TV when not in use (Top 3 Box)                         | 68% ↓ | Programmable thermostat                                  | 21% ↓ |
| Turn on min number of lights (Top 3 Box)                        | 66% ↓ | Motion detectors   | 13% ↓ |
| Turn off computer (Top 3 Box)                                   | 48% ↓ | Ceiling fans   | 62%   |
| Unplug cell phone chargers (Top 3 Box)                          | 50% ↓ | Attic vent   | 9% ↓  |
| Unplug other electronics and power strips (Top 3 Box)           | 39%   | <b>Purchases (% Yes)</b>                                 |       |
| Unplug computer when not in use (Top 3 Box)                     | 24%   | Solar panels installed                                   | 11%   |
| Turn off lights when leave a room (Top 3 Box)                   | 74% ↓ | Smart meter installed                                    | 14%   |
| Calculated carbon footprint (% Yes)                             | 0%    | Double-paned windows                                     | 30% ↓ |
| <b>Low-Cost EE Equipment</b>                                    |       | EE HVAC  | 21% ↓ |
| Low flow shower heads (% Yes)                                   | 31% ↓ | EE large appliance                                       | 37% ↓ |
| HVAC maintenance (at least once a year)                         | 45% ↓ | EE consumer electronics                                  | 23% ↓ |
| % CFLs installed (75% or 100% CFLs)                             | 35% ↓ | Insulation   | 38% ↓ |
| Installed light timers (% Yes)                                  | 7% ↓  | Cool roofs   | 16%   |
| Installed water-heater wrap (% Yes)                             | 32% ↓ | EE Water heater  | 43% ↓ |
| Installed window film or weather stripping (% Yes)              | 13% ↓ | Added something to help shade home                       | 24% ↓ |
| <b>IOU Participation (Excluding Low-Income Energy Programs)</b> |       |  |       |
| Energy Audits (had any type of audit)                           | 2% ↓  | Signed up for DR alerts (% Yes)                          | 7% ↓  |
| Use less energy when asked by power company (Top 3 Box)         | 53% ↓ | Signed up for EE course (% Yes)                          | 0%    |

\* Behaviors stated for all those able to take action (e.g. have device or own home)

Arrows indicate statistically significant difference at 95% confidence

## Next Steps

The Opinion Dynamics team has two primary next steps for the segmentation effort:

1. Providing the CPUC with the targeting and profiling algorithm
2. Linking the Spanish-language population to the five segments outlined in this memo

These efforts will be finalized in the near future and will be provided to the CPUC as an addendum to this report.

## APPENDIX A – PERCENTAGES IN CALIFORNIA POPULATION

Opinion Dynamics ensured that the sample was representative of English-speaking California on certain variables by controlling the respondents to fill the quota groups shown in Table 10.

The source of the population data shown is the U.S. Census Bureau, American Community Survey 2007 1-year estimates for the State of California. Where available from the Census website, the data is provided for the population 18 and over. Note that data by age was not included specifically for homeownership.

**Table 10. Population Data for English-Speaking California Population<sup>25</sup>**

| Quota Group   | Percentage in California English-speaking Population |
|---|--|
| <i>IOU Territory</i>                                  |  |
| Pacific Gas and Electric Company                      | 40%  |
| San Diego Gas and Electric                            | 10%  |
| Southern California Edison                            | 40%  |
| Other   | 10%  |
| <i>Ownership (Population: Occupied Housing Units)</i> |  |
| Owner   | 58%  |
| Renter  | 42%  |
| <i>Age (population 18 and over)</i>                   |  |
| 24 yrs or younger                                     | 14%  |
| 25 to 34 yrs  | 19%  |
| 35 to 44 yrs  | 20%  |
| 45 to 54 yrs  | 19%  |
| 55 to 64 yrs  | 13%  |
| 65 or older   | 15%  |
| <i>Race (Population 5 and older)<sup>26</sup></i>     |  |
| Black or African American                             | 7%   |
| Asian   | 12%  |
| White or Caucasian and Other                          | 81%  |
| <i>Hispanic<sup>27</sup></i>                          |  |
| Hispanic  | 30%  |
| Not Hispanic  | 70%  |
| <i>Income<sup>28</sup></i>                            |  |
| Low Income  | 33%  |

<sup>25</sup> Note that in the case of income, it was not possible to get percentages for the English-speaking only population.

<sup>26</sup> Note: The equivalent Census race categories (where these population percentages were obtained from) are: White alone, Black or African American alone, Asian alone, and all remaining categories. We do not match the Census categories exactly here because we are matching categories used for targeting.

<sup>27</sup> Note: the equivalent Census category is "Hispanic or Latino" (and the population data is for this). We do not include the Latino aspect in our question because we are matching categories used for targeting.

<sup>28</sup> Source of low income statistic: <http://www.dra.ca.gov/DRA/energy/Low+Income+Energy+Services.htm>.



|                |     |
|----------------|-----|
| Not Low income | 67% |
|----------------|-----|

# APPENDIX B - FINAL SURVEY INSTRUMENT



## Segmentation Questionnaire – Phone

### Introduction

*“I am calling from Opinion Dynamics, a research and polling company focusing on energy issues. I would like to ask you a few questions to help California better manage their energy resources and to understand Californians’ attitudes and beliefs. For your participation in this study, we will enter you in a drawing to win a free iPod Touch.”* [If needed: All individuals who complete the survey will be entered into a random drawing. The winner will be contacted by Opinion Dynamics to get the best contact information to receive the iPod Touch, which will be sent directly from Opinion Dynamics]

### Screeners/Quotas

S0. Is your household responsible for paying the utility bills?

1. Yes
2. No [THANK AND TERMINATE]
8. (Don’t know) [THANK AND TERMINATE]
9. (Refused) [THANK AND TERMINATE]

S1. Are you, or is anyone in your household, an employee of an electric or gas utility company, the California Public Utilities Commission, or the California Energy Commission? If yes, which do you work for?

1. (Yes, employee of an electric or gas utility company) [THANK AND TERMINATE]
2. (Yes, employee of the California Public Utilities Commission) [THANK AND TERMINATE]
3. (Yes, employee of the California Energy Commission) [THANK AND TERMINATE]
4. (No)
8. (Don’t Know) [THANK AND TERMINATE]
9. (Refused) [THANK AND TERMINATE]

S2. What is the name of your electric utility? (INTERVIEWER PLEASE READ THE FULL LIST IF THE RESPONDENT SAYS DON’T KNOW AND TRY TO GET THEM TO

ANSWER]

1. (Pacific Gas and Electric)
2. (Southern California Edison)
3. (San Diego Gas and Electric/SEMPRA)
4. (Department of Water and Power)
5. (Sacramento Municipal Utility District)
00. Other. Specify
98. (Don't Know)
99. (Refused)

S3. What is the name of your gas utility?

1. (Southern California Gas/The Gas Company)
2. (Pacific Gas and Electric)
3. (San Diego Gas and Electric/SEMPRA)
00. Other. Specify
96. (I don't have natural gas)
98. (I have natural gas, but I don't know)
99. (Refused)

**[THANK AND TERMINATE IF (S2 = 98 or S2= 99) AND (S3 = 00, 96, 98, OR 99)]**

S4. Do you rent or own your home?

1. (Rent)
2. (Own)
00. Other. Specify [THANK AND TERMINATE]
98. (Don't know) [THANK AND TERMINATE]
99. (Refused) [THANK AND TERMINATE]

S5. Including yourself, how many people live in your household on a full time basis?

1. (1)
2. (2)
3. (3)
4. (4)
5. (5)
6. (6)
7. (7)
8. (8)
9. (9)
10. (10)
11. (Over 10 people in the household)
98. (Don't know)
99. (Refused)

S6. How many school-aged children 18 years or younger live in your household?

0. (None)
1. (1)

2. (2)
3. (3)
4. (4)
5. (5)
6. (6)
7. (7)
8. (8)
9. (9 or more)
98. (Don't know)
99. (Refused)

[SKIP TO S8 IF S5 >10]

S7. Is your annual household income...

1. Below X
2. Between X and \$200,000
3. Over \$200,000
8. (Don't know)
9. (Refused)

[READ IN X BASED ON THE BELOW TABLE]<sup>29</sup>

| If S5 = | X=       |
|---------|----------|
| 1, 2    | \$30,500 |
| 3       | \$35,800 |
| 4       | \$43,200 |
| 5       | \$50,600 |
| 6       | \$58,000 |
| 7       | \$65,400 |
| 8       | \$72,800 |
| 9       | \$80,200 |
| 10      | \$87,600 |

S8. Which of the following best describes your age?

1. 24 yrs or younger
2. 25 to 34 yrs
3. 35 to 44 yrs
4. 45 to 54 yrs
5. 55 to 64 yrs
6. 65 or older
8. (Don't know) [THANK AND TERMINATE]
9. (Refused) [THANK AND TERMINATE]

---

<sup>29</sup> This table shows the income breaks for low income, which correspond to household size. The respondent is considered low income if they fall below the incomes for their corresponding household size.

D7. Are you of Hispanic descent?

1. Yes
2. No
8. (Don't know)
9. (Refused)

D8. Which of the following best describes your race?

1. White or Caucasian
2. Black or African American
3. Chinese
4. Korean
5. Vietnamese
6. Other Asian
00. Other. Specify
98. (Don't know)
99. (Refused)

## **Behaviors and Measures**

### ***Habitual Conservation Behaviors***

*“Now I'd like to ask you about actions you take in your home related to lighting and electronics.”*

#### ***Managing Lights and Appliances***

BM1. On a scale of 1 to 7 where 1 is “never” and 7 is “every time I can,” please tell me how frequently your household takes each of the following actions. Please think not only about your own actions, but about anyone who might live in your home. If you do not have a device that is mentioned, please tell me. How frequently does your household...

[ROTATE, 8=Do not have device, 98=(Don't know), 99=(Refused)]

- A. Turn off the TV when no one is in the room or actively watching the program
- B. Turn on only the minimum number of lights necessary
- C. Turn off the lights when you leave a room
- D. Turn off the computer when not in use
- E. Unplug the computer when not in use

#### ***Managing Lights and Appliances/Demand Response***

BM2. On the same scale, where 1 is “never” and 7 is “every time I can,” how frequently does your household...

[ROTATE, 8=Do not have device, 98=(Don't know), 99=(Refused)]

- A. Unplug cell phone chargers when not in use
- C. Unplug other electronic devices and appliances or turn off the power strips

BM5A. Use less energy when asked by your power company or the California Independent System Operator

BM6. Has your household ever replaced your showerheads with low-flow showerheads?

1. Yes
2. No
8. (Don't know)
9. (Refused)

***Maintenance of Equipment [SKIP IF S4<>2]***

*“For the next question, please tell me which response best applies to how your household maintains heating and/or air conditioning equipment.”*

ME2. My household ...

1. Has never maintained it
2. Has maintained it in the past, but we do not do it regularly
3. Maintains it at least once a year
4. I do not have a heating or air conditioning system
8. (Don't know)
9. (Refused)

***Energy Efficient Lighting [ASK ALL]***

EL2. CFLs (Compact Fluorescent Lamps) are energy saving light bulbs that are swirly or are in a “U” shape. Think about all of the sockets in your home that take screw-in light bulbs. Which of the following is the most accurate? [IF NEEDED - If you are not sure, please provide your best estimate]. Does your home have... (INTERVIEWER PLEASE PROBE FOR AN ESTIMATE – TRY NOT TO ACCEPT A DON'T KNOW)

1. Close to 0% CFLs or no CFLs
2. About 25% CFLs
3. About 50% CFLs
4. About 75% CFLs
5. About 100% CFLs
6. (I don't know what a CFL is)
8. (Don't know)
9. (Refused)

EL3. Has your household installed timers for your lights that you use all the time, not just when you are on vacation or away?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

EL4. Has your household ever installed motion detectors for your lights?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

### *Energy Efficient Appliances*

ES3A. Have you ever purchased any of the following appliances? [1=Yes, 2=No, 8=(Don't know), 9=(Refused)]

- A. Heating or cooling system
- F. Refrigerator, washing machine, dishwasher, or other large appliance
- I. Television or computer
- K. Water heater

[BY APPLIANCE ASK ES3B FOR EACH ES3AA=1, ES3AF=1, ES3AI=1, ES3AK=1]

ES3B. Was your [INSERT A, F, I, K FROM ES3A] advertised as using LESS ENERGY than other appliances being sold at that time?

1. Yes
2. No
8. (Don't know)
9. (Refused)

### *Envelope Measures*

[SKIP IF S4<>2]

EM1. Has your household ever taken the following actions? [ROTATE, 1=Yes, 2=No, 8= (Don't Know), 9=(Refused)]

- A. Installed double-paned or energy efficient windows?
- B. Installed insulation?
- E. Wrapped the water heater tank to keep it insulated?
- G. Added something to help shade your home such as external window shade screens, window awnings, or a shade tree?
- I. Installed roofing materials that reflect the sunlight to keep the house cooler in the summer (for example, a white or "cool" roof)?
- L. Installed ceiling fans?

[ASK ALL]

EM1. Has your household ever taken the following actions? [ROTATE, 1=Yes, 2=No, 8= (Don't Know), 9=(Refused)]

- C. Installed window film (to reflect or absorb light) or weather stripping?
- F. Installed programmable thermostats in your home?

K. Installed a vent in your attic area to keep the attic cooler?

### ***Program Participation [ASK ALL]***

P1. Since July 4<sup>th</sup> of last year, have you. . . [ROTATE, 1=Yes, 2=No, 8=(Don't know), 9=(Refused)]

- A. Taken advantage of a rebate from your local utility to purchase an energy efficient appliance or service
- C. Participated in a course or seminar sponsored by your local utility, for example a course at the Pacific Energy Center on energy efficient lighting
- D. Signed up for alerts from your utility to reduce your energy use to prevent blackouts

### ***Energy Audits [ASK ALL]***

EA1. Have you ever had an energy audit in your home, on the phone, or over the internet? [MULTIPLE RESPONSE] [IF NEEDED: An energy audit is a free service that gives you personally detailed information about how you can save energy in your home].

- 1. (Yes, I had one in my home)
- 2. (Yes, I had one over the phone)
- 3. (Yes, I had one over the internet)
- 4. (No)
- 8. (Don't know)
- 9. (Refused)

[SKIP TO EA3 IF EA1=4, 8, 9]

EA2. Have you used the recommendations from the energy audit to use less energy?

- 1. Yes
- 2. No
- 8. (Don't know)
- 9. (Refused)

[ASK IF EA2=1]

EA2a. What recommendations did you use? [OPEN END, 98=(Don't know), 99=(Refused)]

[SKIP TO NEXT SECTION IF EA1=1]

EA3. On a scale of 1 to 7 where 1 is "not at all interested" and 7 is "extremely interested," please rate your interest in having someone come to your home FOR FREE to provide you with information about how you could save additional energy. [8=(Don't know), 9=(Refused)]

### ***Motivations [ASK ALL]***

RIM1. I am going to read you a list of 6 reasons why people might **change their daily actions** to **save energy**. Please tell me which of these would motivate you the MOST? (IF DON'T KNOW please probe "if you had to choose from the following reasons which one would



motivate you the most?")

1. Saving money
2. Health
3. Protecting the environment
4. For the benefit of future generations
5. Reducing our dependence on foreign oil
6. Helping California lead the way on saving energy
8. (Don't know) -> RIM9
9. (Refused) -> RIM9

RM3A. Of the remaining ones, which is the next MOST important motivator for you to reduce your personal energy use? (READ LIST ONLY IF NECESSARY) (IF DON'T KNOW please probe "if you had to choose form the following reasons which one would motivate you the most?")

[ELIMINATE RESPONSES FROM RIM1]

1. Saving money
2. Health
3. Protecting the environment
4. For the benefit future generations
5. Reducing our dependence on foreign oil
6. Helping California lead the way on saving energy
8. (Don't know) -> RIM
9. (Refused) -> RIM

RM3B. And which is the third MOST important motivator for you to reduce your personal energy use? (READ LIST ONLY IF NECESSARY) (IF DON'T KNOW please probe "if you had to choose form the following reasons which one would motivate you the most?")

[ELIMINATE RESPONSES FROM RIM1, RM3A]

1. Saving money
2. Health
3. Protecting the environment
4. For the benefit future generations
5. Reducing our dependence on foreign oil
6. Helping California lead the way on saving energy
8. (Don't know) -> RIM4
9. (Refused) -> RIM4

RM3C. And which is the next MOST important motivator for you to reduce your personal energy use? (READ LIST ONLY IF NECESSARY) (IF DON'T KNOW please probe "if you had to choose form the following reasons which one would motivate you the most?")

[ELIMINATE RESPONSES FROM RIM1, RM3A, RM3B]

1. Saving money
2. Health

3. Protecting the environment
4. For the benefit future generations
5. Reducing our dependence on foreign oil
6. Helping California lead the way on saving energy
8. (Don't know) -> RIM4
9. (Refused) -> RIM4

RM3D. And which is the next MOST important motivator for you to reduce your personal energy use? (READ LIST ONLY IF NECESSARY) (IF DON'T KNOW please probe "if you had to choose from the following reasons which one would motivate you the most?")

[ELIMINATE RESPONSES FROM RIM1, RM3A, RM3B, RM3C]

1. Saving money
2. Health
3. Protecting the environment
4. For the benefit future generations
5. Reducing our dependence on foreign oil
6. Helping California lead the way on saving energy
8. (Don't know) -> RIM4
9. (Refused) -> RIM4

[SKIP IF RIM1 <> 2 OR [RIM1<>1 AND RM3A<>2]]

RIM4. You indicated that **health** was either the most important to you or the second most important to you among the motivations we listed. Of the following list, which would motivate you the MOST to reduce your personal energy use?

1. Preserving a healthy environment for the people I care about
2. Reducing pollutants in the environment that cause illness such as asthma
3. Reducing toxic waste in the environment
4. Reducing exposure to mercury from coal-fired power plants
8. (Don't know)
9. (Refused)

[SKIP IF RIM1 <> 3 OR [RIM1<>1 AND RM3A<>3]]

RIM5. You indicated that **protecting the environment** was either the most important to you or the second most important to you among the motivations we listed. Of the following list, which would motivate you the MOST to reduce your personal energy use?

1. Maintaining the planet for future generations
2. Ensuring that we have a healthy environment
3. Preserving/protecting animal and plant life
4. Keeping the air as clean as possible.
5. Conserving our natural resources
6. Slowing or stopping the effects of climate change
8. (Don't know)
9. (Refused)

[SKIP IF RIM1 <> 4 OR [RIM1<>1 AND RM3A<>4]]

RIM6. You indicated that **future generations** was either the most important to you or the second most important to you among the motivations we listed. Of the following list, which motivates you the MOST?

1. Ensuring a healthy planet for future generations
2. Ensuring there are enough resources available for future generations
3. Ensure future generations have a livable environment
4. Ensuring our children and their families have the same quality of life as me
5. Ensuring the survival of future generations
8. (Don't know)
9. (Refused)

[SKIP IF RIM1 <> 5 OR [RIM1<>1 AND RM3A<>5]]

RIM7. You indicated that **reducing our dependence on foreign oil** was either the most important to you or the second most important to you among the motivations we listed. Of the following list, which motivates you the MOST?

1. Stop a future energy crisis
2. Secure our county's energy independence
3. Protect our national security
4. To ensure there is enough resources to support our country
5. To bolster our economy
6. Avoid running out of fossil fuels
8. (Don't know)
9. (Refused)

[SKIP IF RIM1 <> 6 OR [RIM1<>1 AND RM3A<>6]]

RIM8. You indicated that California's leadership on energy was either the most important to you or the second most important to you among the motivations we listed. Of the following list, which motivates you the MOST?

1. Feeling part of a statewide movement
2. Helping California lead the rest of the country
3. Preserving the integrity of the state
4. To bolster California's economy
8. (Don't know)
9. (Refused)

[SKIP IF RIM1 <> 1]

RIM8A. You indicated that Saving Money was the most important to you among the motivations we listed. Of the following list, which motivates you the MOST?

1. To ensure my financial security
2. Because it is prudent to save money
3. Because it is necessary in this unstable economy
4. Because I live on a tight budget
8. (Don't know)
9. (Refused)

RIM9. Is there anything else that would motivate you more to save energy than the things we've already talked about?

- 00. OPEN END
- 98. (Don't know)
- 99. (Refused)

## Barriers

Aesthetics and Performance/Waste/Personal Responsibility to Act/Costs

B1. On a scale of 1 to 7 where 1 is "strongly disagree" and 7 is "strongly agree," please tell me how much you agree or disagree with the following statements: [ROTATE, 8=(Don't know), 9=(Refused)]

- A. When purchasing a new product, I would have to accept lower performance if I wanted something energy efficient.
- B. A product that saves energy won't look as good as the non-energy efficient alternative.
- II. There are many things that are normally thrown away that are still quite useful.
- JJ. Making better use of my resources makes me feel good.
- KK. If you can re-use an item you already have, there's no sense in buying something new.
- LL.I do NOT feel a personal responsibility to reduce greenhouse gases.
- MM. I do NOT feel responsible for conserving energy because my personal contribution is very small.
- NN. It is the responsibility of the government, not individuals, to make sure we have enough energy resources.
- OO. There is no use worrying about energy supplies because I can't do anything about them anyway.
- PP. I compare prices of at least a few brands before I choose one.

## Question to Gauge Who is Most Likely to Change

LC1. If the State called for a voluntary restriction on energy use on a given day, what percentage of your home's energy use could you reduce?

- 1. (I couldn't reduce any of my home's energy use)
- 2. (1-10%)
- 3. (11-20%)
- 4. (21-30%)
- 5. (31-40%)
- 6. (41-50%)
- 7. (More than 50%)
- 8. (Don't know)
- 9. (Refused)

[SKIP TO NEXT SECTION IF LC1=1]

LC2. On a scale of 1 to 7 where 1 is “not at all willing” and 7 is “extremely willing,” how willing would you be to make changes to reduce your home’s energy use by that amount? [8=(Don’t know), 9=(Refused)]

## Barriers

### *Mindfulness/Convenience/Comfort Access/ Skepticism/Costs*

- B1. On a scale of 1 to 7 where 1 is “strongly disagree” and 7 is “strongly agree,” please tell me how much you agree or disagree with the following statements: [ROTATE, 8=(Don’t know), 9=(Refused)]
- QQ. I find myself checking the prices even for small items.
- RR. It is important for me to get the best price for the products I buy.
- P. I would like to do more to use less energy, but I don’t often think of it.
- Q. My day-to-day life is so busy that I often forget to take actions that save energy.
- R. I will only save energy if it does not require too much effort.
- W. It is important to me that my home is kept at a comfortable temperature, even if it requires using a lot of heating and/or air conditioning.
- X. I am not willing to sacrifice my personal comfort in order to save energy.
- Z. It is difficult to find energy efficient products that meet my needs.
- BB. Information about saving energy is never around when I need it or it comes at the wrong time.
- CC. Where I live, energy efficient products are hard to find.

## Social Influences on Action and Advocate/Promote Efficiency to Others/Social Norms

SI1. On a scale of 1 to 7 where 1 is “strongly disagree” and 7 is “strongly agree,” please tell me how much you agree or disagree with the following statements: [ROTATE, 8=(Don’t know), 9=(Refused)]

- A. I regularly try to convince my friends and family to use less energy.
- C. I am often the first among my friends and family to adopt energy efficient practices.
- SI4A. I am more likely to change my actions if people I respect have already taken action.
- SI4D. Most people are working hard to reduce their personal energy use.
- SI5A. I am more likely to change my personal behaviors if other people are doing their part.
- SI5C. People who waste energy are irresponsible.

SI2. How do you think your energy usage compares to your neighbors?

1. Much higher

2. Slightly higher
3. About the same
4. Slightly lower
5. Much lower
8. (Don't know)
9. (Refused)

[SKIP TO CF1 IF S5=1]

SI3. Which of the following best describes your household?

1. I am always reminding others in my household to save energy
2. Someone else in my household frequently reminds me to save energy
3. Everyone in my household actively saves energy
4. We do not think about our energy use in our household
8. (Don't know)
9. (Refused)

## **Early Adopters/Knowledge of Carbon Footprint, Payment of Offsets**

### **[ASK ALL]**

CF1. Have you heard of a carbon footprint? (IF NECESSARY: A carbon footprint is a measure of the energy you use throughout your life, either directly or indirectly. This includes but is not limited to the energy consumption from your home, your transportation, your diet, and your purchases).

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP TO CF5 IF CF1 = 2, 8, 9]

CF2. Have you calculated your carbon footprint?

1. Yes
2. No
8. (Don't know)
9. (Refused)

CF5. Are you familiar with smart meters? (IF NECESSARY: A *smart meter* is like your traditional electrical or gas meter, but it is digital and allows your utility to communicate with you to understand how your activities affect your energy use. Some meters may be able to tell you about the energy use of specific appliances).

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP TO CF7 IF CF5=2, 8, 9]

CF6. Do you have a smart meter installed in your home?

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP TO CF9D IF S4<>2]

CF7. Have you installed solar panels in your home?

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP IF CF7 = 1 OR S4<>2]

CF9D. On a scale of 1 to 7 where 1 is "not at all interested" and 7 is "extremely interested," how interested are you in installing solar panels in your home? [8=(Don't know), 9=(Refused)]

[SKIP TO IS2 IF CF9D > 4 OR S4<>2 OR CF7 = 1]

CF11. What are the leading reasons why you would NOT be interested in installing solar at this time? [OPEN END, 98=(Don't know), 99=(Refused)]

## Info Sources

IS2. Where would you look for information on saving energy? [MULTIPLE RESPONSE]  
(PROBE FOR UP TO 3)

1. (Friends/family members)
2. (Coworkers)
3. (Television programs)
4. (Television commercials)
5. (Magazine articles)
6. (Magazine ads)
7. (Newspaper articles)
8. (Newspaper ads)
9. (Radio programs)
10. (Radio ads)
11. (Podcasts)
12. (General interest websites (e.g., Yahoo, AOL, etc.))
13. (Online search engines)
14. (Video websites (e.g., YouTube, Hulu, etc.))
15. (Outdoor/out-of-home advertising)
16. (Social networking websites (e.g., Myspace, Facebook, etc.))
17. (Blogs )
18. (Environmental organizations)
19. (Utility bill insert)

- 00. Other, specify
- 98. (Don't know)
- 99. (Refused)

[SKIP TO IS4 IF IS2<>16 or IS2<>17]

IS3. You mentioned that you use social media to get energy efficiency and conservation information. Is this information primarily...

- 1. Posted directly by a traditional source of news – newspaper, radio station, etc.
- 2. Posted directly by a friend/family member
- 3. Posted directly by a coworker
- 4. Posted directly by a business or public agency
- 5. Posted by another source. Specify
- 8. (Don't know)
- 9. (Refused)

IS4. Do you have access to the Internet?

- 1. Yes
- 2. No
- 8. (Don't know)
- 9. (Refused)

IS6. Which of the following would you trust the MOST to provide you with good information about saving energy?

- 1. My electric or gas utility
- 2. The State of California
- 3. Retailers
- 5. "Green" companies
- 6. ENERGY STAR
- 7. People I know who have already saved energy
- 8. Community organizations
- 9. The Department of Energy
- 10. Specialty contractors
- 11. News media
- 12. Information brought home from school by my children
- 98. (Don't know)
- 99. (Refused)

IS7. Now thinking about that same list, which of the following would you trust the LEAST to provide you with good information about saving energy? [ELIMINATE RESPONSE FROM IS6]

- 1. My electric or gas utility
- 2. The State of California
- 3. Retailers
- 5. "Green" companies
- 6. ENERGY STAR
- 7. People I know who have already saved energy



- 8. Community organizations
- 9. The Department of Energy
- 10. Specialty contractors
- 11. News media
- 12. Information brought home from school by my children
- 98. (Don't know)
- 99. (Refused)

## Psychographics

PS1. Please tell me how much you agree or disagree with the following statements about yourself where 1 is “strongly disagree” and 7 is “strongly agree:” [ROTATE, 8=(Don't know), 9=(Refused)]

- A. I make a conscious effort to recycle
- B. I am careful with my money
- C. I like to enjoy life and don't worry about the future
- D. If I feel strongly about issues, I participate in a protest
- E. I am worried about pollution caused by cars
- F. If someone opposes me, I can find the ways and means to get what I want.<sup>30</sup>
- G. I am confident that I could deal efficiently with unexpected events.<sup>30</sup>
- H. I can solve most problems if I invest the necessary effort.<sup>30</sup>
- I. I enjoy taking risks
- J. I am very happy with my life as it is
- K. I like to pursue challenge, novelty and change
- L. I have a practical outlook on life

## Demographics

*“We're almost finished. I just have a few questions about your household to make sure we're getting a representative sample of California residents.”*

D1. Which of the following utility bills do you pay? [MULTIPLE RESPONSE]

- 1. Electric
- 2. Gas
- 3. Water
- 4. Garbage
- 8. (Don't know)
- 9. (Refused)

D3. What is your zip code? [NUMERIC OPEN END, 99998=(Don't know), 99999=(Refused)]

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<sup>30</sup> Schwarzer, R & Jerusalem, M. (1993, rev. 2000). General Perceived Self-Efficacy.

D4. Please stop me when I get to the range of your household's total annual income before taxes:

1. Less than \$30,000
2. \$30,000-\$34,999
3. \$35,000-\$39,999
4. \$40,000-\$44,999
5. \$45,000-\$49,999
6. \$50,000-\$59,999
7. \$60,000-\$74,999
8. \$75,000-\$99,999
9. \$100,000-\$149,000
10. \$150,000 - \$249,999
11. \$250,000 - \$499,999
12. \$500,000- or more
98. (Don't know)
99. (Refused)

D5. What is the highest level of education you have completed?

1. Less than high school
2. High school graduate or equivalent
3. Some college, no degree
4. Associate's degree
5. Bachelor's degree
6. Graduate or professional degree
8. (Don't know)
9. (Refused)

D9. In terms of politics, would you say that you are ...?<sup>31</sup>

1. Very liberal
2. Somewhat liberal
3. Moderate
4. Somewhat conservative
5. Very conservative
8. (Don't know)
9. (Refused)

D11. Do you speak a language other than English at home?

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP TO D13 IF D11 = 2, 8, 9]

D12. What is this language?

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<sup>31</sup> Included to match political polls

1. (Spanish)
2. (Chinese)
3. (Vietnamese)
4. (Korean)
5. (Japanese)
6. (French)
7. (Russian)
8. (Portuguese)
00. (Other – specify)
98. (Don't know)
99. (Refused)

D13. Gender (OBSERVATION ONLY)?

1. Male
2. Female

Q13. Can you please provide us with your address? This information will be kept confidential. (IF NEEDED, One objective of this study is to better understand how a household's energy bill may vary depending on how energy efficient the household seems to be. Rather than asking you to estimate how much energy you have consumed, we would like to access this information from your account history and link it to the responses you've given today. To do this, we need the exact address of your residence.)

1. Yes
2. No
8. (Don't know)
9. (Refused)

(SKIP IF Q13 <>1)Record address (OPEN END)

[SKIP IF S7<>1]

D14. Do you participate in the California Alternate Rates for Energy (CARE?) (IF NEEDED: CARE is a program that gives a monthly discount on energy bills to households that qualify. Qualification is based on income and household size.).

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP IF D14 <>2]

D15. Why DON'T you participate in CARE?

[OPEN END, 98=(Don't know), 99=(Refused)]

[SKIP IF D14 <>1]

D16. Do you participate in any other programs offered by your utility that provide services at little to no cost?

1. Yes
2. No
8. (Don't know)
9. (Refused)

[SKIP IF D16<>1]

D16A. Which programs do you participate in? [OPEN END, 98=(Don't know), 99=(Refused)]

[SKIP IF D16=1]

D16B. Why haven't you participated in any other programs? [OPEN END, 98=(Don't know), 99=(Refused)]