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An Estimation of the Level of Voluntary Financial Support
for the Kansas Wind Energy Project

prepared for
Kansas Electrical Utility Research Program
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EXECUTIVE SUMMARY

Citizens in the Wichita Area have considerable interest in the generation of electrical power using wind turbines. For many of these people, the interest goes beyond voicing passive support for wind energy. Using one criterion, our survey of the Wichita Area identified more than 35% of the sample as being potential financial supporters of the Kansas Wind Energy Program (KWEP) at either \$10 or \$20 per month. Using a stricter criterion, the survey identified 8% of the total sample as likely supporters of the KWEP.

In February 1998, the Institute for Public Policy and Business Research conducted a survey of 750 randomly chosen households in Butler, Harvey, Reno, and Sedgwick Counties. The survey separated respondents into those who were interested in supporting the KWEP and those who were not. More than 70% of the sample were interested. Then criteria were established for categorizing the interested respondents into two groups: those who were potential financial supporters and those who were likely financial supporters of the KWEP. Respondents were asked:

1. Would they support the KWEP at \$10 a month? (If yes, how about at \$20 a month?)
2. Where would the money come from to support the KWEP?
3. Are there any substitutes the respondent would prefer over than the KWEP?
4. Is the respondent just as certain of their support as before?

If respondents answered yes to questions 1 and 4, they were categorized as potential supporters. If respondents also could identify where they would get the money for their support (saving, reduce some type of consumption), and if the KWEP was their first choice among substitutes, then the respondents were categorized as likely supporters. These distinctions are important in identifying the focus of a marketing campaign. The respondents identified as potential supporters are probably the audience that a marketing campaign would be directed at.

The more formal statistical analysis of the survey revealed two conclusions. Potential supporters of the KWEP think differently about environmental and energy issues than the rest of the survey sample. Potential supporters naturally separate into two groups based on how much they were willing-to-pay. The group willing to pay \$10 was concerned with the limited and scarce nature of fossil fuels, and the greater the

respondents' income, the more likely they were to be part of this group. The group willing to pay \$20 was more motivated by environmental concern and the fact that wind power is environmentally friendly. A similar type of split occurred with the focus groups.

These findings also have implications for a marketing campaign. Ideally, one would like to split the "market" between the \$10 and \$20 groups and use different types of marketing information on each group. This implies customizing a part of the marketing campaign for each group and designing each part to take advantage of what are the major concerns of each group. Which brings out the final implication of the survey: the key to getting people interested and supportive of the KWEP is information. The more people know, the more interested they are and the more likely they are to support the KWEP. Thus, the marketing campaign is not a matter of tricking people into supporting the KWEP, but of raising questions about energy and environmental issues and providing correct information when they are interested.

INTRODUCTION

In February 1998, the Institute for Public Policy and Business Research conducted a survey of 750 randomly chosen households in Butler, Harvey, Reno, and Sedgwick Counties. The survey was designed to estimate the number of persons willing to financially support the Kansas Wind Energy Project (KWEP) and to characterize the supporters of the KWEP. The supporters of the KWEP were placed into three nested groups: those interested in financially supporting the KWEP, potential financial supporters of KWEP, and likely financial supporters of KWEP. The interested supporters include the potential supporters and the potential supporters include the likely supporters.

The classification of supporters was based on respondent's answers to five questions:¹

5. Are the respondents interested in supporting the KWEP financially?
6. Would they support the KWEP at \$10 a month? (If yes, how about at \$20 a month?)
7. Where would the money come from to support the KWEP?
8. Are there any substitutes the respondent would prefer other than the KWEP?
9. Is the respondent just as certain of their support as before?

If respondents answered they were interested in financially supporting KWEP, then they were classified as *interested supporters*. Of the sample of 750, 533 or more than 70% were interested in financially supporting the KWEP. If respondents answered yes to questions 2 and 5, they were classified as *potential supporters*. Of the 533 who were asked these questions, 274 were potential supporters. If respondents also could identify where they would get the money for their support, saving or reduce some type of consumption (question 3), and if the KWEP was their first choice among substitutes (question 4), then the respondents were classified as *likely supporters*. Of the 274 asked these questions, 60 or 8% of the total survey sample were likely supporters

Our statistical analysis indicates that significant attitudinal and demographic differences exist among the three classes of supporters. Because of these differences, the choice of a target audience for the marketing campaign will directly influence the

¹ These are not the exact questions used in the survey. The complete survey instrument is contained in Appendix A.

style and content of the marketing campaign. We would also like to note that the results from the survey and the conclusions we have drawn from it are similar to MarketAide's results and conclusions from their three focus groups.

The more formal statistical analysis of the survey revealed two additional inferences similar to observations made by MarketAide. First, respondents who want to support the KWEP have different beliefs about environmental and energy issues than the rest of the survey sample. Second, the potential financial supporters of KWEP, the group that answered yes to the two willingness-to-pay questions, naturally separates into two groups based on how much they were willing-to-pay.

The rest of this report is divided into two parts. The first part describes the structure of the survey instrument. The last part of the report describes and analyzes the survey results. The subjects included are the respondents' level of interest and willingness-to-pay for KWEP, their attitude toward certain energy, environmental and electrical utility issues, their preferences for the institutional structure and organization of KWEP, and their demographics. In addition, logistic regression analysis is used to identify behavioral relationships between attitudes and demographics and support for the KWEP.

THE SURVEY INSTRUMENT

The Purpose of the Survey

We designed the household survey to estimate the number of persons willing to financially support the Kansas Wind Energy Project (KWEP) and to provide a useful characterization of those willing to financially support the KWEP. To help structure the survey instrument, we elaborated these purposes.

Estimate the level of support for the Kansas Wind Energy Project

1. Estimate the number of respondents somewhat and very interested in the KWEP
2. Estimate number of respondents who would financially support the KWEP.
 - Identify potential supporters at the \$5, \$10, and \$20 per month level
 - Identify likely supporters at the \$5, \$10, and \$20 per month level
3. Ask these people how they would want the KWEP to be organized.

Characterize those willing to financially support the project

1. Obtain basic demographic data from the respondents
2. Obtain attitudinal information from the respondents
3. Obtain additional marketing data from respondents

Structure of the Survey Instrument

We divided the survey instrument into four basic sections: introduction of the survey and screening of respondents, attitudinal questions, interest in financial support and opinions about structure of the KWEP, and marketing and demographic questions. The structure of the survey instrument and the basic content of each section are illustrated in Chart I on the next page. Appendix A contains the complete survey instrument. The influences on the content, structure, and conduct of the survey are discussed in Appendix B.

CHART I
THE STRUCTURE OF THE FOUR-COUNTY AREA SURVEY

Introduction and Initial Selection

- Who we are and why we are doing the survey
- Ensuring we have a correct person for the survey

Respondents Attitudes toward Five Basic Subjects

- Fossil Fuels
- Nuclear power
- Renewable energy resources, especially wind power
- Choice in the provider of electrical energy
- Pollution from electrical energy generation

Opinions and Interest in the Kansas Wind Energy Program

- How much initial interest the respondent has in the KWEP and why?
- Respondents preferences about the institutional structure of the KWEP
- How much additional would the respondent be willing to pay to support the KWEP?
- Where will the respondent get the money to provide the support for the KWEP?
- Given other alternatives that would accomplish a similar result, is the KWEP the respondent's first choice among all alternatives?
- Now that the respondent has had a chance to think about their support for the KWEP, do they still want to support it?

Marketing Information

- Sources of News: Newspapers, Television, and Radio
- Does the respondent recycle or belong to an environmental group?

Demographic Information

- Gender, Age, Marital Status, Children, Job, Income

Introduction and Initial Screening

This section began by introducing the respondent to who we were and why we were calling them. Then we asked the respondent whether they live in the correct geographical area, are they more than 18 years old, and did they pay their own electrical bills.

Attitudinal Questions

This section contained 14 statements about energy, environmental, and electrical utility issues that are read to the person being surveyed. For each statement, the surveyor asks for one of four possible responses: completely disagree, mostly disagree, mostly agree, or completely agree. The person surveyed was not given the option of “did not know” or “did not care.” However, a number of respondents expressed these opinions and a few others simply had no answer or refused to express an opinion.

Two potential problems existed with these attitudinal questions: their effect on each other and their effect on the rest of the survey. Survey researchers have long recognized that the order of presentation of similar questions can dramatically affect the respondents’ answers. To compensate for this possible effect, we rotated the questions so that the same order was not used for each respondent. This mitigates the first problem.

Before the survey was run, we did not think that the second potential problem was as critical. We could have put the attitudinal questions after the willingness-to-pay section, but that would have distorted the respondents’ answers to the attitudinal questions more than we thought the attitudinal questions would affect the willingness-to-pay questions. After having run the survey, we think that the attitudinal questions significantly affected the reported level of interest in the KWEP, but we still do not think that they should have been put after the willingness-to-pay section. Our analysis of the willingness-to-pay section resulted in about 35% of the survey sample categorized as potential financial supporters and 8% as likely supporters. Even though the initial level

of interest was artificially high, the percentage of respondents within the categories of potential and likely financial supporters seems about right.

Interest in Financial Support and Opinions about Structure of the KWEP

This section of the survey instrument covers two basic topics: the willingness on the part of the respondent to financially support the KWEP and the opinions of the respondent about some basic issues central to the KWEP. We will spend the majority of our effort explaining the willingness-to-pay portion of this section. Chart II on the next page illustrates the logic and structure of the willingness-to-pay questions. Appendix C provides more detail on the structure and logic of this section.

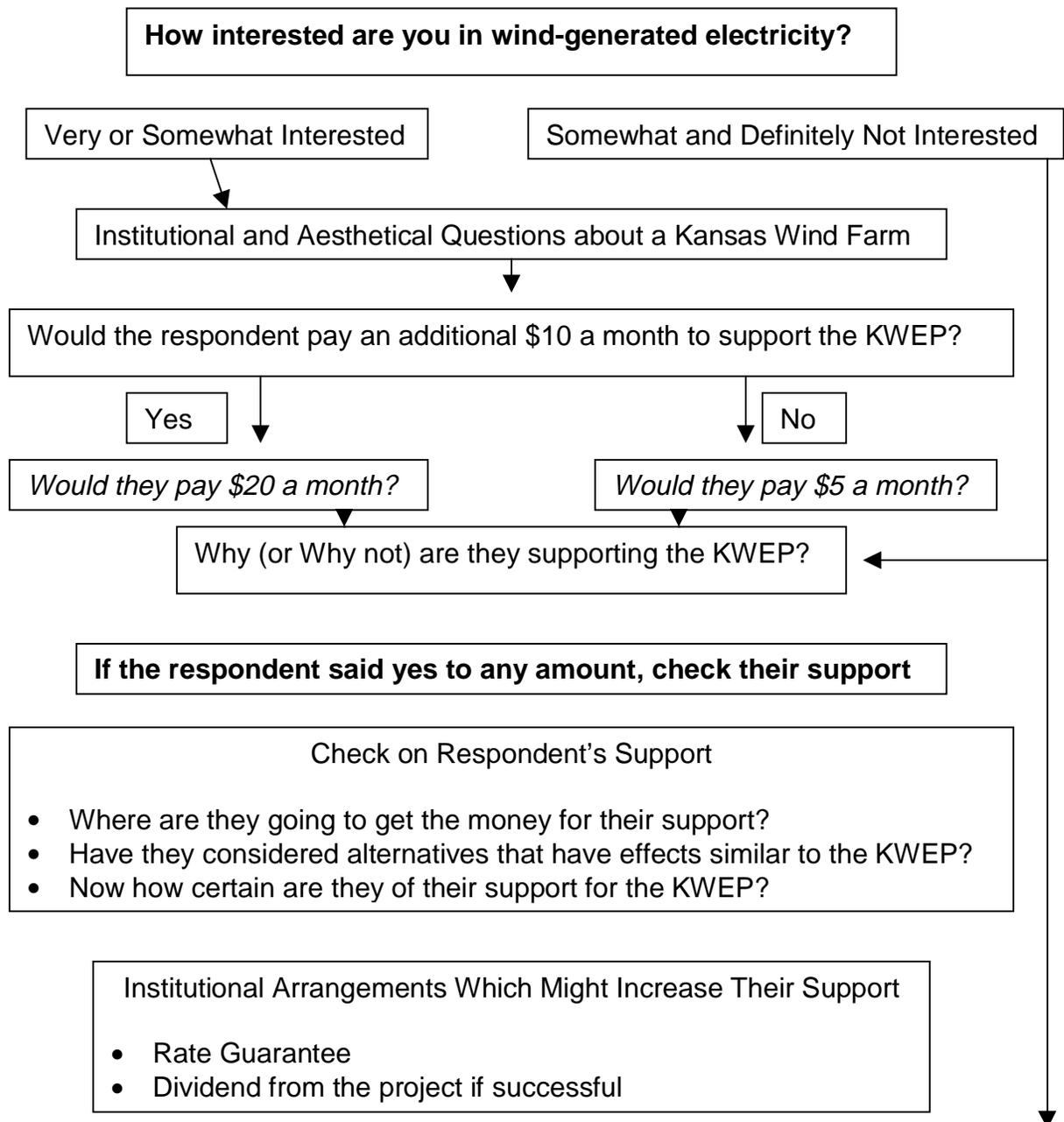
Willingness-To-Pay

The surveyor begins this section by explaining that currently the cost of producing electricity using wind power is higher than the cost of electricity generated using conventional methods; however, wind turbines are more environmentally friendly and use few resources. The respondents are then asked to suppose that a wind site is located near their area of Kansas and could supply electricity to their community. They are asked if they would be interested in purchasing wind-generated electricity from this site at somewhat higher rates than they currently pay. If the respondent answers that they are somewhat not interested or definitely not interested, then they are asked why they are not interested and are moved out of this section to the demographic questions

For those with some interest in wind generated electricity, we used a double bound approach to estimate the level of financial support they would be willing-to-pay. We first asked if they would support the KWEP at \$10 a month. If they said yes, then they were asked if they would support the KWEP at \$20 a month. If they were unwilling to support the KWEP at \$10 a month, then they were asked about supporting it at \$5 a month. For those respondents who said yes to some amount, we then reminded them that the money would have to come out of their household budget and that other alternatives existed for them that would accomplish similar results as support for the

KWEP. After the reminders, we then asked them if their support for the KWEP was as strong as before.

**CHART II
ESTIMATING SUPPORT FOR THE KANSAS WIND ENERGY PROGRAM**



We ended this section of the survey by asking respondents how they felt about possible additional benefits to the KWEP. First we asked if capping their kilowatt per hour rates would increase their interest in the program. If they said yes, we asked for how long should the cap last. Second we asked the respondents if they got a dividend from the program if it became financially successful, would the potential dividend increase their likelihood of enrolling.

Opinions about the KWEP

Five basic questions were asked:

- How should the KWEP be structured?
- Have you seen a wind turbine?
- How would you describe it?
- Where would you want it located?
- What should be the name of the project?

Marketing and Demographic Information

We asked the respondent what newspapers they read, what local news program on television they watched, and which radio stations they listened to for news. The respondents were also asked the amount of their monthly electrical bill. Finally, the respondents were asked if they recycled or belonged to an environmental group.

We also asked for basic demographic information: gender, age category, education level, marital status, whether they had children living at home, employment status, occupation, and income category.

RESULTS OF THE SURVEY

Our analysis of the survey data focuses on five topics. First we will look in detail at the level of interest in the KWEP and the willingness-to-pay on the part of the respondents. Second, we examine the responses to the attitudinal questions. Third, we will look at selected demographic data. Fourth, we will review the respondents' preferences for the structure of the KWEP. Finally, we will discuss the results of the logit regression analysis we used to identify behavioral relationships.

The Level of Interest and Willingness-To-Pay of the Respondents

Level of Interest

We first asked if the respondents were interested in purchasing wind-generated electricity from a Kansas Wind Turbine Site. The results are presented in Table 1 below.

**TABLE 1
HOW INTERESTED ARE PEOPLE IN PURCHASING POWER FROM KWEP?**

Interest of Respondent	Number of Respondents	Percent of Total
Very interested	114	15.2
Somewhat interested	419	55.9
Somewhat not interested	101	13.5
Definitely not interested	98	13.1
Refused	18	2.4
TOTAL	750	100.0

Based on our previous survey (see Appendix B) and the focus groups, we expected about 40% of the sample (or about 300 respondents) to be interested: either somewhat or very. Instead we got a response rate of over 70% (533 people). Our best explanation of this 30% difference, which is certainly significant, is that the attitudinal questions caused the respondents to think about environmental and energy issues. As

in the focus groups and the “test event,” after people begin thinking about these issues, they become interested in wind power. The attitudinal questions stirred up interest by acting as a mini-promotional campaign. Thus, the 70% estimate of the percentage of people interested in the KWEP probably represents the number interested after an initial public information campaign has piqued their interest.

Willingness-To-Pay

We asked two willingness-to-pay questions. The first question used a double bound procedure. Initially we asked if the respondent would be willing to pay \$10 a month to support the KWEP. If they said yes to this question, they were asked if they would be willing to pay \$20 a month. If they said no to \$10 a month, they were asked if they would be willing to pay \$5 a month. Table 2 has the results of these questions.

**TABLE 2
WOULD PAY \$10 MORE PER MONTH?**

Answers of the Respondents	Number of Respondents	Percent of Total
Yes	372	69.8
No	131	24.6
Refused	30	5.6
TOTAL	533	100.0

HOW ABOUT \$20 MORE A MONTH?

Answers of the Respondents	Number of Respondents	Percent of Total
Yes	162	43.5
No	189	50.8
Refused	21	5.6
TOTAL	372	100.0

HOW ABOUT \$5 MORE A MONTH?

Answers of the Respondents	Number of Respondents	Percent of Total
Yes	67	41.6
No	73	45.3
Refused	21	13.0
TOTAL	161	100.0

The response rates to these questions are again surprisingly high. Even though only 533 people were asked if they would support the KWEP at \$10 a month, almost 70% said yes. Of the original sample of 750, this is almost half. Of the 372 who said yes to \$10 a month, 43.5% said yes to \$20 a month. Of the 161 who said no to \$10 a month, 67 said yes to \$5 a month. Initially 439 persons said yes either to \$5, \$10, or \$20 per month.

After reminding the respondents that they would have to give up something in order to support the KWEP and that there were other opportunities to accomplish similar goals, we asked a follow-up willingness-to-pay question. The results are in Table 3.

**TABLE 3
STILL WANT TO GIVE \$10 A MONTH?**

Certainty of Respondent	Number of Respondents	Percent of Total
Just as Certain	149	71.0
Less Certain, but still enroll	30	14.3
Uncertain about enrolling	13	6.2
Pretty sure not enrolling	3	1.4
Do not Know	14	6.7
Refused	1	0.5
TOTAL	210	100.0

STILL WANT TO GIVE \$20 A MONTH?

Certainty of Respondent	Number of Respondents	Percent of Total
Just as Certain	125	77.2
Less Certain, but still enroll	24	14.8
Uncertain about enrolling	7	4.3
Do not Know	6	3.7
TOTAL	162	100.0

STILL WANT TO GIVE \$5 A MONTH?

Certainty of Respondent	Number of Respondents	Percent of Total
Just as Certain	22	32.8
Less Certain, but still enroll	17	25.4
Uncertain about enrolling	15	22.4
Pretty sure not enrolling	2	3.0
Do not Know	10	14.9
Refused	1	1.5
TOTAL	67	100.0

The reminders and the opportunity to think about the decision eliminated some of the respondents. The number of respondents who had said yes to only \$10 per month fell from 210 supporting the KWEP to 149 just as certain as before. The number supporting the program at \$20 per month fell from 162 to 125 just as certain as before. Finally, the number supporting the program at \$5 per month fell from 67 to 22 just as certain as before. Given the small number of persons still supporting the program at \$5 per month, it would make no financial sense to ask for only \$5, so we eliminated these from our first cut. The number we used as the survivors of the first two hurdles was 274: 149 at \$10 per month and 125 at \$20 per month. We labeled this group potential supporter of the KWEP.

Before the survey was run, we agreed upon a procedure for identifying likely supporters of the KWEP: those who said yes to both willingness-to-pay questions, knew what they were going to give up to support the program, and said that the KWEP was their first choice among the possible substitutes. Of the 274 who answered yes to the

two willingness-to-pay questions, 116 (66 at \$10 per month and 50 at \$20 per month) could say specifically where they would get the money to support the KWEP. Of these 116, only 60 (32 at \$10 per month and 28 at \$20 per month) chose the KWEP over the possible substitutes. Thus, the number of likely supporters of the KWEP is 60 out of 750 respondents or 8% of the sample.

Attitudinal Questions

The attitudinal questions were designed to characterize members of the sample by their attitudes about the environmental issues, energy issues, and electrical utility issues. These questions were used to distinguish the potential financial supporters from the rest of the survey sample. In addition, these questions were used to distinguish the \$10 supporters from the \$20 supporters among all the class of potential supporters. Respondents' answers are summarized in Appendix C. We used chi-square tests on to evaluate whether one group gave a different distribution of answers than another group. The two tests we used were the Person Chi-Squared and the Likelihood Ratio Chi-Squared. Appendix C also provides a brief explanation of the tests along with the test results.

Table 4 supplies a qualitative evaluation of these tests. A comparison of potential supporters and the rest of the sample indicate the only question where these groups gave similar answers was the question about knowing how much their current utility bill is (question 3). In all other cases, these two groups answered the attitudinal questions differently, strongly suggesting that these two groups have significantly different attitudes about environmental and energy issues. On the other hand, the comparisons of the \$10 and the \$20 supporters show that for most statements the answers were similar. The exceptions were questions 10, 11, 13, and 14: all questions about either nuclear power or the pollution from the generation of electricity. The persons who were \$20 supporters were more concerned with pollution and nuclear power than the \$10 supporters. The results for question 9 were ambiguous.

TABLE 4
QUALITATIVE ANALYSIS OF THE ATTITUDINAL QUESTIONS

ATTITUDINAL QUESTIONS	Total Sample vs. Potential Supporters	\$10 Supporters vs. \$20 Supporters
1) Fossil fuels are limited and may soon be scarce.	Different	Similar
2) The cost of electricity will undoubtedly rise in the foreseeable future.	Different	Similar
3) I know how much my current bill is in terms of the kilowatt per hour cost	Similar	Similar
4) I am looking forward to having a choice in which utility provides my electricity.	Different	Similar
5) I am not confident that my local utility will develop new sources of economical and safe electrical power.	Different	Similar
6) I would prefer that they leave our electrical service the way it is and not offer us choices about where we purchase electricity.	Different	Similar
7) If given a choice, I would be most likely to purchase electricity from someone other than my current provider.	Different	Similar
8) I believe that it makes sense for Kansas to develop wind turbine farms as a supplement to our current coal and nuclear electrical power plants.	Different	Similar
9) Kansas Utilities should do more to develop and offer energy generated by wind turbine farms.	Different	Indeterminate
10) I would like to purchase electricity from non-polluting source such as a wind turbine farm even if it costs slightly more.	Different	Different
11) I would like to purchase electricity from a non-nuclear source even if it costs slightly more.	Different	Different
12) Other things, such as the reliability of service, being equal, I would switch my electrical service to a lower priced supplier if there were competition.	Different	Similar
13) If utility competition were allowed, I would switch my service to a company that offered non-nuclear energy, even if it costs a little more.	Different	Different
14) If utility competition were allowed, I would switch my service to a company that offered non-polluting energy, even if it costs a little more.	Different	Different

Demographic Information

The demographic information was gathered from the respondents for two reasons: the help evaluate how representative the survey sample was of the Four-

county Area household population, and to help explain the differences in participant's responses. At this point, we briefly review the demographic data for what it tells us about how representative the survey sample was.

Table 5 shows the number of respondents by county for three groups: the total survey sample, those who answered yes to both willingness-to-pay questions, and to the group we designated as likely supporters of the KWEP. The last two columns in the table have the number of households from the 1990 census for each county. The survey sample seems to have slightly under-sampled Sedgwick and Butler Counties and over-sampled Reno County. These small differences probably had little effect on the survey results.

**TABLE 5
NUMBER OF RESPONDENTS BY COUNTY**

County	Total Survey Sample		Answered Yes Twice to Willingness-To-Pay		Likely Supporters of the KWEP		Number of Households from the 1990 Census	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Sedgwick	542	72.3	205	74.8	44	73.3	156,571	74.2
Butler	58	7.7	21	7.7	3	5.0	18,488	8.8
Reno	105	14.0	29	10.6	7	11.7	24,239	11.5
Harvey	45	6.0	19	6.9	6	10.0	11,581	5.5
TOTAL	750	100.0	274	100.0	60	100.0	210,879	100.0

Miscellaneous Questions Concerning Preferences

We asked respondents seven questions to elicit their preferences concerning the organizational structure of KWEP, the aesthetics of wind power, and potential additions to the KWEP. The results are briefly discussed below. Tables that summarize responses can be found in Appendix F. Those who had indicated interest in the KWEP were asked these questions (533 out of the sample of 750)

Organizational Structure and Name

We asked the respondents what type of organizational structure they would prefer for the KWEP. The most popular organizational structure is a cooperative of Kansas Electrical Utilities including the respondent's present supplier of electrical service. One of the possible responses was other. Of the 63 that said other, 54 said they were "not sure." The 9 other responses in this category broke down the following way: independent organization (2), anyone else (2), coalition of elected persons (1), cooperative of non-nuclear, non-fossil fuel organizations (1), a citizen and utility cooperative (1), a new group (1), and any of the above (1). If only the persons who are potential supporters are counted, then the percentage wanting the cooperative increases to 51.1% (56.7% if "not sure" answers are ignored). If only the likely supporters are counted, then the percentage increases to 60.0% for the cooperative (64.2% if the "not sure" answers are ignored). Table F1 in Appendix F has more detail.

The most popular name is the Kansas Wind Energy Project.

**TABLE 6
ORGANIZATIONAL STRUCTURE**

Which of the following organizations would you be most comfortable with as the supplier of energy that you could purchase from a Kansas wind farm?	All Respondents		"Not Sure" Responses not included	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Cooperative Organization of Kansas Electrical Utilities Including Your Present Utility	252	47.3%	252	52.6%
A reputable competitor to your present electrical company	107	20.1%	107	22.3%
Your present electrical company	111	20.8%	111	23.2%
Other	63	11.8%	9	1.9%
TOTAL	533		479	
*Of the 63 that said other, 54 said they were "not sure" who it should be.				

The Aesthetics of Wind Farms

We asked if the respondent had ever seen a wind farm. If they had, then we asked what they thought of the sight. Finally, we asked these people where they

thought the demonstration project should be located, near a highway in plain sight or hidden away from most peoples; view. Less than 40% of the respondents have seen a wind farm. Of those who had seen a wind farm, more than 70% thought that the wind farm was an impressive sight. Also about 70% of those who had seen a wind farm wanted the demonstration project located near the highway where people could see it.

Two Additional Benefits

Finally, we asked the respondents about two potential additions to the green pricing program: a rate cap and KWEP as an investment. First we asked if providing a guarantee that kilowatt per hour rates would remain frozen for a period of time would increase interest in participating in the program. Second we asked if paying a dividend if the project became financially successful at some future time increase interest in participating. Both of these suggestions were enormously popular, especially with those who answered yes twice to the willingness-to-pay questions.

Logistic Regression Analysis

Logistic regression analysis is designed to use regression analysis where the dependent variable is binary: (0) no I will not support the KWEP and (1) yes I will support the KWEP. A brief explanation of logistic regression analysis and the results of that analysis for this research are provided in Appendix G. Qualitative results of the analysis and one of its possible implications will be described below.

We first looked at the variables, both demographic and attitudinal, that could help explain the responses of three groups: all the potential financial supporters, the \$10 supporters, and the \$20 supporters. A total of seven variables proved to be significant. They are listed below along with labels.

Demographic Variables

Children: Whether the respondent has any children living at home.

Income: Income category of respondent:

Attitudinal Variables

Q6_1D: Fossil fuels are limited and may soon be scarce.

Q6_8D: I believe that it makes sense for Kansas to develop wind turbine farms as a supplement to our current coal and nuclear electrical power plants.

Q6_9D: Kansas Utilities should do more to develop and offer energy generated by wind turbine farms.

Q6_10D: I would like to purchase electricity from non-polluting source such as a wind turbine farm even if it costs slightly more.

Q6_14D: If utility competition were allowed, I would switch my service to a company that offered non-polluting energy, even if it costs a little more

For the group of all potential supporters, the two demographic variables were significant and all of the attitudinal variables listed except Q6_9D. If a respondent had children at home, then they had a better chance of being a potential supporter. As the income of the respondents increased, the probability they would be a potential supporter increased. In the cases of the attitudinal variables, the qualitative results were the same, the more they were disposed to agree with the statement, the more likely they were to be a potential supporter.

For the two subgroups, the \$10 and \$20 supporters, the results were interesting. The \$10 supporters were influenced by income, the higher the income, the more likely they were to support, and by attitudinal variables Q6_1D and Q6_8D in the same way that the larger group was. The \$20 supporters were influenced only by attitudinal variables: Q6_9D, Q6_10D, and Q6_14D. Again, the more the respondent agreed with the statements, the more likely the respondent was to be a supporter.

The \$10 supporters and \$20 supporters did not share any explanatory variables, and they nearly split the larger group's significant variables down the middle. This split is surprising clean. The exceptions were Q37D (it did not find its way into either of the subgroups) and Q6_9 (it was not significant for the large group.). The \$10 supporters were concerned with the limited and scarce nature of fossil fuels, and they want to use wind power as a supplement to other forms of generating electrical energy. In addition, they tended to have a higher level of income. The \$20 supporters were more motivated by environmental concern and the fact that wind power is environmentally friendly. A similar type of split occurred with the focus groups.

Rarely in the social sciences does data about attitudes and demographics clearly indicate what intuition suspects. In this case, the data indicate a nearly dichotomous split in concerns based on level of support. These findings have implications for a marketing campaign.

Ideally, one would like to split the “market” between the \$10 and \$20 supporters and use different types of marketing information on each group. This implies customizing a part of the marketing campaign for each group and designing each part to take advantage of the major concerns of each group.

Which brings out the final implication of the survey: the key to getting people interested and supportive of the KWEP is information. The more people know, the more interested they are and the more likely they are to support the KWEP. Thus, the marketing campaign is not a matter of tricking people into supporting the KWEP, but of raising questions about energy and environmental issues and providing correct information when they are interested.

**APPENDIX A
THE SURVEY INSTRUMENT**

INTRODUCTION-

Hello. My name is _____ and I am conducting a survey for the Institute for Public Policy and Business Research at the University of Kansas concerning wind energy and electrical service. May I ask you a few questions?

1. Are you the person most responsible for paying your utility bills and are you at least 18 years of age?

(CONTINUE) Yes (or the respondent shares equally in paying bill) 1
 (ASK TO SPEAK TO CORRECT PERSON) No 2
 (TERMINATE & TALLY) INITIAL REFUSAL 3 _____

Are you or is anyone in your household employed by an advertising agency, a market research firm, a newspaper, a radio or television station, or an electric utility company?

(TERMINATE & TALLY) Yes to Any 1
 (CONTINUE) No to All 2

2. What county do you live in?

Sedgwick 1 Other (TERMINATE) 99 _____
 Butler 2
 Reno 3
 Harvey 4

3. Do you own your home or do you rent?

(SKIP Q5) Own 1
 (CONTINUE) Rent 2
 (TERMINATE & TALLY) Refused 3 _____

4. Do you pay for your electric bills or does your landlord?

(CONTINUE) You 1
 (TERMINATE & TALLY) Landlord 2
 (TERMINATE & TALLY) Refused 3 _____

5. I am going to read you a series of statements, for each one I would like you to tell me whether you completely agree, mostly agree, mostly disagree, or completely disagree with each of the statements:

STATEMENTS ROTATE LIST (thirds 5/4/5)	Completely Disagree 1	Mostly Disagree 2	Mostly Agree 3	Completely Agree 4	DK/NA/ Refused 99
1) Fossil fuels are limited and may soon be scarce.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) The cost of electricity will undoubtedly rise in the foreseeable future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) I know how much my current bill is in terms of the kilowatt per hour cost.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) I am looking forward to having a choice in which utility provides my electricity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) I am not confident that my local utility will develop new sources of economical and safe electrical power.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) I would prefer that they leave our electrical service the way it is and not offer us choices about where we purchase electricity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) If given a choice, I would be most likely to purchase electricity from someone other than my current provider.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) I believe that it makes sense for Kansas to develop wind turbine farms as a supplement to our current coal and nuclear electrical power plants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Kansas Utilities should do more to develop and offer energy generated by wind turbine farms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) I would like to purchase electricity from non-polluting source such as a wind turbine farm even if it costs slightly more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) I would like to purchase electricity from a non-nuclear source even if it costs slightly more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Other things, such as the reliability of service, being equal, I would switch my electrical service to a lower priced supplier if there were competition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) If utility competition were allowed, I would switch my service to a company that offered non-nuclear energy, even if it costs a little more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) If utility competition were allowed, I would switch my service to a company that offered non-polluting energy, even if it costs a little more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Before the next question I would like to read a short paragraph about wind energy:

Currently, the cost of producing electricity using wind turbines is higher than the cost of producing electricity from coal, natural gas, or nuclear technology. Of course, wind turbines produce electricity without creating pollution, using up natural resources like coal or natural gas, and are not reliant on nuclear technology.

Now, suppose a Kansas Wind Turbine Site or Wind Farm was located near your area of Kansas and could supply electricity to your community.

Hypothetically, how interested would you be in supporting a Kansas Wind Turbine Site or Farm by purchasing some or all of your electricity from the site at somewhat higher rates than you now pay?

6. Would you say you would be...[READ LIST]... in purchasing wind-generated electricity to support a Kansas Wind Turbine Site or Farm?

- Very interested.....1
- Somewhat interested2
- Somewhat not interested, or3 (SKIP TO QUESTION 17)
- Definitely not interested.....4 (SKIP TO QUESTION 17)
- REFUSED 5 (SKIP TO QUESTION 17)

7. Which of the following organizations would you be most comfortable with as the supplier of energy that you could purchase from a Kansas wind farm?

- 1 A cooperative organization formed by a group of Kansas Utilities including your present electrical company
- 2 A reputable competitor to your present electrical company
- 3 Your present electrical company
- 4 Someone else (please describe)_____

8. Have you ever seen a wind turbine farm such as they have in California, either in person, on television, in a newspaper or in a magazine?

- Yes 1
- No 2 (SKIP TO QUESTION 12)
- Not Sure 3 (SKIP TO QUESTION 12)

9. Which of the following best describes your impressions of such a wind turbine farm?

- 1 An impressive display of technology at its best
- 2 An ordinary man-made construction
- 3 A blight on the visual landscape

10. Assuming that such a wind farm would be sited in a manner that was sensitive to the environment, (for example outside the known flight patterns of migratory birds), would you prefer it to be

- 1 located near a highway so that it would be visible in action?
- 2 located in a spot in which it would not generally be seen?

11. In the event that a Wind energy program was begun in your area, which of the following names would you prefer for the project?

- 1 Kansas Wind Energy Project
- 2 Flint Hills Wind Energy Project
- 3 No opinion

Now I am going to ask you to make a hypothetical choice between keeping your present electrical utility service and paying more to support wind generated electrical energy.

12. Suppose that the cost to purchase electricity from a Kansas Wind Energy program was \$10 dollars more per month than your present electrical bill. Hypothetically, would you be willing to sign up today to support this program.

- (GO TO QUESTION 14) Yes 1
- (GO TO QUESTION 15) No 2
- (GO TO QUESTION 15) REFUSED/NA 3

13. Suppose that the cost to purchase electricity from a Kansas Wind Energy program was \$20 dollars more per month than your present electrical bill, hypothetically, would you be willing to sign up today to support this program.

- (GO TO QUESTION 16) Yes 1
- (GO TO QUESTION 16) No 2
- (GO TO QUESTION 16) REFUSED/NA 3 _____

14. Suppose that the cost to purchase electricity from a Kansas Wind Energy program was \$5 dollars more per month than your present electrical bill, hypothetically, would you be willing to sign up today to support this program.

- (SKIP TO QUESTION 16) Yes 1
- (SKIP TO QUESTION 18) No 2
- (SKIP TO QUESTION 18) REFUSED/NA 3 _____

15. Why are you interested in supporting a Kansas Wind energy program?

- Wind energy is environmentally clean. 1
- Wind energy is non-nuclear 2
- Wind energy is renewable 3
- The program will make wind energy competitive sooner 4
- Other _____

(SKIP TO QUESTION 19 A,B,C, DEPENDING ON ANSWERS TO QUESTIONS 13,14,15)

16. Please describe why you are **not** interested in purchasing wind-generated electricity from the Kansas Wind Energy Program?

(SKIP TO QUESTION 33)

17. Please describe why you are **not** interested in purchasing wind-generated electricity from the Kansas Wind Energy Program? (THIS VERSION OF QUESTION 17 IS FOR THOSE WHO DESCRIBED THEMSELVES AS "VERY INTERESTED" OR "SOMEWHAT INTERESTED" IN QUESTION 7, BUT ANSWERED "NO" OR "REFUSED" TO THE WILLINGNESS TO PAY QUESTIONS – 13&15 – WE WANT TO KEEP THEM IN THE MAIN BODY OF THE SURVEY – QUESTIONS 19-32)

(QUESTIONS 19A, 20A, 21A, 22A, 23A, and 24A ARE ANSWERED ONLY BY THOSE WHO ANSWERED YES TO QUESTION 13 AND NO/REFUSED TO QUESTION 14.)

19A. If you enrolled today in a program to receive your electricity from wind energy, you would have \$10 dollars per month, or \$120 dollars per year, less to save or spend on other things. What do you think that you would give up in order to pay the extra amount to be enrolled in the program?

- Reduce savings 1
- Other (Describe) 2
- Nothing 3
- Don't Know 4
- Refused 5

20A. If you had a choice between spending \$10 per month or \$120 per year by (1) enrolling in the Kansas Wind Project, (2) increasing the energy efficiency of your home, or (3) installing solar panels on your home, which would you choose?

- Enrolling in Kansas Wind Project. 1
- Increasing energy efficiency of home. 2
- Installing solar panels on home 3
- Don't know. 4
- Refused 5

21A. You have now had a chance to consider where you would get the money to pay for enrolling in the wind energy program at \$10 per month. We would like to know if this has changed the strength of your opinion that you would enroll today at the \$10 per month level. In comparison to your original statement that you would enroll today at the \$10 per month level, are you now

- Just as certain as before that you would enroll? 1
- Less certain than before, but still think you would enroll? 2
- Now uncertain about enrolling? 3
- Pretty sure you wouldn't enroll (Changed your mind.)? 4
- Don't Know 5
- Refused 6

22A. Suppose supporting a Kansas Wind Energy Program cost \$10 more than you now pay on your monthly utility bill, but included a rate guarantee that your kilowatt per hour rates would remain frozen for a period of time. Would this increase your interest in participating in the program?

- | | | |
|------------------------|------------|----------------------------------|
| | Yes | 1 <input type="checkbox"/> |
| | Maybe | 2 <input type="checkbox"/> |
| (SKIP TO QUESTION 24A) | No | 3 <input type="checkbox"/> |
| (SKIP TO QUESTION 24A) | REFUSED/NA | 4 <input type="checkbox"/> _____ |

23A. What is the minimum number of **years** you would like the rate guarantee to last, in order to obtain your support?

_____ (YEARS)

24A. Suppose supporting a Kansas Wind Energy Program cost at least \$10 more than you now pay on your monthly utility bill, but included a feature that paid you a dividend if the project became a money maker at some time in the future. Would this increase your interest in participating in the program?

- | | | |
|--|------------|----------------------------------|
| | Yes | 1 <input type="checkbox"/> |
| | Maybe | 2 <input type="checkbox"/> |
| | No | 3 <input type="checkbox"/> |
| | REFUSED/NA | 4 <input type="checkbox"/> _____ |

(SKIP TO QUESTION 28)

(QUESTIONS 19B, 20B, 21B, 22B, 23B and 24B ARE ANSWERED ONLY BY THOSE WHO ANSWERED NO/REFUSED TO QUESTION 13 AND YES TO QUESTION 15.)

19B. If you enrolled today in a program to receive your electricity from wind energy, you would have \$5 dollars per month, or \$60 dollars per year, less to save or spend on other things. What do you think that you would give up in order to pay the extra amount to be enrolled in the program?

- | | | |
|--|---------------------------|----------------------------|
| | Reduce savings | 1 <input type="checkbox"/> |
| | Other (<u>Describe</u>) | 2 <input type="checkbox"/> |
| | Nothing | 3 <input type="checkbox"/> |
| | Don't Know | 4 <input type="checkbox"/> |
| | Refused | 5 <input type="checkbox"/> |

20B. If you had a choice between spending \$5 per month or \$60 per year by (1) enrolling in the Kansas Wind Project, (2) increasing the energy efficiency of your home, or (3) installing solar panels on your home, which would you choose?

- | | | |
|--|---------------------------------------|----------------------------|
| | Enrolling in Kansas Wind Project. | 1 <input type="checkbox"/> |
| | Increasing energy efficiency of home. | 2 <input type="checkbox"/> |
| | Installing solar panels on home | 3 <input type="checkbox"/> |
| | Don't know. | 4 <input type="checkbox"/> |
| | Refused | 5 <input type="checkbox"/> |

21B. You have now had a chance to consider where you would get the money to pay for enrolling in the wind energy program at \$5 per month. We would like to know if this has changed the strength of your opinion that you would enroll today at the \$5 per month level. In comparison to your original statement that you would enroll today at the \$5 per month level, are you now

- | | | |
|--|---|----------------------------|
| | Just as certain as before that you would enroll? | 1 <input type="checkbox"/> |
| | Less certain than before, but still think you would enroll? | 2 <input type="checkbox"/> |
| | Now uncertain about enrolling? | 3 <input type="checkbox"/> |
| | Pretty sure you wouldn't enroll (Changed your mind.)? | 4 <input type="checkbox"/> |
| | Don't Know | 5 <input type="checkbox"/> |
| | Refused | 6 <input type="checkbox"/> |

22B. Suppose supporting a Kansas Wind Energy Program cost \$5 more than you now pay on your monthly utility bill, but included a rate guarantee that your kilowatt per hour rates would remain frozen for a period of time. Would this increase your interest in participating in the program?

- | | | |
|------------------------|------------|----------------------------------|
| | Yes | 1 <input type="checkbox"/> |
| | Maybe | 2 <input type="checkbox"/> |
| (SKIP TO QUESTION 24B) | No | 3 <input type="checkbox"/> |
| (SKIP TO QUESTION 24B) | REFUSED/NA | 4 <input type="checkbox"/> _____ |

23B. What is the minimum number of **years** you would like the rate guarantee to last, in order to obtain your support?

_____ (YEARS)

24B. Suppose supporting a Kansas Wind Energy Program cost at least \$5 more than you now pay on your monthly utility bill, but included a feature that paid you a dividend if the project became a money maker at some time in the future. Would this increase your interest in participating in the program?

- | | | |
|--|------------|----------------------------------|
| | Yes | 1 <input type="checkbox"/> |
| | Maybe | 2 <input type="checkbox"/> |
| | No | 3 <input type="checkbox"/> |
| | REFUSED/NA | 4 <input type="checkbox"/> _____ |

(SKIP TO QUESTION 28)

(QUESTIONS 19C, 20C, 21C, 22C, 23C, and 24C ARE ANSWERED ONLY BY THOSE WHO ANSWERED YES TO QUESTION 13 AND YES TO QUESTION 14.)

19C. If you enrolled today in a program to receive your electricity from wind energy, you would have \$20 dollars per month, or \$240 dollars per year, less to save or spend on other things. What do you think that you would give up in order to pay the extra amount to be enrolled in the program?

- | | |
|---------------------------|----------------------------|
| Reduce savings | 1 <input type="checkbox"/> |
| Other (<u>Describe</u>) | 2 <input type="checkbox"/> |
| Nothing | 3 <input type="checkbox"/> |
| Don't Know | 4 <input type="checkbox"/> |
| Refused | 5 <input type="checkbox"/> |

20C. If you had a choice between spending \$20 per month or \$240 per year by (1) enrolling in the Kansas Wind Project, (2) increasing the energy efficiency of your home, or (3) installing solar panels on your home, which would you choose?

- | | |
|---------------------------------------|----------------------------|
| Enrolling in Kansas Wind Project. | 1 <input type="checkbox"/> |
| Increasing energy efficiency of home. | 2 <input type="checkbox"/> |
| Installing solar panels on home | 3 <input type="checkbox"/> |
| Don't know. | 4 <input type="checkbox"/> |
| Refused | 5 <input type="checkbox"/> |

21C. You have now had a chance to consider where you would get the money to pay for enrolling in the wind energy program at \$20 per month. We would like to know if this has changed the strength of your opinion that you would enroll today at the \$20 per month level. In comparison to your original statement that you would enroll today at the \$20 per month level, are you now

- Just as certain as before that you would enroll? 1
- Less certain than before, but still think you would enroll? 2
- Now uncertain about enrolling? 3
- Pretty sure you wouldn't enroll (Changed your mind.)? 4
- Don't Know 5
- Refused 6

22C. Suppose supporting a Kansas Wind Energy Program cost \$20 more than you now pay on your monthly utility bill, but included a rate guarantee that your kilowatt per hour rates would remain frozen for a period of time. Would this increase your interest in participating in the program?

- Yes 1
- Maybe 2
- (SKIP TO QUESTION 24C) No 3
- (SKIP TO QUESTION 24C) REFUSED/NA 4 _____

23C. What is the minimum number of **years** you would like the rate guarantee to last, in order to obtain your support?

_____ (YEARS)

24C. Suppose supporting a Kansas Wind Energy Program cost at least \$20 more than you now pay on your monthly utility bill, but included a feature that paid you a dividend if the project became a money maker at some time in the future. Would this increase your interest in participating in the program?

- Yes 1
- Maybe 2
- No 3
- REFUSED/NA 4 _____

(SKIP TO QUESTION 28)

25. Suppose supporting a Kansas Wind Energy Program cost at least \$10 more than you now pay on your monthly utility bill, but included a rate guarantee that your kilowatt per hour rates would remain frozen for a period of time. Would this increase your interest in participating in the program?

- Yes 1
- Maybe 2
- (SKIP TO QUESTION 27) No 3
- (SKIP TO QUESTION 27) REFUSED/NA 4 _____

26. What is the minimum number of **years** you would like the rate guarantee to last, in order to obtain your support?

_____ (YEARS)

27. Suppose supporting a Kansas Wind Energy Program cost at least \$10 more than you now pay on your monthly utility bill, but included a feature that paid you a dividend if the project became a money maker at some time in the future. Would this increase your interest in participating in the program?

- Yes 1
- Maybe 2
- No 3
- REFUSED/NA 4 _____

28. Do you participate in recycling on a regular basis, or participate in other environmental activities or groups such as Earth Day, Green Peace, the Sierra Club, etc.?

Yes 1
No 2
REFUSED/NA 3

29. How much is your average monthly home electrical bill? # _____ (DOLLARS)

30. What, if any, newspapers do you read on a regular basis?

- 1 The Wichita Eagle
- 2 USA TODAY
- 3 Wall Street Journal
- 4 Other (please list) _____

31. Which local news program, if any, do you watch, and what time?

_____ (CODE LATER)

Time: _____ AM _____ PM

32. Which radio stations, if any, do you listen to on a regular basis?

_____ (CODE LATER)

33. Are you...?

Male 1
Female 2

(SURVEYOR CAN FILL IN WITHOUT ASKING)

34. Which of the following categories includes your age? (READ LIST)

18-25 1
26-35 2
36-45 3
46-55 4
56-64 5
65 or Older 6

35. What is the highest level of education you have completed? (READ LIST)

High School or less 1
Some College 2
College Graduate 3
Post Graduate 4
NA/Refused 5

36. Are you...?

Married 1
Single/Divorced/Widowed 2
NA/Refused 3

37. Do you have any children under 18 years of age living at home?

	Yes	1 <input type="checkbox"/>
	No	2 <input type="checkbox"/>
	NA/Refused	3 <input type="checkbox"/>

38. Which of the following categories best fits your employment status?

	Employed full-time	1 <input type="checkbox"/>
	Employed part-time	2 <input type="checkbox"/>
(SKIP TO QUESTION 40)	Retired	3 <input type="checkbox"/>
(SKIP TO QUESTION 40)	Not Employed or Student	1 <input type="checkbox"/>
(SKIP TO QUESTION 40)	NA/Refused	2 <input type="checkbox"/>

39. Which of the following categories best describes your occupation?

	Sales	1 <input type="checkbox"/>
	Management	2 <input type="checkbox"/>
	Business Owner	3 <input type="checkbox"/>
	Clerical	4 <input type="checkbox"/>
	Professional	5 <input type="checkbox"/>
	Craftsman/Foreman	6 <input type="checkbox"/>
	Laborer/Operative/Construction	7 <input type="checkbox"/>
	Other _____	8 <input type="checkbox"/>
	NA/Refused	9 <input type="checkbox"/>

40. What is your ZIP Code? # _____

41. For statistical purposes only, into which of the following income groups does your total household income fall? (READ LIST)

	Less than \$15,000	1 <input type="checkbox"/>
	\$15,000 to less than \$25,000	2 <input type="checkbox"/>
	\$25,000 to less than \$35,000	3 <input type="checkbox"/>
	\$35,000 to less than \$50,000	4 <input type="checkbox"/>
	Over \$50,000	5 <input type="checkbox"/>
	NA/Refused	6 <input type="checkbox"/>

APPENDIX B DEVELOPMENT OF THE HOUSEHOLD SURVEY INSTRUMENT

Three considerations influenced the development of the survey.

- The results from our 1995 green pricing survey of Kansas
- The three focus groups held in Wichita by MarketAide
- MarketAide's request for marketing information.

The “Green Pricing” Survey of Kansas Households

The 1995 Kansas Household Survey had a more general scope than the current survey. It was designed to (1) evaluate customer knowledge of renewable sources of energy, (2) elicit their attitudes about the costs of electricity and their satisfaction with their local utility companies, and (3) estimate their willingness-to-pay for a green pricing program. The survey did ask customers twice whether they would be willing-to-pay for an unidentified green pricing program — no specific type of renewable resource for generating electricity was mentioned.

Although in that survey we did not ask in what county the respondent resided, we did ask in whose electrical utility service area they resided. About one third of the respondents were from the KG&E service area, the same utility that serves nearly all of the Wichita Area. We assumed that the respondents from the Wichita and Hutchinson Areas would have responses similar to those respondents from the whole KG&E service area. The percentage of respondents who answered “yes” or “don't know” to the first willingness-to-pay question was about 41% for the whole state and about 39% for the KG&E service area. The percentage of the KG&E service area respondents who answered yes to both willingness-to-pay questions was 22.60%, slightly less than the 22.67% for the whole survey.

We used these percentages to estimate the sample size that was appropriate for the new survey given that we wanted to be able to make meaningful distinctions within the group which said either “yes” or “don't know” to the first willingness-to-pay question. We wanted to make sure we had at least 300 members of this group. If they represent about 40% of the population, that means a sample size of slightly less than 700. To be assured of enough responses in this group, we surveyed 750 households.

The MarketAide Focus Groups

The three focus groups presided over by MarketAide's John Claman provided additional information that sharpened our strategy for the household survey. These focus groups were designed “to explore initial reactions and discuss potential program components of a wind turbine based green pricing program”. MarketAide has provided a detailed analysis of these focus groups. We will only outline our general impressions of the focus groups, which we believe are consistent with the MarketAide analysis, and then indicate how these impressions influenced our strategy for designing the survey instrument.

Two of the focus groups consisted of people who identified themselves as “somewhat interested,” and the other group consisted of people who identified

themselves as “very interested.” The demographics of the two “somewhat interested” groups were significantly different, but our impressions were nearly the same for each group.

The “somewhat interested” people, in many but not all cases, were somewhat interested only because they felt they lacked enough information about wind power and the KWEF to make an informed decision. As they learned more about wind energy and talked among themselves, they became more convinced of its importance. By the end of the two “somewhat interested” focus groups all of the participants were willing to give \$10 a month for wind energy with some wanting to give more.

In contrast, the “very interested” focus group began with a lot of enthusiasm. However as the people interacted with each other the enthusiasm of some group members declined. This focus group discussion was much more contentious than the “somewhat interested” groups. By the end of the focus group, a couple of the participants did not want to provide any money for the wind energy project. In some cases people were committed to a specific agenda, and when other members of the group rejected the agenda, these people lost interest in the wind energy.

As a group, the “somewhat interested” people were flexible enough to change their minds as they thought more about wind energy. The moderator of the focus groups was not and did not pretend to be an expert on wind energy , and he did not try to actively convince the participants of the value of wind energy. The process of changing attitudes — and it was a process, not an epiphany — seemed to consist of the participants asking questions, having some of the questions answered by the moderator, having other questions answered by other participants, and having still other questions remain unanswered. The result seemed to be a gradual process of the people convincing themselves of the importance of the Kansas Wind Energy Project. Put another way, what seems to be important to know about the “somewhat interested” people is not what they know about wind energy, but what energy and environmental issues interest them and how they think about those issues.

The focus groups changed our course of thought about who was most likely to support a green pricing program in two significant ways. First, we, as well as everyone else who viewed the focus groups, realized that the “somewhat interested” group were at least as likely to supply supporters for a green pricing program as the “very interested” group. This meant that we needed to direct the survey at both groups. Second, the best way to “sell” a green pricing program is probably first to raise interest in the concept of wind power. It may not be as important to provide a detailed program and plan as to raise questions that get the “somewhat interested” people to think about the issues. This suggested that the attitudes of the respondents would be at least as important as their demographics.

Requested Marketing Information

MarketAide made two basic requests for specific information from the survey. First they wanted to know respondents opinions on several issues. We refer to these as attitudinal questions. Second, they wanted some basic marketing information: what newspaper the respondent read, what television station they watched for news, etc. Both of these requests seemed more than reasonable, and in fact, John Claman of MarketAide wrote the first draft of the survey, and we only slightly altered the attitudinal and marketing questions that were part of that draft.

In their preliminary report, MarketAide also indicated they would like the survey to try to test their theory of the psychological difference between the “somewhat interested” and the “very interested.” After a brief discussion with John Claman, we all agreed that this was next to impossible to do effectively in a survey limited to about 10 minutes, given everything else that we were going to attempt to do in the survey instrument.

APPENDIX C THE SUMMARY OF RESPONSES TO ATTITUDINAL QUESTIONS

Below are 28 tables that summarize the responses to the attitudinal questions. Each question has two tables. The question is listed and then a table shows the responses to the question for two groups: those who did not say yes to both willingness-to-pay questions (476 persons) and those who did say yes to both questions (274 persons) at the \$10 and \$20 level. The next table separates the group that answered yes to both questions into those that said yes at the \$10 level and those that said yes at the \$20 level.

Below each table are the results from two tests of independence. If the counts for the two groups of respondents (those who passed two hurdles and those who did not) are similar enough, then the answers are independent of the group the respondent belonged to. The test of independence is a test of whether there is any statistically significant difference between the answers of the groups. The null hypothesis is that the groups are independent. Thus, if the asymptotic significance drops below 0.05, then the hypothesis of independence is rejected. If the groups are not independent, then the answers given by a respondent are dependent upon the group they belong to.

For example, the first question about fossil fuels. A look at the percentages for the cell counts shows a large difference between the two groups. Thus, intuition suggests that how a person answers this question is dependent to some extent upon the group they belong to. The level of significance is 0.000 giving a clear rejection of independence and confirming intuition.

1) Fossil fuels are limited and may soon be scarce.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	83	50	101	130	112	476
	Percent	17.4%	10.5%	21.2%	27.3%	23.5%	100.0%
Those who did pass two hurdles	Count	12	13	76	128	45	274
	Percent	4.4%	4.7%	27.7%	46.7%	16.4%	100.0%
Total	Count	95	63	177	258	157	750
	Percent	12.7%	8.4%	23.6%	34.4%	20.9%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	56.635	4	0.000
Likelihood Ratio	60.825	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	3	8	35	63	16	125
	Percent	2.4%	6.4%	28.0%	50.4%	12.8%	100.0%
Those who said "yes" to \$10 twice	Count	9	5	41	65	29	149
	Percent	6.0%	3.4%	27.5%	43.6%	19.5%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	5.896	4	0.207
Likelihood Ratio	6.048	4	0.196

2) The cost of electricity will undoubtedly rise in the foreseeable future.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	31	26	129	260	30	476
	Percent	6.5%	5.5%	27.1%	54.6%	6.3%	100.0%
Those who did pass two hurdles	Count	6	8	77	173	10	274
	Percent	2.2%	2.9%	28.1%	63.1%	3.6%	100.0%
Total	Count	37	34	206	433	40	750
	Percent	4.9%	4.5%	27.5%	57.7%	5.3%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	13.61	4	0.009
Likelihood Ratio	14.778	4	0.005

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	4	4	28	84	5	125
	Percent	3.2%	3.2%	22.4%	67.2%	4.0%	100.0%
Those who said "yes" to \$10 twice	Count	2	4	49	89	5	149
	Percent	1.3%	2.7%	32.9%	59.7%	3.4%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	4.471	4	0.346
Likelihood Ratio	4.520	4	0.340

3) I know how much my current bill is in terms of the kilowatt per hour cost

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	195	64	65	117	35	476
	Percent	41.0%	13.4%	13.7%	24.6%	7.4%	100.0%
Those who did pass two hurdles	Count	120	43	36	67	8	274
	Percent	43.8%	15.7%	13.1%	24.5%	2.9%	100.0%
Total	Count	315	107	101	184	43	750
	Percent	42.0%	14.3%	13.5%	24.5%	5.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	6.944	4	0.139
Likelihood Ratio	7.593	4	0.108

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	49	15	18	38	5	125
	Percent	39.2%	12.0%	14.4%	30.4%	4.0%	100.0%
Those who said "yes" to \$10 twice	Count	71	28	18	29	3	149
	Percent	47.7%	18.8%	12.1%	19.5%	2.0%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	7.629	4	0.106
Likelihood Ratio	7.662	4	0.105

4) I am looking forward to having a choice in which utility provides my electricity.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	59	45	125	198	49	476
	Percent	12.4%	9.5%	26.3%	41.6%	10.3%	100.0%
Those who did pass two hurdles	Count	14	14	80	151	15	274
	Percent	5.1%	5.1%	29.2%	55.1%	5.5%	100.0%
Total	Count	73	59	205	349	64	750
	Percent	9.7%	7.9%	27.3%	46.5%	8.5%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	25.761	4	0.00
Likelihood Ratio	27.221	4	0.00

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	4	6	29	80	6	125
	Percent	3.2%	4.8%	23.2%	64.0%	4.8%	100.0%
Those who said "yes" to \$10 twice	Count	10	8	51	71	9	149
	Percent	6.7%	5.4%	34.2%	47.7%	6.0%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	8.003	4	0.091
Likelihood Ratio	8.108	4	0.088

5) I am not confident that my local utility will develop new sources of economical and safe electrical power.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	94	90	96	115	81	476
	Percent	19.7%	18.9%	20.2%	24.2%	17.0%	100.0%
Those who did pass two hurdles	Count	34	49	68	88	35	274
	Percent	12.4%	17.9%	24.8%	32.1%	12.8%	100.0%
Total	Count	128	139	164	203	116	750
	Percent	17.1%	18.5%	21.9%	27.1%	15.5%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	13.398	4	0.009
Likelihood Ratio	13.608	4	0.009

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	14	21	29	44	17	125
	Percent	11.2%	16.8%	23.2%	35.2%	13.6%	100.0%
Those who said "yes" to \$10 twice	Count	20	28	39	44	18	149
	Percent	13.4%	18.8%	26.2%	29.5%	12.1%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	1.467	4	0.832
Likelihood Ratio	1.467	4	0.832

6) I would prefer that they leave our electrical service the way it is and not offer us choices about where we purchase electricity.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	165	72	75	118	46	476
	Percent	34.7%	15.1%	15.8%	24.8%	9.7%	100.0%
Those who did pass two hurdles	Count	143	54	33	31	13	274
	Percent	52.2%	19.7%	12.0%	11.3%	4.7%	100.0%
Total	Count	308	126	108	149	59	750
	Percent	41.1%	16.8%	14.4%	19.9%	7.9%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	38.09	4	0.000
Likelihood Ratio	39.578	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	70	23	15	14	3	125
	Percent	56.0%	18.4%	12.0%	11.2%	2.4%	100.0%
Those who said "yes" to \$10 twice	Count	73	31	18	17	10	149
	Percent	49.0%	20.8%	12.1%	11.4%	6.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	3.505	4	0.477
Likelihood Ratio	3.688	4	0.450

7) If given a choice, I would be most likely to purchase electricity from someone other than my current provider.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	144	106	83	59	84	476
	Percent	30.3%	22.3%	17.4%	12.4%	17.6%	100.0%
Those who did pass two hurdles	Count	61	50	60	40	63	274
	Percent	22.3%	18.2%	21.9%	14.6%	23.0%	100.0%
Total	Count	205	156	143	99	147	750
	Percent	27.3%	20.8%	19.1%	13.2%	19.6%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	10.402	4	0.034
Likelihood Ratio	10.459	4	0.033

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	26	17	30	24	28	125
	Percent	20.8%	13.6%	24.0%	19.2%	22.4%	100.0%
Those who said "yes" to \$10 twice	Count	35	33	30	16	35	149
	Percent	23.5%	22.1%	20.1%	10.7%	23.5%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	6.775	4	0.148
Likelihood Ratio	6.829	4	0.145

8) I believe that it makes sense for Kansas to develop wind turbine farms as a supplement to our current coal and nuclear electrical power plants.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	49	42	127	176	82	476
	Percent	10.3%	8.8%	26.7%	37.0%	17.2%	100.0%
Those who did pass two hurdles	Count	6	8	68	180	12	274
	Percent	2.2%	2.9%	24.8%	65.7%	4.4%	100.0%
Total	Count	55	50	195	356	94	750
	Percent	7.3%	6.7%	26.0%	47.5%	12.5%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	78.016	4	0.000
Likelihood Ratio	85.295	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	3	1	35	83	3	125
	Percent	2.4%	0.8%	28.0%	66.4%	2.4%	100.0%
Those who said "yes" to \$10 twice	Count	3	7	33	97	9	149
	Percent	2.0%	4.7%	22.1%	65.1%	6.0%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	6.596	4	0.159
Likelihood Ratio	7.245	4	0.123

9) Kansas Utilities should do more to develop and offer energy generated by wind turbine farms.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	41	34	148	177	76	476
	Percent	8.6%	7.1%	31.1%	37.2%	16.0%	100.0%
Those who did pass two hurdles	Count	6	7	80	169	12	274
	Percent	2.2%	2.6%	29.2%	61.7%	4.4%	100.0%
Total	Count	47	41	228	346	88	750
	Percent	6.3%	5.5%	30.4%	46.1%	11.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	60.865	4	0.000
Likelihood Ratio	66.203	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	0	1	36	83	5	125
	Percent	0.0%	0.8%	28.8%	66.4%	4.0%	100.0%
Those who said "yes" to \$10 twice	Count	6	6	44	86	7	149
	Percent	4.0%	4.0%	29.5%	57.7%	4.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	8.723	4	0.068
Likelihood Ratio	11.365	4	0.023

10) I would like to purchase electricity from non-polluting source such as a wind turbine farm even if it costs slightly more.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	145	97	111	59	64	476
	Percent	30.5%	20.4%	23.3%	12.4%	13.4%	100.0%
Those who did pass two hurdles	Count	19	17	106	118	14	274
	Percent	6.9%	6.2%	38.7%	43.1%	5.1%	100.0%
Total	Count	164	114	217	177	78	750
	Percent	21.9%	15.2%	28.9%	23.6%	10.4%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	162.134	4	0.000
Likelihood Ratio	171.540	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	4	3	43	71	4	125
	Percent	3.2%	2.4%	34.4%	56.8%	3.2%	100.0%
Those who said "yes" to \$10 twice	Count	15	14	63	47	10	149
	Percent	10.1%	9.4%	42.3%	31.5%	6.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	22.785	4	0.000
Likelihood Ratio	23.769	4	0.000

11) I would like to purchase electricity from a non-nuclear source even if it costs slightly more.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEF for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	148	95	110	73	50	476
	Percent	31.1%	20.0%	23.1%	15.3%	10.5%	100.0%
Those who did pass two hurdles	Count	26	30	90	114	14	274
	Percent	9.5%	10.9%	32.8%	41.6%	5.1%	100.0%
Total	Count	174	125	200	187	64	750
	Percent	23.2%	16.7%	26.7%	24.9%	8.5%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	103.696	4	0.000
Likelihood Ratio	107.441	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	8	8	38	65	6	125
	Percent	6.4%	6.4%	30.4%	52.0%	4.8%	100.0%
Those who said "yes" to \$10 twice	Count	18	22	52	49	8	149
	Percent	12.1%	14.8%	34.9%	32.9%	5.4%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	13.087	4	0.011
Likelihood Ratio	13.363	4	0.010

12) Other things, such as the reliability of service, being equal, I would switch my electrical service to a lower priced supplier if there were competition.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEF for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	40	37	113	254	32	476
	Percent	8.4%	7.8%	23.7%	53.4%	6.7%	100.0%
Those who did pass two hurdles	Count	9	14	73	165	13	274
	Percent	3.3%	5.1%	26.6%	60.2%	4.7%	100.0%
Total	Count	49	51	186	419	45	750
	Percent	6.5%	6.8%	24.8%	55.9%	6.0%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	11.977	4	0.018
Likelihood Ratio	12.862	4	0.012

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	3	5	39	73	5	125
	Percent	2.4%	4.0%	31.2%	58.4%	4.0%	100.0%
Those who said "yes" to \$10 twice	Count	6	9	34	92	8	149
	Percent	4.0%	6.0%	22.8%	61.7%	5.4%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	3.289	4	0.511
Likelihood Ratio	3.308	4	0.508

13) If utility competition were allowed, I would switch my service to a company that offered non-nuclear energy, even if it costs a little more.

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	152	93	108	71	52	476
	Percent	31.9%	19.5%	22.7%	14.9%	10.9%	100.0%
Those who did pass two hurdles	Count	26	38	89	99	22	274
	Percent	9.5%	13.9%	32.5%	36.1%	8.0%	100.0%
Total	Count	178	131	197	170	74	750
	Percent	23.7%	17.5%	26.3%	22.7%	9.9%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	82.466	4	0.000
Likelihood Ratio	86.454	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	9	16	39	56	5	125
	Percent	7.2%	12.8%	31.2%	44.8%	4.0%	100.0%
Those who said "yes" to \$10 twice	Count	17	22	50	43	17	149
	Percent	11.4%	14.8%	33.6%	28.9%	11.4%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	11.003	4	0.027
Likelihood Ratio	11.340	4	0.023

14) If utility competition were allowed, I would switch my service to a company that offered non-polluting energy, even if it costs a little more

The survey sample is split into two parts: Those who said "yes" twice to supporting the KWEP for \$10 or \$20 and those who did not.		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who did not pass two hurdles	Count	118	80	140	101	37	476
	Percent	24.8%	16.8%	29.4%	21.2%	7.8%	100.0%
Those who did pass two hurdles	Count	10	17	99	135	13	274
	Percent	3.6%	6.2%	36.1%	49.3%	4.7%	100.0%
Total	Count	128	97	239	236	50	750
	Percent	17.1%	12.9%	31.9%	31.5%	6.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	108.996	4	0.000
Likelihood Ratio	120.599	4	0.000

The total population is those who said "yes" twice to either \$10 or \$20 support		Completely Disagree	Mostly Disagree	Mostly Agree	Completely Agree	Don't Know/No Answer/Refused	Total
Those who said "yes" to \$20 twice	Count	2	7	35	81	0	125
	Percent	1.6%	5.6%	28.0%	64.8%	0.0%	100.0%
Those who said "yes" to \$10 twice	Count	8	10	64	54	13	149
	Percent	5.4%	6.7%	43.0%	36.2%	8.7%	100.0%

	Value	Degrees of Freedom	Asymptotic Significance
Pearson Chi-Square	29.146	4	0.000
Likelihood Ratio	34.361	4	0.000

APPENDIX D
INTEREST IN FINANCIAL SUPPORT AND OPINIONS
ABOUT STRUCTURE OF THE KWEP

This appendix discusses in some detail the section of the survey instrument where the respondents are asked about their willingness-to-pay for the KWEP. In the same section the respondents are asked some questions about their attitude concerning some issues relevant to the KWEP. This appendix will not discuss these questions.

The section begins with the surveyor saying that currently the cost of producing electricity using wind power is higher than the cost of electricity using conventional methods; however, wind turbines are more environmentally friendly and use few resources. The respondents are then asked to suppose that a wind site were located near their area of Kansas and could supply electricity to their community. They are asked if they would be interested in purchasing wind-generated electricity at somewhat higher rates than they currently pay. They are given four choices: very interested, somewhat not interested, somewhat not interested, and definitely not interested. If the respondents answer they are somewhat not interested or definitely not interested, then they are asked why they are not interested and moved out of this section to the demographic questions. Next are two questions about the institutional setup of the program, two questions about the aesthetics of wind energy, and a question about what the name of the program should be.

Next the willingness-to-pay questions begin. We used a double bound approach. First we asked: "Suppose that the cost to purchase electricity from a Kansas Wind Energy Program was \$10 more per month than your present electrical bill. Hypothetically, would you be willing to sign up today to support this program?" If they said yes to this question, we then asked them if they would pay \$20 more per month. If they said no to \$10, we then asked them if they would be willing to pay \$5 per month. This technique exposes more of the demand curve of the respondents without either getting into a bargaining mode which distorts answers or having to separate the sample into three different groups and asking each a different amount. Depending on whether the respondent answers yes to any amount or not, they were asked why they will (or will not) support the KWEP.

After establishing the respondents initial willingness-to-pay, we wanted to give them an opportunity to think about that decision before we asked them the same basic question again. To encourage their evaluation of their own position, we first reminded them that \$10 (or \$5 or \$20) was \$120 per year (or \$60 or \$220 per year) and that they would have to either spend or save less to pay for their support. Then we asked them what did they think they would give up to enroll in the program? Then we reminded the respondents that there are other ways of accomplishing nearly the same ends as supporting wind energy, such as increasing the energy efficiency of their own house or installing solar panels on their house. If the respondents have these choices, would they prefer to spend their money on the KWEP or on one of the alternatives?

After this reminder, we asked them if they were still as certain of their support for the KWEP at whatever level of support they had settled on before. They could answer just as certain as before, less certain than before, but would still enroll, now uncertain about enrolling, pretty sure they would not enroll, and don't know. We only considered

an answer of just as certain as before of their support for the KWEP as a “yes” answer. We considered all of the other answers to be “no”.

Before the survey was run, we agreed to divide the respondents into three groups based on their responses to this section of the survey instrument. First, we would separate the respondents by level of interest into three groups, those “very interested”, those “somewhat interested”, and those “not interested”. Second, we would divide the “very” and “somewhat interested” group between those who answered yes to both willingness-to-pay questions and those who answered no to one of them. Finally, we identified as likely supporters of the program those who said yes to both willingness-to-pay questions, knew what they were going to give up to support the program, and said that the KWEP was their first choice among the possible alternative expenditures on energy.

APPENDIX E
ADDITIONAL DEMOGRAPHIC INFORMATION FROM THE SURVEY

Table E1 shows the gender and marital status of the respondents. We could not determine what should be the relative sample proportions of these groups because only households who paid their own utility bills² were sampled and only the member of the household who actually paid the utility bills was sampled. Other surveys have show that nationwide, wives pay the household bills between 60% and 65% of the time. All of these counties have more women than men. (The average over the four counties is about 52% women.)

TABLE E1
GENDER AND MARITAL STATUS OF RESPONDENTS

Marital Status	Gender				Total
	Men		Women		
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	
Married	201	42.3	274	57.7	475
Single/Divorced/Widowed	97	40.4	143	59.6	240
No Answer/Refused	6	25.0	18	75.0	24
Total	304	41.1	435	58.9	739

Table E2 shows the number of households that have children under the age of 18 living at home

TABLE E2
CHILDREN UNDER THE AGE OF 18 LIVING AT HOME

Question: Does the Respondent Have Children Over the Age of 18 Living at Home?		
Answer	<i>Number</i>	<i>Percent</i>
Children at Home	273	36.4
No Children at Home	444	59.2
Refused	33	4.4
Total	750	100.0

Table E3 presents the survey respondents by age category and a comparison with the age structure of the four-county-area from the 1990 census. The data from the 1990 census is not closely comparable with the survey data for two reasons. First, eight years have elapsed since the census was taken and the population has on average aged since then. Second, since we asked for the adult who pays the electric bills, many older children who live at home would not be asked to respond. However, it is clear that

²For example, if electricity was paid for by a landlord, the household was not surveyed

we over sampled the 65 and older age category. Since this group was less likely to respond positively to the KWEP, this bias in the sample probably pushed our willingness-to pay results down.

**TABLE E3
RESPONDENTS BY AGE CATEGORY**

Age Category	Survey Sample		1990 Census	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
18-25	60	8.3	37,618	9.9
26-35	121	16.7	97,234	25.5
36-45	153	21.2	81,699	21.4
46-55	121	16.7	51,394	13.5
56-64	70	9.7	46,079	12.1
65 & Older	198	27.4	67,820	17.8
TOTAL	723	100.0	381,844	100.0
NOTE: 27 respondents refused to answer this question				

Tables E4 and E5 are the last two tables that have strictly demographic data. Table E4 has the education level of respondents and Table E5 has total household income of the respondents. In both cases there is little data that can be used for comparison, and the fact that at least 5% of the sample refused to answer would call into question any such comparison.

**TABLE E4
LEVEL OF EDUCATION OF RESPONDENTS**

Respondent's Level of Education	Number of Respondents	Percent of Total
High School or less	245	32.7
Some College	240	32.0
College Graduate	160	21.3
Post Graduate	67	8.9
Refused	38	5.1

**TABLE E5
TOTAL HOUSEHOLD INCOME OF RESPONDENTS**

Respondent's Total Household Income	Number of Respondents	Percent of Total
Less than \$15,000	52	6.9
\$15,000 to less than \$25,000	103	13.7
\$25,000 to less than \$35,000	85	11.3
\$35,000 to less than \$50,000	123	16.4
Over \$50,000	207	27.6
Refused	180	24.0

**APPENDIX F
MISCELLANIOUS QUESTIONS ABOUT PREFERENCES**

Organizational Structure and Name

The first two questions we will discuss are how should the KWEP be organized and what should its name be. The responses are summarized in Table F1. The most popular organizational structure is the cooperative of Kansas Electrical Utilities including the present supplier of electrical service to the respondent. As noted in the Table 6 in the report, many of the other responses were “not sure.” In the case of potential supporters, 27 of the 34 other answers were “not sure.” If the “not sure” answers are ignored, then the percentage wanting a cooperative increases to 56.7%. In the case of the likely supporters, 4 of the 5 other answers were “not sure,” and again if they are ignored, the percentage wanting a cooperative increases to 64.2%.

The most popular name is the Kansas Wind Energy Project.

**TABLE F1
ORGANIZATIONAL STRUCTURE AND NAME**

Which of the following organizations would you be most comfortable with as the supplier of energy that you could purchase from a Kansas wind farm?	Potential Supporters of the KWEP		Likely Supporters of the KWEP	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Cooperative Organization of Kansas Electrical Utilities Including Your Present Utility	140	51.1	36	60.0
A reputable competitor to your present electrical company	58	21.2	6	10.0
Your present electrical company	42	15.3	13	21.7
Other	34	12.4	5	8.3
TOTAL	274	100.0	60	100.0
In the event that a Wind energy program was begun in your area, which of the following names would you prefer for the project?	Potential Supporters of the KWEP		Likely Supporters of the KWEP	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Kansas Wind Energy Project	120	43.8	28	46.7
Flint Hills Wind Energy Project	45	16.4	13	21.7
No opinion	109	39.8	19	31.7
TOTAL	274	100.0	60	100.0

The Aesthetics of Wind Farms

We asked three questions about the aesthetics of wind power. First we asked if the respondent had ever seen a wind farm. If they had, then we asked what they

thought of the sight. Finally, we asked these people where they thought the demonstration project should be located, near a highway in plain sight or hidden away from most peoples' view. More than 70% of the respondents (201 respondents) have seen a wind farm, and of these 201 respondents more than 70% of them thought that the wind farm was an impressive sight. About the same percentage wanted the demonstration project located near the highway where people could see it.

**TABLE F2
AESTHETICAL ASPECTS OF WIND POWER**

Have you ever seen a wind turbine farm such as they have in California, either in person, on television, in a newspaper or in a magazine?	Potential Supporters of the KWEP		Likely Supporters of the KWEP	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Yes	201	73.4	41	68.3
No	67	24.5	17	28.3
Not Sure	6	2.2	2	3.3
Total	274	100.0	60	100.0
Which of the following best describes your impressions of such a wind turbine farm?	Potential Supporters of the KWEP		Likely Supporters of the KWEP	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
An impressive display of technology	146	72.6	33	80.5
An ordinary man-made construction	40	19.9	6	14.6
A blight on the visual landscape	15	7.5	2	4.9
Total	201	100.0	41	100.0
Assuming that such a wind farm would be sited in a manner that was sensitive to the environment, (for example outside the known flight patterns of migratory birds), would you prefer it to be	Potential Supporters of the KWEP		Likely Supporters of the KWEP	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Visible: Located near a highway	137	68.2	33	80.5
Where it cannot easily be seen	64	31.8	8	19.5
Total	201	100.0	41	100.0

Two Additional Benefits

Finally, we asked the respondents about two potential additions to the green pricing program: a rate cap and the program as an investment. First we asked if guaranteeing that ones kilowatt per hour rates would remain frozen for a period of time would increase interest in participating in the program. Second we asked if including a feature that paid one a dividend if the project became a money maker at some future time would increase interest in participating. Table F3 has the responses to these potential benefits for two groups: those who answered the two willingness-to-pay questions yes and those designated likely supporters of the KWEP. Then these two

groups are each subdivided between those who offered \$10 per month and those who offered \$20 per month.

**TABLE F3
TWO POTENTIAL ADDED BENEFITS OF THE GREEN PRICING PROGRAM**

Suppose supporting a Kansas Wind Energy Program cost the amount you agreed to pay on your monthly utility bill, but included a rate guarantee that your kilowatt per hour rates would remain frozen for a period of time. Would this increase your interest in participating in the program?	Potential Supporters of the KWEP				Likely Supporters of the KWEP			
	<i>Agreed to Support the KWEP at \$10 per month</i>		<i>Agreed to Support the KWEP at \$20 per month</i>		<i>Agreed to Support the KWEP at \$10 per month</i>		<i>Agreed to Support the KWEP at \$20 per month</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Yes	132	88.6	105	84.0	30	93.8	26	92.9
Maybe	9	6.0	8	6.4	2	6.3	2	7.1
No	5	3.4	9	7.2	0	0.0	0	0.0
Refused/No Answer	3	2.0	3	2.4	0	0.0	0	0.0
TOTAL	149	100.0	125	100.0	32	100.0	28	100.0
Suppose supporting a Kansas Wind Energy Program cost the amount you agreed to pay on your monthly utility bill, but included a feature that paid you a dividend if the project became a money maker at some time in the future. Would this increase your interest in participating in the program?	Potential Supporters of the KWEP				Likely Supporters of the KWEP			
	<i>Agreed to Support the KWEP at \$10 per month</i>		<i>Agreed to Support the KWEP at \$20 per month</i>		<i>Agreed to Support the KWEP at \$10 per month</i>		<i>Agreed to Support the KWEP at \$20 per month</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Yes	130	87.2	113	90.4	28	87.5	27	96.4
Maybe	6	4.0	5	4.0	3	9.4	0	0.0
No	11	7.4	6	4.8	1	3.1	1	3.6
Refused/No Answer	2	1.3	1	0.8	0	0.0	0	0.0
TOTAL	149	100.0	125	100.0	32	100.0	28	100.0

APPENDIX G LOGISTIC REGRESSION ANALYSIS

Brief Description of Logistic Regression

Ordinary linear regression analysis attempts to estimate the linear relationship between one or more variables and the mean of another variable. Symbolically this can be expressed as the equation below where Y is the dependent variable and X is either a single or vector of independent variables.

$$E(Y) = \alpha + \beta X$$

The parameters to be estimated are α and β . In normal regression analysis the variable Y is assumed to be continuous such as the money supply, personal income or the price of crude oil.

The problem with our survey data is that the variables we want to use as dependent variables are not continuous, instead they are binary. For example from our survey Y be the respondent's choice of supporting the KWEP at \$10 per month or not. Then Y=0 if the respondent says no to supporting the KWEP at \$10 and Y=1 if the respondent says yes to supporting the KWEP at \$10 a month. We would still like to use the basic regression model list above. The model would then estimate the effect that X has on the probability that Y=1.

$$\pi = \alpha + \beta X$$

Where π is the probability that Y=1.

Unfortunately, the probability might be greater than 1 or less than 0. To avoid this result, the left-hand side variable, π , can be transformed so that it can only have a value between 0 and 1. Different transformations are available, but one of the simplest and more effective transformations is the logistic transformation.

$$\text{logit}(\pi) = \log\left(\frac{\pi}{1-\pi}\right)$$

$$\text{logit}(\pi) = \alpha + \beta X$$

The logit function ensures that the left-hand side must be between 0 and 1.

The transformation solves the problem of containing the left-hand side to reasonable values, but it does make interpreting the parameters α and β a little more difficult. The model can be solved directly in terms of π .

$$\pi = \frac{e^{\alpha + \beta X}}{1 + e^{\alpha + \beta X}}$$

Then the estimated values of α and β can be plugged into the above equation to estimate the predicted value of π for any value of X. A second way of interpreting the results is to view the coefficient β as the effect on the log odds. The estimate of β , say b , is then the estimated change in the log odds of Y=1 given a one unit increase in b . If X is vector, then β is a vector with b being a vector of estimates of β . In this case, the estimate of β_j , b_j represents the estimated change in the log odds of y=1 given a one unit change in b_j with all of the other parameters held constant.

Results of the Logistic Regression Analysis

We investigated the effect of attitudinal variables and demographic variables on three groups: potential financial supporters, potential financial supporters at \$10, and potential financial supporters at \$20. The combination of the last two groups is the first group. Seven variables were found to be significant in explaining these decisions with none relevant in all cases. Two of the variables are demographic variables and five are attitudinal variables. Listed below are the variable names used in the analysis and what they represent. In the case of the attitudinal variables, we have simply listed the statement that the respondents were asked to (1) completely disagree, (2) mostly disagree, (3) mostly agree, or (4) completely agree. If the respondents had no answer for whatever reason, then their responses to this question is treated as a missing observation.

Variables:

Q37D: Whether the respondent has any children living at home: Yes=1, No=2.

Q41D: Income category of respondent:

1	less than \$15,000
2	\$15,000 to less than \$25,000
3	\$25,000 to less than \$35,000
4	\$35,000 to less than \$50,000
5	over \$50,000

Q6_1D: Fossil fuels are limited and may soon be scarce.

Q6_8D: I believe that it makes sense for Kansas to develop wind turbine farms as a supplement to our current coal and nuclear electrical power plants.

Q6_9D: Kansas Utilities should do more to develop and offer energy generated by wind turbine farms.

Q6_10D: I would like to purchase electricity from non-polluting source such as a wind turbine farm even if it costs slightly more.

Q6_14D: If utility competition were allowed, I would switch my service to a company that offered non-polluting energy, even if it costs a little more

Qualitative Analysis

For all potential financial supporters (those that said yes twice at either \$10 or \$20 per month) the significant variables were: Q37D, Q41D, Q6_1D, Q6_8D, Q6_10D, and Q6_14D. The next two pages have the results of the logistic regression analysis with some test statistics. The coefficient on Q37D indicates that if the respondent did not have children at home, the odds of saying yes declined. In the case of Q41D, as income increased, the odds of saying yes increased. With all the attitudinal variables, as the respondent moved from disagreeing to agreeing, their odds of saying yes increased.

For the potential financial supporters at \$10 the significant variables were: Q41D, Q6_1D, Q6_8D. The qualitative results are the same for these variables as they were for the case of all potential supporters.

For the potential financial supporters at \$20 the significant variables were: Q6_9D, Q6_10D, and Q6_14D. The qualitative results for Q6_10D and Q6_14D are the

same as they were for the case of all potential supporters. The new variable is Q6_9D, and it behaves just as the other attitudinal variables: the more the respondent agrees, the better the odds they will say yes.

As mentioned in the text, the way that the significant variables split between the \$10 supporters and the \$20 supporters is surprising clean. The exceptions were Q37D (it did not find its way into either of the subgroups) and Q6_9 (it was not significant for the large group.)

Quantitative Results

The statistical results from the logistic regressions are presented below. Several caveats are in order. Because non-answers to questions were treated as missing observations, the sample size varies with the particular regression equation used. The appropriate estimation technique is maximum likelihood rather than ordinary least squares. As a result, the usual F-test is replaced with a chi-square test based on -2 log-likelihood. (-2 log-likelihood is asymptotically distributed chi-square.) The usual t-test for the estimates of the individual parameters is replaced by a Wald chi-square test. Also included are the parameter estimates, the standardized parameter estimates, and the odds ratio.

Finally, since minimizing least squares is not the criteria for estimation, the usual R-square statistic is not as natural a measure of goodness-of-fit. Instead, a pseudo R-square is usually used. Many pseudo R-square statistics exist, but since the method of estimation is maximum likelihood, we chose the pseudo R-square which is one minus the ratio of the log-likelihood of the intercept and the covariates over log-likelihood of just the intercept. For those interested in the usual R-square, we have also included it.

**LOGISTIC REGRESSION ANALYSIS
FOR ALL POTENTIAL FINANCIAL SUPPORTERS**

Response Profile: Potential Financial Supporters: Yes=186 No=209

355 observations were deleted due to missing values for the response or explanatory variables.

**Model Fitting Information and Testing
Global Null Hypothesis: BETA=0**

-2 Log-Likelihood:	Intercept Only	546.246
	Intercept and Covariates	402.889
	Chi-Square for Covariates Only	143.358 with 6 DF (p=0.0001)
	Pseudo R-Square	0.262442
	R-Square	0.324657

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Probability >Chi-Square	Standardized Estimate	Odds Ratio
Intercept	-6.0853	0.9581	40.3387	0.0001		
Q37D	-0.4882	0.2478	3.8821	0.0488	-0.133622	0.614
Q41D	0.2326	0.0953	5.9614	0.0146	0.169524	1.262
Q6_1D	0.4126	0.1397	8.7206	0.0031	0.236082	1.511
Q6_8D	0.3766	0.1583	5.6597	0.0174	0.192417	1.457
Q6_10D	0.6203	0.1403	19.5474	0.0001	0.376673	1.860
Q6_14D	0.515	0.1452	12.5715	0.0004	0.304351	1.674

LOGISTIC REGRESSION ANALYSIS FOR POTENTIAL FINANCIAL SUPPORTERS AT \$10

Response Profile: Potential Financial Supporters at \$10: Yes=98 No=331

321 observations were deleted due to missing values for the response or explanatory variables.

Model Fitting Information and Testing Global Null Hypothesis: BETA=0

-2 Log-Likelihood: Intercept Only 461.074
Intercept and Covariates 437.019

Chi-Square for Covariates Only 24.056 with 3 DF (p=0.0001)

Pseudo R-Square 0.052172 R-Square 0.052510

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Probability >Chi-Square	Standardized Estimate	Odds Ratio
Intercept	-4.6260	0.8054	32.9918	0.0001		
Q41D	0.1863	0.0922	4.0880	0.0432	0.136794	1.205
Q6_1D	0.3770	0.1323	8.1143	0.0044	0.220275	1.458
Q6_8D	0.4300	0.1630	6.9568	0.0084	0.216770	1.537

