

**NEW SOLAR HOMES PARTNERSHIP  
NEW CONSTRUCTION HOME BUYERS  
MARKET RESEARCH REPORT**

*Prepared For:*  
**CALIFORNIA ENERGY COMMISSION**

*Prepared By:*  
**Fairbank, Maslin, Maullin, and Associates**

***Fairbank, Maslin, Maullin & Associates***  
*Opinion Research & Public Policy Analysis*  
Santa Monica, CA - Oakland, CA - Madison, WI - Mexico City

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***Prepared By:***

Richard Maullin  
***Principal Author***

Fairbank, Maslin, Maullin, and Associates  
Oakland, CA  
Contract No. 400-06-401

***Prepared For:***

**California Energy Commission**

Rachel Salazar  
***Contract Manager***

Amy Morgan  
***Project Manager***

Mark Hutchinson  
***Manager***  
**Renewable Energy Office**

Valerie T. Hall  
***Deputy Director***  
**Efficiency and Renewables Division**

Melissa Jones  
***Executive Director***

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## **ABSTRACT**

The New Solar Homes Partnership is a ten-year program managed by the California Energy Commission to encourage the installation of solar electric power in new home construction in California. Fairbank, Maslin, Maullin & Associates was commissioned by the California Energy Commission to conduct market research in support of the New Solar Homes Partnership's public awareness campaign. The baseline market research, conducted from March to May 2007, included focus groups and a telephone survey designed to examine the attitudes, behaviors and preferences of new home buyers toward solar electric power. This report details the findings of that research and its implications for the public awareness campaign.

**Keywords:** solar, solar electric, PV, photovoltaic, new construction, new solar homes partnership, homes, energy, building, integrated, California, renewable, program, rebate, Fresno, Riverside, Concord, San Diego, Sacramento, survey, focus group, cost saving, save, electricity, utility, bills, environment, buyer, standard feature, green



# **EXECUTIVE SUMMARY**

The New Solar Homes Partnership is a ten-year program managed by the California Energy Commission to encourage the installation of solar electric power in new home construction in California. Fairbank, Maslin, Maullin & Associates was commissioned by the California Energy Commission to conduct market research in support of the New Solar Homes Partnership's public outreach campaign. The baseline market research, conducted from March to May 2007, included focus groups and a telephone survey designed to examine the attitudes, behaviors and preferences of new home buyers toward solar electric power. This report details the findings of that research and its implications for the public outreach campaign.

## **Research Methodology**

From May 18 through May 26, 2007, Fairbank, Maslin, Maullin & Associates (FMM&A) conducted a survey of 600 randomly selected recent buyers of single family, newly constructed homes in California. Two-hundred interviews were conducted in three regions: The Inland Empire, Central Valley, and Sacramento area. The margin of error for the sample as a whole is +/- 4.1 percentage points. The margin of error for subgroups within the sample is higher, depending on the size of the group.

In March and April 2007, FMM&A conducted six focus groups of recent and prospective buyers of new construction single residence homes in four locations across California: Riverside (2 groups), San Diego (2 groups), and Fresno and Concord (one group each). Ten to 12 people participated in each group, with 67 participants in all. In Riverside and San Diego, the groups were separated according to income and education. In all locations, the groups were selected to include a broad representation of recent and potential newly constructed single homebuyers by gender, age, geography, education, income and ethnicity. In addition to providing qualitative insights, the home buyer focus groups were used to shape the survey questionnaire.

## Key Findings

The overall results of the market research are encouraging. New construction home buyers have positive perceptions of solar electric power: they see it as a proven, reliable technology that can pay for itself and will help reduce global warming. In addition, a solid majority of home buyers are willing to purchase rooftop solar electric systems as a feature of a new home. Home buyers willing to purchase solar electric power are interested in the environmental benefits of solar but are strongly motivated by energy cost savings. Other key findings of the research include the following:

- In choosing a newly constructed home, energy efficiency and costs are not at the forefront of respondents' thinking. However, home buyers are strongly motivated by the utility cost savings promised by solar electric systems. In fact, 96 percent believe electric bills will continue to increase steadily in the years ahead and 88 percent say the high cost of electricity has now become an important factor in their home buying decisions.
- Respondents believe that rooftop solar electric systems are cost-efficient. More than eight in ten (82%) believe this system would "pay for itself." Furthermore, nearly all of those familiar enough to give an opinion consider rooftop solar electric systems to be "user-friendly," "reliable," and "low maintenance."
- In addition to seeing the cost-saving benefits, respondents also believe the use of solar electric systems is environmentally responsible, with 86 percent saying using these systems is "the right thing to do" and "helps to reduce smog and global warming gases."
- Respondents consider builders who provide solar electric systems to care about the environment and believe these builders are more likely to offer high quality construction.
- As a result of these views, 62 percent of respondents say they would be willing to consider purchasing a solar electric system as an option for a newly constructed home, with one-third saying they would definitely consider it.
- Support increases further to 72 percent when respondents hear a brief description of how these systems work and save electricity and money.
- The principal factors motivating purchase interest are perceptions of savings on monthly utility bills and doing something meaningful to improve the environment.
- Resistance to solar electric's initial capital cost and doubts about solar electric maintenance costs, long term reliability and long pay-back periods are the dominant factors working against purchasing a solar electric system as an option for a newly constructed home.

- The most likely solar electric purchasers are younger (ages 18-49) college-educated homebuyers and those tending to see themselves as environmentalists and moderate to liberal in political outlook. Women make up a slightly greater proportion among the more likely buyer group than men.
- The most convincing message tested in the survey is simple and direct: “Capturing the power of the sun pays off. A typical solar electric system can cut the average home’s monthly electric bill in half.” While 89 percent of respondents find this message convincing, three out of four respondents find other economic messages convincing, as well as those focused on the environmental benefits, and the reliability, maintenance, and appearance of the system.
- None of the negative arguments tested in the survey were effective in reducing interest in adding a solar electric system when purchasing a newly constructed home.
- A large majority would find a solar electric system, if offered as a standard feature of a newly constructed home, to be an important factor influencing a purchase of that home.
- Government subsidies are welcomed, but relatively few are aware of their existence or details, and they seem not to be essential to motivate buyer interest.

The remainder of this report presents the market research results in more detail, and discusses recommendations for public outreach and communications efforts.



# CHAPTER 1: Actors In The Home Purchase Decision

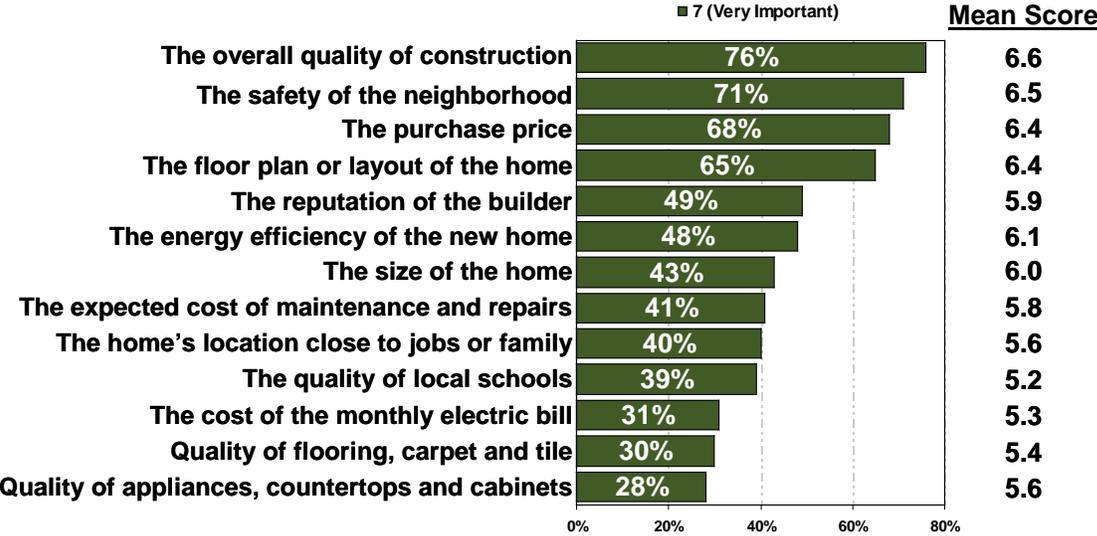
The focus group results showed that energy efficiency and energy costs are not primary drivers of home purchase decisions. Instead, size, layout, and features of the home, as well as the perceived quality of the construction and ease of maintenance occupy this position. The survey results confirm that factors other than energy efficiency and energy costs are far more important in considering a home to purchase, including the quality of the construction, the safety of the neighborhood, the purchase price, and the floor plan, among others. However, the survey results show that energy considerations are important secondary concerns for a large proportion of respondents.

## Rating of Important Factors in Choosing a Home

Survey respondents were asked to evaluate the importance of a number of factors that people consider in purchasing a new home on a scale of 1 to 7, where “1” indicated the factor was not important at all in their decision and “7” indicated it was very important. As **Figure 1** below shows, the quality of construction, the safety of the neighborhood, the purchase price, and the floor plan receive a “7” rating by two-thirds or more respondents, indicating they are of high importance. The energy efficiency of the home is of high importance to 48 percent and the cost of the monthly electric bill receives a “7” rating from just three in ten (31%) respondents. However, as the right-hand column of the figure shows, the energy efficiency of the home receives a mean rating of 6.1 out of seven – only slightly lower than the other factors mentioned. Furthermore, just nine percent give it a rating of four or less – meaning it is at least somewhat important to nine out of ten respondents. These results show that, while energy efficiency may not be a deciding or top of mind factor in choosing a home, it is an important secondary concern to a large number of homebuyers nevertheless.

**Figure 1: Factors in Home Buying Decisions**

*I'm going to mention some factors that people may consider when purchasing a new home. Using a scale of one to seven, where one means NOT AT ALL IMPORTANT, and seven means VERY IMPORTANT, for each one, please tell me how important that factor is for you personally in choosing a newly constructed, never lived in single residence home.*

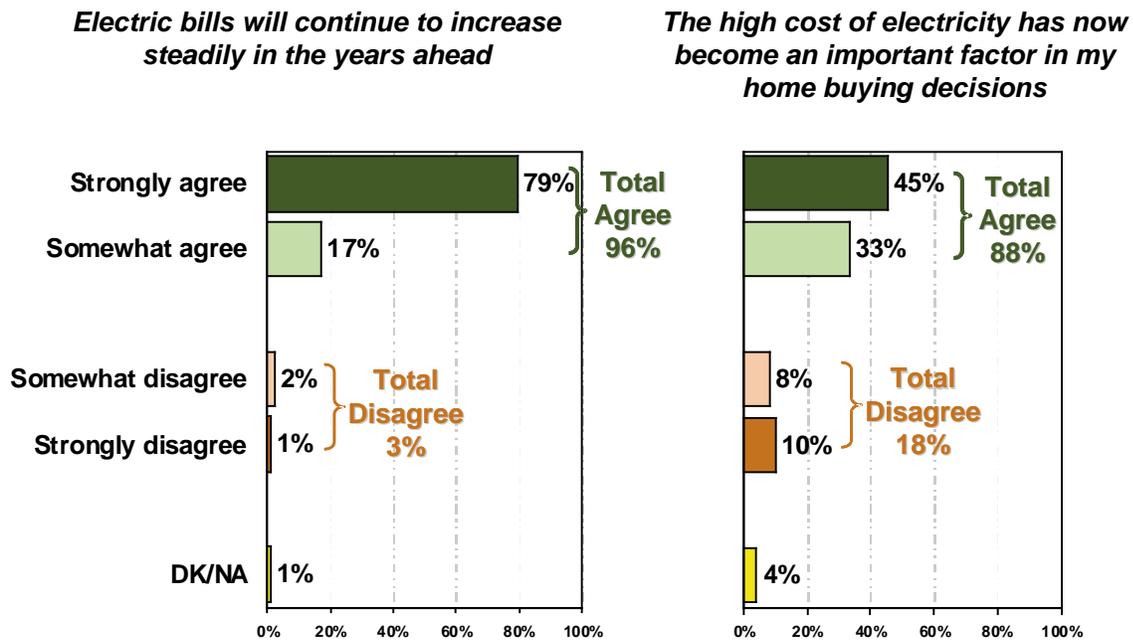


## Role of Energy Efficiency in Home Buying Decisions

Further illustrating that homebuyers consider energy efficiency to be important, 96 percent agree that “electric bills will continue to increase steadily in the years ahead” (79% strongly agree) and 88 percent agree (45% strongly) that “the high cost of electricity has now become an important factor in my home buying decisions.”

Figure 2 illustrates the results.

**Figure 2: Agreement With Statements Regarding Energy Costs/Efficiency**



## CHAPTER 2: Attitudes Toward Solar Electric Power

### Impressions of Rooftop Solar Electric Systems

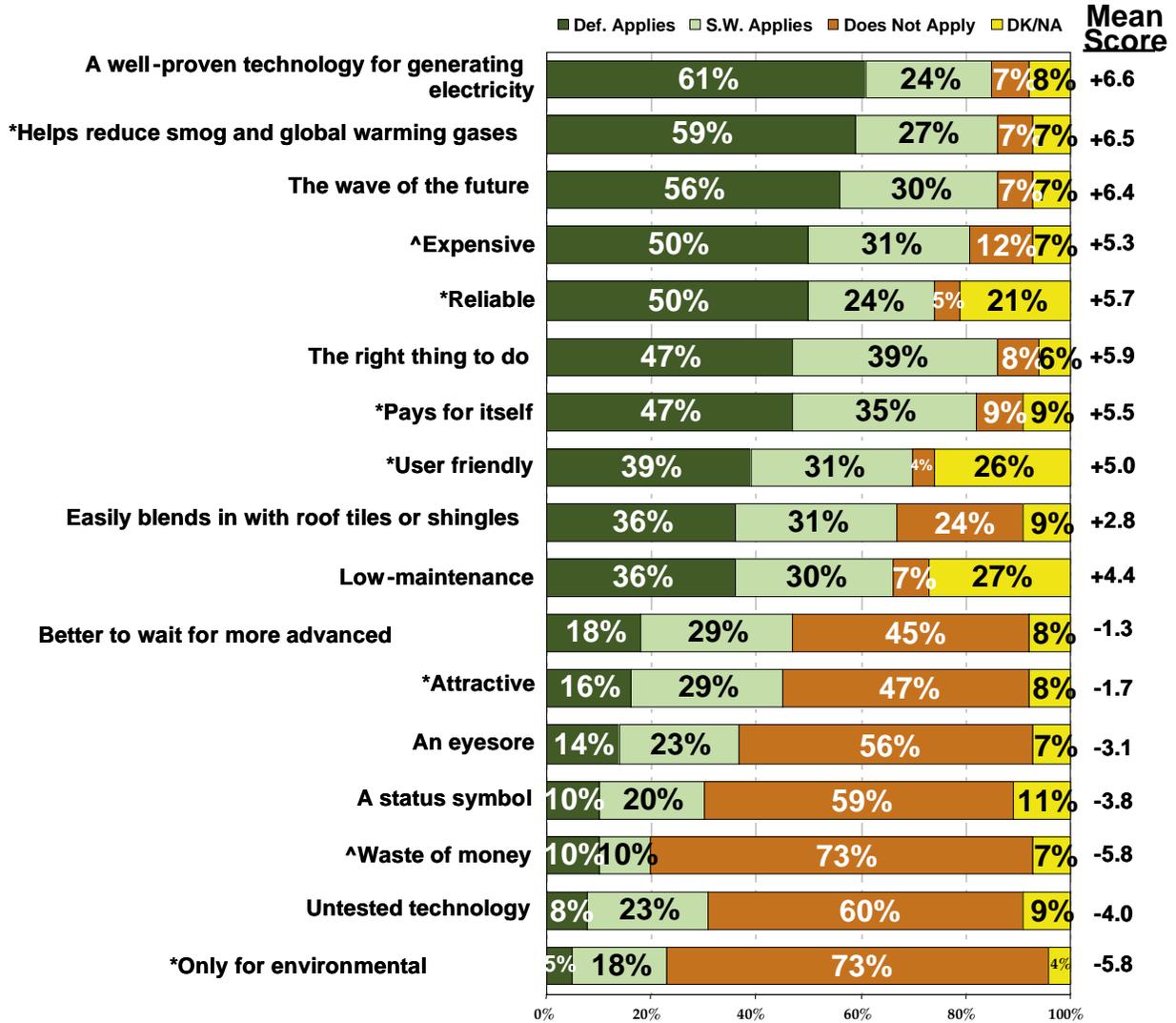
A substantial number of homebuyers see rooftop solar electric systems as a proven technology and helpful in reducing smog and global warming. Survey respondents were asked whether various words and phrases apply or not to rooftop solar electric systems. As shown in **Figure 3** on the following page, approximately six in ten respondents strongly believe these systems are “a well-proven technology for generating electricity” and “help reduce smog and global warming.” Overall, more than eight in ten believe these phrases apply at least “somewhat.” High numbers also agree that such solar energy is the “wave of the future,” “reliable,” “pays for itself,” and “the right thing to do.” The vast majority able to give an opinion also consider the system “low maintenance” and “user-friendly.” However, 21 percent were unable to offer an opinion regarding the reliability of roof-top solar systems and 27 percent were unable to express an opinion about solar system maintenance needs, thus expressing doubts among a significant number of potential customers.

Respondents are less likely to consider these systems “attractive,” with 45 percent saying this statement applies and 47 percent believing it does not apply. High numbers also believe that solar systems are “expensive,” with 50 percent strongly feeling this way and 81 percent overall. See **Figure 3** on the following page for details.

### Figure 3: Impressions of Rooftop Solar Electric Systems

(Mean Score: +10 = all respondents say phrase “definitely applies;” -10 = all respondents say “does not apply.”)

\*A statistically significant relationship with an increased willingness to buy a solar electric system  
 ^ Statistically significant relationship with a decreased willingness to buy a solar electric system

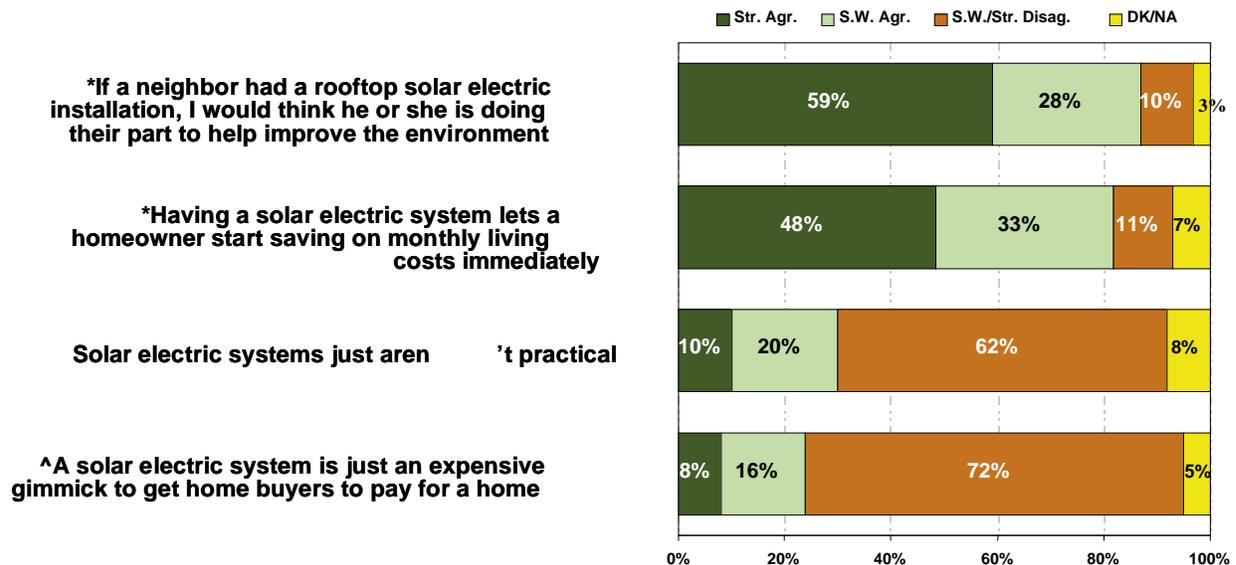


## Perceptions of Savings and Practicality

Next, as shown in **Figure 4** on the following page, eight in ten respondents (81%) agree that “having a solar electric system lets a homeowner start saving on monthly living costs immediately.” Nearly half (48%) of respondents “strongly” agree with this statement. Nearly three out of four respondents (72%) disagree that “a solar electric system is just an expensive gimmick to get homebuyers to pay more for a home.” Further showing that respondents believe solar systems are effective and user-friendly, 62 percent disagree that “solar electric systems just aren’t practical.” The results also show that nearly nine in ten respondents (87%) agree that “if a neighbor had a rooftop solar installation, I would think he or she is doing their part to help the environment.” In fact, 59 percent “strongly” agree with this statement. This same viewpoint emerged in the focus groups.

Figure 4 below illustrates the results.

**Figure 4: Agreement with Statements About Solar Electric Systems**



\*Statistically significant relationship with an increased willin

^Statistically significant relationship with a decreased will

gness to buy a solar electric system

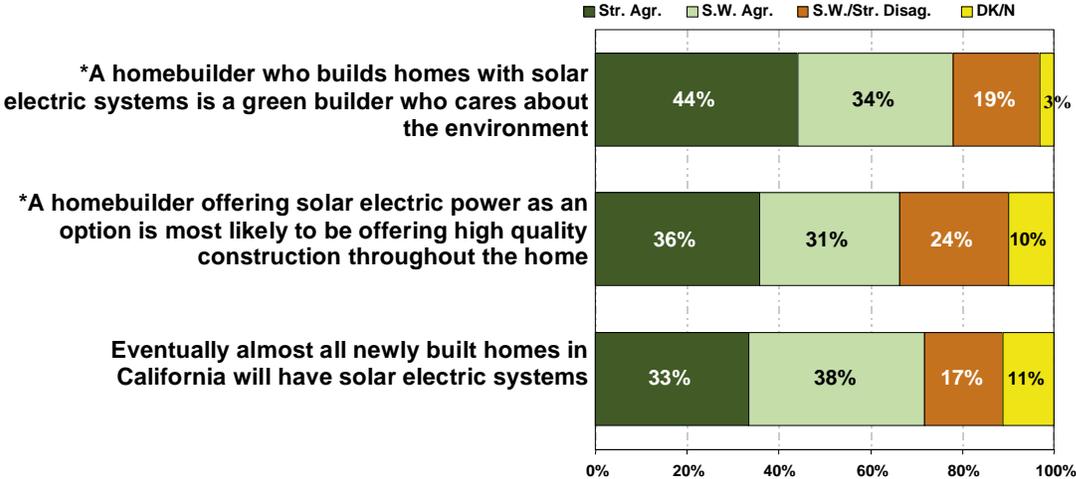
ingness to buy a solar electric system

# Opinions of Builders Offering Solar Electric Systems

Respondents have a positive feeling about homebuilders who use solar electric systems. Nearly eight in ten (78%) agree that “a homeowner who builds homes with solar electric systems is a green builder who cares about the environment.” Further, two-thirds (67%) agree that “a homebuilder offering solar electric power as an option is most likely to be offering high quality construction throughout the home.” These results are in line with findings from the focus groups where the participants said builders who offer solar electric systems are socially conscious, future-oriented people who offer an overall higher quality of construction.

Furthermore, seven in ten (71%) respondents feel “eventually, almost all newly-built homes in California will have solar electric systems.” **Figure 5** illustrates the results.

**Figure 5: Opinions of Builders Offering Solar Electric Systems**



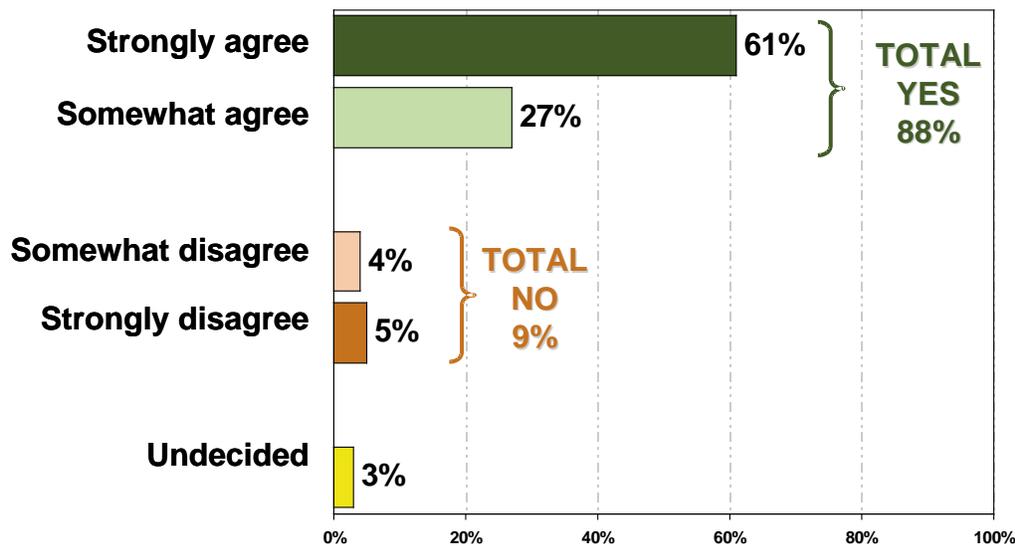
*\*Statistically significant relationship with an increased willingness to buy a solar electric system*

## Awareness of Incentives for Use of Solar Electric Systems

As a result of positive views about solar energy and concern about energy costs, it is not surprising that nearly nine in ten respondents (88%) believe “California state government should provide tax breaks to promote solar electric systems as a feature for newly built homes.” Sixty-one percent (61%) strongly agree (see **Figure 6** below).

**Figure 6: Support for California Tax Breaks for Using Solar Electricity**

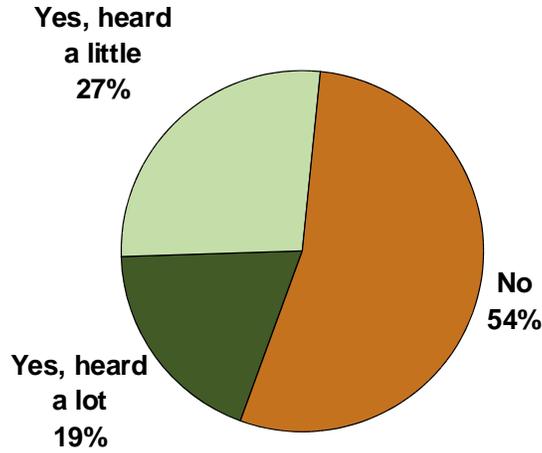
*Please tell me if you agree or disagree with each statement: California state government should provide tax breaks to promote solar electric systems as a feature for newly built homes.*



Nevertheless, in spite of support for a government subsidy, a majority (54%) of respondents have not heard anything about rebates offered by the State of California for homeowners and homebuilders who install solar electric systems. Just 19 percent have heard “a lot” about these rebates, with 27 percent having heard “a little.” **Figure 7** illustrates the results.

### Figure 7: Awareness of State Rebates for Using Solar Electric Systems

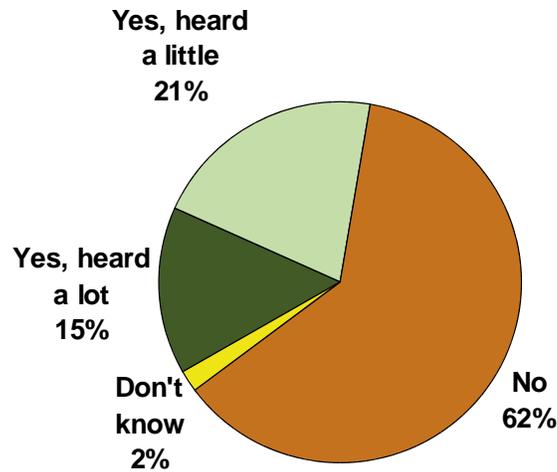
*Have you heard anything about rebates offered by California State Government for homeowners and home builders who install solar electric systems?*



Respondents are even less familiar with federal income tax credits for homeowners who buy energy saving equipment, which includes solar electric systems (see Figure 8).

### Figure 8: Awareness of Federal Tax Incentives

*Have you heard anything about the income tax credits offered by the Federal Government for homeowners who purchase a solar electric system?*



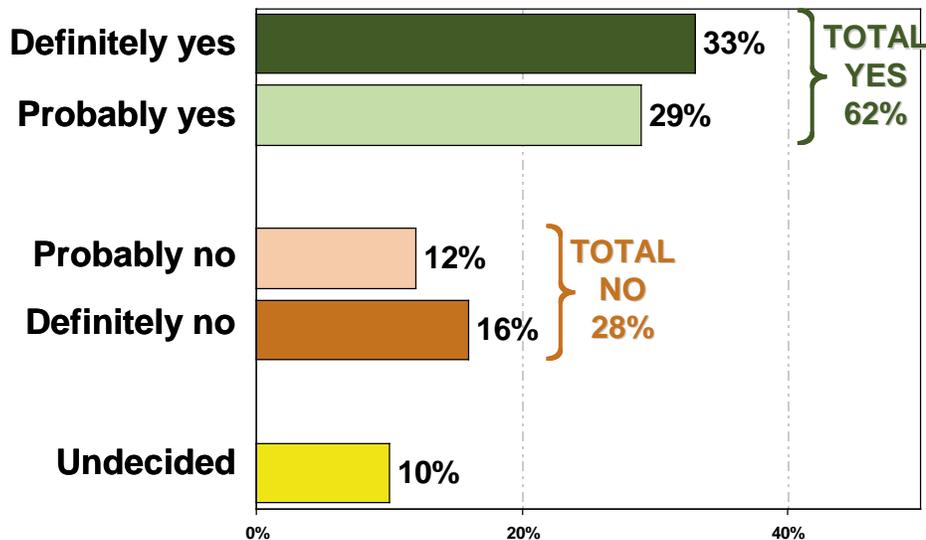
# CHAPTER 3: Home Buyers' Willingness To Purchase Solar

## Initial Willingness to Purchase Solar for New Construction Homes

Respondents were read a description of the cost of a solar electric system and what they could expect to save in their yearly electric bill and then asked if they would purchase a solar electric system as an option when buying a newly constructed single residence home. Sixty-two percent (62%) say they would purchase this option when buying their home, with 33 percent saying they would “definitely” do so. Just over one-quarter (28%) say they would not purchase the solar electric system, while 10 percent are uncertain. The following is the text of the description read in the survey, and **Figure 9** illustrates the results.

*Let’s assume that you saw a newly constructed single residence home that you liked, and that you could add a built-in roof-top solar electric system to it as an option. Let’s also assume that this solar electric system would add \$13,000 to the purchase price of the home, that it would have a 10-year warranty, and that using it would cut your yearly electric bill in half from what it otherwise would be. With this information in hand, do you think you would purchase this option when buying a newly constructed single residence home?*

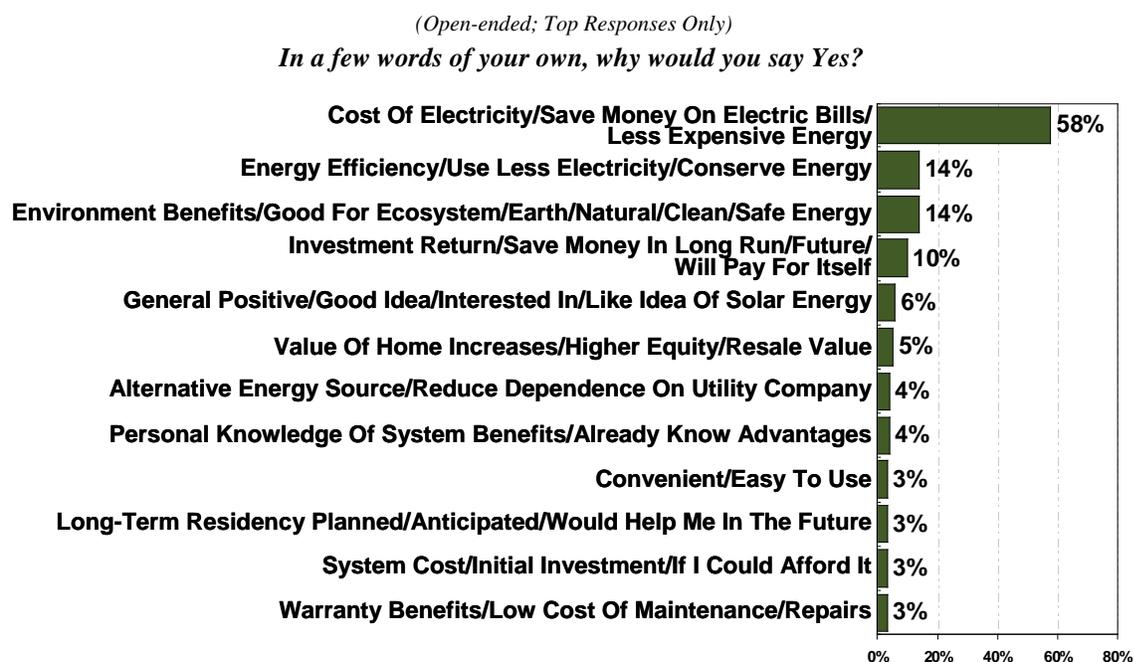
**Figure 9: Willingness to Purchase a Solar Electric System**



## Reasons For Purchase Decision

In an open-ended follow-up question, respondents were asked why they would choose to purchase or not purchase the solar electric system. As shown in **Figure 10** below, the most commonly volunteered reason for saying they would purchase the solar energy system on a newly constructed home is that it will save money on electric bills, with 58 percent giving this response. Related, 14 percent say it will conserve energy, implying cost savings. Nearly two in ten (18%) mention that it is better for the environment or a good alternative energy source. Ten percent feel it will pay for itself and is a good investment. Others gave comments believing the system is user friendly, including that it is easy to use (3%), has low maintenance or repair costs (3%), has a nice appearance (2%), or affordable (3%). **Figure 10** shows the most commonly volunteered responses.

**Figure 10: Reasons for Willingness to Purchase a Solar Energy System**

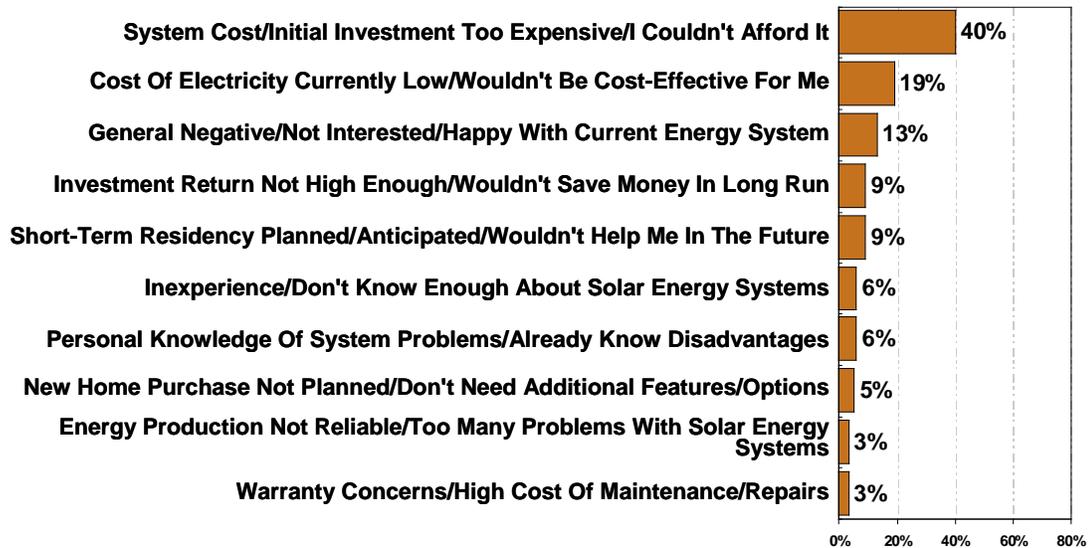


As shown in **Figure 11** on the following page, the most volunteered reason for those not interested in purchasing such a system is the cost, with four in ten (40%) saying it is too expensive or they could not afford it. Another two in ten (19%) do not believe it would be cost-effective for them and 13 percent say they are happy with their current energy system. One in ten each do not believe it would save money in the long run (9%) or say they would not be helped in the future, including that they are purchasing a short-term residency (9%). Some mentioned negative impressions of the system, including knowing the disadvantages (6%), finding it not reliable (3%), concern about maintenance or repair costs (3%), that it is not easy to use (2%), or that they do not like its appearance (1%). Six percent say they know too little to say if they would be willing to purchase a solar electric system. **Figure 11** shows the most mentioned reasons for not being willing to consider a solar electric system.

**Figure 11: Reasons for Lack of Willingness to Purchase a Solar Energy System**

*(Open-ended; Top Responses Only)*

*In a few words of your own, why would you say No?*



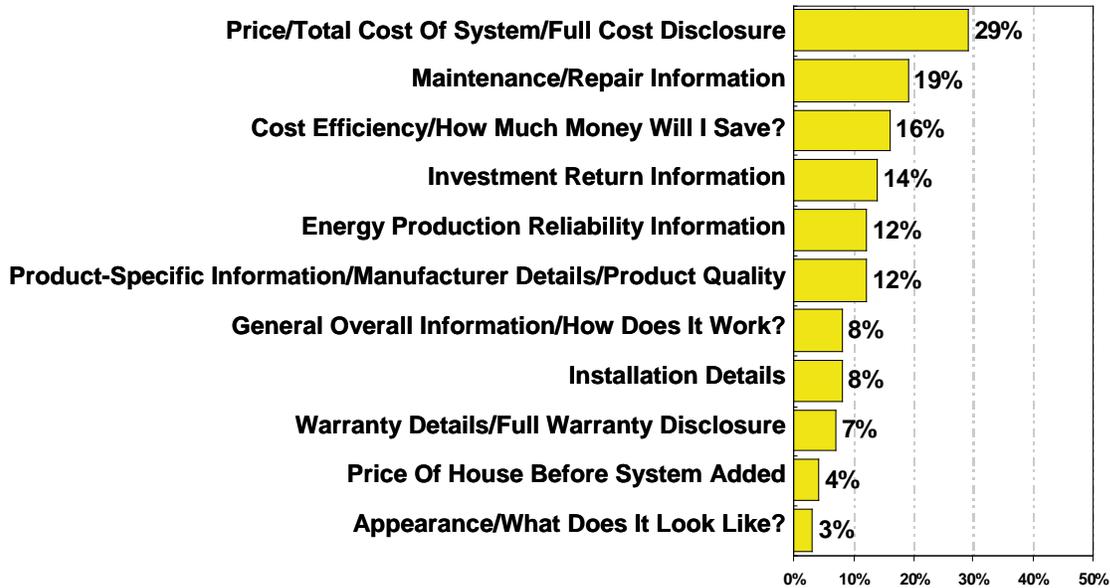
## Additional Information Wanted by Home Buyers

Those buyers who said they wanted more information before making a decision were asked, in an open-ended question, what information they would look for. Most questions revolve around cost, including how much the system costs (29%), how much money it would save (16%), and the investment return (14%). Related, 19 percent had questions about maintenance and repair, while others had questions about the energy production reliability (12%), wanted information about the manufacturers or product quality (12%) and the warranty details (7%), or wanted to know how it works (8%) and how it is installed (8%). These results have important implications for home builders; sales representatives should be prepared to address any of these issues with potential buyers. **Figure 12** on the following page illustrates the results.

**Figure 12: Additional Information Wanted by Home Buyers**

*(Open-ended; Top Responses Only)*

*What kind of additional information would you want before making this decision?*



## Willingness to Purchase Solar Among Demographic Subgroups

The new home buyer survey included a number of demographic questions to allow for demographic analysis of results. Examination of responses among different demographic and geographic subgroups shows that willingness to purchase solar electric systems differs by age, gender, ethnicity, education, ideology, and region. Overall and before receiving additional information from the survey’s questions, 62 percent said they would purchase solar for a new construction home, 28 percent said they would not, and 10 percent were undecided. Key demographic differences include the following:

- Home buyers under age 50 are more likely to say they would purchase such a system (66%) than those older (57%).
- Non-white respondents also give this response in higher numbers than white respondents (67% to 59%), with 65 percent of both African-American and Latino respondents willing to purchase and 76 percent of Asian-Americans.
- College graduates are among the most willing to purchase solar (66%).
- While there is little difference by ideology in overall willingness to purchase, higher numbers of liberal respondents say they would “definitely” purchase the system (46%) than moderates (34%) or conservatives (29%).

- Seven in ten respondents of the Sacramento area say they would consider this purchase, compared to 61 percent of those in the Central Valley region and 56 percent of the Inland Empire.
- Households with children are more willing to purchase solar (65% willing) than those without (59% willing).
- Women are more likely to consider this purchase than men (66% to 59% of men). This is particularly true of women 18 to 49 years of age (71%), college-educated women (70%), and women in the Sacramento region (75%).
- Those who consider themselves environmentalists are more willing to consider this purchase (68%) than those who do not identify themselves this way (56%).

## Demographic Profile of Market for Solar Electric Systems

While it is valuable to know how many of given demographic or attitudinal groups are likely to purchase a solar electric system, looking at those numbers alone can lead to an over-emphasis on groups that represent a relatively small portion of the overall population. The analysis in **Figure 13** on the following two pages provides information about the demographic and attitudinal composition of the market for solar electric systems in new home construction.

The vertical columns group together respondents who, by their answers to other questions in the survey, have sorted themselves into three groups: (1) willing purchasers, (2) those not willing to purchase, and (3) the undecided. The horizontal rows identify demographic categories such as gender, age and race/ethnicity and attitudinal categories such as political outlook and self-identification as an environmentalist. A reader can examine the column for any of the three purchaser groups – willing purchasers, those unwilling to purchase and undecided – to see the proportions of survey respondents from the various demographic and attitudinal categories in a particular purchaser group. The percentages tell how many of a given purchaser group – willing, not willing or undecided – are composed of one or another demographic or attitudinal category.

For example, **Figure 13** shows that 59 percent of those who say they would purchase solar have a college degree, and 40 percent do not have a college degree. (One percent is lost in rounding). This tells the reader that the purchaser group is composed of more people with higher education than those without it. By comparison, the “not willing to purchase” group has only 50 percent of its constituents with a college degree and a nearly equal percentage, 48 percent, without a college degree. (Again, small percentages are lost due to rounding.) Comparing the “willing purchaser” column to the “not willing to purchase” column also allows the reader to see the differences or similarities between purchaser groups and make useful, fact-based generalizations about the solar buyer groups. As an example, a marketing person looking at **Figure 13** could simply conclude that the “willing purchaser” segment of the market tends to be “more college-educated” and that a communications effort should be designed in a way that appeals more to the college educated in the general population rather than the non-college educated.

Here are some generalizations drawn from **Figure 13**:

- Willing purchasers tend to be younger in age than those not willing to purchase while the undecided tend to be more like the willing purchasers in age.

- Willing purchasers are proportionately more college-educated than either those not willing to purchase or the undecided.
- White respondents are somewhat more prevalent among those not willing to purchase than among willing purchasers and the undecided. Asians are more strongly represented among both willing purchasers and the undecided while Latinos and African-Americans constitute roughly equal proportions among all three groups.
- Willing purchasers tend towards greater affluence than those not willing to purchase; the undecided have a comparatively large number in the under \$50,000 income category.
- Willing purchasers and those not willing to purchase tend to self-identify more as “moderate” and “liberal” in political outlook compared to undecided who have more “conservatives” in their midst.
- Willing purchasers have a much larger proportion of self-identifying “environmentalists” in their ranks compared to either those not willing to purchase or the undecided.
- Recycling appears to be a behavior that is nearly equally represented in all groups and not be a differentiating factor between groups.
- Those not willing to purchase solar have proportionately less children at home compared to willing purchasers and the undecided.
- Women are a greater proportion of the willing purchaser group – nearly half – compared to a fifth to a third among those not willing to purchase and the undecided respectively.
- Men age 50 or older are less represented in the willing purchaser group than men under 50 and women of all ages; older men are much larger segments of the not willing to purchase and undecided respondent groupings.
- There are no large differences among the three groups according to likely sources of information about solar other than a slightly larger proportion among the undecided likely to use newspaper and internet ads.
- College-educated women and men are significantly larger and nearly equal proportions of the willing purchaser group; non-college men are the biggest proportion of the undecided.
- The Inland Empire, Central Valley and Sacramento are nearly equally represented in the willing purchaser group and among those not willing to purchase, but Inland Empire respondents are a much larger proportion of the undecided group compared to the other two geographies.
- Men and women in each of the survey’s geographic regions, as well as the regions themselves, are evenly distributed among the willing purchasers group; in contrast, men in the Central Valley and Inland Empire are a larger factor in the not willing to purchase and the undecided groups.

**Figure 13: Demographic Profiles of Solar Electric Purchase Decision Groups**

(% of demographic or attitudinal sub-group making up Willing Purchasers, Not Willing, and Undecided. Some demographic or attitudinal sets do not add to 100% due to small percentages responding “don’t know” or “refused.”)

Demographic Group	% of Willing Purchasers	% of Those Not Willing	% of Undecided
<b>AGE</b>			
Under 35	23%	16%	22%
35-49	35%	31%	33%
50+	36%	46%	39%
<b>EDUCATION</b>			
Non-College	40%	48%	47%
College+	59%	50%	49%
<b>RACE/ETHNICITY</b>			
Hispanic / Latino	18%	15%	19%
African-American	6%	5%	5%
White	55%	66%	53%
Asian	15%	5%	16%
<b>INCOME</b>			
Under \$50K	17%	15%	24%
\$50K-\$75K	26%	21%	17%
\$75K-\$100K	17%	22%	23%
\$100K+	23%	19%	18%
<b>POLITICAL OUTLOOK</b>			
Conservative	43%	46%	50%
Moderate	33%	25%	39%
Liberal	18%	22%	5%
<b>ENVIRONMENTALIST</b>			
Yes	57%	46%	41%
No/Refused/DK/NA	43%	54%	59%
<b>CHILDREN</b>			
Yes	46%	34%	54%
No/Refused/DK/NA	54%	66%	46%
<b>RECYCLE</b>			
Yes	89%	87%	92%
No/Refused/DK/NA	11%	13%	8%
<b>GENDER</b>			
Men	52%	57%	67%
Women	48%	43%	33%

**Figure 13 continued:**

**Demographic Profiles of Solar Electric Purchase Decision Groups**

(% of demographic or attitudinal sub-group making up Willing Purchasers, Not Willing, and Undecided. Some demographic or attitudinal sets do not add to 100% due to small percentages responding “don’t know” or “refused.”)

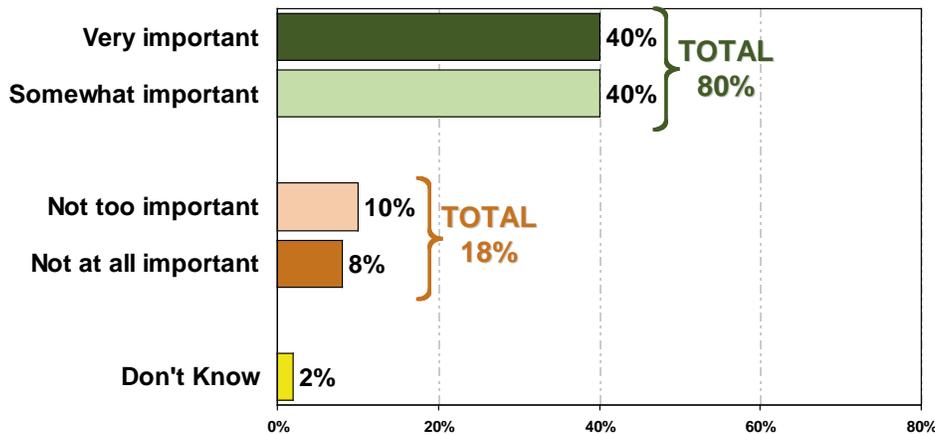
Demographic Group	% of Willing Purchasers	% of Those Not Willing	% of Undecided
<b>AGE BY GENDER</b>			
Men 18-49	33%	30%	39%
Men 50+	16%	25%	23%
Women 18-49	26%	17%	17%
Women 50+	20%	20%	15%
<b>LIKELY SOURCES OF INFORMATION</b>			
Outdoor billboards	28%	34%	26%
Newspaper ads	51%	45%	58%
Radio ads	23%	22%	22%
TV ads	41%	36%	44%
Internet ads	25%	20%	30%
<b>EDUCATION BY GENDER</b>			
Non-College Men	23%	26%	36%
College+ Men	29%	30%	29%
Non-College Women	17%	21%	12%
College+ Women	30%	21%	21%
<b>SAMPLE REGION</b>			
Inland Empire	30%	35%	50%
Central Valley	33%	35%	32%
Sacramento	38%	30%	18%
<b>SAMPLE REGION BY GENDER</b>			
Men Inland Empire	17%	22%	28%
Men Central Valley	17%	18%	25%
Men Sacramento Area	18%	17%	14%
Women Inland Empire	13%	12%	22%
Women Central Valley	16%	18%	7%
Women Sacramento Area	19%	13%	2%

## Preferences for Solar as a Standard Feature

Eight in ten respondents (80%) say it would be at least “somewhat” important to them in considering the purchase of a newly constructed home if the new homebuilder included a solar electric system as a standard feature. Four in ten (40%) call this “very” important. Just 10 percent feel it is “not too important” and only eight percent believe it is “not at all important” (see **Figure 14**). These results suggest higher value when the respondent does not have to purchase the system as an additional feature.

**Figure 14: Importance of Solar Electric System as Standard Feature**

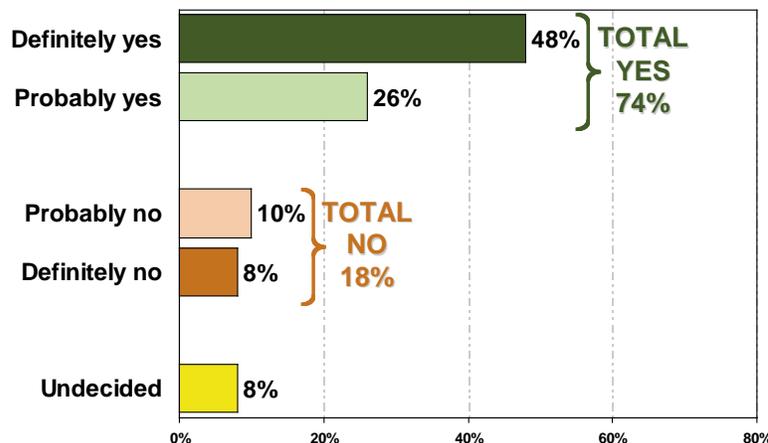
*If a new home builder were to include a solar electric system as a standard feature of a newly constructed home you were considering buying, how important would that feature be as a factor influencing you to buy this newly constructed home?*



As shown in **Figure 15**, three out of four respondents (74%) believe that, based on what they know, homebuilders should make rooftop solar electric systems a standard feature in all new single residence homes they build. Nearly half (48%) “definitely” feel this way. Just eight percent say solar electric systems should not be a standard feature, and another eight percent are uncertain.

**Figure 15: Should Rooftop Solar Electric Systems be a Standard Feature?**

*Based on what you know today, do you think that home builders should make rooftop solar electric systems a standard feature in all new single residence homes they build?*



## CHAPTER 4: Impact of Messages and Information

In order to test the effect of additional information and argumentation for and against purchasing a solar electric system on home buyers' willingness to purchase solar electric systems, the survey gave respondents the type of information they might hear from sales representatives or from a public outreach campaign. After hearing additional information and messages, respondents were asked again at later points in the survey if they would purchase a solar electric system.

First, respondents were presented with the following additional information about how a solar electric system impacts electric bills:

*Let me give you some more information about rooftop solar electric systems. A solar electric system includes rooftop panels that take energy from sunlight and convert it into electricity to power the homes electric equipment, from air conditioning to light bulbs. A typical residential solar electric system generates about half of the electricity used by a home during a month. Any extra electricity created by the solar electric system during sunny hours is exported to the utility power grid. When that happens, the homeowner receives a credit on their electric utility bill. When the house needs more electricity than the solar electric system can generate, the additional power is supplied by the local utility power system.*

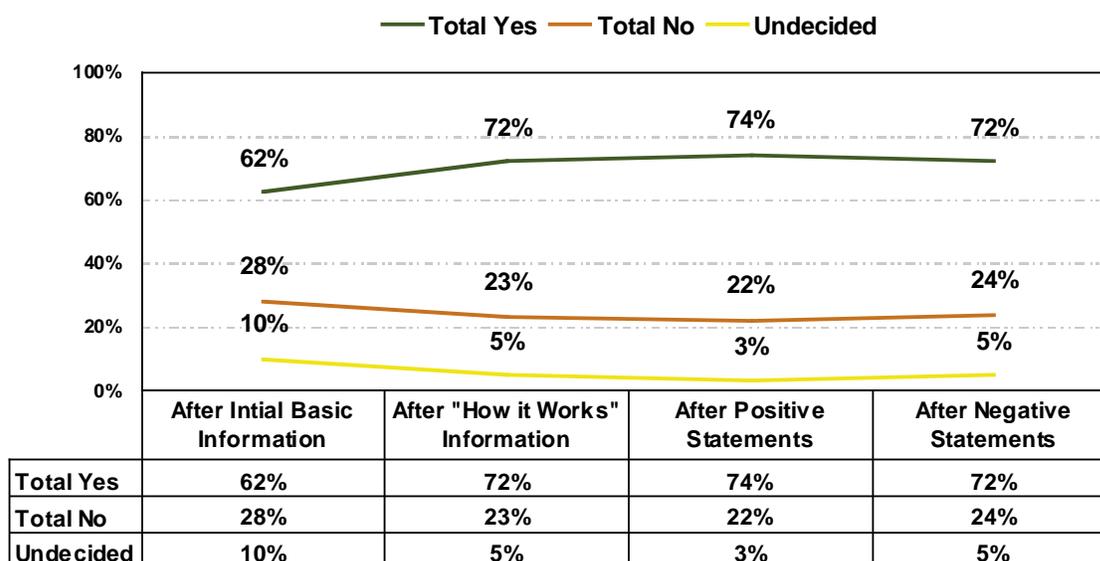
*Now that you've heard more information, let me ask you again: If you were purchasing a newly constructed single residence home and the builder offered a built-in rooftop solar electric system, that would add \$13,000 to the purchase price of the home, had a 10-year warranty and would cut your monthly electric bill in half, would you purchase the solar electric option?*

Respondents were also presented with a series of positive and negative messages about solar electric systems, as detailed below in a separate section of this report. The purchase question about the \$13,000 rooftop solar system was repeated after respondents heard these positive and negative messages.

Overall, it appears that basic information about how rooftop solar works and the potential energy cost savings is enough to persuade substantial numbers of home buyers to consider purchasing rooftop solar electric systems. As **Figure 16** on the following page shows, willingness to purchase a rooftop solar package increased by 10 percentage points after respondents heard basic information, from 62 percent to 72 percent, while unwillingness declined from 28 percent to 23 percent. Willingness to purchase solar then remained stable after positive and negative messages, showing only minor shifts inside the survey's margin of error.

Systematic transfer of information – messaging – will be the manner in which many people will learn the key facts about solar electric systems and become part of the nearly three-quarters who the survey indicates would be inclined to seriously consider a solar electric system. See **Figure 16** for changes in willingness to purchase solar throughout the survey.

**Figure 16: Change in Purchase Intent After Additional Information and Messages**



## Impact of Messages and Information Among Demographic Subgroups

Willingness to consider purchasing a solar electric system increased among virtually every demographic subgroup analyzed after respondents heard additional information and messages. This indicates that basic information about the cost savings from solar and messages aimed at promoting purchase can make broad impacts across all groups. The demographic subgroups whose willingness increased the most from the initial purchase question to the final purchase question include the following:

- Stanislaus County home buyers (56% to 82%, +26 points)
- Latino respondents (65% to 82%, +17)
- Inland Empire women (59% to 76%, +17)
- Post-graduates (59% to 75%, +16)
- Those in Riverside County (59% to 75%, +16)
- Those in the Inland Empire generally (56% to 71%, +16)
- Those with incomes of \$75,000 to \$100,000 (56% to 71%, +16)
- Those in San Bernardino County (47% to 62%, +16)
- Inland Empire men (53% to 68%, +15)
- Those ages 40 to 49 (62% to 76%, +14)
- Those with some college education (53% to 66%, +14)
- Women with more than \$75,000 a year in household income (61% to 75%, +13)
- Conservatives (60% to 73%, +13)
- Those ages 50 to 64 (56% to 69%, +13)
- Men ages 18 to 49 (63% to 75%, +13)
- Central Valley men (58% to 71%, +13)
- Self-identified environmentalists (68% to 80%, +13)

The final section of this report includes a more detailed discussion of targeting communications about solar electric power.

## Positive Messages

The survey presented respondents with a list of persuasive statements in favor of purchasing a solar electric system for a new home, and asked whether each statement made them more inclined or less inclined to purchase a system.

**Figure 17** on the following page shows the messages tested and the percentage of respondents who said each one made them more inclined to consider purchasing a home solar electric system. Notable findings about the messages include the following:

- All of the messages tested made more than 7 in 10 respondents “more inclined” to purchase solar, and several messages made nearly half of respondents “much more inclined” to make the purchase.
- The most effective messages focus on how the solar electric system saves money for homeowners, including cutting the average home’s monthly electric bill.
- Environmental arguments are also effective – and only slightly less so than cost-focused messages.
- Weaker messages include those that tie the cost benefit to the investment; respondents react more favorably when they hear how the system will save money without being reminded of the investment they took to install the system.
- Messages focused on the system increasing resale value of a home or on the looks and maintenance of the system are among the weakest tested – although a large number finds them convincing.

### Figure 17: Messages in Favor of Purchasing a Solar Electric System\*\*

(Mean Score: +10 = all respondents say “much more inclined” to purchase solar electric;  
-10 = all respondents say “less inclined” or “don’t believe” statement.)

Positive Message	Much More Inclined to Purchase	Much More/Somewhat More Inclined to Purchase	Less Incl./Don't Believe	Mean score
Capturing the power of the sun pays off. A typical solar electric system can cut the average home’s monthly electric bill in half.	49%	89%	4%	+6.4
Solar electric systems let you put the sun to work for you. On afternoons when you’re not home, your rooftop system can generate more power than your home uses, and your electric meter can actually spin backwards as you send power out onto the electric grid and receive credits on your utility bill.	49%	88%	4%	+6.4
During the most costly hours to buy electricity, solar homes are generating power instead of using it	49%	80%	5%	+5.9
*Solar power is good for the wallet and good for the world. By reducing the need to burn fossil fuels in power plants, a typical rooftop system reduces carbon dioxide emissions by 2 tons every year, and is the equivalent of planting 50 trees every year or not driving 40 thousand miles every year.	47%	77%	5%	+5.6
Unless more new homeowners adopt solar electric power, California’s electric utility companies will have to build more coal and nuclear power plants to satisfy the growing demand for electricity in CA.	45%	78%	10%	+5.2
Solar electric systems protect homeowners from rapidly rising energy costs and make monthly electric bills more predictable.	44%	83%	6%	+5.7
By powering homes with solar energy, a homeowner helps reduce the use of carbon-based fossil fuels that contribute to global warming.	41%	86%	5%	+5.7
*Buying a newly constructed home that includes a solar electric system is simply the right thing to do. It is one of the most important and immediate ways for an individual or a family to contribute to energy independence and a better environment.	41%	79%	7%	+5.3
*Like granite countertops or hardwood floors, solar electric systems that are installed during new home construction are financed by the homebuyer’s mortgage and paid for over the life of the loan. Unlike other options and features, solar power pays back every month in real dollar savings on the home’s electric bill.	38%	81%	7%	+5.3
The average home solar electric system in California pays for itself in 8.5 years by reducing energy costs, making the upfront investment worthwhile.	37%	75%	10%	+4.6

**Figure 17 continued:  
Messages in Favor of Purchasing a Solar Electric System\*\***

*(Mean Score: +10 = all respondents say "much more inclined" to purchase solar electric;  
-10 = all respondents say "less inclined" or "don't believe" statement.)*

Positive Message	Much More Inclined to Purchase	Much More/Somewhat More Inclined to Purchase	Less Incl./Don't Believe	Mean score
*Solar electric systems are a good investment. Studies by independent researchers show that they increase the resale value of a home.	37%	74%	10%	+4.5
Today's new solar electric systems have solar panels that blend in with the roof and are hardly noticed from the street.	37%	72%	10%	+4.4
Because including a solar electric system in a newly constructed home rolls the solar system's cost into the overall monthly home mortgage payment, most homeowners will save more on their monthly electricity bill than they will be paying each month for the solar electric system. The system will be paying for itself from day one.	35%	78%	10%	+4.6
Solar electric systems have been on the market for a long time. They are durable, do not require regular maintenance, and come with 10 year or longer warranties.	33%	73%	7%	+4.6

\* A positive statistically significant relationship with an increased willingness to buy a solar electric system.

\*\*Columns do not add to 100% as "no effect" and "don't know" responses not included in Figure 17

## Negative Messages

The survey also presented respondents with a list of statements against purchasing a solar electric system for a new home, and asked whether each statement made them more inclined or less inclined to decide against purchase a system.

Overall, messages against purchasing the system resonate with far fewer respondents than do positive messages. The strongest negative is that *the up-front cost of a solar electric system, which can cost up to \$20,000, is just way too much*. This leads 54 percent to be more inclined to decide against purchasing a solar electric system. Approximately four in ten would be less likely to do so after hearing that the system will not make one's home completely independent from the utility company and still subject to blackouts; that focusing on other home features will add more resale value; that there are hidden costs associated with the maintenance of the system; that the cost savings are exaggerated; and that the system will never pay for itself. **Figure 18** on the following page shows the messages tested and the percentage who said each statement made them more inclined to decide against a purchase.

### Figure 18: Messages Against Purchasing a Solar Electric System\*\*

(Mean Score: +10 = all respondents say “much more inclined” to decide against solar electric purchase;  
-10 = all respondents say “less inclined” or “don’t believe” statement.)

Negative Message	Much More Inclined Against Purchase	Much More/Somewhat More Inclined Against Purchase	Less Inclined/Don't Believe	Mean Score
The up-front cost of a solar electric system, which can cost up to twenty thousand dollars, is just way too much.	22%	54%	26%	+1.2
A solar electric system won't make your home completely independent from the utility company. Even though you put in this expensive solar system, you can still be a victim of a utility system black out.	18%	45%	28%	+4
It makes more sense to spend money on home features that home owners will actually enjoy, like flooring or cabinets, or items that will increase resale value, like granite countertops.	16%	41%	33%	-.05
Solar power for the home is bound to come with hidden costs. The average homeowner won't be able to manage the maintenance a system requires, and will have to pay for expensive repairs and maintenance.	14%	40%	34%	-.07
The cost savings promised by solar power sales people are exaggerated. Homeowners have no guarantee that the system will work effectively and save money each month.	14%	39%	38%	-1.2
*A solar electric system is never going to pay for itself, no matter what the sales people say. Minor savings on electric bills just can't cover the huge up front cost, plus interest, before the system eventually breaks down.	14%	37%	44%	-1.9
The costs and benefits of home solar power just don't work out unless the purchase is subsidized by taxpayers. Taxpayers shouldn't be forced to subsidize a technology that's not economically feasible.	13%	36%	39%	-1.5
*Solar panels may be great for the earth, but they can also be a big eyesore on the roof of a home. It's not really fair to the neighbors and might cause problems when re-selling the home.	12%	36%	43%	-1.9
*Solar power is still a new and untested technology that's not familiar enough for the average homeowner to use. It's just not reliable enough yet to make the huge up-front cost seem justified.	12%	34%	46%	-2.3

\* Statistically significant relationship with an increased propensity to say “no.”

\*\*Columns do not add to 100% as “no effect” and “don't know” responses not included in Figure 18

## CHAPTER 5:

# Recommendations for Public Outreach and Communications

The results of this market research show a potential demand for home solar electric power in California's new construction home market. A majority of home buyers indicated initial willingness to purchase a system, and additional information and messages were successful in increasing that willingness. The research points to several key communication recommendations to help guide outreach to home buyers and the building and solar electric industries.

### Messaging Recommendations

Robust outreach and communications efforts will be needed to promote the adoption of solar electric power by buyers of new construction homes. Several key messaging recommendations emerge from the market research:

- **Connect messages about solar to the larger context of home purchase.** While energy efficiency and energy costs are second tier concerns after construction quality, neighborhood safety and floor plan, they are on the minds of home buyers when considering their purchase decision. Home buyers are growing accustomed to other energy efficient home features and feel that a builder who offers solar electric systems is offering quality construction overall. Messaging should take advantage of connections like this and tie solar electric power in with other valued attributes in a new home.
- **Avoid detailed discussion of solar electric technology or appearance of panels.** Home buyers see solar electric power as a proven technology and are generally comfortable with their current level of understanding of how it works. Messaging should also avoid extensive discussion of appearance, although pictures of systems well integrated into rooftops are helpful. There is concern about the appearance of rooftop solar panels, but in focus groups this concern was immediately allayed by photos of solar roof integrated tile systems.
- **Always highlight the most important message: solar saves money.** Communication about home solar electric power should focus on the immediate cost savings from solar power. Cost savings are home buyers' top reason to purchase solar and the most convincing message statements tested all focus on cost savings. As discussed earlier, messages should focus on the current savings and not on financing, the payoff period or any reminder that underscores a large upfront investment. Showing sample electric bills for solar electric homes might be a useful approach. The most effective messages tested in the survey follow:
  - *Capturing the power of the sun pays off. A typical solar electric system can cut the average home's monthly electric bill in half.*
  - *Solar electric systems let you put the sun to work for you. On afternoons when you're not home, your rooftop system can generate more power than your home uses, and your*

*electric meter can actually spin backwards as you send power out onto the electric grid and receive credits on your utility bill.*

- *During the most costly hours to buy electricity, solar homes are generating power instead of using it.*
- **Doing the right thing for the environment is an important complementary message.** Cost savings should be front and center in any communications promoting solar electric power, but companion messages about environmental conservation will complete the package. Focus group participants often paired the two messages: saving money while “doing the right thing.” Many home buyers are attracted to solar electric power in the first place because of environmental motivations, and are looking for cost information that will justify the purchase. Messaging should tie the cost savings from solar electric power to doing the right thing - energy conservation, protecting clean air, fighting global warming, reducing fossil fuel dependence, and so on. Effective environmental messages tested in the survey include the following:
  - *Solar power is good for the wallet and good for the world. By reducing the need to burn fossil fuels in power plants, a typical rooftop system reduces carbon dioxide emissions by 2 tons every year, and is the equivalent of planting 50 trees every year or not driving 40 thousand miles every year.*
  - *Buying a newly constructed home that includes a solar electric system is simply the right thing to do. It is one of the most important and immediate ways for an individual or a family to contribute to energy independence and a better environment.*

## Targeting Recommendations

FMM&A developed composite groups to better assess the target audience for efforts to promote solar electric systems.

**Primary Target:** The primary target group is the one-quarter of the home buyer market most likely to purchase solar. This group was defined by isolating those home buyers who say they would “definitely” purchase a solar electric system throughout the survey. Twenty-four percent (24%) of survey respondents fall into this group.

Compared to the other groups, the primary target group is more likely to include:

- 35 to 49 year olds;
- Women;
- College educated home buyers;
- Higher income home buyers;
- Self-defined liberals;
- Self-defined environmentalists;
- Home buyers who read newspaper ads regarding new housing; and
- Sacramento area home buyers.

**Moveable Middle:** The Moveable Middle target group is the broad 43 percent of the electorate who are either undecided or a “soft yes” on the question of purchasing solar. This group will take more convincing than the Primary target, but can be persuaded to purchase solar electric systems.

Compared to the other two groups, the moveable middle includes proportionally more:

- Parents;
- Younger buyers;
- Less educated buyers;
- Less affluent buyers;
- Conservative buyers;
- Non-environmentalists; and
- Inland Empire buyers.

**Non-Purchasers Group:** The non-purchaser group is the one-third (33%) of survey respondents who say they would not purchase a solar electric system at least once in the survey. This group is the most difficult to persuade, the most susceptible to opposition messages, and will yield the least response to outreach and communications efforts.

Compared to the primary target and the moveable middle groups, the non-purchasers group is more likely to include:

- Buyers over age 50;
- Less educated buyers;
- Men, especially men over age 50;
- Non-environmentalists;
- Buyers without children at home; and
- Central Valley residents.

**Figure 19** on the following pages describes the demographic makeup of each of these three target groups. The rows list demographic categories, and the columns show the percentage of the Primary Target, the Moveable Middle, and the Non-Purchasers group who fall in each demographic category. For example, the table shows that 63 percent of the Primary Target group have a college degree, and 36 percent do not have a college degree.

**Figure 19: Solar Electric Purchase Target Groups**

Demographic Group	% of Primary Target	% of Moveable Middle	% of Non-purchaser Group
<b>AGE</b>			
18-34	19%	23%	21%
35-49	40%	34%	30%
50+	40%	35%	43%
<b>EDUCATION</b>			
Non-College	36%	42%	49%
College+	63%	55%	50%
<b>RACE/ETHNICITY</b>			
Hispanic/Latino	19%	18%	15%
African-American	5%	5%	5%
White	59%	57%	59%
Asian	13%	14%	10%
Non-White	40%	39%	37%
<b>INCOME</b>			
Under \$50K	16%	17%	18%
\$50K-\$75K	28%	24%	21%
\$75K-\$100K	18%	19%	19%
\$100K+	28%	20%	19%
Refused	11%	19%	24%
<b>POLITICAL OUTLOOK</b>			
Conservative	39%	47%	45%
Moderate	30%	34%	29%
Liberal	27%	11%	20%
<b>ENVIRONMENTALIST</b>			
Yes	69%	50%	44%
No/Refused/DK/NA	31%	50%	56%
<b>CHILDREN</b>			
Yes	44%	50%	35%
No/Refused/DK/NA	56%	50%	65%
<b>RECYCLE</b>			
Yes	89%	90%	87%
No/Refused/DK/NA	11%	10%	13%

**Figure 19 continued:  
Solar Electric Purchase Target Groups**

<b>GENDER</b>			
Men	53%	55%	56%
Women	47%	45%	44%
<b>AGE BY GENDER</b>			
Men 18-49	36%	35%	29%
Men 50+	16%	17%	26%
Women 18-49	24%	22%	21%
Women 50+	23%	18%	18%
<b>MEDIA ATTENTION</b>			
Outdoor billboards	23%	29%	34%
Newspaper ads	57%	52%	43%
Radio ads	26%	23%	20%
TV ads	43%	42%	35%
Internet ads	25%	26%	23%
<b>EDUCATION BY GENDER</b>			
Non-College Men	22%	25%	27%
College+ Men	30%	29%	28%
Non-College Women	14%	17%	21%
College+ Women	33%	26%	22%
<b>SAMPLE REGION</b>			
Inland Empire	26%	37%	34%
Central Valley	34%	30%	37%
Sacramento	40%	33%	30%
<b>SAMPLE REGION BY GENDER</b>			
Men Inland Empire	15%	20%	22%
Men Central Valley	18%	18%	18%
Men Sacramento Area	21%	17%	16%
Women Inland Empire	11%	17%	12%
Women Central Valley	17%	12%	18%
Women Sacramento Area	19%	15%	14%

## **CHAPTER 6: Conclusions**

The overall findings of the market research are positive. New home buyers are interested in solar electric power and have generally positive impressions of solar energy. A strong majority says it is willing to purchase a solar electric system as a new home feature. Energy efficiency and energy costs are not the most important factors in the home buying decision, but home buyers are strongly motivated by the utility cost savings promised by solar electric systems. Additionally, buyers tend to believe that homes including energy efficiency and solar electric systems have higher quality construction.

The ability of the technology to gain a stronger foothold in the new construction market will depend on convincing buyers that they can realize utility cost savings. Buyers are also concerned with “doing the right thing” and environmental messages will be a key companion to information about system costs and monthly utility bill savings. A broad and robust public outreach campaign has great potential to increase demand for solar electric systems among new home buyers in California.

**APPENDIX A: TOPLINE SURVEY RESULTS**

**FAIRBANK, MASLIN, MAULLIN & ASSOCIATES**

**MAY 18-26, 2007**

Interviewer \_\_\_\_\_ Station \_\_\_\_\_

Time Began \_\_\_\_\_ Time Finished \_\_\_\_\_ Total Time \_\_\_\_\_

**NEW HOME BUYER SURVEY  
JOB #320-307B WFT  
FINAL  
A/B SPLIT  
N=600**

Hello, I'm \_\_\_\_\_ from FMA, a public opinion research firm. We're conducting an opinion survey on issues that interest people in California. We are not selling anything, and we will not ask you for a donation. May I speak with \_\_\_\_\_ (**MUST SPEAK WITH RESPONDENT LISTED. IF NOT AVAILABLE, ASK: "Is there another time I may call back to speak to \_\_\_\_\_?"**)

1. Have you purchased a single family home in the past 3 years, that is, since May 2004?
- Yes ----- **ASK Q2--98%**  
No----- **SKIP TO Q3--2%**  
**(DON'T KNOW)----- SKIP TO Q3--0%**

**(ASK ONLY IF CODE 1 IN Q1)**

2. Did you buy a home that was newly built and never occupied before, or did you buy an existing home that had been lived in before you bought it?
- Newly built----- **SKIP TO Q4--97%**  
Existing----- **ASK Q3--3 %**  
**(DON'T KNOW)----- ASK Q3--0%**

**(ASK Q3 ONLY IF CODE 2-3 IN Q1 OR CODE 2-3 IN Q2)**

3. In the next 24 months, how likely are you to buy a newly constructed home – one that has never been occupied before? Will you definitely buy or probably buy a newly constructed, never lived in home in the next 24 months? Or, are the chances 50-50 or less that you will buy a newly constructed home in the next 24 months?

Definitely buy-----24%  
 Probably buy-----76%  
 50-50 or less----- **TERMINATE**  
 (DON'T KNOW/NA)----- **TERMINATE**

**(RESUME ASKING ALL RESPONDENTS)**

4. Next, I'm going to mention some factors that people may consider when purchasing a new home. Using a scale of one to seven, where one means **NOT AT ALL IMPORTANT**, and seven means **VERY IMPORTANT**, for each one, please tell me how important that factor is for you personally in choosing a newly constructed, never lived in single residence home **(ROTATE)**

	NOT AT ALL IMPORTANT				VERY IMPORTANT			DK	MEAN
	1	2	3	4	5	6	7	8	
<b>(SPLIT SAMPLE A ONLY)</b>									
[ ]a. The overall quality of construction	0%	1%	0%	1%	9%	13%	76%	0%	6.6
[ ]b. The purchase price	1%	0%	1%	3%	12%	15%	68%	0%	6.4
[ ]c. The quality of local schools	9%	5%	5%	8%	15%	14%	39%	5%	5.2
[ ]d. The energy efficiency of the new home	1%	0%	2%	6%	21%	22%	48%	1%	6.1
[ ]e. The home's location close to jobs or family	4%	3%	5%	9%	19%	20%	40%	1%	5.6
[ ]f. The expected cost of maintenance and repairs	3%	2%	3%	6%	18%	26%	41%	0%	5.8
[ ]g. The size of the home	1%	1%	1%	4%	18%	30%	43%	1%	6.0

**(SPLIT SAMPLE B ONLY)**

[ ]h. The floor plan or layout of the home	1%	0%	0%	2%	13%	19%	65%	0%	6.4
[ ]i. The safety of the neighborhood	1%	0%	0%	1%	11%	15%	71%	1%	6.5
[ ]j. The cost of the monthly electric bill	3%	3%	7%	16%	22%	17%	31%	1%	5.3
[ ]k. Quality of appliances, countertops and cabinets	1%	3%	2%	12%	25%	28%	28%	1%	5.6
[ ]l. Quality of flooring, carpet and tile	1%	3%	5%	15%	25%	22%	30%	1%	5.4
[ ]m. The reputation of the builder	2%	2%	3%	5%	16%	21%	49%	1%	5.9

(RESUME ASKING ALL RESPONDENTS)

LET'S ASSUME THAT YOU SAW A NEWLY CONSTRUCTED SINGLE RESIDENCE HOME THAT YOU LIKED AND THAT YOU COULD ADD A BUILT-IN ROOF-TOP SOLAR ELECTRIC SYSTEM TO IT AS AN OPTION. LET'S ALSO ASSUME THAT THIS SOLAR ELECTRIC SYSTEM WOULD ADD 13 THOUSAND DOLLARS TO THE PURCHASE PRICE OF THE HOME, THAT IT WOULD HAVE A 10-YEAR WARRANTY AND THAT USING IT WOULD CUT YOUR YEARLY ELECTRIC BILL IN HALF FROM WHAT IT OTHERWISE WOULD BE.

5. With this information in hand, do you think you would purchase this option when buying a newly constructed single residence home? (IF YES/NO, ASK: "Is that definitely YES/NO, or just probably YES/NO"?)

- Definitely yes (ASK Q6)--33%
- Probably yes (ASK Q6)--29%
- Probably no (ASK Q6)--12%
- Definitely no (ASK Q6)--16%
- (DON'T READ) Need more information----- (SKIP TO Q7)--8%
- (DON'T READ) Don't Know/NA ----- (SKIP TO Q8)--2%

(ASK QUESTION 6 IF YES OR NO IN QUESTION 5).

6. In a few words of your own, why would you say (Yes/No?)

a. YES

- Cost Of Electricity / Save Money On Electric Bills / Less Expensive Energy -----58%
- Energy Efficiency / Use Less Electricity / Conserve Energy -----14%
- Environment Benefits / Good For Ecosystem/Earth /
- Natural/Clean/Safe Energy -----14%
- Investment Return / Save Money In Long Run/Future / Will Pay For Itself -----10%
- General Positive / Good Idea / Interested In/Like Idea Of Solar Energy ----- 6%
- Value Of Home Increases / Higher Equity/Resale Value ----- 5%
- Alternative Energy Source / Reduce Dependence On Utility Company -----4%
- Personal Knowledge Of System Benefits / Already Know Advantages-----4%
- Convenient / Easy To Use-----3%
- Long-Term Residency Planned/Anticipated / Would Help Me In The Future -----3%
- System Cost / Initial Investment / If I Could Afford It-----3%
- Warranty Benefits / Low Cost Of Maintenance/Repairs -----3%
- Appearance Of System / Like The Way Solar Panels Look-----2%
- New Home / New Features/Options Provided-----2%

Currently Own Solar Energy System -----	1%
Employed In Energy-Related Industry -----	1%
Energy Reliability / Eliminate Blackout Problems -----	1%
Tax Break -----	0%
Don't Know / NA / Refused -----	0%

**b. NO**

System Cost / Initial Investment Too Expensive / I Couldn't Afford It -----	40%
Cost Of Electricity Currently Low / Wouldn't Be Cost-Effective For Me -----	19%
General Negative / Not Interested / Happy With Current Energy System -----	13%
Investment Return Not High Enough / Wouldn't Save Money In Long Run -----	9%
Short-Term Residency Planned/Anticipated / Wouldn't Help Me In The Future -----	9%
Inexperience / Don't Know Enough About Solar Energy Systems -----	6%
Personal Knowledge Of System Problems / Already Know Disadvantages -----	6%
New Home Purchase Not Planned / Don't Need Additional Features/Options -----	5%
Energy Production Not Reliable / Too Many Problems With Solar Energy Systems -----	3%
Warranty Concerns / High Cost Of Maintenance/Repairs -----	3%
Alternative Energy Source / Unproven Technology -----	2%
Inconvenient / Not Easy Enough To Use -----	2%
Value Of Home/Equity Concern / Possible Resale Issues -----	2%
Planned Community Resident / Homeowner Association Won't Allow It -----	2%
Appearance Of System / Don't Like The Way Solar Panels Look -----	1%
Currently Own Solar Energy System -----	1%
Employed In Energy-Related Industry -----	1%
Energy Efficiency Not Needed / Don't Use Much Electricity -----	1%
Taxes/Fees Related To Alternative Energy Systems -----	1%
Prefer To Install/Do Work Myself -----	0%
Don't Know / NA / Refused -----	1%

**(ASK QUESTION 7 IF "NEED MORE INFORMATION" IN QUESTION 5).**

7. What kind of additional information would you want before making this decision?

Price / Total Cost Of System / Full Cost Disclosure -----	29%
Maintenance/Repair Information -----	19%
Cost Efficiency / How Much Money Will I Save? -----	16%
Investment Return Information -----	14%
Energy Production Reliability Information -----	12%
Product-Specific Information / Manufacturer Details / Product Quality -----	12%
Don't Know / NA / Refused -----	12%
General Overall Information / How Does It Work? -----	8%
Installation Details -----	8%
Warranty Details / Full Warranty Disclosure -----	7%
Price Of House Before System Added -----	4%

Appearance / What Does It Look Like? -----	3%
Energy Efficiency Details / How Much Energy Will I Save? -----	2%
Longevity Expectancy -----	1%
Online/Internet Information Availability -----	1%
Physical Dimensions / Size Of Unit -----	1%
Upgrade Information -----	1%
User Testimonies-----	1%
Vent System/Air Flow Details/Information -----	1%
Tax Liability Added -----	1%
Don't Know / NA / Refused -----	12%

**(RESUME ASKING ALL RESPONDENTS)**

8. If a new home builder were to include a solar electric system as a standard feature of a newly constructed home you were considering buying, how important would that feature be as a factor influencing you to buy this newly constructed home? Would it be...? **(READ RESPONSES BEFORE RECORDING)**

Very important -----	40%
Somewhat important-----	40%
Not too important-----	10%
Not at all important -----	8%
<b>(DON'T READ) Need more information</b>	2%
<b>(DON'T READ) Don't Know/NA -----</b>	0%

9. Based on what you know today, do you think that home builders should make roof-top solar electric systems a standard feature in all new single residence homes they build? **(IF YES/NO, ASK: "Is that definitely YES/NO, or just probably YES/NO"?)**

Definitely yes -----	48%
Probably yes-----	26%
Probably no-----	10%
Definitely no -----	8%
<b>(DON'T READ) Need more information</b>	5%
<b>(DON'T READ) Don't Know/NA -----</b>	3%

LET ME GIVE YOU SOME MORE INFORMATION ABOUT ROOFTOP SOLAR ELECTRIC SYSTEMS. A SOLAR ELECTRIC SYSTEM INCLUDES ROOFTOP PANELS THAT TAKE ENERGY FROM SUNLIGHT AND CONVERT IT INTO ELECTRICITY TO POWER THE HOME'S ELECTRIC EQUIPMENT, FROM AIR CONDITIONING TO LIGHT BULBS. A TYPICAL RESIDENTIAL SOLAR ELECTRIC SYSTEM GENERATES ABOUT HALF OF THE ELECTRICITY USED BY A HOME DURING A MONTH. ANY EXTRA ELECTRICITY CREATED BY THE SOLAR ELECTRIC SYSTEM DURING SUNNY HOURS IS EXPORTED TO THE UTILITY POWER GRID. WHEN THAT HAPPENS, THE HOMEOWNER RECEIVES A CREDIT ON THEIR ELECTRIC UTILITY BILL. WHEN THE HOUSE NEEDS MORE ELECTRICITY THAN THE SOLAR ELECTRIC SYSTEM CAN GENERATE, THE ADDITIONAL POWER IS SUPPLIED BY THE LOCAL UTILITY POWER SYSTEM.

10. Now that you've heard more information, let me ask you again: If you were purchasing a newly constructed single residence home and the builder offered a built-in rooftop solar electric system, that would add 13,000 dollars to the purchase price of the home, had a 10-year warranty and would cut your monthly electric bill in half, would you purchase the solar electric option? (IF YES/NO, ASK: "Is that definitely YES/NO, or just probably YES/NO"?)

Definitely yes -----38%  
 Probably yes-----34%  
 Probably no----- 9%  
 Definitely no -----14%  
 (DON'T READ) Need more information 4%  
 (DON'T READ) Don't Know/NA ----- 1%

11. Next, I'm going to read a list of words and phrases. For each one, tell me if you think that phrase applies or does not apply to a rooftop solar electric system. (IF APPLIES, ASK: "Does it definitely apply or just somewhat apply?") (ROTATE)

	<u>DEF</u>	<u>SMWT</u>	<u>DOES</u>	<u>(DON'T</u>
	<u>APPLIES</u>	<u>APPLIES</u>	<u>NOT</u>	<u>READ)</u>
			<u>APPLY</u>	<u>DK/NA</u>
(SPLIT SAMPLE A ONLY)				
[ ]a. Helps reduce smog and global warming gases-----	59%	27%	7%	8%
[ ]b. Expensive -----	50%	31%	12%	7%
[ ]c. Attractive-----	16%	29%	47%	7%
[ ]d. A well-proven technology for generating electricity-----	61%	24%	7%	9%
[ ]e. Low-maintenance-----	36%	30%	7%	28%
[ ]f. Only for environmental activists-----	5%	18%	73%	4%
[ ]g. Pays for itself-----	47%	35%	9%	9%
[ ]h. A status symbol -----	10%	20%	59%	10%

	<u>DEF APPLIES</u>	<u>SMWT APPLIES</u>	<u>DOES NOT APPLY</u>	<u>(DON'T READ) DK/NA</u>
<b>(SPLIT SAMPLE B ONLY)</b>				
[ ]i. An eyesore-----	14%	23%	56%	6%
[ ]j. The wave of the future-----	56%	30%	7%	8%
[ ]k. Untested technology-----	8%	23%	60%	10%
[ ]l. Easily blends in with roof tiles or shingles-----	36%	31%	24%	9%
[ ]m. Reliable-----	50%	24%	5%	22%
[ ]n. Better to wait for more advanced technology-----	18%	29%	45%	8%
[ ]o. Waste of money-----	10%	10%	73%	7%
[ ]p. The right thing to do-----	47%	39%	8%	6%
[ ]q. User friendly-----	39%	31%	4%	25%

**(RESUME ASKING ALL RESPONDENTS)**

12. Next, I'm going to read you some statements. After I read each one, please tell me whether you generally agree or disagree. **(IF AGREE/DISAGREE, ASK: Is that strongly AGREE/DISAGREE or just somewhat?) (ROTATE)**

	<u>STR. AGREE</u>	<u>SMWT AGREE</u>	<u>SMWT DISAG.</u>	<u>STR. DISAG. (DK/NA)</u>
<b>(SPLIT SAMPLE A ONLY)</b>				
[ ]a. A homebuilder who builds homes with solar electric systems is a green builder who cares about the environment-----	44%	34%	15%	4% 3%
[ ]b. The high cost of electricity has now become an important factor in my home buying decisions-----	45%	33%	8%	10% 4%
[ ]c. A solar electric system is just an expensive gimmick to get home buyers to pay more for a home-----	8%	16%	30%	42% 5%
[ ]d. Solar electric systems just aren't practical-----	10%	20%	21%	41% 8%
[ ]e. California state government should provide tax breaks to promote solar electric systems as a feature for newly built homes-----	61%	27%	4%	5% 3%

**(SPLIT SAMPLE B ONLY)**

[ ]f. Electric bills will continue to increase steadily in the years ahead-----	79%	17%	2%	1% 1%
[ ]g. A home builder offering solar electric power as an option is most likely to be offering high quality construction throughout the home.-----	36%	31%	15%	9% 10%

	<u>STR.</u> <u>AGREE</u>	<u>SMWT</u> <u>AGREE</u>	<u>SMWT</u> <u>DISAG.</u>	<u>STR.</u> <u>DISAG. (DK/NA)</u>
--	-----------------------------	-----------------------------	------------------------------	--------------------------------------

- |       |   |     |     |     |    |     |
|-------|---|-----|-----|-----|----|-----|
| [ ]h. | Having a solar electric system lets a homeowner start saving on monthly living costs immediately -----                                    | 48% | 33% | 6%  | 5% | 7%  |
| [ ]i. | If a neighbor had a rooftop solar electric installation, I would think he or she is doing their part to help improve the environment----- | 59% | 28% | 8%  | 2% | 3%  |
| [ ]j. | Eventually, almost all newly-built homes in California will have solar electric systems.-----   | 33% | 38% | 11% | 6% | 11% |

**(RESUME ASKING ALL RESPONDENTS)**

13. Next, have you heard anything about rebates offered by the State of California for homeowners and home builders who install solar electric systems? **(IF YES, ASK:)** Have you heard a lot or just a little?

Yes, heard a lot -----	19%
Yes, heard a little-----	27%
No-----	54%
<b>(DON'T READ) DK/NA</b> -----	1%

14. Next, have you heard anything about federal income tax credits for homeowners who buy energy saving equipment, which includes solar electric systems? **(IF YES, ASK:)** Have you heard a lot or just a little?

Yes, heard a lot -----	15%
Yes, heard a little-----	21%
No-----	62%
<b>(DON'T READ) DK/NA</b> -----	1%

15. Next, I'm going to mention some statements that could be made in favor of purchasing a rooftop solar electric system for a newly constructed single residence home. After you hear each statement, please tell me whether it would make you more inclined to consider purchasing a solar electric system for a newly constructed home. If you don't believe the statement, or if it has no effect on your thinking, one way or the other, you can tell me that too. **(IF MORE INCLINED: ASK: "Is that much more inclined or just somewhat?")**

	<b>MUCH</b>	<b>SMWT</b>				<b>(DON'T</b>
	<b>MORE</b>	<b>MORE</b>	<b>(LESS</b>	<b>DON'T</b>	<b>NO</b>	<b>READ)</b>
	<b><u>INCL.</u></b>	<b><u>INCL.</u></b>	<b><u>INCL.)</u></b>	<b><u>BELIEVE</u></b>	<b><u>EFFECT</u></b>	<b><u>DK/NA</u></b>

**(ROTATE)**

- |       |  |           |           |          |          |           |          |
|-------|--|-----------|-----------|----------|----------|-----------|----------|
| [ ]a. | Buying a newly constructed home that includes a solar electric system is simply the right thing to do. It is one of the most important and immediate ways for an individual or a family to contribute to energy independence and a better environment. | ----- 41% | ----- 38% | ----- 3% | ----- 4% | ----- 12% | ----- 1% |
| [ ]b. | Solar electric systems have been on the market for a long time. They are durable, do not require regular maintenance, and come with 10 year or longer warranties.  | ----- 33% | ----- 40% | ----- 3% | ----- 4% | ----- 12% | ----- 8% |

**(SPLIT SAMPLE A ONLY)**

- |       |  |           |           |          |          |           |          |
|-------|--|-----------|-----------|----------|----------|-----------|----------|
| [ ]c. | Capturing the power of the sun pays off. A typical solar electric system can cut the average home's monthly electric bill in half.   | ----- 49% | ----- 40% | ----- 1% | ----- 3% | ----- 5%  | ----- 3% |
| [ ]d. | By powering homes with solar energy, a home owner helps reduce the use of carbon-based fossil fuels that contribute to global warming.   | ----- 41% | ----- 45% | ----- 1% | ----- 4% | ----- 7%  | ----- 1% |
| [ ]e. | Like granite countertops or hardwood floors, solar electric systems that are installed during new home construction are financed by the home buyer's mortgage and paid for over the life of the loan. Unlike other options and features, solar power pays back every month in real dollar savings on the home's electric bill. | ----- 38% | ----- 43% | ----- 2% | ----- 5% | ----- 10% | ----- 3% |
| [ ]f. | Today's new solar electric systems have solar panels that blend in with the roof and are hardly noticed from the street.   | ----- 37% | ----- 35% | ----- 4% | ----- 6% | ----- 10% | ----- 8% |

<b>MUCH MORE INCL.</b>	<b>SMWT MORE INCL.</b>	<b>(LESS INCL.)</b>	<b>DON'T BELIEVE</b>	<b>NO EFFECT</b>	<b>(DON'T READ) DK/NA</b>
--------------------------------	--------------------------------	-------------------------	--------------------------	----------------------	-----------------------------------

- [ ]g. Solar electric systems let you put the sun to work for you. On afternoons when you're not home, your rooftop system can generate more power than your home uses, and your electric meter can actually spin backwards as you send power out onto the electric grid and receive credits on your utility bill.----- 49% ----- 39% ----- 1%----- 3% -----5% ----- 3%
- [ ]h. Unless more new home owners adopt solar electric power, California's electric utility companies will have to build more coal and nuclear power plants to satisfy the growing demand for electricity in California.----- 45% ----- 33% ----- 5%----- 5% -----9% ----- 3%

**(SPLIT SAMPLE B ONLY)**

- [ ]i. Solar power is good for the wallet and good for the world. By reducing the need to burn fossil fuels in power plants, a typical rooftop system reduces carbon dioxide emissions by 2 tons every year, and is the equivalent of planting 50 trees every year or not driving 40 thousand miles every year.----- 47% ----- 30% ----- 3%----- 2% -----13%----- 6%
- [ ]j. Solar electric systems protect homeowners from rapidly rising energy costs and make monthly electric bills more predictable.----- 44% ----- 39% ----- 3%----- 3% -----9% ----- 2%
- [ ]k. During the most costly hours to buy electricity, solar homes are generating power instead of using it ----- 49% ----- 31% ----- 3%----- 2% -----10%----- 3%

MUCH	SMWT			(DON'T
MORE	MORE	(LESS	DON'T	NO
<u>INCL.</u>	<u>INCL.</u>	<u>INCL.)</u>	<u>BELIEVE</u>	<u>EFFECT</u>
				<u>DK/NA</u>

- [ ]l. The average home solar electric system in California pays for itself in 8.5 years by reducing energy costs, making the upfront investment worthwhile.----- 37% ----- 38% ----- 3%-----7% -----12%----- 3%
- [ ]m. Solar electric systems are a good investment. Studies by independent researchers show that they increase the resale value of a home.----- 37% ----- 37% ----- 3%-----7% -----7% ----- 9%
- [ ]n. Because including a solar electric system in a newly constructed home rolls the solar system's cost into the overall monthly home mortgage payment, most homeowners will save more on their monthly electricity bill than they will be paying each month for the solar electric system. The system will be paying for itself from day one. ----- 35% ----- 43% ----- 3%-----7% -----8% ----- 4%

**(RESUME ASKING ALL RESPONDENTS)**

16. Now that you've heard more, let me ask you again: If you were purchasing a newly constructed single residence home and the builder offered a built-in rooftop solar electric system that added 13,000 dollars to the purchase price of the home, had a 10-year warranty and would cut your monthly electric bill in half, would you purchase the solar electric system? **(IF YES/NO, ASK: "Is that definitely YES/NO, or just probably YES/NO"?)**

Definitely yes -----	40%
Probably yes-----	34%
Probably no-----	10%
Definitely no -----	12%
<b>(DON'T READ)</b> Need more information	3%
<b>(DON'T READ)</b> Don't Know/NA -----	0%

17. And again, let me ask you, If a new home builder were to include a solar electric system as a standard feature of a new constructed home you were considering buying, how important would that feature be as a factor influencing you to buy this newly constructed home? Would it be...? **(READ RESPONSES BEFORE RECORDING)**

Very important -----48%  
 Somewhat important-----36%  
 Not too important----- 7%  
 Not at all important ----- 8%  
**(DON'T READ)** Need more information 1%  
**(DON'T READ)** Don't Know/NA ----- 0%

18. Based on what you know today, do you think that home builders should make roof-top solar electric systems a standard feature in all new single residence homes they build? **(IF YES/NO, ASK: "Is that definitely YES/NO, or just probably YES/NO"?)**

Definitely yes -----51%  
 Probably yes-----29%  
 Probably no----- 8%  
 Definitely no ----- 9%  
**(DON'T READ)** Need more information 2%  
**(DON'T READ)** Don't Know/NA ----- 1%

19. Next, I'm going to mention some statements that could be made against purchasing a rooftop solar electric system for a newly constructed single residence home. After you hear each statement, please tell me whether it would make you more inclined to decide against purchasing a solar electric system for a newly constructed home. If you don't believe the statement, or if it has no effect on your thinking, one way or the other, you can tell me that too. **(IF MORE INCLINED: ASK: "Is that much more inclined or just somewhat?" )**

<b>MUCH</b>	<b>SMWT</b>			<b>(DON'T</b>
<b>MORE</b>	<b>MORE</b>	<b>(LESS</b>	<b>DON'T</b>	<b>NO</b>
<b>INCL.</b>	<b>INCL.</b>	<b>INCL.)</b>	<b>BELIEVE</b>	<b>READ)</b>
			<b>EFFECT</b>	<b>DK/NA</b>

**(ROTATE)**

[ ]a. Solar power is still a new and untested technology that's not familiar enough for the average homeowner to use. It's just not reliable enough yet to make the huge up-front cost seem justified. ----- 12% -----22%----- 15% ----- 31% -----16%-----4%

	<u>MUCH</u>	<u>SMWT</u>	<u>(LESS</u>	<u>DON'T</u>	<u>NO</u>	<u>(DON'T</u>
	<u>MORE</u>	<u>MORE</u>	<u>INCL.)</u>	<u>BELIEVE</u>	<u>EFFECT</u>	<u>READ)</u>
	<u>INCL.</u>	<u>INCL.</u>	<u>INCL.)</u>	<u>BELIEVE</u>	<u>EFFECT</u>	<u>DK/NA</u>

- [ ]b. Solar panels may be great for the earth, but they can also be a big eyesore on the roof of a home. It's not really fair to the neighbors and might cause problems when re-selling the home.----- 12% -----24%----- 15% ----- 28% -----20%-----2%
- [ ]c. Solar power for the home is bound to come with hidden costs. The average home owner won't be able to manage the maintenance a system requires, and will have to pay for expensive repairs and maintenance. ----- 14% -----26%----- 13% ----- 21% -----16%----- 11%
- [ ]d. The up-front cost of a solar electric system, which can cost up to twenty thousand dollars, is just way too much.----- 22% -----32%----- 12% ----- 14% -----17%-----3%
- [ ]e. It makes more sense to spend money on home features that home owners will actually enjoy, like flooring or cabinets, or items that will increase resale value, like granite countertops. ----- 16% -----25%----- 15% ----- 18% -----24%-----2%

**(SPLIT SAMPLE A ONLY)**

- [ ]f. A solar electric system is never going to pay for itself, no matter what the sales people say. Minor savings on electric bills just can't cover the huge upfront cost, plus interest, before the system eventually breaks down. ----- 14% -----23%----- 11% ----- 33% -----15%-----5%
- [ ]g. The costs and benefits of home solar power just don't work out unless the purchase is subsidized by taxpayers. Taxpayers shouldn't be forced to subsidize a technology that's not economically feasible.----- 13% -----23%----- 15% ----- 24% -----18%-----7%

	<b>MUCH</b>	<b>SMWT</b>			<b>(DON'T</b>
	<b>MORE</b>	<b>MORE</b>	<b>(LESS</b>	<b>DON'T</b>	<b>NO</b>
	<b><u>INCL.</u></b>	<b><u>INCL.</u></b>	<b><u>INCL.)</u></b>	<b><u>BELIEVE</u></b>	<b><u>EFFECT</u></b>
					<b><u>DK/NA</u></b>

**(SPLIT SAMPLE B ONLY)**

- [ ]h. The cost savings promised by solar power sales people are exaggerated. Home owners have no guarantee that the system will work effectively and save money each month.----- 14% -----25%----- 11% ----- 27% -----16%-----7%
- [ ]i. A solar electric system won't make your home completely independent from the utility company. Even though you put in this expensive solar system, you can still be a victim of a utility system black out.----- 18% -----27%----- 13% ----- 15% -----19%-----8%

**(RESUME ASKING ALL RESPONDENTS)**

20. Now that you've heard more about it, let me ask you one more time: if you were purchasing a new home and the builder offered, as an optional feature, a built-in rooftop solar electric system that added 13,000 dollars to the purchase price of the home had a 10 year warranty and would cut your monthly electric bill in half, would you purchase the system? **(IF YES/NO, ASK: "Is that definitely YES/NO, or just probably YES/NO"?)**

Definitely yes -----39%  
 Probably yes-----33%  
 Probably no-----10%  
 Definitely no -----14%  
**(DON'T READ)** Need more information 4%  
**(DON'T READ)** Don't Know/NA ----- 1%

21. Next, I am now going to read you a list of persons and organizations that could express an opinion about solar electric systems for newly constructed single residence homes in California. After I read each name, please tell me if you would find that person or organization very believable, somewhat believable, not too believable or not at all believable on this particular subject. If you have never heard of the person or organization, or do not have an opinion, you can tell me that too. **(ROTATE)**

		<b>NOT</b>	<b>NOT</b>	<b>(NEVER</b>	
	<b>VERY</b>	<b>SMWT</b>	<b>TOO</b>	<b>AT ALL</b>	<b>HEARD</b>
	<b><u>BEL.</u></b>	<b><u>BEL.</u></b>	<b><u>BEL.</u></b>	<b><u>BEL.</u></b>	<b><u>OF</u></b>
					<b><u>(NO</u></b>
					<b><u>OPINION)</u></b>

**(SPLIT SAMPLE A ONLY)**

- [ ]a. Your local electric utility company ----- 30% -----42%----- 10% -----14%----- 0%-----4%

	<u>VERY BEL.</u>	<u>SMWT BEL.</u>	<u>NOT TOO BEL.</u>	<u>NOT AT ALL BEL.</u>	<u>(NEVER HEARD OF)</u>	<u>(NO OPINION)</u>
[ ]b. Homeowners who have purchased solar electric systems for their newly-constructed single residence home -----	49%	36%	6%	7%	0%	1%
[ ]c. Local realtors-----	11%	37%	25%	24%	0%	3%
[ ]d. Environmental advocacy organizations such as the Sierra Club and the Natural Resources Defense Council-----	19%	43%	17%	14%	2%	5%
[ ]e. A celebrity such as Leonardo DiCaprio -----	5%	18%	17%	45%	2%	13%
[ ]f. Consumer groups such as Consumer Reports-----	43%	41%	7%	5%	0%	3%

**(SPLIT SAMPLE B ONLY)**

[ ]g. A celebrity such as Salma Hayek -----	3%	17%	18%	34%	14%	14%
[ ]h. Major home building companies-----	22%	48%	11%	10%	1%	6%
[ ]i. A well-respected engineering professor at a leading California university -----	34%	46%	9%	7%	0%	4%
[ ]j. Solar panel manufacturers-----	20%	45%	15%	16%	0%	4%
[ ]k. The American Lung Association -----	23%	29%	21%	14%	1%	11%
[ ]l. Taxpayer advocates -----	11%	35%	23%	21%	0%	9%
[ ]m. Former Vice President Al Gore-----	19%	27%	12%	33%	1%	7%
[ ]n. The California Energy Commission -----	34%	46%	7%	9%	0%	5%

**(RESUME ASKING ALL RESPONDENTS)**

22. Next, I am now going to read you a few different sources where you might hear or read information about solar electric power. After I read each one, please tell me if you would find that source of information to be very believable, somewhat believable, not too believable or not at all believable on this particular subject. If you do not have an opinion, you can tell me that too.

	<u>VERY BEL.</u>	<u>SMWT BEL.</u>	<u>NOT TOO BEL.</u>	<u>NOT AT ALL BEL.</u>	<u>(NO OPINION)</u>	<u>(DK/NA)</u>
[ ]a. Articles in your local newspaper-----	15%	62%	11%	8%	3%	1%

**(ROTATE)**

	<u>VERY BEL.</u>	<u>SMWT BEL.</u>	<u>NOT TOO BEL.</u>	<u>NOT AT ALL BEL.</u>	<u>(NO OPINION)</u>	<u>(DK/NA)</u>
[ ]b. News stories from your local television station -----	17%	61%	11%	8%	3%	1%

23. Thinking about the process of looking for a newly constructed home to purchase, let me mention some information resources that could be helpful in making a new home purchase decision. After you hear each source, please tell me whether you personally consider it to be extremely useful for providing important information, very useful, just somewhat useful or not too useful at all.

	<u>EXT USEFUL</u>	<u>VERY USEFUL</u>	<u>SMWT USEFUL</u>	<u>NOT TOO USEFUL</u>	<u>(DK/NA)</u>
<b>(ROTATE)</b>					
[ ]a. The website called "Move dot com" -----	2%	7%	18%	26%	48%
[ ]b. The website called "New home source dot com" -----	2%	14%	23%	22%	40%
[ ]c. The website called "New homes dot com" -----	2%	14%	26%	23%	35%
[ ]d. The website for the main newspaper serving the area where you are looking for a newly built home-----	4%	25%	31%	23%	16%
[ ]e. A homebuilder's website-----	10%	30%	26%	21%	14%
[ ]f. The real estate section of the main newspaper serving the area where you are looking for a newly built home-----	10%	35%	31%	18%	6%
[ ]g. Free magazines that feature newly built homes -----	8%	30%	33%	23%	6%
[ ]h. Direct mail advertising from home builders-----	5%	25%	29%	34%	7%

24. Are there any Internet search engines that you think are useful? **(IF YES, ASK: "What search terms do you use to find information?" OPEN-END)**

**YES/SEARCH TERMS**

Google.com-----	27%
Yahoo.com-----	14%
Realtor.com-----	5%
Newhomes.com-----	4%
MSN.com-----	2%
Homes / Real estate-----	2%
Solar power / solar heating-----	2%
Askjeeves.com-----	1%
Solar panels-----	1%
Home builders / Homebuilders.com-----	1%

Zillow.com-----	1%
Ask.com-----	1%
Realty.com-----	1%
Local.com-----	1%
Metrolist.com-----	0%
Energy savings-----	0%
Retirement communities-----	0%
MLS.com-----	0%
Consumer-report.com-----	0%
Youbuywesell.com-----	0%
Dogpile.com-----	0%
Verizon.com-----	0%
So. California Edison website-----	0%
Buyyourhouse.com-----	0%
Realestatehomebuilders.com-----	0%
AOL.com-----	0%
Heartbeat.com-----	0%
KBhomes.com-----	0%
None / Don't Use Internet-----	36%
Don't Know / NA-----	15%

25. Next, I am going to mention some of the media that carry information about newly constructed homes. Which ones on this list are you likely to pay some attention to? **(MULTIPLE ANSWERS OK)**

Outdoor billboards-----	29%
Local newspaper ads-----	50%
Radio ads-----	23%
TV ads-----	40%
Internet ads-----	25%
<b>(DON'T READ) Don't Know/NA-----</b>	<b>15%</b>

**HERE ARE MY FINAL QUESTIONS; THEY ARE JUST FOR CLASSIFICATION PURPOSES.**

26. In what year were you born?

1989-1983 (18-24)-----	2%
1982-1978 (25-29)-----	7%
1977-1973 (30-34)-----	13%
1972-1968 (35-39)-----	13%
1967-1963 (40-44)-----	11%
1962-1958 (45-49)-----	10%
1957-1953 (50-54)-----	8%
1952-1948 (55-59)-----	10%
1947-1943 (60-64)-----	6%
1942-1933 (65-74)-----	9%
1932 or earlier (75 & over) -----	5%
<b>(REFUSED/ DK/NA)-----</b>	<b>6%</b>

27. What was the last level of school you completed?

Grades 1-8-----	0%
Grades 9-11 -----	1%
High school graduate (12) -----	17%
Some college/business/ Vocational school -----	25%
College graduate (4)-----	40%
Post-graduate work/ Professional school -----	16%
<b>(DON'T READ) Refused -----</b>	<b>2%</b>

28. With which racial or ethnic group do you identify yourself? **(READ RESPONSES)**

Hispanic or Latino -----	17%
African-American or Black -----	5%
Anglo/White-----	58%
Asian -----	12%
Something else-----	4%
<b>(DON'T READ) Refused/NA-----</b>	<b>3%</b>

29. How would you describe your political outlook? Would you say that you are very conservative, somewhat conservative, moderate, somewhat liberal, or very liberal?

Very conservative-----	16%
Somewhat conservative -----	28%
Moderate-----	31%
Somewhat liberal-----	8%

Very liberal -----10%  
**(DON'T READ)** Refused/DK/NA ----- 6%

30. Do you consider yourself to be an environmentalist?

Yes -----52%  
No-----45%  
**(DON'T READ)** Refused/DK/NA ----- 3%

31. Are there children under the age of 18 living in your household?

Yes -----43%  
No-----54%  
**(DON'T READ)** Refused/DK/NA ----- 3%

32. Do you usually recycle some or all of your household trash?

Yes -----89%  
No----- 9%  
**(DON'T READ)** Refused/DK/NA ----- 3%

33. I don't need to know the exact amount, but please stop me when I mention the category that includes the total income for your household income before taxes in 2006?

Less than \$30,000----- 3%  
\$30,001 - \$50,000-----13%  
\$50,001 - \$75,000-----24%  
\$75,001 - \$100,000 -----19%  
\$100,001 - \$150,000-----15%  
More than \$150,000----- 6%  
**(DON'T READ)** Refused -----19%

**THANK AND TERMINATE**

Sex: By observation

Male -----55%

Female -----45%

Name \_\_\_\_\_

Phone # \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

City \_\_\_\_\_

Rep # \_\_\_\_\_

Interviewer \_\_\_\_\_

Page # \_\_\_\_\_

Verified by \_\_\_\_\_

ZIP CODE \_\_\_\_\_

**SAMPLE**

INLAND EMPIRE (N=200)-----33%

CENTRAL VALLEY (N=200) -----33%

SACRAMENTO AREA (N=200) -----33%

**COUNTY**

SAN BERNARDINO-----9%

RIVERSIDE-----24%

FRESNO-----6%

KERN-----12%

STANISLAUS-----9%

SAN JOAQUIN-----5%

SACRAMENTO-----12%

PLACER-----8%

SOLANO-----5%

YOLO-----6%

SUTTER-----3%

## APPENDIX B: FOCUS GROUP SUMMARY AND QUOTATIONS

To: California Energy Commission, New Solar Homes Partnership  
From: Richard Maullin and Molly O'Shaughnessy  
Re: **Summary of Results of New Home Buyer Focus Groups**  
Date: May 11, 2007

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In March and April 2007, Fairbank, Maslin, Maullin & Associates conducted six focus groups of recent and prospective buyers of new construction homes in four locations across California. Focus groups were held in Riverside (2 groups), San Diego (2 groups), Fresno and Concord; each group included ten to twelve participants, with 67 participants in all. In Riverside and San Diego, the groups were separated according to income and education. In both Riverside and San Diego, Group 1 was made up of homebuyers with either a four-year college education or more than \$125,000 in household income, while Group 2 was made up of homebuyers with less than a four year college education, regardless of income. In all locations, the groups were selected to include a broad representation of homebuyers by gender, age, geography, education, income and ethnicity.

The following is a summary of key findings from these groups.

### **Overall Awareness of Solar Power for Homes**

In general, most focus groups participants were aware of solar technology for homes, and most had at least a basic grasp of the idea that solar panels can be used to generate electricity for a home. Most had the impression that solar technology is presently available for homes. Few participants understood whether a home solar electric system would be connected to the power grid or how net metering would work. (At least one participant, thinking of how her solar landscape lights work, feared that her home's power would go out at night if she had a solar electric system.) In general, participants were uninterested in the technical details of how a photovoltaic cell works.

### **Factors in Home Buying Decisions**

In discussing the experience of purchasing a new home, and the factors they considered in choosing a home, no participants volunteered energy efficiency or energy costs as a significant consideration in the decision. Home buyers were focused on the size and layout of the home, the perceived quality of the construction, the included features like flooring and countertop materials, and the ease of maintenance. It is important to note that most participants had chosen a new construction home because they perceived that less maintenance and repairs would be required. This strong desire of new construction home buyers to avoid home maintenance

and repairs is likely to play an important role in their perceptions of solar electric systems, as we discuss below.

When prompted, some participants acknowledged considering energy efficiency and utility costs in their home purchase decisions, but these factors were not primary drivers of the purchase decision. A few home buyers in each group admitted that they did not consider energy use at all in their home search. Homeowners in warmer inland areas, especially in the Inland Empire groups, were more concerned with their utility bills than homeowners in coastal areas. Many participants shared the perception that any newly built home is more energy efficient than an existing home because of the changes in building standards and technology. Several made comparisons between their new homes and the existing homes or apartments they lived in before, saying that their utility bills were now lower or that the new homes had more energy efficient windows, insulation or appliances than the older homes. These perceptions might add to a sense of complacency around energy efficiency and energy costs, especially in areas where large summer cooling bills are less of a factor, and make it difficult to communicate the need for solar electricity.

### **Exercise: Choosing Solar Among Home Options**

Early in the focus groups, before any discussion about solar electric power for homes, participants were asked to spend a hypothetical \$20,000 budget on extras and options for a new home. The list of choices included a \$10,000 solar electric system. The solar electric system was chosen by 20 of the 67 participants **Figure 1** on the following page shows the number of participants in each group who chose the solar electric option. Whirlpool bathtubs, granite countertops and hardwood floors were all more popular, but more participants chose the solar option than several other more familiar and popular home features.

In each group, there were participants who said they considered the solar option but needed more information to make a purchase decision. Their questions centered around the quality and reliability of the system, whether the price was justified given the cost savings generated by the system, and what the system would look like. For many of the options on the list, participants described their decisions in practical terms, thinking about resale value, durability, and functionality; for others (like the whirlpool bath) the decision was based more on enjoyment and comfort.

Figure 1: Home Options Exercise

Option	TOTAL Number Choosing Option	Riverside College Ed / High Income	Riverside Non-College Educated	San Diego College Ed / High Income	San Diego Non-College Educated	Fresno	Concord
Whirlpool bath in master bedroom: \$2,000	37	5	6	5	7	8	6
Granite countertops in kitchen and bathrooms: \$10,000	31	4	5	7	3	6	6
Hardwood flooring in dining room and living room: \$8,000	27	1	4	4	5	5	8
Extra electrical outlets for garage and outdoors: \$2,000	23	5	5	3	5	2	3
<b>Rooftop solar electric system: \$10,000</b>	<b>20</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>5</b>
Higher quality carpet and carpet padding in living areas: \$5,000	18	5	2	2	6	2	1
Quieter, more powerful dishwasher: \$1,500	17	3	1	4	6	0	3
Ceramic tile floors in bathrooms and kitchen: \$8,000	16	3	2	4	2	2	3
Natural stone façade on front exterior: \$6,000	8	3	2	0	0	1	2
Gourmet refrigerator and stove: \$9,000	7	1	0	1	2	3	0
Three car garage instead of two car garage: \$12,000	4	3	0	0	1	0	0
Deck with hot tub in back yard: \$12,000	2	0	1	0	0	1	0

## Perceived Benefits of Solar Electric Power for Homes

Not surprisingly, saving money was cited by many participants as a primary benefit of solar electric power. As other research has shown, cost savings on a monthly basis appeared to be more attractive to homeowners than payoff time or other ways of describing the economic benefits of solar. The idea that a rooftop system could be paid for each month in the mortgage while at the same time generating savings each month on the electric bill was also a compelling way of discussing cost savings.

At the same time, the non-economic benefits of solar power were also a strong motivation for homeowners. Participants who chose the solar electric system in the exercise described above gave a mix of reasons, including both the practical motivation to save money on electric bills and the ethical or social motivation to “do the right thing” for the environment and limit the use of fossil fuels. “The right thing to do” and “do my part” were phrases used several times. Particularly in coastal areas like San Diego and Concord where typical energy bills are lower, the social and environmental benefits of solar power were seen as important benefits.

The novelty of a home generating its own power and spinning the electric meter backwards, the satisfaction in getting “paid” by the utility company for electricity, and the conversation piece or status effect of owning a rooftop solar system were also seen as benefits, though much less important ones.

The following are a few typical comments from participants about choosing solar as a home option.

- Riverside woman: *I am not educated enough, but from what I understand from hearing someone talk about it who thinks they are, but it would save a lot of money in the long run on bills, and in our life, your month to month is a big deal.*
- Riverside man: *Because the cost of electric is going to keep going up, and the bigger the house, the more it's going to cost in electricity, the more it's going to cost the plants to produce it, plus pollution. It's just efficient. I think it's a good way to go to protect the environment.*
- Riverside man: *I have several reasons. The main one is it's just practical, it's convenient. Would you rather spend it in something that you own or keep giving it to a utility that you never get back, because once you burn that electricity, it's gone, whereas you've got it up there for storage, it's yours.*
- Riverside woman: *You actually save and it's clean. We live in California, we think beyond being selfish.*
- San Diego woman: *I would feel better knowing that I am getting energy from the sun.*
- San Diego woman: *I would do a cost benefit analysis. I'd be like I'm paying \$10,000 for this thing, and I try to do my research to see how much is that really going to save me? Is that really worth spending \$10,000 over the life if I don't have it? What am I really going to spend on electricity, and how long am I going to have the house. If I am only looking at staying in this house for 2-3 years, is it going to improve the resale value of my home?*
- San Diego woman: *I chose the rooftop solar electric system. I just definitely want to do my part.*
- Riverside woman: *I considered it, because I really am conscious about world resources. But I decided not to go with it, because I don't feel like I'm educated enough to know what sort of difference it would make in my electricity bills.*
- Concord woman: *My uncle and my husband have researched it and is a big advocate of it. So I think it's something that we will be doing in the near future. He actually had a neighbor who had it done to his house, and the neighbor showed him and how they had given him a check for the meter running backwards or what have you.*
- Concord man: *I'm just thinking if you look over the long-term, it's great. Say your average utility bill is \$100 ...I know at Christmas time my wife loves to decorate the house, and my PG&E bill goes through the roof... You*

*look at it over a number of years, \$10,000 up front is kind of a lot of money, but if you stay in the house a long time, you're going to win in the end. Plus you don't have to feel guilty to have the air conditioner running all the time. Besides being socially responsible, you can do things and not have to worry about what is this going to cost me. No guilt.*

## **Barriers to Purchasing Solar Electric System**

Among homeowners in all six focus groups, concerns about the reliability of rooftop solar systems and uncertainty about maintenance needs were by far the most important barriers to purchase of solar electric systems. Homeowners wondered whether rooftop panels might be damaged, wear out or break; whether they need to be cleaned; how long a rooftop system lasts; who does the maintenance; and how much maintenance costs. As we discussed earlier, these homeowners bought newly built homes largely because they prefer not to deal with home maintenance and repairs, so this concern is quite significant.

Another key barrier to purchase is lack of credible and clear information on the potential cost savings of installing solar on a new home. Home buyers were enthusiastic about monthly electric savings, but skeptical of vague claims that bills will be cut in half. It will be important to communicate clearly the monthly costs of a system that is financed into the mortgage and the monthly savings expected on utility bills.

Aesthetics were a slightly less important but still significant barrier to purchase. The word "eyesore" was used by many participants to describe rooftop solar panels, and even homeowners who personally weren't turned off by solar panels worried about what neighbors or future prospective buyers of the home might think. In all of the groups, showing photos of newer roof-integrated systems did a great deal to allay these concerns. Few participants had seen the newer panels, and many participants found them much more attractive than older retrofit systems.

Homeowners' lack of familiarity with solar electric systems, which contributes to their concerns about reliability, also leads to some confusion about how a home system is connected to the grid. Some participants assumed that a home system would be designed to provide all of the home's electricity, and worried what would happen on a cloudy day.

The following are a few typical comments from participants about the barriers to choosing solar as a home option.

- San Diego woman: *I'm thinking 100 questions in my head. Who would I call if there is a problem? What is the maintenance going to cost? Am I going to learn how to run this? How do I run it? I don't know if I would be like confident with it.*
- San Diego man: *There are also some intangibles that you have to think about. My electric bill has never been over \$120 a month as it is now. And with these cells you have routine maintenance on them. You have to keep the panels clean and they get cracked and they get bird poop on them and there is all kinds of maintenance involved with them and most people just don't want to mess with them to save \$50 a month. I don't know that there is any newer technology out there now except the plain old large panels kind of thing and that's kind of a high maintenance thing.*

- Riverside woman: *Not only that, it just seems complicated to me. Once it breaks down, how would I handle it that cost? I would rather look at the pretty things that I want.*
- Riverside woman: *I have solar lights all in my backyard, and they poop out halfway through the night. I'm not sure I trust that technology yet. If I'm watching TV at midnight and it's been dark since 5:00 in the winter and my TV goes out because there is no power left...*
- Fresno man: *I know it's nice. I'm sure it would have saved a lot of money, but I just think of a big eyesore on the roof.*
- Concord man: *People will be like, "Look at those hippies over there."*
- Fresno woman: *I can think of other things to use the \$10,000 for, because my energy bills are not that high.*
- San Diego man: *If, for some reason, the sun gets blacked out for two days or something, would you have like no electricity?*
- San Diego man: *Or if it's cloudy for a week and there is no sun, what happens?*
- Riverside man: *This rooftop solar electric system, is this like a really good one that is really going to take your electric bill to zero?*
- San Diego man: *Another thing about solar panels is that the only way anybody has ever come up with a favorable cost benefit analysis to solar panels is that you have 7½ years out here you break even and then in 23 years it pays for itself and you enjoy the savings. Well who the hell cares about 23 years from now, you want the savings right now.*
- San Diego man: *I was going to say my electric bill runs \$80 to \$100 per month, I run the lights all night long. Anyway if I paid \$10,000, how long [until] I pay my light bill for \$10,000. That is a long time. Is something like that really going to make sense as far as me trying to save money by having it? I don't know if that would really be a money saving thing.*

## **Impact of Messaging and Information**

Participants were presented with a list of arguments in favor of installing a rooftop solar electric system at home, and asked to rate the most convincing statements. An argument about the environmental benefits of solar power in terms was chosen by the most participants, and was the most persuasive statement in 5 of the 6 groups. **Figure 2** below shows the number of participants rating each statement as the first, second or third most persuasive in each of the six focus groups.

Statements about monthly savings, reliability and warranties also stood out, even though they were written less emotional appeal than the argument about planting trees and reducing emissions. In the discussion of the message statements, participants found the cost savings and reliability information to be important and were interested to hear more about both issues. Participants were somewhat skeptical about cost savings and reliability claims but many indicated that this information would be quite persuasive if it were coming from a reliable source.

Figure 2: Reaction to Messages in Favor of Purchasing Solar

Argument	TOTAL Number Choosing Statement	Riverside College Ed / High Income	Riverside Non-College Educated	San Diego College Ed / High Income	San Diego Non-College Educated	Fresno	Concord
Solar power is good for the wallet and good for the world. By reducing the need for electricity produced by coal-powered electric plants, a typical home system produces enough power to reduce carbon dioxide emissions by 1.9 tons every year, and is the equivalent of planting 50 trees every year or not driving 42,000 miles every year.	46	6	10	4	9	8	9
The average home solar electric system in California pays for itself in 8.5 years by reducing energy costs, making the upfront investment worthwhile.	35	6	6	6	4	6	7
Capturing the power of the sun pays off. A solar electric system can cut the average home's monthly utility bill in half.	35	6	6	6	8	5	4
Solar electric systems have been on the market for a long time and are durable and low-maintenance. Most systems come with 15 year or longer warranties.	31	5	3	5	7	3	8
Energy prices are rising steeply every year. Solar electric systems give homeowners security by making monthly electric bills more predictable. During the most costly hours to buy electricity,	29	4	7	4	3	6	5

Argument	TOTAL Number Choosing Statement	Riverside College Ed / High Income	Riverside Non-College Educated	San Diego College Ed / High Income	San Diego Non-College Educated	Fresno	Concord
solar homes are generating power instead of using it.							
Solar electric systems are a good investment – they significantly raise the resale value of a home.	19	3	4	5	2	4	1

## Participants' Best Arguments for Choosing Solar

Near the end of the groups, participants were asked to take all the information they had heard during the discussion and, imagining that they were trying to convince a family member or friend to purchase a solar electric system, write their own best argument. The verbatim statements follow.

### Riverside – High Income

- *Susana* - I would say that most importantly it saves on your utility bill on a month to month basis and it's great for our environment. Also if they didn't feel to educated on the subject, I would suggest talking with a homeowner who has one and one who doesn't.
- *Sally* – You should consider a solar energy system because it will reduce your monthly energy costs by almost half; make your bills more predictable. I think one of the best features is that it shows your commitment to the environment.
- *Jann* – Cuts bills in half. Makes energy costs predictable. Durable, low-maintenance. Good for environment. Makes your family self-sufficient (does it?) Lightens the load on existing power plants.
- *Katrina* – The new technology looks like basic roofing tiles, it will pay for itself in 8.5 years and it's warranted for 20 so you don't have to worry about maintenance. In the meantime, your monthly bills will be cut in half so you'll see the savings right away. On top of all the good financial benefits, it also helps protect the environment by reducing the amount of carbon dioxide emissions by the equivalent of not driving 42,000 miles.
- *Elaine* – During the most costly hours to buy electricity, solar homes are generating power instead of using it. The solar electric systems are durable and low-maintenance. They pay for themselves in 8.5 years, by cutting the average monthly utility bills in half. And they are environmentally-friendly.
- *Wayne* – Solar electric system creates energy while your existing power is using it. Solar power can cut your power bills in half, also it's environmentally friendly. They are durable and very low maintenance and have a 15 year warranty or longer.
- *Stan* – Possible credits to bill. Possible tax cuts. Stable electric bill without a big surprise bill at the beginning of summer or winter. Cosmetically they are getting much better.
- *Jeff* – Energy costs are rising every year and it's probably going to get a lot worse before it gets better. Solar power is a solution to reducing energy bills, contributing to the environment. Solar technology is developing more rapidly and it is now possible to implement a solar roof system that architecturally conforms and blends in with the shingles on the roof. It is an investment in your home, in your monthly budget and perhaps most important of all, in your children and grandchildren's future quality of life.
- *Sarah* – Solar electric systems have several benefits that make them worthwhile to consider for your home. They cut utility costs in half and make your monthly bills more predictable. The system requires very little maintenance and comes with an extended warranty. Solar systems are also environmentally friendly. They reduce the strain on public power grids and are like planting 50 trees every year.
- *Judy* – Solar electric systems during the day generate electricity and the new and improved panels look good and blend well. You'll save money on your monthly bills and the system is low maintenance and very durable.

## Riverside – Mixed Income

- *Jeanine* – If you want to be comfortable while spending less money, this is the way to go. Beat the heat – it's really neat! ☺
- *Dave* – You could cut your electric bill in half or more every month. You could live comfortably with the AC on full blast during the summer and the heat on full blast in the winter. It is a good and positive influence on the world and your wallet. Clean living is best for all of us.
- *Sandra* – Be sure to check out the new houses with the solar electric systems that are included in the price. You won't have to worry about the hot summers and the bills going up anymore!
- *Ken* – To buy this would save money, help environment and give home resale value. You could run almost everything in your house and pay nothing in energy cost.
- *Rosa* – It's a good thing for both you, financially, and the environment. Maybe you don't care so much about the environment now, but you have kids and grandkids. Think about their futures and what they'll be having to deal with.
- *Margaret* – It would be an investment, raise the resale of our home. We would be able to run the air conditioner all day long in the summer.
- *Linda* – As you face retirement and living now on a fixed income – the cost savings with a solar electric system will benefit you greatly and the system will always be an incentive for the next person who owns your home. You will never have to worry about running the a/c all day again.
- *Maricela* – Solar system is an excellent investment for your house. Solar electric system gives you savings in your house and for your family.
- *Victor* – I enjoy the savings, compared to being on the grid. Solar is also a great back up system, it's also clean and low maintenance.
- *John* – A solar electrical system saves almost half monthly on electric bills. Cuts down on environmental impact. You'll look like you're from the future.
- *William* – A solar electric system would cost the same per month as you would pay for your electric bill but the benefits are greater. You can write off the interest. If you make more power than you use you sell it back to the utility company to offset your night time usage. It helps the environment and increases your resale value.
- *Doris* – Solar electric system will save money and help your monthly budget. New systems are aesthetically improved. They do not distract from the appearance of the home. The long above 100 degrees periods are increasing. One would be able to maintain a comfortable cool temperature during the day using the system rather than Edison.

## San Diego High Income

- *Allan* – I think you should put solar powers on your roof because it will save you a ton of money every month. While you live in this house your costs will be slashed in half.
- *Nina* – A solar electric system is personally good for me. It has a fifteen year warranty and will pay for itself within 8.5 years. In this unpredictable energy age I find this attractive. Let's take control.
- *Veronica* – (I'm convincing my husband) Honey, if we buy a solar electric system now, we are going to begin saving on our electric bill. Now I know the cost is hefty but if we can afford it now and we plan to stay in this house long term, why don't we start saving some money?

- *Corey* – I highly suggest a solar electric system in your home. It will provide many benefits to you, your home, and your budget. It will cut your electric bill by at least ½. It will up the resale value of your home. Those two benefits along will pay for the installation, but it will also be maintenance free with a 15+ year warranty included for all maintenance, damages, etc.
- *Amit* – Solar electric systems are extremely reliable, durable and low-maintenance. Prices of the systems have come down significantly in the last few years. These systems pay for themselves and you are able to recover your investment in 8-9 years. It would just add \$60 to your monthly mortgage payment.
- *Norman* – You have to get one of these. Look at my electric bill. Look how many kilowatt hours that you can generate in a month/year. You can even get rid of all your gas appliances and use electric ones. Come see my meter as it puts power back on the grid for you to use. You know Earth Day is this week!
- *Carolyn* - Solar panels are good to reduce your utility bills over the next 8 years and will be paid for.
- *Martha* – You might want to try a solar electric system in your home, help the environment and at the same time help yourself save money with energy costs.
- *Rachel* – Not only is a solar system good for your pocketbook and the world, just think of how much you would be costing the oil and other companies getting rich on your power needs.
- *Daniella* – Solar power is the energy of the future. You would have one more reason to celebrate the sunny days in SD. You could cut your electricity bill in a half and in 8.5 years your investment come back to your wallet.
- *Yahni* – I predict having a solar electric system will be more popular in the future especially in California, which known to be sunny all the time. Therefore, why not take the advantage of the nature and cut down your utility bills at the same time.

### San Diego Mixed Income

- *Carla* – Solar electric system is both good for you in terms of energy savings and possible money generating by selling the extra power back to the power companies. Plus, it good for the environment.
- *Sean* – A natural source of energy that's good for the environment and saves you money. Easy to use and easy to maintain.
- *Megan* – This is a proven technology that will not only save you X amount of \$ over the course of owning your home, but will assure you that you are doing your part for the future of our children.
- *Steve* – If we were able to share in the savings would you be...
- *Frank* - The system comes with a fifteen year warranty, they are modern, meaning low profile, and they will reduce your monthly utility bill in half.
- *Doug* – We live in a world dominated by fossil fuels. This little honey will definitely reduce your dependence on some of the fossil fuels we burn daily to energize your home. The sun has been providing life on earth for millions of years, let's tap into this power to save some money and help keep the world cleaner.
- *Caroline* – With a small investment you can reduce or eliminate your gas & electric bill. The thing pays for itself in 8 years! Besides its good for the world – Less CO2, less waste, more trees! C'mon you live in California – everyone is going solar. All the new home builders are going solar.
- *Jason* – Today solar panel systems are completely integrated into the rood and require little maintenance. During hot summer months the energy captured could offset the cost of running your AC all day. Not only will you save money but it is good for the earth by reducing our dependence on energy produced by toxic fossil fuels.

- *Nichole* – Solar electricity will lower your monthly electric bill, as well as, save the environment. It comes with a great service warranty so there will be very low maintenance. It also does not look bulky.
- *Johnnie* – The durable quality money saving and also good for the environment is also low cost and maintenance. What else could you ask for?
- *Neil* – This product is the future and in 5-10 years time every house will have on. They are cost saving and very low maintenance and will never have to be replaced, basically a lifetime guarantee. They are guaranteed to cut your utility bills in half and will increase the resale value of your property.
- *Lisa* – Provide free power to your home year round. 24/365 support, 0 maintenance. Examples of homes over last 5-10 years – their savings vs costs.

## Fresno

- *Virginia* – I believe that we would be investing in our home and at the same time saving money monthly on our electricity. We easily overlook money we spend elsewhere with no real benefits of any real savings. It's a matter of priority and investment.
- *Giselle* – The energy bills will be cut in half. The electricity will be consumed by the sun, so the energy will be solar and will not cause you to use your electricity. You will be saving money in the long run.
- *Stephanie* – A solar electric system is going to save you money. It's good for the environment. It's a good investment.
- *Mike* – It will save us money in the long term. It has a lifetime warranty. It is a low maintenance system.
- *Ken* – Energy cost is a major factor for every homeowner. If you are offered a reasonable agreement for the installation of a solar electric system I will try to convince him to consider buying a system.
- *Phouang* – If we are planning to live in this house for a long period of time we should buy the solar electric system. One of the reasons is that it will cut our electricity bill in half. The second reason is that it's good for the environment. Finally, it will generate electricity during the costly hours of electricity use.
- *David* – This is the future. Solar Energy is a win-win – it lowers your electrical costs and takes some of our environmental impact out of the equation. For Fresno most of my family has asthma from the poor air quality and this would help to turn some of this around.
- *Dianna* – Research any and all info, write down your pro and cons. Is it going to be worth your money if it is just you!
- *Angelo* - It's safe and low maintenance. It will take away your power bills and they would give you money for putting energy back into the grid. It will pay for itself over a few years and would increase your resale value when you sell your home. Energy prices are going up. The environment needs help and this is they way to do it.
- *Rana* – Your PG&E bill will be \$10 to \$5 a month. Over a period of eight to ten years, you will get your money back and you can sell the house for more because of the solar power system. It is considered an upgrade on the house.
- *Larry* – I've got to tell you something. I just got my first PG&E bill and I've saved \$72 in my electric portion of my bill. I didn't think that would be that much – do you want me to send you the rep? tax credit.

## Concord

- *Nicole* - In a matter of a few years, you will save money on your energy bill and you will make it up within 8 years with the cost of energy rising and power outages, you can have your own built right into your home.
- *Hillary* – touch on reducing energy costs, good investment, warranties, eco-friendly.
- *Julio* – Become self-reliant from PG&E. Good re-selling point. Low maintenance, no need to do anything special to it. Convince them how comfortable their indoor climate would be without worrying about the cost to run it.
- *Jim* – If you plan to stay in your home for a number of years it would likely reduce if not eliminate your electricity need. The upfront costs might be worth the expense in the long run. It is a cost vs. benefits deal.
- *Avonni* – Based on the size of your home, it can be very costly to solar panels can enable you to supply energy at a lower cost. Initial investment can save you tons of money in the future.
- *Alex* – Solar electric systems are the wave of the future. By investing in this system now, you'll not only support the future of our planet, but you'll see a significant long term return in energy savings and perhaps a short term return in resale.
- *Dave* – It's the right thing to do. Soon only the ones without solar will stand out. Free electricity, why not use it.
- *Ruth* – Use the power of the sun to operate your home. Use solar, it's always running.
- *Theresa* – Pay for itself in 8.5 years. Great investment. Great resale value. Low maintenance and it's good for the world at the same time.
- *Jessica* – The planet is sick. We, as responsible people, can do our small part to alleviate some of the causes. One of the ways I intend to help is to convert to solar energy whenever possible.
- *Eric* – California is leading the way in technology. Active use of solar is here and offers substantial return on investment, through smarter use of energy in your new home.
- *Lanenzo* – Solar electric power saves money. It is the way of the future by cutting energy cost in half and playing your part in saving the world. You are not just another family member; you are a real human being.

## APPENDIX C: PROFILE OF FAIRBANK, MASLIN, MAULLIN & ASSOCIATES

Fairbank, Maslin, Maullin & Associates (FMM&A) has specialized in public policy-oriented opinion research since the company was first organized in 1981. With permanent offices in Santa Monica, Oakland, and Madison, Wisconsin, the firm conducts research for public agencies, political campaigns, businesses, and non-profit organizations across all fifty states and in other countries. FMM&A has conducted thousands of focus groups and surveys throughout its more than two-decade history.

FMM&A is especially experienced in conducting research for government jurisdictions to support the planning, development, marketing, implementation, and evaluation of public services and public policy programs.

FMM&A offers a full range of opinion research and communications strategy consulting services, including all research services supporting the development and implementation of advertising and public outreach campaigns for public-sector agencies. FMM&A opinion research and marketing services include:

- Random-digit-dial (RDD) and listed sample public opinion telephone surveys in English and Spanish or other languages
- Public opinion mail surveys in English, Spanish or other languages
- In-depth executive interviews
- Focus groups in English and/or Spanish
- Product testing and consumer market research
- Advertising testing using Audience Response System “Perception Analyzer” technology
- Communications strategy consulting

FMM&A plans and executes all phases of focus group and survey research projects from beginning to end. FMM&A designs the research instrument, specifies the sampling or recruitment plan, manages the data gathering process, and analyzes and interprets the data.

On an annual basis, the company conducts as many as one hundred focus groups and three hundred surveys. FMM&A has on-staff Spanish language capability that it applies to all research projects involving populations with significant Spanish-speaking segments.

FMM&A's principal business is to provide timely public opinion analysis to assist policymakers in making decisions. To achieve these goals, FMM&A's 22-person staff is multi-talented and works as a team to assure the prompt completion of quality opinion analysis. In addition, FMM&A's data collection and sampling sub-contractors are closely supervised and pre-qualified by FMM&A to render immediate, high-quality service. FMM&A prides itself in delivering personal service to its clients, who are assured ongoing contact with the firm's principals and senior personnel.

As one of the founding partners of Fairbank, Maslin, Maullin & Associates, Richard Maullin has provided opinion research and consulting services to a wide variety of national and international private sector clients, including companies involved in the fields of energy production and distribution, construction services, real estate, telecommunications, entertainment and consumer products.

In addition to providing public policy-oriented research and communications consulting services for FMM&A private sector clients, Dr. Maullin serves as the principal researcher on numerous opinion research, strategic planning and communications consulting projects involving state, regional and local government. He has conducted research projects evaluating public attitudes towards building and development projects, local government services such as police, fire and public works, transportation systems, environmental protection, recycling and municipal waste disposal, parks and recreation, and public education.

Dr. Maullin has also provided voter research services and strategic advice to numerous ballot measure campaigns ranging from state-level issues such as Indian gaming, adoption of the Martin Luther King holiday and public utility regulation to local government and education finance measures. In the candidate election arena, Dr. Maullin has managed successful gubernatorial campaigns and provided opinion research and strategic consulting to successful candidates for mayor and other state and local elective offices.

Dr. Maullin has held high-level executive positions both in government and in the private sector. He was California Deputy Secretary of State from 1971 to 1974 and served as Chairman of the California Energy Commission from 1975 to 1979. From 1980 to 1985, Dr. Maullin was President and Chief Executive Officer of MCR Geothermal Corporation. Dr. Maullin was also a member of the Social Science Research Staff at the RAND Corporation from 1965 through 1970, specializing in Latin American politics and economics. He has taught international relations at UCLA, and currently serves as President of the Friends of the Vilnius Yiddish Institute at the University of Vilnius in Vilnius, Lithuania.

Richard Maullin was born in Los Angeles, California and received his bachelor's, master's and PhD degrees in Political Science from UCLA. In addition to membership in various professional organizations, Dr. Maullin serves on the Board of Directors of the Los Angeles Regional Hillel Council. Dr. Maullin is bilingual in English and Spanish and has working knowledge of French and Portuguese.

## **RICK SKLARZ**

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Senior Researcher Rick Sklarz joined FMM&A in the Santa Monica office in 2004. He specializes in the design and implementation of survey questionnaires and the analysis of opinion data for public finance measures, nonprofit organizations, private companies, land-use/development firms, and political campaigns.

He has participated in a number of local and statewide campaigns including the successful passage of Proposition 84, a clean water conservation measure; Proposition 71, the California Stem-Cell Initiative; Propositions 68 and 70, the California Indian Gaming ballot measures; and the Washington State Charter School Referendum 55. Further, Mr. Sklarz has provided research for candidates seeking public office at the City, County, State and Federal levels.

Mr. Sklarz is highly experienced in conducting opinion research related to education. He has conducted survey research for many K-12 and community college districts throughout California and has helped secure billions of dollars through ballot measures to improve the quality of education at local public schools. In addition, Mr. Sklarz regularly conducts survey research for municipal governments seeking to secure additional revenue for local services through voter approved ballot measures.

Mr. Sklarz joined FMM&A after receiving a master's degree in Public Policy from the University of Southern California. Mr. Sklarz also spent three years as a member of U.S. Senator Joe Lieberman's staff in Washington, DC where he worked on a variety of issues, including transportation, budget and taxation and government oversight.

## **MOLLY O'SHAUGHNESSY**

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Senior Researcher Molly O'Shaughnessy has provided quantitative and qualitative opinion research and analysis for government agencies, non-profit organizations, candidates and ballot measure campaigns at the national, statewide and local levels since joining FMM&A in 2005.

Ms. O'Shaughnessy's research has included a focus on conservation and environmental issues like growth and development, clean air and water, and land conservation finance measures. In 2006, Ms. O'Shaughnessy provided research and analysis to the successful campaigns against California Proposition 90 and Napa County Measure A, two "regulatory takings" ballot measures intended to undo local land use laws and growth limits. In 2006, she also provided research for the statewide campaign against a constitutional amendment banning gay marriage in Wisconsin and for California gubernatorial candidate Phil Angelides.

At the local level, Ms. O'Shaughnessy has focused on local finance measure feasibility surveys, community satisfaction surveys, and surveys of employees, customers or clients for local agencies across California and the Northwest.

Ms. O'Shaughnessy joined FMM&A after serving two years as Director of the California Safe Schools Coalition. Ms. O'Shaughnessy also directed two campaigns for the California Assembly, conducted policy research on health care and labor market trends for the California Budget Project, and worked as a policy consultant on education and budget legislation in the California Senate.

Molly O'Shaughnessy received a B.A. in government and international studies from the University of Notre Dame and a Master in Public Policy from UC Berkeley's Goldman School of Public Policy.