

## Segmentation in a Mass Media Energy Campaign

*Patricia Thompson and Jane Hummer, Summit Blue Consulting  
David Hungerford, California Energy Commission  
Bridgette Braig, Braig Consulting*

### ABSTRACT

This paper presents results from an evaluation of a voluntary demand response mass media campaign in California. This unique evaluation project brought in consumer behavior and media purchasing experts from outside the energy industry, who reached the conclusion that the campaign is increasing awareness of peak period energy use issues—approximately two-thirds of those that recall being exposed to an alert message do report taking some action—but that current segmentation choices could be refined. However, recommendations on segmentation must be considered in light of the unfolding policy and funding frameworks at the state, if they are to be actionable. The current emphasis on integrated program marketing and cost effectiveness may affect what might otherwise appear to be viable implementation choices.

This paper focuses on some of the more surprising research results from an evaluation of the Flex Your Power NOW! voluntary demand response campaign and their implications, including:

- Focus groups screened to include the target segment of “educated, high income environmentalists” reveal strong beliefs that responsible energy choices should become long-term habits, thus undercutting appreciation for a call to action on a given day.
- Homeowners (part of the target segment) do not appear more likely to comply with messaging than renters (not a targeted segment).
- Media analysis shows that targeting messaging on a geographic basis (based on areas with highest AC/appliance saturations) could likely result in greater load reduction response; however, this could potentially come at the expense of overall state awareness or may result in burdening some populations disproportionately.

### Introduction

Energy media campaign funding has come under increasing scrutiny in recent years. The California Public Utilities Commission (CPUC) has signaled concerns about effectiveness while approving over \$300 million to provide education, outreach, and marketing for energy efficiency, demand response, rates, low income programs and the California Solar Initiative<sup>1</sup> for the 2006 through 2008 program planning period. One of these efforts is the Flex Your Power NOW! (FYPN) campaign. FYPN! encourages voluntary, short-term energy use reductions on days and at times when the California Independent System Operator (CAISO) projects state operating reserves to be low. Typically, the days when CAISO project that demand may come

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<sup>1</sup> See Decision 07-10-032 Interim Opinion on Issues Relating to Future Savings Goals and Program Planning for 2009-2011 Energy Efficiency and Beyond, dated October 18, 2007. Within: Order Instituting Rulemaking to Examine the Commission’s Post-2005 Energy Efficiency Policies, Programs, Evaluation, Measurement, and Verification, and Related Issues. Rulemaking 06-04-010 (Filed April 13, 2006). Available at [http://docs.cpuc.ca.gov/word\\_pdf/FINAL\\_DECISION/74107.PDF](http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/74107.PDF).

dangerously close to exceeding available supply occur during the warm summer months, when California experiences the greatest peak demand. On these event days, “Flex Alerts” are called. This in turn triggers a media campaign which asks residential customers to reduce air conditioner loads, shift use of major appliances to off-peak hours, and turn off unnecessary lights.

On Flex Alert days, FYPN advertisements describing the desired actions are “traded-in” to replace regularly scheduled advertisements that are part of a larger, better funded general energy efficiency and conservation effort known as Flex Your Power (FYP). The three-year (2006-08) budget for FYPN is approximately \$19 million while FYP is roughly three times that of FYPN.<sup>2</sup> Due to the trade-in strategy, the FYPN messages reach the same target populations as the FYP messages—a practical, cost-conscious choice given that the cost of the media buy is the greatest cost of the FYPN campaign. The campaign makes use of a variety of communication channels, but focuses on television and radio and has been active in the state (albeit under different names) since the state’s energy crisis in 2001.

The campaigns’ target population was developed by analyzing the demographics of people who expressed agreement with the following statements:

- “I am willing to give up convenience in return for a product that is environmentally safe.”
- “I have participated in environmental groups or causes.”
- “I regularly recycle.”
- “I believe that preserving the environment and helping to preserve nature is very important.”

This target audience consists of adults, skewed towards women over 35 years old, who tend to be pro-environment, own their own homes, are married, and have higher than average income and education levels. The FYP target segment would *appear* to be a good match for the actions promoted by FYPN as well. By targeting more affluent pro-environment homeowners, the work of Lutzenhiser and Lutzenhiser suggests that the campaign would reach those who use relatively large amounts of energy and are willing to conserve.<sup>3</sup> In fact, survey research conducted as part of this evaluation concludes that the FYPN campaign is succeeding in increasing awareness of peak issues: approximately two-thirds of those that recall being exposed to an alert message do report taking some conservation action (typically shutting off unneeded lights or adjusting AC thermostat settings). The research also shows awareness of Flex Alert days and self-reports of conservation actions do increase following an event (alert recall rose from 23% in the pre-summer baseline survey to 34% in the post-summer survey). However, some surprising findings lead the project team to recommend reconsideration or possibly fine-tuning of the segmentation approach.

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<sup>2</sup> An Overview of Marketing, Education and Outreach Guidance & Program Budgets within California Public Utilities Commission Decisions on Energy Efficiency, Demand Response, Advanced Metering Infrastructure, Low Income Energy Efficiency and the California Solar Initiative, prepared by Pamela Wellner, Regulatory Analyst, CPUC. Available at [http://www.californiaenergyefficiency.com/market\\_ed\\_outreach.shtml](http://www.californiaenergyefficiency.com/market_ed_outreach.shtml).

<sup>3</sup> See, e.g. Lutzenhiser and Lutzenhiser, Looking at Lifestyle: The Impacts of American Ways of Life on Energy/Resource Demands and Pollution Patterns, ACEEE Summer Study 2006. The paper shows lifecycle correlates with energy consumption, in particular that older affluent couples with children consume almost twice as much energy as their younger less affluent cohorts.

## FYPN Campaign

The 2007 advertisements use a news-like motif with text on a red background asking for compliance with the requested actions. The advertisements use a tag line, “prevent blackouts today and global warming tomorrow.” The reference to global warming was new for the 2007 campaign and therefore of particular focus in the evaluation. A California pride element also was invoked, tapping into feelings of connectedness as a state: “It’s the right way to save California.”

## Focus Groups

Three focus groups were conducted prior to the summer 2007 campaign season to obtain clean reads on the 2007 FYPN messaging and provide qualitative feedback to the FYPN! team. Groups were conducted in San Diego, Los Angeles, and San Francisco. The composition of the focus groups was selected to have a similar make-up as the target audience: higher income, pro-environment. In general, the advertisements were thought to be highly consistent with the participants’ presumed beliefs and views on resource preservation. Participants expressed concern with global warming and talked about a variety of consequences they believed would result from not complying with the actions promoted in the advertisements. These ranged from functional and minor inconveniences to more emotionally intense vulnerabilities associated with powerlessness. Particularly for those who “survived” previous blackouts in California and New York, blackouts conjured associations to Third World countries along with chaos and uncertainty.

- *“It’s really disruptive to life overall. There is a lack of stability.”*
- *“We’ve all experienced it, and it’s a true natural disaster.”*
- *“You think it won’t be a big deal, but then it slowly sinks in all the things you can’t do, and it gets more stressful.”*
- *“We really will lose the choice. We can choose now, but if there’s a blackout, we have no choice.”*

Despite having high comprehension of the actions promoted by the messaging, these groups struggled to appreciate that the alerts were for particular days and thought that the actions promoted by the messaging should be long-term lifestyle changes. This may be due in part to their predisposition on the issue of conservation or it may be due to the fact that the advertisements gave prevention of global warming as a reason for taking the actions. One focus group in San Francisco more readily understood the alert day concept, possibly because the Bay Area is home to a “Spare the Air” program that asks residents to prioritize mass transit (offered free) on certain “bad” days when air quality is dangerously low. “Spare the Air” days frequently occur on the same days as Flex Alert days, since both are associated with multi-day high temperature events.

After a clean reaction to the advertisements was recorded, the Flex Alert concept was more fully explained to the groups by the moderator. Individual participants were then asked to tell a “benefit story” about the campaign. Stories often indicated that if more people changed behavior over the long-term, this would eliminate the need for short-term alerts. The discussions were consistent with the focus groups’ dominant belief that the benefits of adopting the

behaviors promoted in the FYPN campaign *long-term* extend well beyond California and the current generation.

Perceived benefits of “saving energy” by engaging in the promoted behaviors had long and wide-reaching impacts for most. When asked who benefited from energy-saving actions, whether in the short- or long-term, these relatively educated participants frequently cited all people who use energy from the state grid. However, most pushed these benefits beyond California, with some arguing that power grids across the West are connected.

*“Our behavior or emergencies could shut everyone (in the West) down.”*

The combination of this target segment’s beliefs (conservation “should be a way of life” and “affects everyone”) coupled with the invocation of global warming in the messaging may inadvertently undercut the immediate call to action intended by the campaign. Even after the campaign was explained to the focus groups, the dominant view remained that these are appropriate long-term behaviors. It should be noted that these results from the focus groups cannot be interpreted as representative of the population as a whole; instead, they provide information on how people in the target segment may react to the messaging and important context for survey development. As a result of the focus group research, the evaluation team designed the post-Flex Alert survey to further explore these findings in a quantitative context.

## **Surveys and Environmental Attitudes**

Three major survey efforts were fielded to obtain quantitative estimates of customer awareness and response to the program. It is important to note that these surveys were designed to evaluate the effort and suggest fruitful areas for improvement and reconsideration.

- A pre-summer baseline survey was conducted via both telephone and web prior to the summer campaign. The telephone survey obtained 1122 completes and the web survey obtained 1260 completes. This effort assessed recall of the previous year’s FYP and FYPN messaging and included several questions about attitudes on the environment and global warming.
- A shorter phone survey was fielded shortly after a Flex Alert event and resulted in 613 completes. This survey asked specific but non-leading questions about whether the respondent had seen energy messaging recently and what they were asked to do and when. The survey also probed on what types of actions were undertaken and when.
- Finally, a survey in early winter was conducted to assess overall FYPN messaging recall in a more detailed context than was possible with the quick-turnaround post-event survey.

The sampling was designed to obtain statistically valid samples in each of the state’s twelve Designated Media Areas (DMAs). This was a key concern as media treatment was not consistent across each of the DMAs. The four largest DMAs (Los Angeles, San Francisco, San Diego, and Sacramento) received more exposures to the messaging, and the recall of Flex Alerts in the large urban DMAs was in fact significantly higher (25%) as compared to smaller DMAs (19%).

Initial refusal rates ranged from 8 to 11 percent and final refusal rates ranged from 2 percent in the shorter post-event survey to 8 percent in the longer baseline survey. Respondents to the survey compared favorably with the California population in several regards, although

notably, homeowners were overrepresented in the respondent population and Spanish speakers were underrepresented. For the surveys, roughly 70 percent reported owning a home, while in the general state population only about 60% of homes are owner occupied. Although responses were not weighted, several comparisons were run between respondents that matched the target of the advertising and those that did not to help understand whether the target population was being reached and responding to the messaging.

A few results from the pre-summer baseline and post-event surveys are presented below. Note the strong beliefs regarding the importance of global warming, and slightly less but still strong beliefs in the effect of personal choices in Table 1. This would suggest that the use of global warming in the messaging would resonate well for many. Furthermore, the results also suggest that a significant fraction believe that their choices make a difference. The literature on social cognitive theory and self-efficacy, while not uncontested in the behavioral sciences, suggests that those that believe that their electricity usage choices have an effect on global warming are more likely to engage in the actions requested by the Flex Alert messaging.<sup>4</sup>

**Table 1: Agreement with Environmental Statements from Pre-Summer Baseline Survey**

	I frequently recycle	I participate in environmental causes	Global warming is an important environmental issue	The choices I make regarding electricity usage can make a difference in greenhouse gas emissions	Comfort is more important to me than saving energy in my home*
Strongly agree	57%	14%	43%	35%	7%
Agree	33%	39%	37%	44%	28%
Disagree	7%	32%	11%	9%	45%
Strongly Disagree	2%	11%	7%	4%	15%

\*Note that the final column represents an *anti-environment* statement (unwillingness to sacrifice personal comfort) meaning that disagreement with that statement would indicate a more pro-environment opinion. Columns do not total to 100% because “don’t know” responses were not shown.

Following exposure to the 2007 summer event messaging, the evaluation team was able to provide some additional nuance to the belief statement agreements (Table 2), though scaling changes make direct comparison problematic. Note that this survey shows that relatively more Californians believe that it is everyone’s responsibility to take action to prevent global warming, than to believe that electricity conservation will make a difference. However, when these belief statements are compared to self-reported compliance with requested actions, the survey team was surprised to discover that belief in self-efficacy regarding global warming and electricity conservation did not contribute to significantly greater compliance with requested actions (Table 3).

<sup>4</sup> See generally the work of Albert Bandura, e.g. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: WH Freeman and Company) and that of Fishbein and Ajzen who argue that strong beliefs about self efficacy are necessary and strongly correlated in defining the subjective norms of behavior (see, e.g. Fishbein, Ajzen, et al, (2007) *Prediction and Change of Health Behavior, Applying the Reasoned Action Approach*, Routledge).

**Table 2: Belief Statements Post Event Summer 2007**

	<b>Global warming is a problem</b>	<b>Conserving electricity today can stop or slow global warming in the future</b>	<b>I believe it is everyone's responsibility to conserve now to reduce global warming in the future</b>
Agree	71%	65%	79%
Neutral	12%	14%	8%
Disagree	13%	15%	10%
Don't Know	5%	7%	3%

**Table 3: Percent of Respondents Who Took Energy Conserving Actions – by Agreement with Belief Statements**

<b>% Who Took Energy Conserving Actions</b>	<b>Global warming is a problem</b>	<b>Conserving electricity today can stop or slow global warming in the future</b>	<b>I believe it is everyone's responsibility to conserve now to reduce global warming in the future</b>
% of those who <b>agree</b> with statement who took action	24%	24%	24%
% of those with <b>neutral</b> opinions	19%	20%	13%
% of those who <b>disagree</b> with statement	21%	18%	16%
% of those who responded "don't know" or "refused"	18%	24%	24%
<i>Statistics<sup>5</sup></i> <i>Chi-Square, df, Asymp. Sig.</i>	<i>1.386, 4, .847</i>	<i>2.142, 4, .710</i>	<i>4.632, 4, .327</i>

The survey results indicate renters are significantly more likely to change their behavior in response to an alert than homeowners. 61% of homeowners and 74% of renters who saw an alert reported taking action in response (based on post-summer surveying). This result implies that targeting homeowners, while not inappropriate, could be limiting access to other populations that appear to be willing to respond to an alert. However, it's likely that renters generally have less energy-using equipment and thus cannot provide as much demand response as most homeowners, even if they are willing to conserve what they can. For example, 55% of California's homeowners have central air conditioning, compared to 40% of renters.<sup>6</sup>

Thus the cost trade-offs of a different or expanded media approach to reach additional segments beyond that defined and reached by the FYP buy should be explored further. However, this implicates the program goals. Should the program be designed to produce demand response megawatts or awareness more generally? If the former, would we as a state be willing to burden some populations disproportionately? We tacitly appear to agree that burdening those that believe in global warming is appropriate for voluntary action (though in practice this strategy does not appear to have caused a disproportionate burden). Would we also support targeting homeowners or certain geographic areas?

<sup>5</sup> A note on chi-square statistics used: any time the "asymp. sig." statistic is under 0.10, the comparison is statistically significant at the 90% level. None of the comparisons in Table 3 were statistically significant, meaning that the small differences between the share of pro-environmental respondents who conserved and the anti-environmental respondents was not statistically significant.

<sup>6</sup> KEMA-Xenergy. California Statewide Residential Appliance Saturation Study. 2004. <http://websafe.kemainc.com/RASSWEB/DesktopDefault.aspx>

## Segmentation Through Focused Geotargeting

Media purchasing review and analysis shows that the geographic areas and populations that could likely deliver more load reduction could be targeted more closely. Currently, the media treatment is greater in areas of higher population density which is consistent with a large statewide awareness campaign. However, it should be noted that Residential Appliance Saturation Survey data (RASS) indicate that:

- 21% of all peak electricity consumption in California comes from residential air conditioners or about half of all residential peak electricity consumption;
- 44% of all Californians have central A/C and 19% of all Californians have room A/C (57% have some type of A/C) ;
- A/C market penetration varies dramatically by climate zone – from a low of 2% to a high of 99% (all types) or 1% to 68% (central A/Cs) ;
- 74% of all central A/C units are located in 6 climate zones (out of 16 total): Riverside, Sacramento, Pasadena, Fresno, El Toro, and Los Angeles – primarily Los Angeles, Fresno, and Sacramento DMAs.

These observations suggest that increasing the media weight in DMAs with high numbers of central A/C units could be justified if the political will and funding exists to target these areas. Alternatively, messages could place less emphasis on A/C and more on lights and other appliances in areas with lesser A/C market penetration. This would require a significantly more complex media strategy and the increased costs of managing the marketing effort as more of a portfolio. However, environmental justice or fairness concerns may be important in gaining regulatory approval for such a strategy shift. Some considerations regarding A/C correlates:

- 21% of households with income of less than \$25k have central A/C.
- 50% of households with incomes over \$100k have A/C.
- Peak time appliance usage is correlated with the presence of children and/or seniors in the home.

Thus, it could be argued that focusing on heavy users of A/C for the campaign would burden more affluent households. These statistics also show why the effort's call to action are typically temporized, e.g. set your A/C to 78 degrees "if you are able," thus addressing safety concerns for households with the elderly and very young, where potential health and safety implications may exist.

## Conclusion

In 2006 and 2007, the California Public Utilities Commission expressed concern about the money spent on marketing around energy issues and on mass media campaigns in general. The two following statements are indicative of this concern:

- In 2006: “we are especially concerned about generalized advertising such as that provided by Flex Your Power Now.”<sup>7</sup>
- In 2007: “the state currently spends over 300 million dollars on education, marketing and outreach.”<sup>8</sup>

The CPUC’s concern led to a set of workshops as well as the creation of a strategic plan for a more integrated approach to marketing energy efficiency, demand response, and distributed generation in the state. Also during this time period, the CPUC initiated efforts to develop cost-effectiveness protocols for demand response in California, though explicitly excluding education and outreach from those protocols.<sup>9</sup>

This evaluation research indicated that refining the target segmentation may improve FYPN’s effectiveness and could potentially lead to greater MW impacts. It may even be that the FYPN campaign should be targeted differently and separately from the FYP campaign. However, the choice is not a simple one, as a wholly separate campaign would run counter to the state’s current emphasis on joint marketing. Moreover, concerns over ratepayer equity issues should also inform this debate. For example:

- Is it appropriate to focus efforts on A/C use reduction in the inland valleys of California given that these six climate zones account for 74% of all A/C load? Would this unfairly shift the benefit of the program to Southern California Edison’s territory?
- Is it appropriate and does the political will exist to target efforts to affluent homeowners who contribute substantially to residential demand in California?

Thus, it is apparent that good social marketing choices are necessarily bounded by the larger policy and funding concerns that shape good state energy policy. In California there is a substantial stakeholder process underway to address issues such as these through a series of workshops and strategic planning documents.<sup>10</sup> As the state increasingly commits to the reduction of greenhouse gas emissions through a variety of efforts,<sup>11</sup> it is essential that we craft a system that is flexible enough to consider creative and appropriately targeted marketing.

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<sup>7</sup> March 15, 2006 CPUC Decision 06-03-024 Adopting Settlement

<sup>8</sup> See Decision 07-10-032 Interim Opinion on Issues Relating to Future Savings Goals and Program Planning for 2009-2011 Energy Efficiency and Beyond, dated October 18, 2007. Within: Order Instituting Rulemaking to Examine the Commission’s Post-2005 Energy Efficiency Policies, Programs, Evaluation, Measurement, and Verification, and Related Issues. Rulemaking 06-04-010 (Filed April 13, 2006). Available at [http://docs.cpuc.ca.gov/word\\_pdf/FINAL\\_DECISION/74107.PDF](http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/74107.PDF).

<sup>9</sup> See Load Impact Estimation Protocols March 2008, available at <http://www.calmac.org/toolkitDR.asp>

<sup>10</sup> See, for example, presentation on including CPUC efforts in AB 32 scoping efforts by Cathy Fogel, Senior Analyst & Staff Coordinator on 2009-2020 Energy Efficiency Strategic Planning Process. Available at: [http://www.energy.ca.gov/ghg\\_emissions/meetings/2008-05-02\\_workshop/presentations/3\\_energyefficiency\\_cpuc.pdf](http://www.energy.ca.gov/ghg_emissions/meetings/2008-05-02_workshop/presentations/3_energyefficiency_cpuc.pdf)

<sup>11</sup> For example, see climate change mitigation efforts underway at the California Air Resources Board. Available at: <http://www.arb.ca.gov/cc/cc.htm#>



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