



Sustainable Development Fund

Evaluation Research Executive Summary

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I. INTRODUCTION

The Sustainable Development Fund contracted with Maxwell Associates as of April 1, 2003 to undertake research to evaluate the effectiveness of current programs and to develop an effective research model for successive years of the SDF.

II. RESEARCH OBJECTIVES

1. Determine Pennsylvania consumer awareness of renewable energy benefits, costs and purchase options.
2. Measure attitudes and intent to purchase renewable energy among participants in the programs currently funded by SDF.
3. Provide reliable, actionable information to guide development of SDF Requests for Proposals for the next funding cycle.
4. Establish baseline data in the current funding year against which to evaluate future SDF-funded activities.

III. METHODOLOGY

A. Proposed

- Participation in Liberty Poll, a representative sample of households in the five-county Philadelphia market;
- A mail survey among 1,000 consumers who had participated in grantee activities to yield 200-250 returns or 20-25% response;
- A mail survey among 500 participating teachers and other professionals to yield 125-150 returns or 25-30% response;
- Web-based surveys on SDF-funded grantees' sites.

Implicit in the proposed methodology was the availability of grantees' lists of consumers and professionals, which would include complete contact information and in electronic formats that could be merged to create representative samples for the two mail surveys. Through the process of working with grantees, it became clear that grantees' lists were often not suitable for use as proposed. In addition, web-based

surveys on grantees' websites, which would require coordination with the grantees and their web managers, were not completed.

Thus, the first finding from this evaluation effort is the need to specify the research methods that SDF will consider using in the next funding year and to provide guidelines for grantees, including collection and formatting of consumer and professionals lists.

B. Completed

Liberty Poll Market Survey. SDF participated in the April polling of 650 households in Philadelphia, Bucks, Chester, Delaware and Montgomery counties. A full report was submitted to SDF staff and is summarized in this report.

Consumer Mail Survey. Based on discussions at the quarterly grantees meeting on April 23, it was decided to survey at two events: Junior Solar Sprint and Building the Town Green, held May 1-3, 2003. Maxwell Associates provided questionnaires, prepaid business reply envelopes and survey guidelines. In addition, a mailing to 400 households was completed on May 22 using lists of 200 Penn Future members and 200 Green Plains Energy 2002-2003 consumer home show contacts. The mailing included a \$2 bill as incentive. In addition, each carrier envelope was hand addressed and stamped, which maximize the chances that the recipient will not discard it as unsolicited. A total of 193 usable questionnaires were returned as of June 9: (17) from the events; (103) from Penn Future and (73) from Green Plains Energy, or a total response rate of 44% for the mail survey. The results are summarized in this report; a full written report will be submitted to SDF staff on/before June 23.

Professionals Mail Survey. Maxwell Associates provided questionnaires, prepaid business reply envelopes and survey guidelines for distribution at the two events noted above. A total of 20 usable questionnaires were returned. Because of the small sample, these results should be considered qualitative and are summarized in section III.J.

III. EXECUTIVE SUMMARY AND IMPLICATIONS

Two consumer surveys were completed: the market-wide Liberty Poll of 650 households and the mail/event survey of 193 respondents from SDF grantee lists and events. The composition of the SDF grantee survey includes two identifiably different segments: Penn Future members and event attendees who have a high interest in the renewables category, and consumers on the Green Plains Energy lists who have a moderate interest by virtue of their seeking information on renewables at home shows.

The SDF questionnaire was designed to include three of four questions in the Liberty Poll market study to allow comparisons across data sets. These are summarized below.

The SDF survey included additional questions to measure awareness of specific grantee activities. These are summarized in sections E-G below.

A. Importance of Environmental Activities

A1. Eight in ten Philadelphia area consumers report some level of environmentally-conscious buying behavior. The majority says it is important to them to buy such products if the price is generally comparable; one-quarter say they buy environmentally friendly products even if those products cost more.

A2. SDF survey respondents rated the importance of six attributes of generalized environmental interest. All rated one as very important, measured as Top 2 Box on an 11-point scale: *reducing reliance on foreign oil* (74%). About four in ten rated *having home programmable thermostats* as Top 2 Box importance.

There are significant differences in top 2 box ratings between the high vs. moderate interest segments on four factors: *Home trash recycling* (76% vs. 54%); *being able to buy environmentally friendly energy* (63% vs. 42%); *being free to choose whether or not I want to participate in environmental activities* (41% vs. 51%); and *buying electricity at the lowest possible cost* (30% vs. 51%).

Implication: Consumers in this region are generally receptive to environmental products, but price sensitivity remains a driver of consumer choice, with 52% of Liberty Poll and 51% of Green Plains respondents rating cost as very important.

To be expected, high interest consumers, as represented by Penn Future membership, are much less price sensitive and more committed to environmental behaviors from recycling to buying environmentally friendly energy.

Reducing national reliance on foreign oil is important to both high and moderate interest consumers.

B. Perceived Choices for Pennsylvanians to Buy Electricity from Natural Sources

B1. About one-third in the Liberty Poll correctly identified that Pennsylvanians definitely have the choice to buy electricity from natural sources such as wind, sun or water (35%). An equal number said customers might or might not have choices (34%). 17% are misinformed that Pennsylvanians definitely do not have the choice to buy electricity from natural sources. An additional 13% said they did not know. African Americans were above average in correctly identifying renewable electricity choice (43%). Conversely, only one in ten Hispanics correctly identified consumer choices.

B2. Respondents in the SDF survey were asked the same question on renewables choices for Pennsylvania electricity customers. Green Plains respondents are consistent with Liberty Poll: about three in ten know they have this choice and 36% said they might/might not have this choice. Almost six in 10 Penn Future respondents correctly identified that consumers definitely have the choice to buy electricity from natural sources.

The major difference between the SDF and Liberty Poll findings is that the former are far less likely to misstate that they definitely do not have the choice to buy electricity from natural sources at 6% vs. 17%.

Implication: These data are consistent that about 30-35% of the general consumer market knows they definitely have the choice to buy electricity from natural sources. Significant proportions of the general population as well as both moderate and high interest consumers are unable to correctly identify their choices. This reflects considerable confusion, which is unlikely to be corrected quickly or inexpensively. However, this also suggests that there is a significant minority of consumers who are already informed on this issue, and represent the greatest potential for increasing market penetration of renewables over the short-term.

C. Household Purchase of Electricity from Natural Sources

- C1.** The majority in the Liberty Poll reports that their household has not considered switching to a supplier of electricity from natural sources (54%). About three in ten households have considered it and 6% reports that their households did switch electricity suppliers.

- C2.** Fewer than 20% in the SDF survey have not considered switching to a renewables supplier. Almost 40% have considered it, but not done it yet. 30% have switched: 46% of Penn Future members vs. 14% of Green Plains respondents. One additional option was included: Considered switching but decided not to (13%).

Implication: The Liberty Poll data are generally consistent with the reported incidence of 7.6% of households in PECO's service area having switched to alternative suppliers. Responses in the SDF survey reflect that they are considerably further along the purchase decision continuum than the general market.

There is a significant segment in each study that has at least considered switching to renewables suppliers. These consumers should be the primary target audience for SDF-funded activities in FY 04 for the following reasons: they are a significant subset of the adult population in the market; have self-identified themselves as having the potential to adopt renewables; and can be reached efficiently through a mix of targeted media. Further, targeting of this audience does not eliminate reaching the majority of the population that has not yet considered switching to renewable electricity suppliers.

The purpose of target marketing is to ensure reaching the audience with the highest propensity to buy, while also building awareness among the larger market who have not yet considered purchase.

D. Importance Ratings of Attributes of Electricity from Natural Sources

- D1.** Consumers in Liberty Poll rated six attributes of electricity from natural sources on an eleven-point scale, where 0 means not at all important and 10 means extremely important. The most important attribute rated is that electricity from natural sources *does not cause health problems*, with 72% rating this as 9 or 10 (top 2 box).

About two-thirds give two attributes top 2 box ratings: *Helps to protect the environment for families and future generations*; and *is made from sources here in the United States which reduces the nation's dependence on foreign oil*.

Just over one-half give two attributes top 2 box ratings: Electricity from natural sources *is cleaner than coal, oil or nuclear energy* and *is made from sources that are renewable*. The least important attribute rated is that electricity produced from natural sources *is new and different*.

- D2.** SDF survey responses are consistent with Liberty Poll on the three most important attributes top 2 box ratings: that it *does not cause health problems* (79%); *helps to protect the environment for families and future generations* (81%); and *reduces dependence on foreign oil* (58%).

It is not surprising that these respondents are more likely than the general population to highly rate that electricity from natural sources is *renewable* (79%); and *cleaner than coal* (76%), *oil* (72%) or *nuclear* (69%). Conversely, they are even less likely than the general population to highly rate that it is *a new and different way to produce electricity* (24%).

Implication: Future education and marketing efforts should focus on the positive *benefits to consumers* of electricity from natural sources: that it is healthier for your family now and for future generations, and that it reduces dependence on foreign oil—an especially resonant appeal now. The *features* of renewables are very meaningful to educators and activists, but of less direct appeal to consumers in general.

E. SDF Survey: Sources of Information about Electricity from Natural Sources

- E1.** Over eight in ten of all respondents in the SDF survey have seen or heard information about electricity from natural sources such as wind, sun or water. Newspaper ads or stories are most important, although used more by high-interest vs. moderate-interest consumers at 62% vs. 46%. Broadcast media are major sources of information across segments: television ads or stories (44%); radio ads or stories (34%). Websites are also important, but most reported by high-interest consumers at 25% vs. 13%. Penn Future’s site and Cleanyourair.org were mentioned only by Penn Future members at 11% and 3% respectively. Family or friends are next most important (21%).

Secondary sources of information about renewable electricity include: Earth Day display (18%); conferences (12%); videos (11%); magazines (11%); community organizations (9%); museums (6%); school/college (5%). Because the Green Plains Energy lists were from home show attendees, it is not surprising that 67% report this as an information source vs. 5% of other respondents. International travel was mentioned by 7%; a few mentioned electricity suppliers (4%) or church expos (3%).

F. Actions Taken as a Result of Information about Electricity from Natural Sources

- F1.** Of those who had seen/heard information on renewable electricity, one-quarter took no action. Almost half discussed it with family/friends/coworkers. About three in ten went on the Internet to get more information.

One quarter of Penn Future/event respondents and 18% of Green Plains Energy respondents searched for information about wind energy suppliers. Conversely, 30% of Green Plains vs. 18% of Penn Future/event respondents sought information on solar

energy suppliers. 20% of Penn Future/event respondents sought more information from community or environmental groups vs. 10% of Green Plains Energy respondents. About 10% sought information on hydroelectric energy suppliers. Ten of the eleven respondents who already switched to renewables said they reinforced their decision by retaining their supplier even when rates rose, and/or advocated use of renewables suppliers at their office or church.

G. Agree/Disagree with Statements about Electricity from Natural Sources

G1. SDF survey respondents rated their agreement or disagreement with four barriers to use of renewables on a five-point scale from 0 (strongly disagree) to 4 (strongly agree). There are significant differences in mean ratings between the Penn Future and Green Plains respondents on three of four statements: *It costs too much compared to other electricity sources* (1.85 vs. 2.47); *I do not know enough about the companies to trust them to supply electricity for my home* (1.59 vs. 2.38); and *I am concerned about the reliability* (1.30 vs. 1.94). The mean for *it's hard to find information about it* is 2.12. Among those who considered switching but decided not to, the mean rating for *it costs too much compared to other electricity sources* is 3.25, suggesting that price was a major factor in rejecting renewables.

H. Demographics and Attitudes of Those Who Have Considered Switching to Electricity from Natural Sources

H1. In order to provide a more detailed understanding of the demographics and attitudes of renewable electricity potential target audiences, a custom analysis of Liberty Poll data was completed. While the target is fairly broad demographically--a reflection of the 'mainstreaming' of environmental issues in general--this analysis does provide direction for media and marketing strategies. The chart below summarizes the demographics and attitudes of those who have considered switching to renewable electricity suppliers vs. total sample. Figures denoted with an asterisk are statistically significant at the 95% confidence level.

**Demographics and Attitudes of Those Who Considered Switching to
Electricity from Natural Sources vs. Total Sample**

	Total %	Considered Switchers %
Buy environmental products if same cost	53 %	60 %*
Definitely have choice to buy renewable electricity	35	42 *
Top 2 Box: Does not cause health problems	72	74
Top 2 Box: Protects environment for families/future	66	71 *
Top 2 Box: Reduces dependence on foreign oil	62	63
Top 2 Box: Is made from renewable sources	55	61 *
Homeowner	69	73
Household with kids under 18	21	28
Home Internet access	66	77 *
Some college +	60	65
Median HH income	\$45,000	\$55,000
Men	47	52
Women	53	48
White/Caucasian	68	64
Black/African American	22	25
Ages 18-24	11	14
Ages 25-34	19	21
Ages 35-44	21	23
Ages 45-54	19	17
<i>Net: 25-54</i>	<i>59%</i>	<i>61%</i>
Ages 55-64	12	12
Ages 65+	17	11

Bases: Five PA Counties

650

190

Source: Liberty Poll, April 2003

It should also be noted that the relatively small percentage of Liberty Poll respondents who had switched to renewable electricity suppliers are similar to those who considered switching, with two exceptions: They are somewhat more likely to be women (56%), and more likely to be 35-64 years old (75%) vs. either the total sample or those who considered but did not switch.

Thus, the primary target audience (“Considered Switchers”) is: adults 25-54 who skew slightly higher in income and education. The Internet is an important medium to reach them. Major benefits perceived by this audience, as well as by the broader population, are: electricity from natural sources such as wind, sun or water is healthier for families and future generations, and reduces dependence on foreign oil. An important barrier is price sensitivity.

The secondary target audience (“Switchers”) is adults 35-64, which represents the current market of renewable electricity users. This secondary audience skews slightly female. They are somewhat less likely to have home Internet access; nevertheless, 60% do have access.

Consideration should also be given to including African American media and community outreach in the marketing mix to target those who are aware of renewables choice but have not yet switched.

J. Professionals Survey

- J1.** Given that these respondents were participants in two SDF-funded events, it is to be expected that 12 of 20 are aware of the Sustainable Development Fund; 15 of 20 have participated in programs that promote renewables over the past 12 months, representing all of the major programs funded by SDF in FY 03.
- J2.** Fifteen respondents rated five program attributes on a 4-point scale from very good to poor. Their overall rating of the programs was very good (7) or good (7); one respondent rated it as fair. The highest rating was *professionalism of the staff*, with 11 rating it very

good and 3 rating it good. *Quality of program content* was rated very good (7) or good (6); two respondents rated it as fair. Two ratings were more equivocal: *Ability to meet deadlines* was rated very good (6), good (5) or fair (4). *Relevance of program to increase consumer demand for electricity from natural sources* was rated good (10), very good (3) or fair (2).

Ten professionals answered two open-end questions on the best aspect of the programs and one improvement they would recommend. Six of 10 praised the student involvement and empowerment through hands-on learning. Three of 10 praised the professional development and opportunities to share visions with colleagues. One respondent complimented the professionalism and guest speakers.

Suggested improvements include: better training/communication between program directors and teachers/school roster changes to increase supervision (3); better outreach/publicity (3); more practical advice/in-depth information/product vendors (3); having coffee, tea and water available (1).

- J3.** Two barriers to renewables were rated on a five-point scale of strongly agree to strongly disagree. Six of 20 agree with the statements that *I'm concerned about the reliability of wind, sun or water as sources of electricity for my home* and *It costs too much compared to other electricity sources*. Thirteen of 20 disagree with the statement that renewables are less reliable; one was unsure. These professionals are equivocal about renewables being too costly: six rated it at the mid-point; four disagree and four were unsure.
- J4.** Thirteen of 19 are aware that Pennsylvanians definitely have the choice to buy electricity from natural sources; three said they might or might not; three are unsure.

Nine of 18 have considered switching to a supplier of electricity from natural sources for their homes; five have not considered it; four have switched. Of interest, those who have considered switching but have not done it yet are those who also agreed with the negative statements about reliability and cost of renewables.

Implication: These participants are generally satisfied with the content and professionalism of SDF-funded grantees programs. However, the most important implication is that they also represent a critical target market: They are aware of, indeed engaged in, programs to promote energy conservation and use of renewables but nevertheless are within the larger consumer market that have considered switching to residential renewables suppliers but have not yet done so. By virtue of their engagement in the category, they also may be considered as opinion leaders. The design of future grantees programs should include strategies in which participating professionals are addressed as a target audience, not just as mediators to the larger community.