



*RENEWABLE
ENERGY
PROGRAM*

**CALIFORNIA
ENERGY
COMMISSION**

RENEWABLE ENERGY STUDY

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I. INTRODUCTION

A. Study Objectives

The broad purposes of this research are to determine awareness of and attitudes toward renewable energy sources among two market segments:

- Homeowners
- Businesses

To meet these objectives the following information was obtained:

- Familiarity with four types of renewable energy sources:
 - solar cells
 - small wind turbines
 - fuel cells
 - solar thermal electric
- Use of renewable energy systems and awareness of other homeowners/businesses with renewable energy systems
- Interest in installing a renewable energy system and reasons
- Anticipated costs and payback period for a renewable energy system
- Benefits and barriers to installing a renewable energy system
- Importance of:
 - various factors in the decision-making process for purchase of a renewable energy system
 - several system installation and ownership features
- Sources of information about a renewable energy system
- Characteristics of those with interest and those with less interest in a renewable energy system

The specific questions are shown in the questionnaires in the Appendix.

B. Study Design

The research was conducted as follows:

1. Interviewing took place from October 17 to October 29, 2001.
2. A total of 303 respondents was interviewed:
 - 252 were homeowners. They were qualified on owning a single-family dwelling with a value of \$200,000 or more in the Los Angeles, San Diego or San Jose metro areas. Those in Fresno were qualified on owning a home with a value of \$125,000 or more.
 - 51 were businesses. These interviews consisted of:
 - 45 from businesses with 5 to 50 employees who own their own building.
 - 6 with commercial building owners or managers with a minimum of 5,000 square feet under their management.

These interviews took place in the Los Angeles and San Jose metro areas. The respondents were the persons in the companies most responsible for deciding on the sources of energy used in the buildings.

Quotas were set so that half of the homeowner interviews were with males and half with females. No gender quota was used for the business sample; it consisted of approximately 70% males and 30% females.

3. The interviews were distributed among the metro areas as follows:

	Number of Interviews	
	<u>Homeowners</u>	<u>Businesses</u>
Fresno	88	0
Los Angeles	89	26
San Diego	38	0
San Jose	<u>37</u>	<u>25</u>
	252	51

4. All of the interviews were conducted by telephone.

The sample of homeowners came from two sources. First, a random sample of households in the metro areas was used. However, to meet the timeline and obtain qualified respondents, it was necessary to change to a list of homeowners in each of the markets.

The business samples were drawn from lists of businesses with 5 to 50 employees which own their own building and from a list of building owners/managers from SIC code number 6512 (operators of non-residential buildings).

5. To aid in obtaining a representative sample, all interviews with homeowners took place after 4:00 p.m. on weekdays or at any time on the weekend. Surveys with businesses were conducted during usual business hours on weekdays.
6. An incentive of \$20 was used for the business interviews. No incentive was used for the homeowners.

C. Appendix

The Appendix contains copies of the questionnaires. There are three questionnaires, one for each of these types of respondents:

- Homeowners
- Businesses that own their own building
- Commercial building owners and managers

The computer tables are under separate cover. They are referred to by table number under each table in the analysis.

D. Statistical Tests

The 90% confidence level was used for all statistical tests.

II. STUDY HIGHLIGHTS

This chapter contains the key findings and conclusions. Detailed findings and the bases for conclusions are contained in Chapter III.

A. Key Findings

► ***Familiarity with Renewable Energy Sources.*** Both homeowners and businesses reported having some familiarity with renewable energy sources. A guideline used by MMR is that 70% awareness is an acceptable level. Relative to this guideline, familiarity with these three of the four renewable energy sources measured was fairly high among both homeowners and business decision-makers:

- *small wind turbines*
- *solar cells*
- *solar thermal electric*

Both segments, however, were not familiar with fuel cells.

FAMILIARITY WITH RENEWABLE ENERGY SOURCES

	% Familiar with Renewable Energy Source	
	Homeowners N=252	Businesses N=51
	%	%
Solar - Net	89	86
Solar cells	73	71
Solar thermal electric	65	75
Small wind turbines	75	86 ↑
Fuel cells	48	33 ↓
<i>Mean number of 4 familiar with</i>	<i>2.6</i>	<i>2.7</i>

↑/↓ = Statistically higher/lower than Homeowners

- ▶ **Current Ownership of a Renewable Energy System.** Five percent of the homeowners and 4% of the business decision-makers said that they currently have a renewable energy system in their homes or business/commercial properties. Homeowners had solar cells or solar thermal electric. Businesses had solar cells or small wind turbines.

USE OF RENEWABLE ENERGY SYSTEMS

	Homeowners N=252	Businesses N=51
	%	%
Have renewable energy system	5	4
Solar cells	3	2
Solar thermal electric	2	0
Small wind turbines	0	2
Fuel cells	0	0

- ▶ **Awareness of Other Property with a Renewable Energy System.** Over one-fourth, 28%, of the homeowners said that they were aware of some other household which has a renewable energy system. This percent was much lower for business decision-makers (10%).
- ▶ **Interest in Installing a Renewable Energy System.** Respondents who did not currently have a renewable energy system were asked their likelihood of installing a solar, wind, or fuel cell renewable energy system in their home or business/commercial property in the future.

Interest in a renewable energy system was well below the MMR 35% guideline for an acceptable level of interest or potential in a high-ticket item:

- Only 15% of the homeowners and 8% of the business decision-makers said that they “definitely” or “probably” would install a solar, wind, or fuel cell renewable energy system in the future. Almost all of these people said that they “probably would install” rather than “definitely would install” such a system.
- Over half were not interested (“probably” or “definitely” would not install a renewable energy system).

Thus, at this time, interest in renewable energy systems is quite low among both homeowners and business/commercial property decision-makers. The MMR 35% norm, however, is based on providing respondents with a “concept description” of a product or service. In this case, respondents were not told the benefits of a renewable energy system or given any information about it, other than what they already knew. Presumably, interest would be higher if a description presented a renewable energy system in favorable terms, explaining its benefits. Nevertheless, the data do provide an understanding of the current mindset of homeowners and businesses, -- they are not really interested in such a system at this point in time.

LIKELIHOOD OF INSTALLING A RENEWABLE ENERGY SYSTEM*

	Homeowners	Businesses
	%	%
Def. + prob. would install	15	8
Definitely would install	1	0 ↓
Probably would install	14	8
Might or might not install	23	39 ↑
Def. + prob. would not install	62	53
Probably would not install	31	31
Definitely would not install	31	22
	100	100

* Among those who do not currently have a renewable energy system
 ↑/↓ = Statistically higher/lower than Homeowners
 Note: Due to rounding, figures may not always add exactly to 100%.

► **Interest in a Renewable Energy System by Market and Homeowner Characteristics.** *Interest in a renewable energy system differed considerably by market among homeowners, although it did not reach the MMR 35% guideline in any area. Among homeowners, interest was much higher in San Jose (31% “definitely” + “probably” would install system) and San Diego (26%) than in Fresno (10%) and Los Angeles (10%).*

Among businesses, interest was the same in both markets used for this sample, Los Angeles (8%) and San Jose (9%).

**TOP-TWO-BOX INTEREST IN A SOLAR, WIND OR FUEL CELL
RENEWABLE ENERGY SYSTEM AT YOUR HOME/BUSINESS
PROPERTY/COMMERCIAL PROPERTY IN THE FUTURE**

Those Who Do Not Currently Have Renewable Energy System Installed					
Market					
	<u>Total</u>	<u>Fresno</u>	<u>Los Angeles</u>	<u>San Diego</u>	<u>San Jose</u>
	%	%	%	%	%
Homeowners	(N=239)	(N=80)	(N=88)	(N=35)	(N=36)
Definitely + probably would install system	15	10 -	10 -	26 +	31 +
Businesses	(N=49)	NA	(N=26)	NA	(N=23)
Definitely + probably would install system	8		8		9

+/- = Statistically higher/lower than other market
NA = Not asked

Interest in installing a renewable energy system was higher among homeowners with these characteristics:

- ***under 45 years of age (28% “definitely” + “probably” would install)***
- ***3 or more people in household (23% interest)***
- ***home value of \$300,000 or more (24% interest)***

Interest was not closely related to homeowner gender, education, income, or size of electric bill. It was directionally, but not significantly, higher among those who knew someone who had a renewable energy system in their home.

- ▶ ***Size of Renewable Energy System Preferred. If they were to buy a renewable energy system, both homeowners and businesses would prefer a large or very large system, one which would provide 50% or more of their electricity needs.***

► **Benefits of a Renewable Energy System.** *There appear to be two key benefits to a renewable energy system:*

- *One is altruistic: conserving natural resources, helping the environment, reducing pollution, etc.*
- *The other is practical: saving money on utility bills.*

The perceived benefits of renewable energy sources were quite similar among homeowners and businesses.

Homeowners did feel that a renewable energy system would add value to a home. They would be more interested in a home that had a renewable energy system already installed and about half would be willing to pay more for a home with a renewable energy system.

► **Barriers to Installing a Renewable Energy System.** *The primary reason given for not being interested in a renewable energy system was cost concerns. The issue of cost is important from the standpoint of initial purchase as well as payback or savings on the utility bills.*

Seven specific factors were read to respondents who were asked to indicate whether or not each was a significant barrier to installing a renewable energy system in their homes or business/commercial properties. While all of them were important, the two which were among the most important to homeowners and businesses were:

- *the initial cost of the system*
- *concerns with performance or product reliability*

In essence, both homeowners and business decision-makers need to be convinced that a renewable energy system will work and that it will be cost effective.

Biggest Barriers to Installing Renewable Energy Systems	
Homeowners	Businesses
Initial cost of the system (89%) Concerns with performance or product reliability (81%)	Concerns with performance or product reliability (92%) Availability of financing at reasonable rates (88%) Initial cost of the system (84%) Understanding of the technology costs and benefits (82%) Availability of products and trained installers (80%)

► **Anticipated Cost and Payback for a Renewable Energy System.** Homeowners estimated that the average renewable energy system would cost \$7,125, averaging the expected costs of four types of renewable energy systems (fuel cells, solar thermal electric, solar cells, and small wind turbines).

Business decision-makers, as would be expected, felt that it would cost more for business/commercial property, a mean cost of \$11,550.

Although the estimated cost is lower for a home than for business/commercial property, homeowners anticipated a longer time for the energy savings to pay back the initial cost of the equipment than did business decision-makers:

- a mean of 8.1 years by homeowners
- a mean of 6.7 years by business decision-makers.

	Homeowners	Businesses
Mean estimated cost of a renewable energy system*	\$7,125	\$11,550 ↑
Mean number of years for payback	8.1 years	6.7 years

* Averaging estimates for each of these four systems: fuel cells, solar thermal electric, solar cells, and small wind turbines.
 ↑/↓ = Statistically higher/lower than Homeowners

► **Importance of Factors in Decision-Making Process for Purchase of a Renewable Energy System.** Among seven considerations in the decision-making process when purchasing a renewable energy system, “cost of installation and maintenance of the system” was among the most important to both homeowners and business decision-makers.

Most Important Considerations in Decision-Making Process for Purchase of a Renewable Energy System*	
Homeowners	Businesses
Cost of installation and maintenance of the system (73%)	Cost of installation and maintenance of the system (86%)
Conserving environmental Resources (70%)	Availability of sales and maintenance support (86%)
	Payback period (84%)

* Based on top-two-box ratings

► ***Importance of Various System Installation and Ownership Features.*** Most of the 14 system installation and ownership features measured were considered to be important by both homeowners and businesses. The primary exception was the “option to install equipment yourself,” which was not important to either segment. Also, business decision-makers did not feel that the “visual attractiveness of the system” was important.

“Reliability of the system,” “how long the system would last,” “the safety of the system,” and the “expense of maintaining the system” were among the most important features to both homeowners and business decision-makers.

Most Important Installation and Ownership Features*	
Homeowners	Businesses
Reliability of equipment (88%)	How long the system would last (96%)
How long the system would last (86%)	Reliability of the equipment (94%)
Safety of the system (85%)	Expense of maintaining the system (94%)
Expense of maintaining the system (81%)	Initial cost of the system (92%)
	Safety of the system (92%)
	Payback period (90%)

* Based on top-two-box ratings

► ***Sources of Information about a Renewable Energy System.*** The Internet is a very important source of information about renewable energy systems -- particularly for businesses. In addition, both homeowners and business decision-makers would go to existing owners of these systems as well as manufacturers, retailers, and distributors to obtain information about them. They also considered print media (newspapers and magazines) to be important sources of this type of information.

B. Conclusions

Consumers and business decision-makers have some familiarity with renewable energy systems. However, most have not been persuaded of the benefits and have little interest in installing such systems.

Cost is a main barrier to purchase. While people understand and appreciate the altruistic benefits of saving energy and helping the environment, these reasons alone will probably not encourage many to install such a system. Rather, they need to believe that the cost savings from reduced energy bills warrant the purchase of a renewable energy system.

Secondly, consumers and business decision-makers need to be convinced that the systems will work well (be reliable), be safe, last a long time, and not be expensive to maintain.

III. STUDY FINDINGS

This chapter contains the detailed findings.

A. Familiarity with Renewable Energy Sources

“Renewable energy sources” was defined to respondents as power generating systems that create electricity from solar power, wind power, or fuel cells. They were then asked whether they were familiar with each of these four renewable energy sources:

- solar cells, also known as photovoltaics or PV
- small wind turbines
- fuel cells
- solar thermal electric

A guideline used by MMR in evaluating levels of awareness or, in this case, familiarity is that 70% is an acceptable level. Relative to this guideline, familiarity with three of the four renewable energy sources measured was fairly high: small wind turbines, solar cells, and solar thermal electric. Familiarity with fuel cells, however, was very low. These findings were similar for homeowners and business decision-makers, although business decision-makers were more familiar with small wind turbines and less familiar with fuel cells than were homeowners.

FAMILIARITY WITH RENEWABLE ENERGY SOURCES

	% Familiar with Renewable Energy Source	
	Homeowners	Businesses
	N=252	N=51
	%	%
Solar - Net	89	86
Solar cells	73	71
Solar thermal electric	65	75
Small wind turbines	75	86 ↑
Fuel cells	48	33 ↓
<i>Mean number of 4 familiar with</i>	<i>2.6</i>	<i>2.7</i>

↑/↓ = Statistically higher/lower than Homeowners
Reference: Computer Table 12

About 70% of the respondents who reported that they were familiar with each renewable energy source said that they were familiar with the way in which that renewable energy source generates electricity.

FAMILIARITY WITH RENEWABLE ENERGY SOURCES

	% Familiar with Renewable Energy Source		% Familiar with How Renewable Energy Source Generates Electricity		% Familiar with How Renewable Energy Source Generates Electricity Among Those Aware of Source	
	Home-owners N=252	Busi-nesses N=51	Home-owners N=252	Busi-nesses N=51	Home-owners	Busi-nesses
	%	%	%	%	%	%
Solar- Net	89	86	69	57 ↓	78	66 ↓
Solar cells	73	71	58	49	79	69
Solar thermal electric	65	75	47	41	72	55 ↓
Small wind turbines	75	86 ↑	63	71	83	82
Fuel cells	48	33 ↓	32	22	66	**
<i>Mean number of 4 familiar with</i>	2.6	2.7	2.0	1.8	NA	NA
<i>Average</i>	66	66	50	46	76	70

** Base too small for analysis

↑/↓ = Statistically higher/lower than Homeowners

NA = Not applicable

Reference: Computer Tables 12, 13

Familiarity with various renewable energy sources differed somewhat by market:

- Among homeowners, awareness of most of the sources was higher in San Diego, particularly familiarity with fuel cells. On the other hand, homeowners in San Jose were less familiar with solar thermal electric and fuel cells than were those in the other areas.
- Among businesses, more decision makers in San Jose were aware of solar cells than were those in Los Angeles.

FAMILIARITY WITH RENEWABLE ENERGY SOURCES
- By Market -

	Market				
	<u>Total</u>	<u>Fresno</u>	<u>Los Angeles</u>	<u>San Diego</u>	<u>San Jose</u>
	%	%	%	%	%
Homeowners	(N=252)	(N=88)	(N=89)	(N=38)	(N=37)
Solar - Net	89	92	87	89	86
Solar cells	73	74	69	76	78
Solar thermal electric	65	68 +	69 +	71 +	46 -
Small wind turbines	75	74	71 -	84 +	81
Fuel cells	48	50 +	47 +/-	63 +	32 -
Not familiar with any of these	6	5 +	8 +	11 +	0 -
Businesses	(N=51)	NA	(N=26)	NA	(N=25)
Solar - Net	57		85		88
Solar cells	49		58 -		84 +
Solar thermal electric	41		73		76
Small wind turbines	71		85		88
Fuel cells	22		31		36
Not familiar with any of these	18		8		4

+/- = Statistically higher/lower than other market

NA = Not Asked

Reference: Computer Table 12

B. Use of Renewable Energy Systems

Use of Renewable Energy System

Five percent of the homeowners said that they have a renewable energy system installed at their home and 4% of the business decision-makers claimed to have one at their business/commercial property. Among those with renewable energy systems, some type of solar system (solar cells or solar thermal electric) was used by the homeowners and half of the businesses used solar cells and half small wind turbines.

USE OF RENEWABLE ENERGY SYSTEMS

	Homeowners	Businesses
	<u>N=252</u>	<u>N=51</u>
	%	%
Have renewable energy system	5	4
Solar cells	3	2
Solar thermal electric	2	0
Small wind turbines	0	2
Fuel cells	0	0

Reference: Computer Tables 19, 20

The percent having a renewable energy system differed somewhat by market:

- Among homeowners, there was higher ownership in Fresno and San Diego than in Los Angeles and San Jose.
- Eight percent of the business-decision makers in San Jose said that they had some type of renewable energy system; none of those in Los Angeles did.

**CURRENTLY HAVE A RENEWABLE ENERGY SYSTEM INSTALLED
AT YOUR HOME/BUSINESS PROPERTY/COMMERCIAL PROPERTY**

	Market				
	<u>Total</u>	<u>Fresno</u>	<u>Los Angeles</u>	<u>San Diego</u>	<u>San Jose</u>
	%	%	%	%	%
Homeowners	(N=252)	(N=88)	(N=89)	(N=38)	(N=37)
Have a renewable energy system	5	9 +	1 -	8	3
Businesses	(N=51)	NA	(N=26)	NA	(N=25)
Have a renewable energy system	4		0		8

+/- = Statistically higher/lower than other market

NA = Not asked

Reference: Computer Table 19

Respondents who had some type of renewable energy system were asked a series of questions about whether they have been contacted by manufacturers, suppliers or installers and whether they would like to be contacted by them. The number of those with renewable energy systems, however, was too small for analysis of these responses.

Awareness of Other Property with Renewable Energy System

A fairly sizable minority, 28%, of the homeowners said that they were aware of some other household which uses a renewable energy system. This percent was much lower for business decision-makers, 10%.

**AWARENESS OF ANY HOUSEHOLD/BUSINESS PROPERTY/
COMMERCIAL PROPERTY, OTHER THAN YOURS,
WHICH IS USING A RENEWABLE ENERGY SYSTEM**

	Homeowners	Businesses
	<u>N=252</u>	<u>N=51</u>
	%	%
Yes, aware of some	28	10 ↓
Not aware of any	<u>72</u>	<u>90</u> ↑
	100	100

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 26

Taking into account both those who did and did not know of other properties with a renewable energy system, homeowners were aware of an average of 2.0 properties with some type of renewable energy system and businesses were aware of very few, a mean of 0.2.

Among the 28% of homeowners who did know of some other household which had a renewable energy system, they were aware of an average of about 7 such homes. The number of business decision-makers aware of other business or commercial property with renewable energy systems was too small for analysis of the number of such properties they knew of.

**NUMBER OF HOUSEHOLDS/BUSINESSES OR
COMMERCIAL PROPERTIES AWARE OF
WHICH ARE USING A RENEWABLE ENERGY SYSTEM**

	Homeowners N=252	Businesses N=51
	%	%
None	72	90 ↑
1	11	6
2	6	2 ↓
3	4	2
4 or more	<u>7</u>	<u>0</u> ↓
	100	100
<i>Mean</i>	<i>2.0</i>	<i>0.2</i> ↓
<i>Mean number among those aware of one or more</i>	<i>7.2</i>	<i>**</i>

** Base too small for analysis

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 27

C. Interest in Installing a Renewable Energy System

Respondents who did not currently have a renewable energy system (approximately 95% of the sample) were asked their likelihood of installing a solar, wind or fuel cell renewable energy system at their home or business/commercial property in the future. A five-point scale was used which ranged from “definitely would install a system” to “definitely would not install a system.”

A guideline used by MMR in evaluating interest in high-ticket items, such as a renewable energy system, is that 35% top-two-box interest (“definitely” + “probably” would install) is indicative of an acceptable level of interest or potential. Interest in a renewable energy system was well below the 35% guideline:

- Only 15% of the homeowners and 8% of the business decision-makers said that they “definitely” or “probably” would install a solar, wind, or fuel cell renewable energy system in the future. Almost all of these people said that they “probably would install” rather than “definitely would install” such a system.
- Over half were not interested (“probably” or “definitely” would *not* install a renewable energy system).

Thus, at this time, interest in renewable energy systems is quite low among both homeowners and business/commercial property decision-makers. The MMR 35% norm, however, is based on providing a “concept description” of a product or service. In this case, respondents were not told the benefits of a renewable energy system or given any information about it, other than what they already knew. Presumably, interest would be higher if a description presented a renewable energy system in favorable terms, explaining its benefits. Nevertheless, the data represented here do provide an understanding of the current mindset of homeowners and businesses, which is that they are not really interested in such a system at this point in time.

LIKELIHOOD OF INSTALLING A RENEWABLE ENERGY SYSTEM*

	Homeowners	Businesses
	%	%
Def. + prob. would install	15	8
Definitely would install	1	0 ↓
Probably would install	14	8
Might or might not install	23	39 ↑
Def. + prob. would not install	62	53
Probably would not install	31	31
Definitely would not install	<u>31</u>	<u>22</u>
	100	100

* Among those who do not currently have a renewable energy system

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 24

Interest in installing a solar, wind or fuel cell renewable energy system differed considerably by market among homeowners; but not businesses:

- Among homeowners, interest was much higher in San Jose (31% “definitely” + “probably” would install system) and San Diego (26%) than in Fresno (10%) and Los Angeles (10%).
- Among businesses, interest was the same in both markets used for this sample, Los Angeles (8%) and San Jose (9%).

The higher interest by homeowners in San Diego may be related, at least in part, to their greater familiarity with different renewable energy sources (see Section A of this chapter). It is, however, somewhat surprising that interest was higher among homeowners in San Jose, since they tended to have somewhat less familiarity with the energy sources (see Section A).

**TOP-TWO-BOX INTEREST IN A SOLAR, WIND OR FUEL CELL
RENEWABLE ENERGY SYSTEM AT YOUR HOME/BUSINESS
PROPERTY/COMMERCIAL PROPERTY IN THE FUTURE**

		Those Who Do Not Currently Have Renewable Energy System Installed				
		Market				
		<u>Total</u>	<u>Fresno</u>	<u>Los Angeles</u>	<u>San Diego</u>	<u>San Jose</u>
		%	%	%	%	%
Homeowners		(N=239)	(N=80)	(N=88)	(N=35)	(N=36)
	Definitely + probably would install system	15	10 -	10 -	26 +	31 +
Businesses		(N=49)	NA	(N=26)	NA	(N=23)
	Definitely + probably would install system	8		8		9

+/- = Statistically higher/lower than other market

NA = Not asked

Reference: Computer Table 24

Interest in installing a renewable energy system was higher among younger homeowners, those with larger households, and those with higher value homes:

- under 45 years of age (28% “definitely” + “probably” would install)
- 3 or more people in the household (23%)
- home value of \$300,000 or more (24%)

Interest was not closely related to homeowner gender, education, income, or size of electric bill. It was directionally, but not significantly, higher among those who knew someone who had a renewable energy system in their home.

INTEREST IN A RENEWABLE ENERGY SYSTEM BY HOMEOWNER CHARACTERISTICS

		% Who "Definitely" or "Probably" Would Install A Renewable Energy System	Base
		%	
Total Homeowners*		15	(N=239)
Gender:	Male	17	(N=123)
	Female	14	(N=116)
Age:	Under 45 years	28 +	(N=64)
	45 to 64	12	(N=99)
	65 years and over	10	(N=73)
Household Size:	1 or 2 people	11	(N=141)
	3 or more people	23 +	(N=93)
Education:	Not a college graduate	13	(N=118)
	College graduate	19	(N=118)
Income:	Under \$75,000	17	(N=72)
	\$75,000 and over	21	(N=89)
Value of Home:	Under \$300,000	11	(N=143)
	\$300,000 and over	24 +	(N=88)
Monthly Electric Bill:	Under \$100	13	(N=116)
	\$100 and over	18	(N=120)
Awareness of Some Other Household Has A Renewable Energy System:			
	Aware	21	(N=67)
	Not aware	13	(N=172)

* Those who do not currently have a renewable energy system in their home

+ = Statistically higher than those with opposite characteristic.

Reference: Computer Tables 24, 54, 55, 65

Reasons for Interest or Lack of Interest in a Renewable Energy System

The most frequently voiced reason for expressing positive interest in installing a renewable energy system (regardless of whether it would be in a home or a business/commercial property) was that it would provide a good return on investment (46%). Other reasons were altruistic: good for environment (22%) and to conserve energy (20%).

The primary reason for not being interested in a renewable energy system was cost concerns.

Thus, the cost of the system and payback are particularly important in the purchase decision.

**REASONS FOR INTEREST OR LACK OF INTEREST
IN A RENEWABLE ENERGY SYSTEM**

	Those Who Do Not Currently Have Renewable Energy System Installed**		
	Total N=288	Interest In System	
		Def. + Prob. Would Install N=41	Less Interest N=247
	%	%	%
Positive comments - Net	15	80	4
Good return on investment	9	46	2
Good for environment - Subnet	3	22	*
Help the environment	3	20	0
No pollution	1	5	*
Clean source of energy	1	5	0
Conserve energy - Subnet	3	20	1
Need to recycle energy	3	17	*
Should conserve for future generations	1	2	*
Efficient source of energy	1	10	0
Better source for energy	1	5	*
Might use to heat swimming pool	1	2	*
Don't want to rely on others for energy source	1	5	0
Units are smaller	*	2	0
All other positive comments	*	2	0
Neutral comments - Net	17	15	17
Would like more information	9	10	9
Planning to move	6	0	6
Need fast return rate on investment	4	5	4
Negative comments - Net	77	12	88
Too expensive - Subnet	38	10	43
System too expensive to install	27	7	30
Not cost effective	14	2	16
Happy with what we have/don't like change	16	2	18
Don't know enough about systems	13	0	15
No space for it - Subnet	6	0	7
Nowhere to put unit/old house/building	5	0	6
Unit is too big	1	0	1
Don't use much energy	6	0	6
Not reliable - Subnet	6	0	6
Don't believe it will work	3	0	3
Some systems not reliable	3	0	3
House is energy efficient/new	2	0	2
All other negative comments	1	0	1
Don't know/refused	1	0	1
Mean number of reasons	1.3	1.5	1.3

* Less than 0.5%

** Homeowners and business decision-makers combined

Reference: Computer Table 25

In addition, business decision-makers indicated that they needed more information about the system before they would be interested in buying one. Also, some of them were not sure that it would work well.

REASONS FOR INTEREST OR LACK OF INTEREST IN A RENEWABLE ENERGY SYSTEM

	Those Who Do Not Currently Have Renewable Energy System Installed		
	Total N=288	Home- owners N=239	Busin- esses N=49
	%	%	%
Positive comments - Net	15	15	10
Good return on investment	9	9	6
Good for environment - Subnet	3	3	4
Help the environment	3	3	4
No pollution	1	1	0
Clean source of energy	1	0	4
Conserve energy - Subnet	3	3	6
Need to recycle energy	3	2	6
Should conserve for future generations	1	1	0
Efficient source of energy	1	2	0 ↓
Better source for energy	1	1	2
Might use to heat swimming pool	1	1	0
Don't want to rely on others for energy source	1	1	0
Units are smaller	*	*	0
All other positive comments	*	*	0
Neutral comments - Net	17	13	33 ↑
Would like more information	9	6	20 ↑
Planning to move	6	5	6
Need fast return rate on investment	4	2	12 ↑
Negative comments - Net	77	79	67
Too expensive - Subnet	38	39	35
System too expensive to install	27	28	20
Not cost effective	14	14	16
Happy with what we have/don't like change	16	16	12
Don't know enough about systems	13	13	12
No space for it - Subnet	6	6	4
Nowhere to put unit/old house/building	5	5	4
Unit is too big	1	1	0
Don't use much energy	6	7	0 ↓
Not reliable - Subnet	6	5	10
Don't believe it will work	3	1	10 ↑
Some systems not reliable	3	3	0 ↓
House is energy efficient/new	2	3	0 ↓
All other negative comments	1	1	0
Don't know/refused	1	1	0
Mean number of reasons	1.3	1.3	1.4

* Less than 0.5%

↑/↓ = Statistically higher/lower than Homeowners

Reference: Computer Table 25

Size of Renewable Energy System Preferred

If a renewable energy system is purchased, most respondents expressed interest in a large or very large system, one that provides 50% or more of their electricity usage. Only about one-in-five wanted a small or medium system that would provide about 25% of their electric energy or less.

These opinions were similar for homeowners and businesses.

SIZE OF RENEWABLE ENERGY SYSTEM PREFERRED, IF ONE WERE PURCHASED

	Homeowners N=252	Businesses N=51
	%	%
A small system that provides about 15% of your electricity usage	4	0 ↓
A medium system that provides about 25% of your electricity usage	18	16
A large system that provides about 50% of your electricity usage	37	31
A very large system that provides about 75% of your electricity usage	32	43
Don't know	10	10
	<hr/> 100	<hr/> 100

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 41

Interest in a Home with Renewable Energy System Already Installed

Homeowners were asked two questions to gauge their interest in a home that already has a renewable energy system in it. Responses indicate that a renewable energy system adds value to a home:

- The majority of homeowners (61%) said that they would be more interested in a home that had a renewable energy system already installed.
- Half of the homeowners said that they would be willing to pay more for a house that had a renewable energy system already installed.

INTEREST IN A HOME WITH A RENEWABLE ENERGY SYSTEM

	Homeowners
	N=252
	%
Interest in a home that had a renewable energy system already installed	
Would be more interested	61
Would not be more interested	39
	<hr/> 100
Whether would pay more for a house that had a renewable energy system already installed	
Would pay more	50
Would not pay more	50
	<hr/> 100

Note: Due to rounding, figures may not always add exactly to 100%.
Reference: Computer Tables 51-52

D. Anticipated Costs and Payback Period for a Renewable Energy System

Anticipated Cost of a Renewable Energy System

Homeowners estimated that the average renewable energy system would cost \$7,125. The mean estimate did not differ substantially by type of system, ranging from a high of \$7,900 for fuel cells to a low of \$6,300 for small wind turbines.

As would be expected, the cost of a renewable energy system was anticipated to be greater for a business or commercial property, with an average of \$11,550 for the four types of systems measured. This figure ranged by type of system, from a high of \$13,500 for solar thermal electric to a low of \$9,200 for fuel cells.

Interestingly, homeowners thought fuel cells would be the most expensive and business decision-makers felt it would be the least costly.

MEAN ESTIMATE OF COST TO PURCHASE AND INSTALL A RENEWABLE ENERGY SYSTEM

	Homeowners	Businesses
Fuel cells	\$7,900	\$9,200
Solar thermal electric	\$7,200	\$13,500 ↑
Solar cells	\$7,100	\$13,200 ↑
Small wind turbines	\$6,300	\$10,300 ↑
<i>Average cost</i>	\$7,125	\$11,550 ↑

↑/↓ = Statistically higher/lower than Homeowners

Reference: Computer Tables 14-17

Homeowners in San Diego and San Jose felt that renewable energy systems, particularly solar cells and small wind turbines, would cost more than did those living in Fresno and Los Angeles. Business decision-makers in San Jose also felt that most of these types of systems, especially solar thermal electric, would cost more than did those with businesses or commercial property in Los Angeles.

**MEAN ESTIMATE OF COST
TO PURCHASE AND INSTALL A RENEWABLE ENERGY SYSTEM
- By Market -**

	Market				
	Total	Fresno	Los Angeles	San Diego	San Jose
Homeowners	(N=252)	(N=88)	(N=89)	(N=38)	(N=37)
Fuel cells	\$7,900	\$7,300	\$8,100	\$7,400	\$9,600
Solar thermal electric	\$7,200	\$6,500	\$7,300	\$8,200	\$7,400
Solar cells	\$7,100	\$6,400 -	\$5,800 -	\$8,500 +	\$9,600 +
Small wind turbines	\$6,300	\$6,000	\$5,300 -	\$8,000 +	\$7,000
<i>Average cost</i>	\$7,125	\$6,550	\$6,625	\$8,025	\$8,400
Businesses	(N=51)	NA	(N=26)	NA	(N=25)
Solar thermal electric	\$13,500		\$10,400		\$16,500 +
Solar cells	\$13,200		\$11,900		\$14,000
Small wind turbines	\$10,300		\$11,600		\$ 9,200
Fuel cells	\$ 9,200		\$8,100		\$10,200
<i>Average cost</i>	\$11,550		\$10,500		\$12,475

+/- = Statistically higher/lower than other market

NA = Not asked

Reference: Computer Tables 14-17

Homeowners and business decision-makers who expressed positive interest in installing a renewable energy system tended to feel that these systems would be less expensive than did those with less interest in buying one, although the differences in the mean estimates was only statistically significant for solar thermal electric.

**MEAN ESTIMATE OF COST
TO PURCHASE AND INSTALL A RENEWABLE ENERGY SYSTEM
- By Interest in a Renewable Energy System -**

	Total* N=303	Interest In System**	
		Def. + Prob. Would Install N=41	Less Interest N=247
Solar thermal electric	\$8,400	\$5,800 -	\$9,000
Fuel cells	\$8,100	\$7,400	\$8,300
Solar cells	\$8,000	\$7,900	\$8,000
Small wind turbines	\$7,100	\$6,000	\$7,200
<i>Average cost</i>	<i>\$7,900</i>	<i>\$6,775</i>	<i>\$8,125</i>

* Homeowner and business decision-makers combined

** Homeowner and business decision-makers who do not currently have a renewable energy system installed in their home/business/commercial property.

+/- = Statistically higher/lower than those with less interest

Reference: Computer Tables 14-17

Estimated Payback for Renewable Energy System

Homeowners felt that it would take about eight years for the energy savings to pay back the initial cost of a renewable energy system. This figure was somewhat lower (a mean of 7 years and a median of 5 years) among businesses. Specifically, more businesses than homeowners felt that the payback would be less than seven years.

ESTIMATED NUMBER OF YEARS WOULD TAKE THE ENERGY SAVINGS FROM A RENEWABLE ENERGY SYSTEM TO PAY BACK THE INITIAL COST OF THE EQUIPMENT

	Homeowners	Businesses
	N=252	N=51
	%	%
1 to 2 years	4	4
3 to 6 years	32	49 ↑
7 to 10 years	30	25
11 to 15 years	12	2 ↓
16 or more years	7	6
Don't know	<u>15</u>	<u>14</u>
	100	100
<i>Mean number of years</i>	<i>8.1</i>	<i>6.7</i> ↓
<i>Median number of years</i>	<i>7.6</i>	<i>5.4</i>

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 28

Homeowners and business decision-makers in Los Angeles felt that the payback would be shorter than did those in the other markets.

**ESTIMATED NUMBER OF YEARS WOULD TAKE THE ENERGY SAVINGS
FROM A RENEWABLE ENERGY SYSTEM
TO PAY BACK THE INITIAL COST OF THE EQUIPMENT**

	Those Who Do Not Currently Have Renewable Energy System Installed				
	Market				
	<u>Total</u>	<u>Fresno</u>	<u>Los Angeles</u>	<u>San Diego</u>	<u>San Jose</u>
Homeowners	(N=239)	(N=80)	(N=88)	(N=35)	(N=36)
<i>Mean payback in years</i>	8.1	8.3 +	7.1 -	9.0 +	8.4
Businesses	(N=49)	NA	(N=26)	NA	(N=23)
<i>Mean payback in years</i>	6.7		6.0		7.3

+/- = Statistically higher/lower than other market

NA = Not asked

Reference: Computer Table 28

The estimated payback was about the same regardless of whether or not the respondent was interested in buying a renewable energy system.

**ESTIMATED NUMBER OF YEARS WOULD TAKE THE ENERGY
SAVINGS FROM A RENEWABLE ENERGY SYSTEM TO PAY BACK
THE INITIAL COST OF THE EQUIPMENT**

	<u>Total*</u>	<u>Interest In System**</u>	
		<u>Def. + Prob. Would Install</u>	<u>Less Interest</u>
	N=303	N=41	N=247
<i>Mean payback in number of years</i>	7.8	8.3	7.9

* Homeowner and business decision-makers combined

** Homeowner and business decision-makers who do not currently have a renewable energy system installed in their home/business/commercial property.

Reference: Computer Table 28

E. Benefits and Barriers to Installing a Renewable Energy System

Benefits of Renewable Energy Sources, Unaided

There appear to be two key benefits to a renewable energy system:

- one is altruistic: conserving natural resources, helping the environment, reducing pollution, etc.
- the other is practical: saving money on utility bills

The perceived benefits of renewable energy sources were quite similar among homeowners and businesses.

**PERCEIVED BENEFITS OF RENEWABLE
ENERGY SOURCES, UNAIDED**

	Homeowners N=252	Businesses N=51
	%	%
Mentioned one or more benefits	90	84
Monetary benefits - Net	48	41
Save money/save on utility bills	46	41
Would increase home value	1	0
Would pay for itself in a short time	1	0
Receive government rebate	*	0
Conserve energy sources - Net	35	39
Conserve natural resources/ fossil fuels	26	39 ↑
Could recycle energy	9	0 ↓
Save electricity	5	2
Conserve for future generations	*	0
Good for environment - Net	28	31
Less pollution	16	22
Good for the environment	15	12
Clean source of energy	4	10
Less dependent on other energy sources - Net	16	22
Can generate and store own electricity	9	12
Won't have to deal with electric company	6	8
Less dependent on others for energy	4	4
More efficient sources of energy	3	2
More reliable - Net	2	4
Reliable system	2	4
No shortages/blackouts	1	0
Won't need more power plants	*	0
<i>Mean number of mentions</i>	<i>1.5</i>	<i>1.6</i>

* Less than 0.5%

↑/↓ = Statistically higher/lower than Homeowners

Reference: Computer Table 18

As would be expected, those who expressed interest in installing a renewable energy system mentioned more benefits than did those with less interest. Those who were more likely to install a renewable energy system more often felt that it offered monetary benefits as well as conserving energy sources and being good for the environment.

PERCEIVED BENEFITS OF RENEWABLE ENERGY SOURCES, UNAIDED

	Total* N=303	Interest In System**	
		Def. + Prob. Would Install N=41	Less Interest N=247
	%	%	%
Mentioned one or more benefits	89	98 +	87
Monetary benefits - Net	47	54	44
Save money/save on utility bills	46	51	43
Would increase home value	1	2	1
Would pay for itself in a short time	1	0	1
Receive government rebate	***	2	0
Conserve energy sources - Net	36	49 +	34
Conserve natural resources/fossil fuels	28	39	27
Could recycle energy	7	10	7
Save electricity	4	5	4
Conserve for future generations	***	2	0
Good for environment - Net	28	39	27
Less pollution	17	20	16
Good for the environment	14	22	13
Clean source of energy	5	10	4
Less dependent on other energy sources - Net	17	17	18
Can generate and store own electricity	10	12	9
Won't have to deal with electric company	6	0 -	7
Less dependent on others for energy	4	5	4
More efficient sources of energy	3	0 -	3
More reliable - Net	3	2	2
Reliable system	2	2	2
No shortages/blackouts	1	0	1
Won't need more power plants	***	2	0
<i>Mean number of mentions</i>	<i>1.5</i>	<i>1.9</i>	<i>1.4</i>

* Homeowner and business decision-makers combined

** Homeowner and business decision-makers who do not currently have a renewable energy system installed in their home/business/commercial property.

*** Less than 0.5%

+/- = Statistically higher/lower than those with less interest

Reference: Computer Table 18

Significant Barriers to Installing Renewable Energy System

Both homeowners and business decision-makers felt that all seven specific barriers measured were significant negatives in terms of installing a renewable energy system, with 60% or more feeling that each was a substantial barrier.

The two biggest barriers to homeowners were the initial cost of the system (89%) and concerns with performance or product reliability (81%). These were also major barriers among businesses to install renewable energy systems (84% and 92%, respectively). In addition, business decision-makers felt that the “availability of financing at reasonable rates” (88%), “understanding of the technology and benefits” (82%) and the “availability of products and trained installers” (80%) were substantial barriers.

Biggest Barriers to Installing Renewable Energy Systems	
Homeowners	Businesses
Initial cost of the system (89%) Concerns with performance or product reliability (81%)	Concerns with performance or product reliability (92%) Availability of financing at reasonable rates (88%) Initial cost of the system (84%) Understanding of the technology costs and benefits (82%) Availability of products and trained installers (80%)

“Concerns with performance of product reliability,” “understanding of the technology costs and benefits,” and “availability of financing at reasonable rates” were considered to be more of a barrier by business decision-makers than by homemakers.

SIGNIFICANT BARRIERS TO INSTALLING RENEWABLE ENERGY SYSTEMS IN HOMES/BUSINESS PROPERTIES/COMMERCIAL PROPERTIES IN CALIFORNIA, AIDED

	Homeowners	Businesses
	N=252	N=51
	%	%
Initial cost of the system	89	84
Concerns with performance or product reliability	81	92 ↑
Availability or products and trained installers	72	80
Availability of product information	71	78
Understanding of the technology costs and benefits	71	82 ↑
Availability of financing at reasonable rates	70	88 ↑
Electric company interconnection	60	65
None of these	5	2
<i>Mean number of 7</i>	<i>5.2</i>	<i>5.7</i>

↑/↓ = Statistically higher/lower than Homeowners
Reference: Computer Table 42

Interestingly, those who said they “definitely” or “probably” would buy a renewable energy system felt that there were more significant barriers to obtaining such a system than did those with less interest. Specifically, more of those with positive purchase interest than other respondents felt that these were significant barriers:

- availability of products and trained installers
- availability of financing at reasonable rates
- understanding of the technology costs and benefits
- availability of product information
- electric company interconnection

**SIGNIFICANT BARRIERS TO INSTALLING RENEWABLE ENERGY SYSTEMS
IN HOMES/BUSINESS PROPERTIES/COMMERCIAL PROPERTIES
IN CALIFORNIA, AIDED
- By Interest in a Renewable Energy System -**

	Total* N=303	Interest In System**	
		Def. + Prob. Would Install N=41	Less Interest N=247
	%	%	%
Initial cost of the system	88	90	89
Concerns with performance or product reliability	83	85	82
Availability of products and trained installers	74	90 +	71
Availability of financing at reasonable rates	73	85 +	73
Understanding of the technology costs and benefits	73	83 +	72
Availability of product information	73	83 +	71
Electric company interconnection	61	76 +	59
None of these	4	0 -	5
<i>Mean number of 7</i>	<i>5.3</i>	<i>5.9</i>	<i>5.2</i>

* Homeowner and business decision-makers combined

** Homeowner and business decision-makers who do not currently have a renewable energy system installed in their home/business/commercial property.

+/- = Statistically higher/lower than those with less interest

Reference: Computer Table 42

F. Importance of Various Factors in Obtaining a Renewable Energy System

Importance of Factors in Decision-Making Process for Purchase of a Renewable Energy System

Respondents were asked to rate the importance of each of seven considerations in the decision-making process when purchasing a renewable energy system. A five-point scale was used in which “5” meant “very important” and “1” meant “not at all important.”

A guideline used by MMR in interpreting importance ratings is that top-two-box ratings of 60% or higher indicate an idea of some importance. Relative to this guideline, all seven items were important to homeowners and all but one (“less reliance on fossil fuels”) were important to businesses.

The two which were most important to consumers were related to the cost (“cost of installation and maintenance of the system”, 73%) and conservation (“conserving environmental resources,” 70%).

Business decision-makers placed more importance on practical rather than altruistic benefits, such as helping the environment. They considered “cost of installation and maintenance of the system” (86%), “availability of sales and maintenance support” (86%), and “payback period” (84%) to be the most important.

Importance of Considerations in Decision-Making Process for Purchase of a Renewable Energy System		
	Homeowners	Businesses
Very important	Cost of installation and maintenance of the system (73%) Conserving environmental resources (70%)	Cost of installation and maintenance of the system (86%) Availability of sales and maintenance support (86%) Payback period (84%)
Important	Availability of sales and maintenance support (67%) Less reliance on fossil fuels (67%) Payback period (62%) Less reliance on electric company (60%) An investment that increases the value of the property (60%)	Conserving environmental resources (69%) Less reliance on electric company (63%) An investment that increases the value of the property (61%)
Not too important	None	Less reliance on fossil fuels (53%)

**TOP-TWO-BOX IMPORTANCE RATINGS OF EACH OF 7
CONSIDERATIONS IN THE DECISION-MAKING PROCESS
FOR PURCHASING A RENEWABLE ENERGY SYSTEM**

	Homeowners	Businesses
	<u>N=252</u>	<u>N=51</u>
	%	%
Cost of the installation and maintenance of the system	73	86 ↑
Conserving environmental resources	70	69
Availability of sales and maintenance support	67	86 ↑
Less reliance on fossil fuels	67	53 ↓
Payback period	62	84 ↑
Less reliance on the electric company	60	63
An investment that increases the value of your home/business property/commercial property	60	61

↑/↓ = Statistically higher/lower than Homeowners
Reference: Computer Table 31

**IMPORTANCE OF EACH OF 7 CONSIDERATIONS
IN THE DECISION-MAKING PROCESS
FOR PURCHASING A RENEWABLE ENERGY SYSTEM
- To Homeowners -**

	Homeowners N=252							
	4 + 5- Sub- total	Very Impor- tant -5-	-4-	-3-	-2-	Not At All Impor- tant -1-	1+2- Sub- total	Don't Know
	%	%	%	%	%	%	%	%
Cost of the installation and maintenance of the system	73	56	18	15	3	7	10	2
Conserving environmental resources	70	55	15	17	4	8	12	2
Availability of sales and maintenance support	67	42	25	17	4	8	12	3
Less reliance on fossil fuels	67	44	23	19	5	6	11	3
Payback period	62	42	20	22	4	9	12	4
Less reliance on the electric company	60	38	21	23	6	10	16	1
An investment that increases the value of your home/business property/commercial property	60	37	23	19	9	11	20	1

Reference: Computer Table 29

**IMPORTANCE OF EACH OF 7 CONSIDERATIONS
IN THE DECISION-MAKING PROCESS
FOR PURCHASING A RENEWABLE ENERGY SYSTEM
- To Businesses -**

	Businesses N=51							
	4 + 5- Sub- total	Very Impor- tant -5-	-4-	-3-	-2-	Not At All Impor- tant -1-	1+2- Sub- total	Don't Know
	%	%	%	%	%	%	%	%
Availability of sales and maintenance support	86	63	24	8	4	0	4	2
Cost of the installation and maintenance of the system	86	57	29	8	4	0	4	2
Payback period	84	53	31	12	2	0	2	2
Conserving environmental resources	69	35	33	16	10	4	14	2
Less reliance on the electric company	63	35	27	14	16	6	22	2
An investment that increases the value of your home/ business property/ commercial property	61	39	22	20	14	4	18	2
Less reliance on fossil fuels	53	29	24	27	14	4	18	2

Reference: Computer Table 30

Those who said that they definitely or probably would install a renewable energy system (for homeowners and business decision-makers combined) placed greater importance on: conserving environmental resources, less reliance on fossil fuels and less reliance on the electric company. They placed less importance on the payback period.

This suggests that people who expressed an interest in purchasing a renewable energy system are a little more concerned with the environment, having less reliance on the electric company, and a little less concerned about the payback period. The cost of the installation and maintenance of the system was as important to them as to those with less interest.

**TOP-TWO-BOX IMPORTANCE RATINGS OF EACH OF 7 CONSIDERATIONS
IN THE DECISION-MAKING PROCESS
FOR PURCHASING A RENEWABLE ENERGY SYSTEM
- By Interest in Renewable Energy System -**

	Total* N=303	Interest In System**	
		Def. + Prob. Would Install N=41	Less Interest N=247
	%	%	%
Cost of the installation and maintenance of the system	76	73	77
Conserving environmental resources	70	85 +	67
Availability of sales and maintenance support	71	78	70
Less reliance on fossil fuels	64	88 +	60
Payback period	66	51 -	69
Less reliance on the electric company	60	76 +	57
An investment that increases the value of your home/business property/commercial property	60	68	59

* Homeowner and business decision-makers combined

** Homeowners and business decision-makers who do not currently have a renewable energy system installed in their home/business/commercial property.

+/- = Statistically higher/lower than those with less interest

Reference: Computer Table 31

Importance of Various System Installation and Ownership Features

Most of the 14 system installation and ownership features measured were considered to be important by both homeowners and businesses. The primary exception was the “option to install equipment yourself,” which was not important to either segment. Also, business decision-makers did not feel that the “visual attractiveness of the system” was important.

Both homeowners and business decision-makers gave considerable importance to how well the system worked in terms of “reliability of the equipment,” “how long the system would last,” and “safety of the system.” In addition, they felt that the “expense of maintaining the system” was very important. Businesses also considered these other cost factors to be important: “initial cost of the system” and “payback period.”

**Top-Two Box Importance Ratings of System
Installation and Ownership Features**

	Homeowners	Businesses
Most important	Reliability of equipment (88%) How long the system would last (86%) Safety of the system (85%) Expense of maintaining the system (81%)	How long the system would last (96%) Reliability of the equipment (94%) Expense of maintaining the system (94%) Initial cost of the system (92%) Safety of the system (92%) Payback period (90%)
Very important	Initial cost of the system (77%) Length of the warranty period (75%)	Length of the warranty period (84%) Ability to measure how much electricity is produced (82%) System add-on or upgrade capability (78%) Availability of maintenance agreement (76%)
Important	Ability to measure how much electricity is produced (69%) Ability of net metering (67%) Payback period (65%) Availability of maintenance agreement (65%) Visual attractiveness of the system (60%) Ability to finance the system (60%) System add-on or upgrade capability (58%)	Ability of net metering (61%) Ability to finance the system (57%)
Not important	Option to install equipment yourself (39%)	Visual attractiveness of the system (47%) Option to install equipment yourself (27%)

**TOP-TWO-BOX IMPORTANCE OF EACH OF 14 SYSTEM
INSTALLATION AND OWNERSHIP FEATURES
IN ACQUIRING A RENEWABLE ENERGY SYSTEM**

	Homeowners	Businesses
	N=252	N=51
	%	%
Reliability of the equipment	88	94
How long the system would last	86	96 ↑
Safety of the system	85	92 ↑
Expense of maintaining the system	81	94 ↑
Initial cost of the system	77	92 ↑
Length of the warranty period	75	84
Ability to measure how much electricity is produced	69	82 ↑
Availability of net metering in which excess electricity generated feeds back into the grid and spins your meter backward	67	61
Payback period	65	90 ↑
Availability of maintenance agreement	65	76 ↑
Visual attractiveness of the system	62	47 ↓
Ability to finance the system	60	57
System add-on or upgrade capability	58	78 ↑
Option to install equipment yourself	39	27

↑/↓ = Statistically higher/lower than Homeowners

Reference: Computer Table 37

**IMPORTANCE OF EACH OF 14 SYSTEM INSTALLATION AND OWNERSHIP
FEATURES IN ACQUIRING A RENEWABLE ENERGY SYSTEM
- To Homeowners -**

	Homeowners N=252							Don't Know
	4 + 5- Sub- total	Very Impor- tant -5-	-4-	-3-	-2-	Not At All Impor- tant -1-	1+2- Sub- total	
	%	%	%	%	%	%	%	
Reliability of the equipment	88	77	12	3	1	6	7	2
How long the system would last	86	68	18	6	*	6	6	2
Safety of the system	85	72	12	6	*	6	7	2
Expense of maintaining the system	81	60	22	10	2	5	7	2
Initial cost of the system	77	63	14	12	2	6	8	2
Length of the warranty period	75	53	22	15	3	6	9	2
Ability to measure how much electricity is produced	69	40	29	17	5	7	12	2
Availability of net metering in which excess electricity generated feeds back into the grid and spins your meter backward	67	43	25	13	7	9	16	3
Payback period	65	47	18	20	4	8	12	3
Availability of maintenance agreement	65	42	23	20	5	8	13	2
Visual attractiveness of the system	62	35	27	20	7	9	16	2
Ability to finance the system	60	42	17	20	6	13	19	2
System add-on or upgrade capability	58	35	23	21	8	10	17	3
Option to install equipment yourself	39	20	19	25	10	25	35	2

* Less than 0.5%

Reference: Computer Table 35

**IMPORTANCE OF EACH OF 14 SYSTEM INSTALLATION AND OWNERSHIP
FEATURES IN ACQUIRING A RENEWABLE ENERGY SYSTEM
- To Businesses -**

	Businesses N=51							
	4 + 5- Sub- total	Very Impor- tant -5-	-4-	-3-	-2-	Not At All Impor- tant -1-	1+2- Sub- total	Don't Know
	%	%	%	%	%	%	%	%
How long the system would last	96	82	14	0	0	2	2	2
Reliability of the equipment	94	75	20	4	0	0	0	2
Expense of maintaining the system	94	51	43	2	0	2	2	2
Safety of the system	92	76	16	6	0	0	0	2
Initial cost of the system	92	69	24	4	0	2	2	2
Payback period	90	47	43	6	0	2	2	2
Length of the warranty period	84	51	33	12	0	2	2	2
Ability to measure how much electricity is produced	82	49	33	14	0	2	2	2
System add-on or upgrade capability	78	45	33	10	10	0	10	2
Availability of maintenance agreement	76	47	29	10	8	4	12	2
Availability of net metering in which excess electricity generated feeds back into the grid and spins your meter backward	61	35	25	18	12	4	16	6
Ability to finance the system	57	35	22	27	6	8	14	2
Visual attractiveness of the system	47	18	29	18	22	12	33	2
Option to install equipment yourself	27	4	24	35	22	14	35	2

Reference: Computer Table 36

Homeowners and business decision-makers who expressed positive interest in obtaining a renewable energy system placed greater importance on these installation and ownership features than did those with less interest:

- reliability of the equipment
- how long the system would last
- safety of the system
- availability of net metering

**TOP-TWO-BOX IMPORTANCE RATING
OF EACH OF 14 SYSTEM INSTALLATION AND OWNERSHIP FEATURES
IN ACQUIRING A RENEWABLE ENERGY SYSTEM
- By Interest in Renewable Energy System -**

	Total* N=303	Interest In System**	
		Def. + Prob. Would Install N=41	Less Interest N=247
	%	%	%
Reliability of the equipment	89	100 +	88
How long the system would last	87	98 +	86
Safety of the system	86	98 +	84
Expense of maintaining the system	83	78	85
Initial cost of the system	80	76	81
Length of the warranty period	77	83	75
Ability to measure how much electricity is produced	71	76	71
Availability of net metering in which excess electricity generated feeds back into the grid and spins your meter backward	66	85 +	64
Payback period	70	63	72
Availability of maintenance agreement	67	76	66
Visual attractiveness of the system	59	68	58
Ability to finance the system	59	63	60
System add-on or upgrade capability	62	66	61
Option to install the equipment yourself	37	37	38

* Homeowner and business decision-makers combined

** Homeowners and business decision-makers who do not currently have a renewable energy system installed in their home/business/commercial property.

+/- = Statistically higher/lower than those with less interest

Reference: Computer Table 37

G. Sources of Information about a Renewable Energy System

Whether Information about Renewable Energy Systems is Easy to Find, Access, and Understand

Many respondents, 25% of the homeowners and twice as many, 49%, of the business decision-makers, had never looked for information about renewable energy systems. Among those who had, somewhat more felt it was not easy to find, access, and understand than felt that it was.

WHETHER THINK INFORMATION ABOUT RENEWABLE ENERGY SYSTEMS FOR THE HOME/BUSINES PROPERTY/COMMERCIAL PROPERTY IS EASY TO FIND, ACCESS AND UNDERSTAND

	Homeowners N=252	Businesses N=51
	%	%
Yes, it is easy to find, access and understand	33	22 ↓
No, it isn't	42	29 ↓
Havent looked	25	49 ↑
	100	100

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 43

Sources Would Use for Information about Renewable Energy System

Thirteen possible sources were read to respondents. They were asked to indicate for each source whether it was 1) a source they would go to or have already used for information about renewable energy systems or 2) not a source they would use. They were also given the option of mentioning some other source that they would go to or had already used for this type of information.

Both homeowners and businesses felt that many of the sources were ones which they would go to or ones they've already used to find information about renewable energy systems. The sources most likely to be used by about 70% or more of the homeowners and businesses are:

- the media, particularly magazines and newspapers
- existing owners of these systems
- manufacturers
- retailers and distributors
- the Internet

Homeowners would rely more on newspapers and business decision-makers would rely more on the Internet and green power marketing firms.

SOURCES WOULD GO TO OR HAVE ALREADY USED TO FIND INFORMATION ABOUT RENEWABLE ENERGY SYSTEMS, AIDED

	Homeowners	Businesses
	N=252	N=51
	%	%
Media - Net	81	69 ↓
Magazines	67	63
Newspapers	64	49 ↓
TV	1	2
Radio	*	2
Existing owners of these systems	80	84
Manufacturers	79	82
Retailers & distributors - Net	79	76
Retailers	67	65
Distributors	65	65
The Internet	71	82 ↑
Consumer protection groups or reports	67	61
Electric utility providers	57	65
Environmental organizations	56	51
Government agencies	54	51
Builders/local contractors	50	41
Green power marketing firms	36	51 ↑
Library	*	0
None of these	4	8
<i><u>Mean number</u></i>	<i><u>8.1</u></i>	<i><u>8.1</u></i>

* Less than 0.5%

↑/↓ = Statistically higher/lower than Homeowners

Reference: Computer Table 44

Whether Received Information about Renewable Energy Sources from Various People and Media

Both homeowners and business decision-makers said that they received information about renewable energy sources from the newspaper. In addition, homeowners had learned about renewable energy sources from TV news shows and the Internet.

Business decision-makers also learned from these places, although businesses were even more likely than homeowners to have received information about renewable energy sources on the Internet.

SOURCES FROM WHICH RECEIVED ANY INFORMATION ABOUT RENEWABLE ENERGY

	Homeowners N=252	Businesses N=51
	%	%
The newspaper	43	41
A TV news show	31	25
The Internet	29	47 ↑
A colleague or friend	17	10
Magazines	4	4
Energy provider (unspecified)	4	0 ↓
Radio	2	2
DWP	1	0
FAIRS	1	0
None of these	35	35
<i>Mean number of mentions</i>	<i>1.3</i>	<i>1.3</i>

↑/↓ = Statistically higher/lower than Homeowners
Reference: Computer Table 49

Use of Internet in General

Sixty-one percent of the homeowners said that they regularly used the Internet. This proportion was much higher among business decision-makers, 82%.

Those who used the Internet relied on it for all three of these uses: e-mail, research or reference, and web surfing.

USE OF INTERNET

	Homeowners N=252	Businesses N=51
	%	%
Regularly use Internet		
Yes	61	82 ↑
No	39	18 ↓
	<hr/> 100	<hr/> 100
Use Internet for:		
E-mail	62	86 ↑
Research or reference	62	90 ↑
Web surfing	57	80 ↑
None of these	34	6 ↓
<i>Mean number of three</i>	<i>1.8</i>	<i>2.6</i>

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Tables 45, 46

Information Source Relied on Most

In terms of information sources relied on most in general, homeowners said they relied most on television, the Internet, and newspapers.

Business decision-makers relied more on the Internet than any of the other sources or media measured, with newspapers in second position.

**ONE INFORMATION SOURCE
RELY ON AND REFER TO THE MOST**

	Homeowners N=252	Businesses N=51
	%	%
Television	29	8 ↓
Internet	26	47 ↑
Newspapers	24	20
Magazines	13	12
Radio	5	10
Books	1	4
Contractors	*	0
Don't know	3	0 ↓
	<hr/> 100	<hr/> 100

* Less than 0.5%

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 47

Whether Read Electric or Gas Utility Bill Inserts

Three-quarters of the homeowners (74%) reported reading their electric or gas utility bill inserts. This percent was lower, although still fairly high, among businesses (61%).

WHETHER READ ELECTRIC OR GAS UTILITY INSERTS

	Homeowners	Businesses
	<u>N=252</u>	<u>N=51</u>
	%	%
Read inserts	74	61 ↓
Do not read inserts	26	39 ↑
	<u>100</u>	<u>100</u>

↑/↓ = Statistically higher/lower than Homeowners

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 48

H. Homeowner Characteristics

Value of Home

Respondents in Los Angeles, San Diego and San Jose were screened on owning a home valued at \$200,000 or more. In Fresno, the values of homes are lower, so respondents were qualified on owning a home valued at \$125,000 or more.

The mean value of the homes owned by the total sample was \$308,000; the median was a little less at \$270,000.

The value of homes was highest in San Jose and, as discussed above, lowest in Fresno – with Los Angeles and San Diego in between.

VALUE OF HOME
- By Market -

	Homeowners				
	Market				
	Total N=252	Fresno N=88	Los Angeles N=89	San Diego N=38	San Jose N=37
	%	%	%	%	%
\$125,000 - \$199,999	18	52 +	0 -	0 -	0 -
\$200,000 - \$299,999	42	41 +	53 +	53 +	8 -
\$300,000 - \$399,999	13	5 -	15 +	24 +	16 +
\$400,000 - \$499,999	8	0 -	10 +/-	5 -	22 +
\$500,000 or more	15	1	18 +/-	11 +/-	49 +
Refused	4	1	4	8	5
	100	100	100	100	100
<i>Mean</i>	<i>\$308,000</i>	<i>\$205,000 -</i>	<i>\$343,000 +/-</i>	<i>\$321,000 +/-</i>	<i>\$467,000 +</i>
<i>Median</i>	<i>\$270,000</i>	<i>\$195,000</i>	<i>\$290,000</i>	<i>\$287,000</i>	<i>\$503,000</i>

+/- = Statistically higher/lower than other market
 Note: Due to rounding, figures may not always add exactly to 100%.
 Reference: Computer Table 66

Those who expressed interest in a renewable energy system had higher-priced homes than did those with less interest. As was seen in Section C, these products have more appeal to people with homes of greater value.

VALUE OF HOME

	Homeowners		
	Total Home-owners N=252	Those Who Do Not Currently Have Renewable Energy System Installed	
		Def. + Prob. Would Install N=37	Less Interest N=202
	%	%	%
\$125,000 - \$199,999**	18	11	19
\$200,000 - \$299,999	42	32	44
\$300,000 - \$399,999	13	24 +	11
\$400,000 - \$499,999	8	11	7
\$500,000 or more	15	22	14
Refused	4	0 -	4
	100	100	100
<i>Mean</i>	<i>\$308,000</i>	<i>\$350,000 +</i>	<i>\$303,000</i>
<i>Median</i>	<i>\$270,000</i>	<i>\$328,000</i>	<i>\$266,000</i>

** Fresno only
 +/- = Statistically higher/lower than those with less interest
 Note: Due to rounding, figures may not always add exactly to 100%.
 Reference: Computer Table 66

Average Monthly Electric Bill

Homeowners reported having an average monthly electric bill of \$118. The median was a little lower than the mean (\$104 and \$118, respectively).

The mean electric bill was highest in Fresno and lowest in Los Angeles and San Diego counties. It is interesting that those in Fresno had homes with the lowest values but the highest electric bills.

APPROXIMATE AVERAGE MONTHLY ELECTRIC BILL - By Market -

	Homeowners				
		Market			
	Total	Fresno	Los Angeles	San Diego	San Jose
	N=252	N=88	N=89	N=38	N=37
	%	%	%	%	%
Less than \$100	48	40 -	56 +	50	43
\$100 - \$199	38	43	33	34	46
\$200 - \$299	9	14 +	8	8	3 -
\$300 or more	3	3	2	0	5
Don't know/refused	<u>2</u>	<u>0</u> -	<u>1</u>	<u>8</u> +	<u>3</u>
	100	100	100	100	100
<i>Mean</i>	<i>118</i>	<i>134</i> +	<i>107</i> -	<i>104</i> -	<i>122</i>
<i>Median</i>	<i>104</i>	<i>123</i>	<i>87</i>	<i>91</i>	<i>112</i>

+/- = Statistically higher/lower than other market

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 53

The amount of the electric bill was not significantly related to interest in obtaining a renewable energy system for the home.

APPROXIMATE AVERAGE MONTHLY ELECTRIC BILL

	Homeowners		
	Total Home-owners N=252	Those Who Do Not Currently Have Renewable Energy System Installed	
		Def. + Prob. Would Install N=37	Less Interest N=202
	%	%	%
Less than \$100	48	41	50
\$100 - \$199	38	43	38
\$200 - \$299	9	16	7
\$300 - \$399	1	0	1
\$400 - \$499	1	1	1
\$500 or more	*	*	1
Don't know/refused	<u>2</u>	<u>1</u>	<u>0</u>
	100	100	100
<i>Mean</i>	<i>\$118</i>	<i>\$126</i>	<i>\$116</i>
<i>Median</i>	<i>\$104</i>	<i>\$122</i>	<i>\$98</i>

* Less than 0.5%

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 53

Demographics

Quotas were set so that half of the interviews with homeowners were conducted with males and half with females. These respondents had a mean age of about 54 years and lived in households with a little less than three people on average (2.7). A little under one-fifth (18%) had young children (under 10 years of age) and a similar percentage (19%) had children or teens 10 to 19 years of age. Relatively few respondents were from households with people in the 20 to 34 age category. Most were 35 years of age and over.

Approximately half of the homeowners had a four-year college degree, with 22% having a graduate degree. The mean household income was \$89,000 and the median was \$80,000.

Those who expressed positive interest in obtaining a renewable energy system for their home were younger, in larger households, and more likely to be 35 to 44 years of age with children under 10 in the home. They were slightly better educated, although not significantly so and they had slightly higher household incomes than did those with less interest in a renewable energy system.

DEMOGRAPHICS OF HOMEOWNERS

	Homeowners		
	Total Home-owners N=252	Those Who Do Not Currently Have Renewable Energy System Installed	
	Def. + Prob. Would Install N=37	Less Interest N=202	
	%	%	%
Gender			
Male	50	57	50
Female	<u>50</u>	<u>43</u>	<u>50</u>
	100	100	100
Age			
Under 25	1	0	1
25 to 34	6	14	4
35 to 44	19	35 +	17
45 to 54	20	11 -	23
55 to 64	21	22	20
65 and over	31	19 -	33
Refused	<u>2</u>	<u>0</u>	<u>1</u>
	100	100	100
<i>Mean age</i>	<i>54.4</i>	<i>49.2 -</i>	<i>55.2</i>
Number of people in household			
1	15	5 -	18
2	43	38	44
3	13	5 -	17
4	14	35 +	11
5 or more	12	16	11
Refused	<u>3</u>	<u>0 -</u>	<u>2</u>
	100	100	100
<i>Mean number of people</i>	<i>2.7</i>	<i>3.2 +</i>	<i>2.6</i>
Household composition:			
One or more:			
Under 10	18	41 +	14
10-19	19	24	18
20-24	9	14	9
25-34	16	24	14
35-44	26	46 +	24
45-54	23	24	24
55-64	25	24	25
65 and over	36	27	38

(Continued)

**DEMOGRAPHICS OF HOMEOWNERS
(Continued)**

	Homeowners		
	Total Home-owners N=252	Def. + Prob. Would Install N=37	Those Who Do Not Currently Have Renewable Energy System Installed <u>Less Interest</u> N=202
	%	%	%
Highest level of education completed			
Some high school	3	3	3
High school graduate	15	19	15
Trade or technical school	3	5	3
Some college	22	14	23
2-year college graduate	5	0 -	6
4-year college graduate	22	24	23
Some graduate school	5	5	4
Graduate degree	22	30	21
Refused	<u>2</u>	<u>0</u>	<u>1</u>
	100	100	100
Household income			
Under \$40,000	10	8	10
\$40,000 - \$74,999	19	24	19
\$75,000 - \$99,999	16	16	17
\$100,000 - \$124,999	6	11	5
\$125,000 - \$149,999	7	14	6
\$150,000 - \$199,999	3	5	3
\$200,000 or more	4	5	3
Refused	<u>35</u>	<u>16 -</u>	<u>36</u>
	100	100	100
<i>Mean</i>	<i>\$89,000</i>	<i>\$99,000</i>	<i>\$86,000</i>
<i>Median</i>	<i>\$80,000</i>	<i>\$90,000</i>	<i>\$79,000</i>

+/- = Statistically higher/lower than those with less interest

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Tables 2, 54-63, 65, 67

Estimated Number of Times Will Move in Next 20 Years

Close to half (44%) of the homeowners said that they had no intention of moving in the next 20 years. Most of the remainder were anticipating one move; about 20% said they would move two or more times. Thus, for the most part, these people were very stable. Presumably, if they were to put a renewable energy system in their home it would be for their use rather than for future owners.

ESTIMATED NUMBER OF TIMES WILL MOVE IN NEXT 20 YEARS

	Homeowners
	<u>N=252</u>
	%
None	44
Once	33
Twice	13
Three or more times	5
Don't know	4
	<hr/>
	100
<i>Mean number of times</i>	<i>0.8</i>

Note: Due to rounding, figures may not always add exactly to 10
Reference: Computer Table 50

Household Member Attendance at Various Events

Respondents were read four different events and were asked to indicate whether anyone in their household attends those events. Most respondents (72%) reported that someone in their household attends one or more of the four events measured. The mean number of four events attended was 1.5. County or State fairs (54%) and home shows (46%) were more popular than walking or running events (27%) and Earth Day events (20%).

Those who expressed interest in a renewable energy system were more likely than those with less interest to have someone in the household attend home shows. They were directionally more likely to attend each of the other three events as well.

**HOUSEHOLD MEMBER ATTENDANCE
AT VARIOUS EVENTS**

	Homeowners		
	Total Home-owners N=252	<u>Those Who Do Not Currently Have Renewable Energy System Installed</u>	
	%	Def. + Prob. Would Install N=37	Less Interest N=202
	%	%	%
County or State fairs	54	65	52
Home shows	46	59 +	45
Walking or running events	27	35	25
Earth Day events	20	30	17
None of these	27	19	28
Refused	<u>1</u>	<u>0</u>	<u>*</u>
	100	100	100
<i>Mean number of 4 events</i>	<i>1.5</i>	<i>1.9</i>	<i>1.4</i>

* Less than 0.5%

+/- = Statistically higher/lower than those with less interest

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 64

I. Business Characteristics

Number of Employees

Businesses that own their own building were included in the survey if they had five to fifty employees. The mean number of employees was 25.8 and the median was 23.

NUMBER OF EMPLOYEES

	Businesses That Own Their Building
	<u>N=45</u>
	%
5-10	4
11-15	11
16-20	22
21-25	18
26-30	18
31-35	9
36-40	11
41-45	2
46-50	<u>4</u>
	100
<i>Mean</i>	<i>25.8</i>
<i>Median</i>	<i>23.0</i>

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 9

Approximate Average Monthly Electric Bill

Business decision-makers reported having an average monthly electric bill of \$3,400. The median was lower, \$2,400.

APPROXIMATE AVERAGE MONTHLY ELECTRIC BILL

	Businesses
	<u>N=51</u>
	%
Less than \$1,000	24
\$1,000 - \$2,499	27
\$2,500 - \$4,999	27
\$5,000 - \$7,499	6
\$7,500 - \$9,999	8
\$10,000 or more	6
Refused	2
	<hr/>
	100
<i>Mean</i>	<i>\$3,400</i>
<i>Median</i>	<i>\$2,400</i>

Note: Due to rounding, figures may not always add exactly to 100%.

Reference: Computer Table 68

Membership in Any Professional Trade Organization

Over 60% of the business decision-makers said that they or their companies were members of a professional trade organization.

**MEMBERSHIP IN ANY
PROFESSIONAL TRADE ORGANIZATION**

	Businesses
	<u>N=51</u>
	%
Respondent or company is a member of a professional trade organization	63
Not a member	<u>37</u>
	100

Note: Due to rounding, figures may not always add exactly to 100%.
Reference: Computer Table 69

APPENDIX

CEC Renewable Energy Phone Questionnaire - Consumer

Opening Statement: Renewable energy sources include power generating systems that create electricity by using solar power, wind power, fuel cells or solar thermal power.

1. Are you familiar with the following renewable energy sources? Yes or No.

- Solar Cells, also known as photovoltaics or PV
- Small wind turbines
- Fuel cells
- Solar thermal electric

1a. (If yes to #1) Are you familiar with the way in which the following renewable energy sources generate electricity? Yes or No.

- Solar Cells
- Small wind turbines
- Fuel cells
- Solar thermal electric

2. Give your best estimate on how much you think it would cost to purchase and install each of the following renewable energy systems in your home.

- Solar Cells
 - Small wind turbines
 - Fuel cells
 - Solar thermal electric
-
- Less than \$500
 - \$500 - \$2499
 - \$2500-\$4999
 - \$5000-\$14,999
 - \$15,000+

3. What do you believe are the benefits of renewable energy sources?

- (surveyor to fill in open ended answer)

4. Do you currently have a renewable energy system installed at your home?

- Yes
- No

4a. (If yes to #4) What type of renewable energy system do you have installed?

- Solar Cells
- Small wind turbines
- Fuel cells
- Solar thermal electric
- Other - please list

4b. (If yes to #4) Do manufacturers, suppliers or installers remain in contact with you? Please check all that apply.

- Yes, manufacturers
- Yes, suppliers
- Yes, installers
- No

4c. (If yes to #4) Have manufacturers, suppliers or installers of the system offered information to you following the purchase and installation of your system? Please check all that apply.

- Yes, manufacturers
- Yes, suppliers
- Yes, installers
- No

4d. (If no to #4b or #4c) Would you prefer manufacturers, suppliers or installers of the system to remain in contact with you and offer information after installation?

- Yes
- No

4e. (If yes to #4d) What information would you find useful?

- (surveyor to fill in open ended answer)

5. How likely are you to install a solar, wind or fuel cell renewable energy system at your home in the future?

- definitely would install a system
- probably would install a system
- might or might not install a system
- probably would not install a system
- definitely would not install a system

6. Why do you feel that way?

- (surveyor to fill in open ended answer)

7. Are you aware of anyone, other than yourself, who has installed a renewable energy system and is using it on their home?

- Yes
- No

7a. (If yes to #7) How many people?

- (surveyor to fill in open ended answer)

8. How many years would you estimate it would take the energy savings from a renewable energy electricity generating system to pay back the initial cost of the equipment?

- 1-2 years
- 3-6 years
- 7-10 years
- 11-15 years
- 16 or more years

9. If you have already considered, or were to consider in the future, purchasing a renewable energy system, how important would the following considerations be to you in the **decision-making process**? Please answer each option below on a scale of 1 to 5, where 1 is not at all important and 5 is very important.

- Conserving environmental resources
- Cost of the installation and maintenance of the system
- An investment that increases the value of my home
- Less reliance on fossil fuels
- Less reliance on the electric company
- Availability of sales and maintenance support
- Payback period

10. If you have already considered, or were to consider in the future, acquiring a renewable energy system, how important would the following **system installation and ownership features** be to you? Please provide an answer for each one of the following system preferences using a scale of 1 to 5, where 1 is not at all important and 5 is very important.

- Initial cost of the system
- System add-on or upgrade capability
- Ability to measure how much electricity is produced
- Visual attractiveness of the system
- How long the system would last
- Ability to finance the system
- Length of the warranty period
- Availability of maintenance agreement
- Option to install equipment yourself
- Availability of net metering (excess electricity generated feeds back into the grid and spins your meter backward)
- Reliability of the equipment
- Expense of maintaining the system
- Safety of the system
- Payback period

11. If you were to purchase a renewable energy system for your home, which of the following system sizes would you most prefer?

- Small system that provides about 15% of my electricity usage
- Medium system that provides up to 25% of my electricity usage
- Large system that provides up to 50% of my electricity usage
- A very large system that provides up to 75% of my electricity usage

12. What do you believe are the significant barriers to installing renewable energy generating systems in homes in California? Please check all that apply.

- Initial cost of the system
- Electric company interconnection
- Understanding of the technology costs and benefits
- Availability of product information
- Availability of products and trained installers
- Availability of financing at reasonable rates
- Concerns with performance or product reliability

13. Do you think that information about renewable energy systems for the home is easy to find, access and understand?

- Yes
- No
- Haven't looked

14. What resources have you used or where would you go to find information about renewable energy systems? Please check all that apply.

- Builders/local contractors
- The internet
- Magazines
- Newspapers
- Consumer protection groups or reports
- Green power marketing firms
- Electric utility providers
- Environmental organizations
- Existing owners of these systems
- Government agencies
- Manufacturers
- Retailers
- Distributors
- Other - please list

15. Do you regularly use the internet?

- Yes
- No

16. How do you use the internet? Please check all that apply.

- Email
- Web surfing
- Research or reference

17. Which one information source would you say you rely on, and refer to, the most?

- Television
- Radio
- Magazines
- Newspapers
- Internet
- Other - please list

18. Do you read your electric or gas utility bill inserts?

- Yes
- No

19. Have you ever received any information about renewable energy sources from the following?

Please check all that apply.

- Yes, a colleague or friend
- Yes, a TV news show
- Yes, the newspaper
- Yes, the internet
- Yes, other - please list
- No

20. What is your TOTAL annual household income before taxes?

- \$40,000-\$74,999
- \$75,000-\$99,999
- \$100,000-\$124,999
- \$125,000-\$149,999
- \$150,000-\$199,999
- \$200,000 or more

21. Please indicate the highest level of education you have completed.

- Some high school
- High school graduate
- Trade or technical school graduate
- Some college
- 2-year college graduate
- 4-year college graduate
- Some graduate school
- Graduate degree

22. What is the approximate value of your home?

- \$100,000-\$199,999
- \$200,000-\$299,999
- \$300,000-\$399,999
- \$400,000-\$499,999
- \$500,000 or more

23. How many times do you estimate you will move in the next 20 years?

- (surveyor to fill in number of years)

24. Would you be more interested in a home that had a renewable energy system already installed?

- Yes
- No

25. Would you pay more for a house that had a renewable energy system already installed?

- Yes
- No

26. What is your approximate average monthly electric bill?

- Less than \$100
- \$100-\$199
- \$200-\$299
- \$300-\$399
- \$400-\$499
- \$500 or more

27. What age group are you in?

- Under 25
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

28. How many people (including yourself) live at your address?

- One
- Two
- Three
- Four
- Five
- Six
- Seven or more

29. What age groups are they in? Please check all that apply.

- Under 10
- 10-19
- 20-29
- 30-39
- 40-49
- 50+

30. Does anyone in your household attend the following events? Please check all that apply.

- Earth Day events
- Home shows
- County or State fairs
- Walking or running events

CEC Renewable Energy Phone Questionnaire - Business

Opening Statement: Renewable energy sources include power generating systems that create electricity by using solar power, wind power, fuel cells or solar thermal power.

1. Are you familiar with the following renewable energy sources? Yes or No.

- Solar Cells, also known as photovoltaics or PV
- Small wind turbines
- Fuel cells
- Solar thermal electric

1a. (If yes to #1) Are you familiar with the way in which the following renewable energy sources generate electricity? Yes or No.

- Solar Cells
- Small wind turbines
- Fuel cells
- Solar thermal electric

2. Give your best estimate on how much you think it would cost to purchase and install each of the following renewable energy systems in your business or commercial property.

- Solar Cells
 - Small wind turbines
 - Fuel cells
 - Solar thermal electric
-
- Less than \$500
 - \$500 - \$2499
 - \$2500-\$4999
 - \$5000-\$14,999
 - \$15,000+

3. What do you believe are the benefits of renewable energy sources?

- (surveyor to fill in open ended answer)

4. Do you currently have a renewable energy system installed at your business or commercial property?

- Yes
- No

4a. (If yes to #4) What type of renewable energy system do you have installed?

- Solar Cells
- Small wind turbines
- Fuel cells
- Solar thermal electric
- Other - please list

4b. (If yes to #4) Do manufacturers, suppliers or installers remain in contact with you? Please check all that apply.

- Yes, manufacturers
- Yes, suppliers
- Yes, installers
- No

4c. (If yes to #4) Have manufacturers, suppliers or installers of the system offered information to you following the purchase and installation of your system? Please check all that apply.

- Yes, manufacturers
- Yes, suppliers
- Yes, installers
- No

4d. (If no to #4b or #4c) Would you prefer manufacturers, suppliers or installers of the system to remain in contact with you and offer information after installation?

- Yes
- No

4e. (If yes to #4d) What information would you find useful?

- (surveyor to fill in open ended answer)

5. How likely are you to install a solar, wind or fuel cell renewable energy system at your business or commercial property in the future?

- definitely would install a system
- probably would install a system
- might or might not install a system
- probably would not install a system
- definitely would not install a system

6. Why do you feel that way?

- (surveyor to fill in open ended answer)

7. Are you aware of anyone, other than yourself, who has installed a renewable energy system and is using it to generate electricity at their business or commercial property?

- Yes
- No

7a. (If yes to #7) How many are you aware of?

- (surveyor to fill in open ended answer)

8. How many years would you estimate it would take the energy savings from a renewable energy electricity generating system to pay back the initial cost of the equipment?

- 1-2 years
- 3-6 years
- 7-10 years
- 11-15 years
- 16 or more years

9. If you have already considered, or were to consider in the future, purchasing a renewable energy system, how important would the following considerations be to you in the **decision-making process**? Please answer each option below on a scale of 1 to 5, where 1 is not at all important and 5 is very important.

- Conserving environmental resources
- Cost of the installation and maintenance of the system
- An investment that increases the value of my business/commercial property
- Less reliance on fossil fuels
- Less reliance on the electric company
- Availability of sales and maintenance support
- Payback period

10. If you have already considered, or were to consider in the future, acquiring a renewable energy system, how important would the following **system installation and ownership features** be to you? Please provide an answer for each one of the following system preferences using a scale of 1 to 5, where 1 is not at all important and 5 is very important.

- Initial cost of the system
- System add-on or upgrade capability
- Ability to measure how much electricity is produced
- Visual attractiveness of the system
- How long the system would last
- Ability to finance the system
- Length of the warranty period
- Availability of maintenance agreement
- Option to install equipment yourself
- Availability of net metering (excess electricity generated feeds back into the grid and spins your meter backward)
- Reliability of the equipment
- Expense of maintaining the system
- Safety of the system
- Payback period

11. If you were to purchase a renewable energy system for your business or commercial premises, which of the following system sizes would you most prefer?

- Small system that provides about 15% of my electricity usage
- Medium system that provides up to 25% of my electricity usage
- Large system that provides up to 50% of my electricity usage
- A very large system that provides up to 75% of my electricity usage

12. What do you believe are the significant barriers to installing renewable energy generating systems in businesses and commercial properties in California? Please check all that apply.

- Initial cost of the system
- Electric company interconnection
- Understanding of the technology costs and benefits
- Availability of product information
- Availability of products and trained installers
- Availability of financing at reasonable rates
- Concerns with performance or product reliability

13. Do you think that information about renewable energy systems for businesses is easy to find, access and understand?

- Yes
- No
- Haven't looked

14. What resources have you used or where would you go to find information about renewable energy systems? Please check all that apply.

- Builders/local contractors
- The internet
- Magazines
- Newspapers
- Consumer protection groups or reports
- Green power marketing firms
- Electric utility providers
- Environmental organizations
- Existing owners of these systems
- Government agencies
- Manufacturers
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- Yes
- No

19. Have you ever received any information about renewable energy sources from the following?

Please check all that apply.

- Yes, a colleague or friend
- Yes, a TV news show
- Yes, the newspaper
- Yes, the internet
- Yes, other - please list
- No

20. What is your building's approximate average monthly electric bill?

- Less than \$1000
- \$1,000-\$2,499
- \$2,500-\$4,999
- \$5,000-\$7,499
- \$7,500-\$9,999
- \$10,000 or more

21. Are you or is your company a member of any professional or trade organization?

- Yes
- No