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PVMapper: Report on the Second Public Opinion Survey

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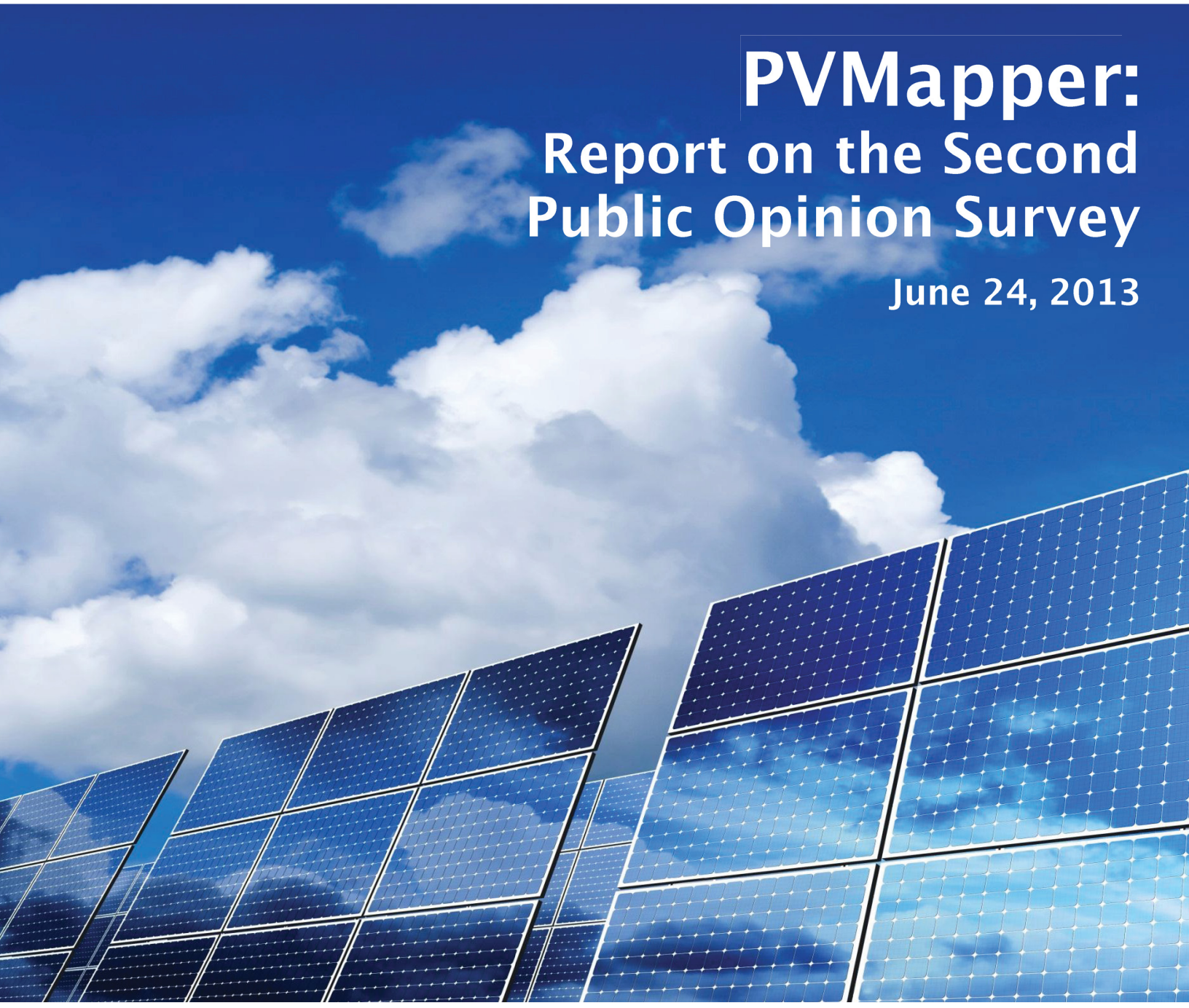

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Introduction

This report has been developed as an integral part of the *PVMapper* project, funded by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy's SunShot program. The objective of the SunShot program is to reduce the total costs of solar energy systems. The scope of *PVMapper* is to develop a geographic information system (GIS) based project planning tool to identify optimal utility-scale solar facility sites. The specific objectives of the project are to 1) develop the software on an open-source platform; 2) integrate the appropriate data sets and GIS layers; 3) include a measure of social risk and public acceptance; 4) enable customization of variable weights; 5) provide a free and accessible platform for software download; and 6) provide a sustainability plan to ensure future relevance of the software. When completed, *PVMapper* is intended to be used by solar developers, Authorities Having Jurisdiction (AHJs), and other interested parties. This project supports SunShot's objective by reducing the non-hardware balance of system costs ("soft costs") for utility-scale solar project development.

In order to accomplish the third project objective – including a measure of social risk and public acceptance within *PVMapper* – the project team has developed a time-series public opinion survey, administered yearly over the course of the three-year project. This report highlights the results and preliminary analyses from the second survey in this series. While the results of this survey are valuable to both *PVMapper* and future utility-scale solar development, the time-series design is extremely important. The completion of the series enables the extension of the dataset to much richer information. For example, the research team altered this iteration to sharpen the focus on specific topics (those posing potentially higher risks) and target specific locations in the oversample (such as communities near existing facilities). Using similar approaches for each iteration leads to an increasingly greater amount of detail regarding siting risks. The need for this extended dataset to aid in siting utility-scale solar projects is evident, as developers continue to scale back initial plans due to unidentified or incorrectly quantified social risks. It should be noted that this report provides the complete dataset from the survey, encompassing the wide-ranging responses from all of the survey questions. Although the methods used to integrate these data into *PVMapper*'s siting algorithms is not the purpose of this report, allusions to integration can be found in the discussions surrounding the design of questions and types of data to be used.

The next few sections of the report are assembled for navigability. First, a *Findings in Brief* section discusses the most important results, focusing on commonalities and trends with the previous year's survey while the subsequent sections of the report focus on the results of the Southwest oversample of residents nearby existing projects or those under construction. Next, the *Survey Methodology* section

provides an overview of the survey, to include descriptions of the survey design, sample populations, and survey process. The third section compares our oversample population to census data, to demonstrate potential differences and highlight needs for further inquiry. The fourth section, *Select Question Results,* provides preliminary findings to some of the more interesting and important sets of responses to specific survey questions. Specific questions chosen for initial analysis are those relating to development preferences by land-use types, the magnitude of potential risk, and geospatial preferences to specific land characteristics. Finally, the *Next Steps* section of the report identifies opportunities for further, and more in-depth, analyses based on these data and preliminary findings.

Findings in Brief

The most important finding for the two surveys is the consistency of respondents' preferences for the topographical characteristics and uses for land where they prefer or oppose utility-scale solar projects to be sited. This pattern or "shape" of responses holds true when different lands and their uses are rated in comparison to each other. Furthermore, the shape and preferences for facility placement are consistent regardless of whether buffer distances are provided in the survey questions or respondents are asked to provide their own distance preferences for certain land uses. Generally speaking, respondents favor facilities to be constructed and operated on lands that were once used for industrial purposes (mining, contaminated lands, former industrial), military bases, and undeveloped public lands. To a lesser degree they support facilities on undeveloped privately owned land. Respondents clearly oppose facilities on environmentally sensitive land, agriculturally productive land, as well as property with cultural and historical significance. Furthermore, survey respondents have strong reservations about placing solar facilities proximate to environmentally valuable or culturally and historically significant lands. This finding is very important for the development of *PVMapper* because land uses and types are readily mappable and available in datasets, and project developers will have the ability to generally apply social preferences for siting to specific locations based on land attributes.

Both of the surveys to date find very strong support for large-scale solar power generation facilities in the abstract as well as siting in a non-specific but localized location such as a county. Respondents feel it is very important for developers and utilities to maintain trust with population in regard to sharing information readily and providing opportunities for public input for specific projects. There is ample opportunity for developers, utilities, and authorities having jurisdiction for educating the public in regard to specific power generation technologies. This is illustrated by the relatively high initial survey response refusal rate from the first year[1], the aggregate responses from the second year that were not particularly accurate in regard to the cost of different technologies, and the buffer distances respondents' chose when given an open-ended opportunity to answer a question rather than being supplied pre-defined ranges of distance by the survey team.

[1] In the test survey script respondents were initially told the survey would investigate large-scale solar power facilities and a number refused citing lack of familiarity with the subject.

Survey Methodology

The survey instrument was designed by researchers at Idaho State University, Boise State University, and Idaho National Laboratory, and the Social Science Research Unit (SSRU) at the University of Idaho. The survey and frequency results are presented as Appendices A (Southwestern oversample) and B (National sample). The study was approved for human subjects research by the University of Idaho Institutional Review Board (IRB), protocol number 12-089, as well as by the IRBs of all other institutions collaborating on this research. All interviewers completed an online National Institutes of Health training course in human subjects research in addition to training in survey data collection procedures and telephone etiquette. Interviewers were monitored during each calling session by trained supervisors.

Similar to the previous year's survey, this year's survey was administered to two sample populations, a national sample and a Southwestern oversample. However, this iteration narrowed the oversample population to six counties in Southern California. In fact, these counties were chosen because of their close proximity to proposed, developing, or existing utility-scale solar generation facilities. That is, the goal behind this year's oversampling decision was to collect public opinion data from people who are more likely to have firsthand experience with utility-scale solar. Based on data from the Solar Energy Industries Association[2], there is a considerable amount of solar development activity occurring in Southern California. By focusing the oversample on respondents who are geographically closer to active utility-scale development, construction, and operation, the survey is able to collect opinions from respondents that are more likely to be based on direct personal experiences with these facilities.

Survey data were collected on Wincati[3] telephone interviewing software. On average, the survey took 18 minutes to complete. For the Southwestern oversample (Southern California), calls began in March 2013 and continued until June 2013; for the national sample, calls began February 2013 and continued until June 2013. The SSRU employed a Spanish-language speaking interviewer.

Survey weights were calculated to account for the complex survey design using SAS, Version 9.2[4]. Survey weights account for the fact that different households had different probabilities of selection for the study depending on whether a household had only wireless telephone(s), only landline telephone(s), or both wireless and landline telephones. Weighted frequencies, percentages, and standard errors were calculated using SAS.

[2] http://www.seia.org/research-resources/major-solar-projects-list
[3] Wincati, v 5.0. 2012. Sawtooth Technologies, Inc. Northbrook, IL.
[4] SAS, Version 9.2. 2009. SAS Institute, Inc. Cary, N.C

National Sample

This study used a dual-frame telephone survey methodology, utilizing both household Random Digit Dialing (RDD) landline numbers (n =2,929) and wireless RDD telephone numbers (n =3,000). Both frames were simple random samples of numbers from within the United States.

In total, 429 interviews were completed, with 10 interviews completed in Spanish. The final combined response rate (AAPOR2[5]) for the two frames is 10.4 percent, the final cooperation rate is 28.8 percent, and the final refusal rate is 25.7 percent.

Southwestern Oversample (Southern California)

This study used a dual-frame telephone survey methodology, utilizing household RDD landline numbers (n = 5,442) and wireless RDD telephone numbers (n = 5,000). Both frames were simple random samples of numbers from within six counties in southern California (Inyo, Kern, Riverside, San Bernardino, San Luis Obispo, and Ventura).

In total, 695 interviews were completed, with 82 interviews completed in Spanish. The final combined response rate (AAPOR2) for the two frames is 9.7 percent, the final cooperation rate is 27.7 percent, and the final refusal rate is 27.1 percent. Heavy fires with evacuations were reported in some of the counties in early May while this study was underway.

[5] American Association of Public Opinion Research. 2011. Standard Definitions: Final Disposition of Case Codes and Outcome Rates for Surveys. Available at: http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions2&Template=/CM/ContentDisplay.cfm&ContentID=3156

Comparison to Census Data

Table 1 shows a comparison between the age distribution of respondents in this study's oversample population and recent Census Bureau estimates of the adult population in the same six counties[6]. Similarly, Table 2 displays the comparison between the educational attainment of respondents in this study's oversample population and recent Census Bureau estimates for individuals 25 years of age or older in the same six counties. Our oversample tended to be older and more highly educated than the general population of these six counties in Southern California, and subsequent analysis will determine to what extent, if any, the results are biased as a result.

Table 1: Comparison of Weighted Sample Estimates to 2007-2011 ACS Age Estimates

Age Category	ACS	This Study	95% Confidence Limits
18 – 19 years old	4.9%	1.7%	0.6% - 2.8%
20 – 24 years old	11.0%	8.6%	5.5% - 11.7%
25 – 34 years old	19.6%	13.8%	10.2% - 17.4%
35 – 44 years old	19.8%	13.4%	10.1% - 16.6%
45 – 54 years old	19.9%	17.1%	14.0% - 20.3%
55 – 59 years old	7.9%	12.9%	9.8% - 16.1%
60 – 64 years old	6.5%	6.9%	4.6% - 9.3%
65 – 74 years old	8.4%	14.8%	11.8% - 17.8%
75 – 84 years old	5.1%	8.6%	6.3% - 10.9%
Over 85 years old	1.9%	2.1%	1.1% - 3.2%

Table 2: Comparison of Weighted Sample Estimates to 2007-2011 ACS Educational Attainment for Individuals 25 Years of Age and Older

Education	ACS	This Study	Lower 95% CL	Upper 95% CL
Eight grade or less	10.3%	6.5%	3.9%	9.1%
9th-12th grade, no diploma	11.0%	8.0%	5.2%	10.8%
High school graduate/GED	25.0%	13.0%	9.8%	16.3%
Some college (no degree)	24.7%	24.7%	20.6%	28.8%
Associates' degree	7.9%	9.1%	6.4%	11.9%
Bachelor's degree	13.6%	22.0%	18.1%	26.0%
Graduate or professional degree	7.5%	16.6%	13.2%	20.0%

[6] 2006-2010 American Community Survey 5-Year Estimates

Select Question Results

Local opposition in the solar-siting process is an area of great concern for solar developers. The degree of support a solar project enjoys in any given community can greatly affect the speed and efficiency of the permitting and siting processes. This section highlights the results of many of the survey items, and at the same time provides insight into how the data are expected to be used by *PVMapper*. The analyses provided herein utilize data collected from the Southwest oversample. As described previously, the Southwest oversample includes six contiguous counties in Southern California.

Q8. *How strongly do you support or oppose the construction of large solar facilities in the U.S.?*
Our survey included this question to get an idea of the degree of support and opposition to the construction of solar facilities by respondents from this southern Californian population. The results of this over-sample of six counties in southern California reflected high levels of general support for solar development in the U.S. The results from this question were based on a five-point Likert scale[7], ranging from strongly support to strongly oppose. For simplicity, respondents' levels of support and opposition have been grouped together. Figure 1 shows that total support for constructing solar facilities in the U.S. was extremely high at 81.6%. Further, total opposition to developing solar facilities in the U.S. was extremely low (5.4%). Respondents who neither supported nor opposed solar construction was also low (12.3%), while respondents who did not know (0.8%) and are not included on the graph. Thus, the respondents in the oversample overwhelmingly support the construction of new solar facilities in the U.S., a result that is positive given that all of the respondents are located near a proposed, existing, or developing solar facility.

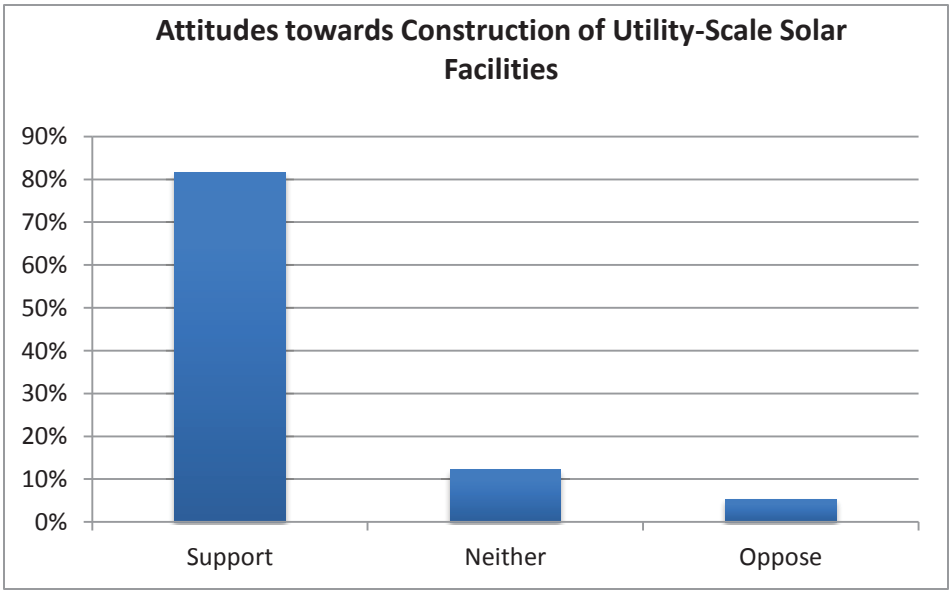

Figure 1: Attitudes towards Construction of Utility-Scale Solar Facilities

[7] 1 (strongly support); 2 (somewhat support); 3 (neither support nor oppose); 4 (somewhat oppose); 5 (strongly oppose)

Q4. *Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types {Coal; Hydroelectric; Gas; Nuclear; Oil; Solar; and Wind}.*

Figure 2 shows whether respondents favor increasing, maintaining, or reducing U.S. production of electricity from a variety of resource types, including coal, hydroelectric, natural gas, nuclear, oil, solar, and wind. Overall, our sample of Southern Californian respondents overwhelmingly supports (over 80%) increasing electricity generated from both solar and wind resources. Additionally, a greater proportion of respondents favor increasing the production of electricity from hydroelectric (50%) and natural gas (45%) facilities. For the remaining three resource types—coal, nuclear, and oil—a greater proportion of respondents favors reducing (50%) electric power generated rather than maintaining (20%) or increasing (15-25%) current generation levels from these resources. Smaller proportions of respondents favor increasing electricity generated from coal (15%), nuclear (25%), and oil (25%). Overall, our data demonstrate that Southern Californian respondents favor increasing electricity generated from renewable resources.

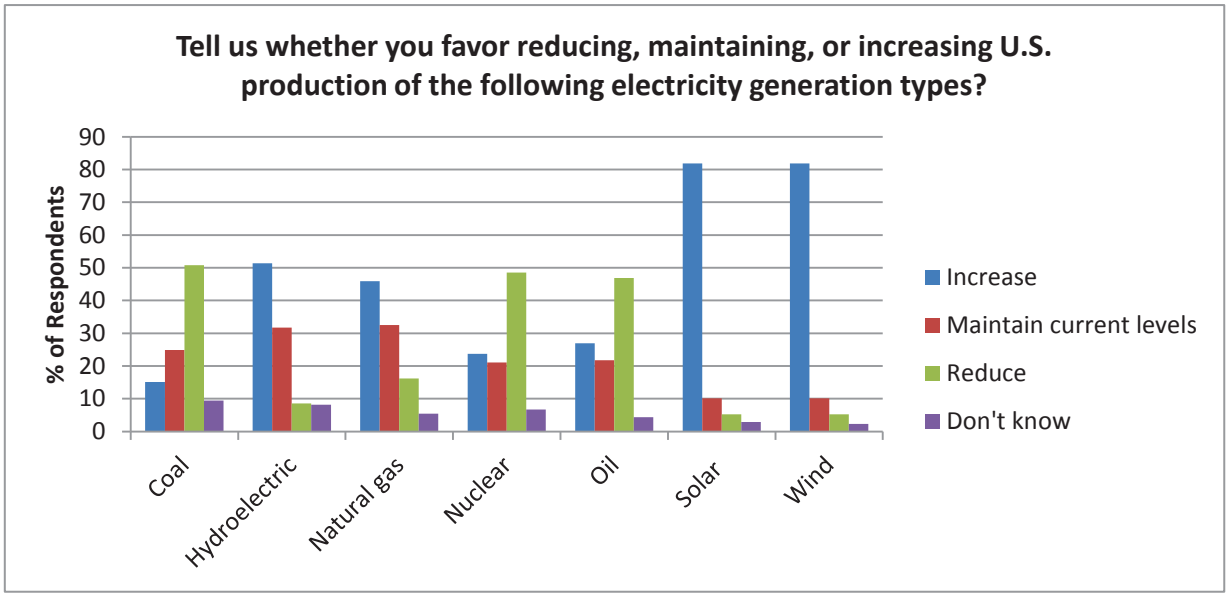

Figure 2: Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types?

Q5. *How expensive do you think it is to produce electricity from each of the following resources?*

In Figure 3, we compare respondents' perceptions of the cost of electricity generated from different resource types—coal, hydroelectric, natural gas, nuclear, oil, solar, and wind. An overwhelming proportion of respondents thinks that electric power generation from nuclear and oil resources is expensive. In particular, 60% of respondents believe that electricity generated from nuclear energy is expensive, and 65% of respondents believe that electricity generated from oil is expensive. As well, nearly 40% of respondents consider electricity generated from both hydroelectric and solar resources to

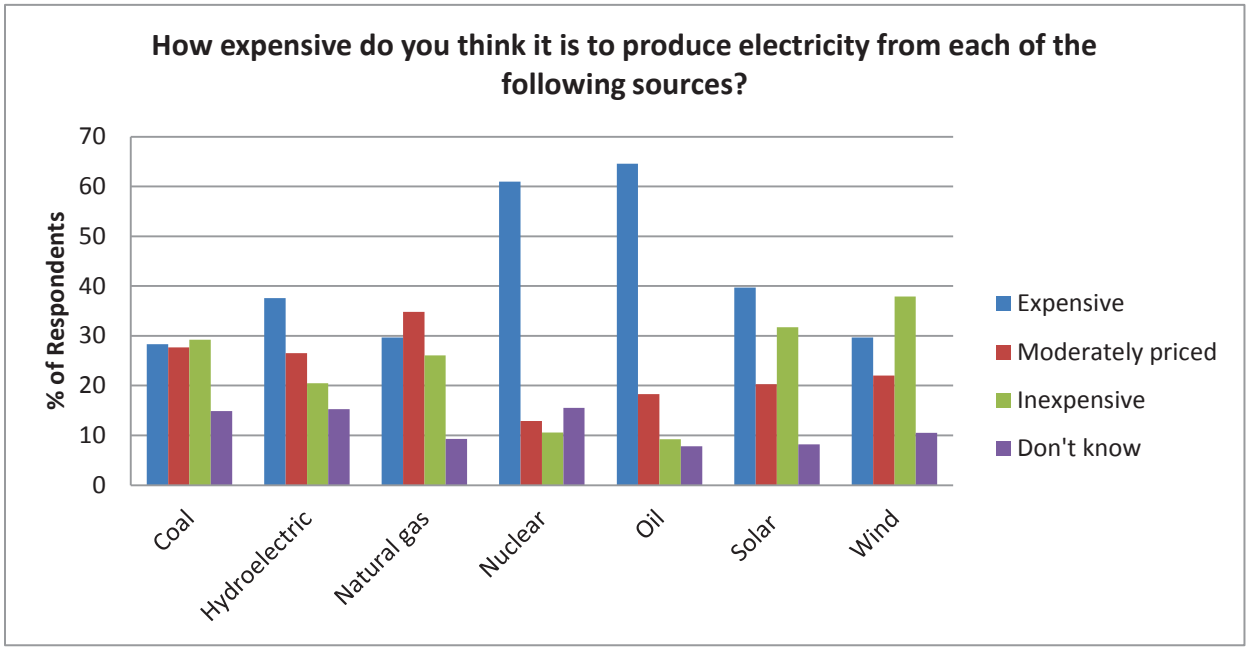

Figure 3: How expensive do you think it is to produce electricity from each of the following resources?

be expensive, versus 20% and 30% (respectively) who consider it inexpensive. In contrast, respondents are evenly divided regarding whether electricity derived from coal is expensive (30%) or inexpensive (30%). Finally, a greater proportion of respondents considers electricity derived from wind inexpensive to produce (nearly 40%) than consider it expensive to produce (nearly 30%).

Q12a-g. *The next few questions have to do with placement of large-scale solar facilities. For each of the following locations, how strongly would you support or oppose construction of a large-solar facility?*

Utility-scale or large-scale solar photovoltaic (PV) technology is land use-intensive, and thus it was of interest to examine how strongly the public supported and opposed solar construction on various land types. This question was designed to solicit information that can be used to inform the geospatial data in *PVMapper* in order to help prioritize land selection for solar development, because topographical characteristics, such as how a given parcel of land is currently being used, are included in *PVMapper* as data layers.

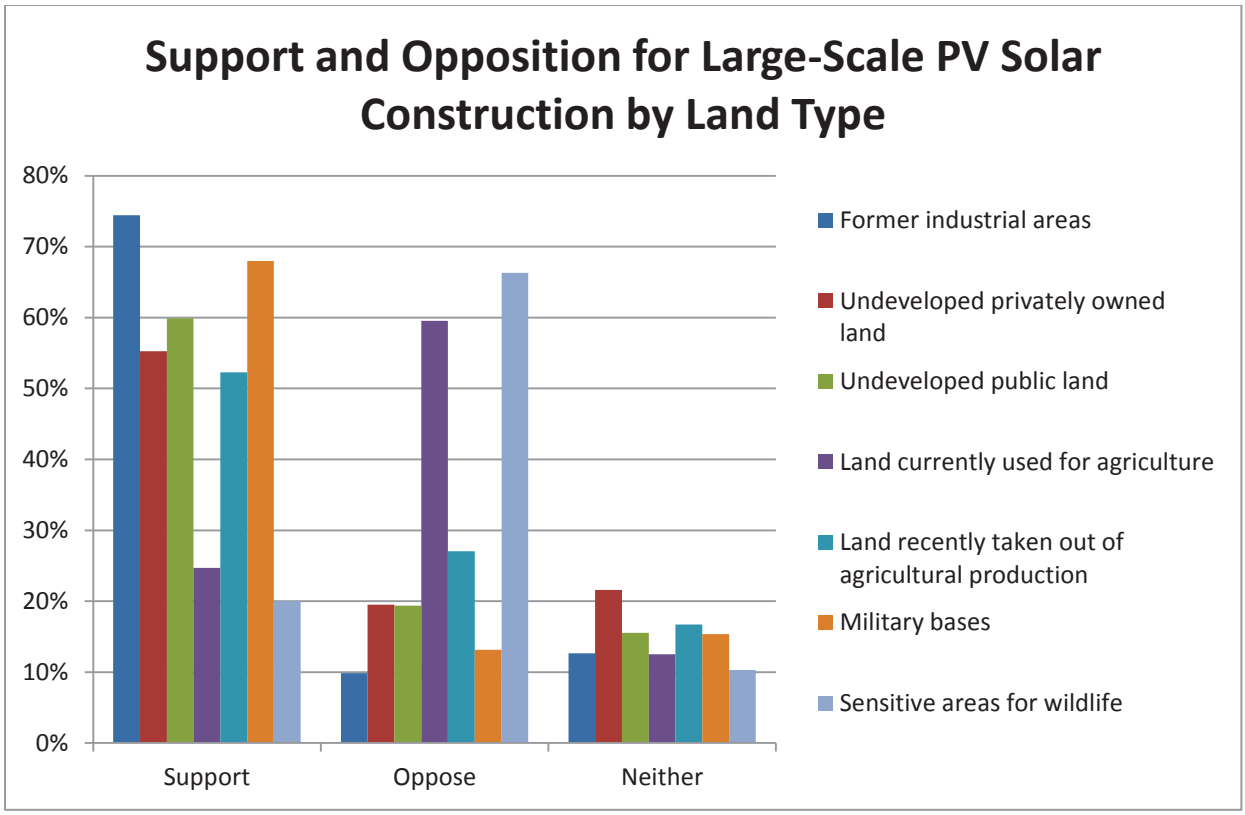

Figure 4: Support and Opposition for Utility Scale PV Solar Construction based on Land Type

The questions focused on seven land types in the 2013 survey, asking respondents about each type in separate questions. The same 5-point Likert scale described for Q8 was used for these questions, and respondents' levels of support and opposition have been grouped together. The results in Figure 4 show that large percentages of the respondents supported, and few respondents opposed, large-scale solar facilities being built on former industrial areas, military bases, and undeveloped public lands. This same pattern of findings was also true for land recently taken out of agricultural production and undeveloped privately-owned land. Alternatively, a high percentage of the respondents opposed, and very few respondents supported, large-scale solar facilities being built on sensitive areas for wildlife and land currently used for agriculture. "Don't know" responses ranged from 3-5% across the seven different land types, and are not included on the graph.

Q13. *Of all of the following land types, which one would you MOST PREFER to be selected for siting a large-scale solar facility?*

In 2012, when asked what type of land they would *most prefer* a utility-scale solar facility to be sited, respondents from both the National and Southwest samples preferred contaminated land, former industrial land, and former mining land (Figure 5). Very few respondents from either sample prefer red pristine land or even former agricultural land from among the choices presented.

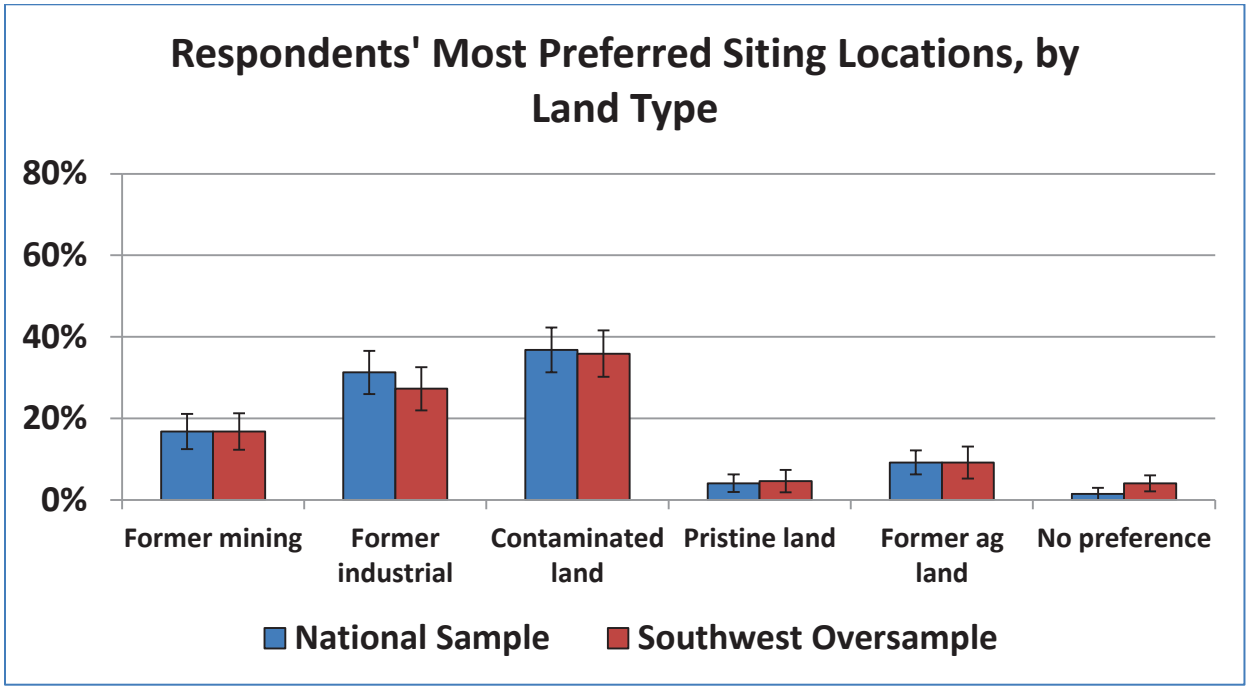

Figure 5: 2012 Survey Respondents' Most Preferred Siting Locations, by Land Type

For the 2013 survey, the question was again designed to solicit information that can be used to inform the geospatial data in *PVMapper* to help prioritize land selection for solar development. Grouping the same seven land types (from Question 12) together into one question, we asked respondents which one they would most prefer to be selected for siting a large-scale solar facility. Figure 6 depicts the relative distribution of respondents' preferences. Survey respondents indicated that former industrial areas (34%), undeveloped public land (18%), and military bases (18%) were the more preferred land types for siting solar facilities. Land types that very few respondents preferred included: sensitive areas for wildlife (0%), land currently used for agriculture (1%), undeveloped privately owned land (8%), and land recently taken out of agricultural production (8%). 12% of respondents had no preference for land type, and 1% reported they did not know. We infer from these data that developers of large-scale solar facilities may encounter some public opposition if the facility is going to be built in sensitive areas, on land currently used for agriculture, and land formerly used for agriculture, and would likely receive some support if the facility is going to be built in former industrial areas. These survey results show which land types are more preferred by the public, and can be used to inform which locations considered for development are more or, by inference, less preferred by the public.

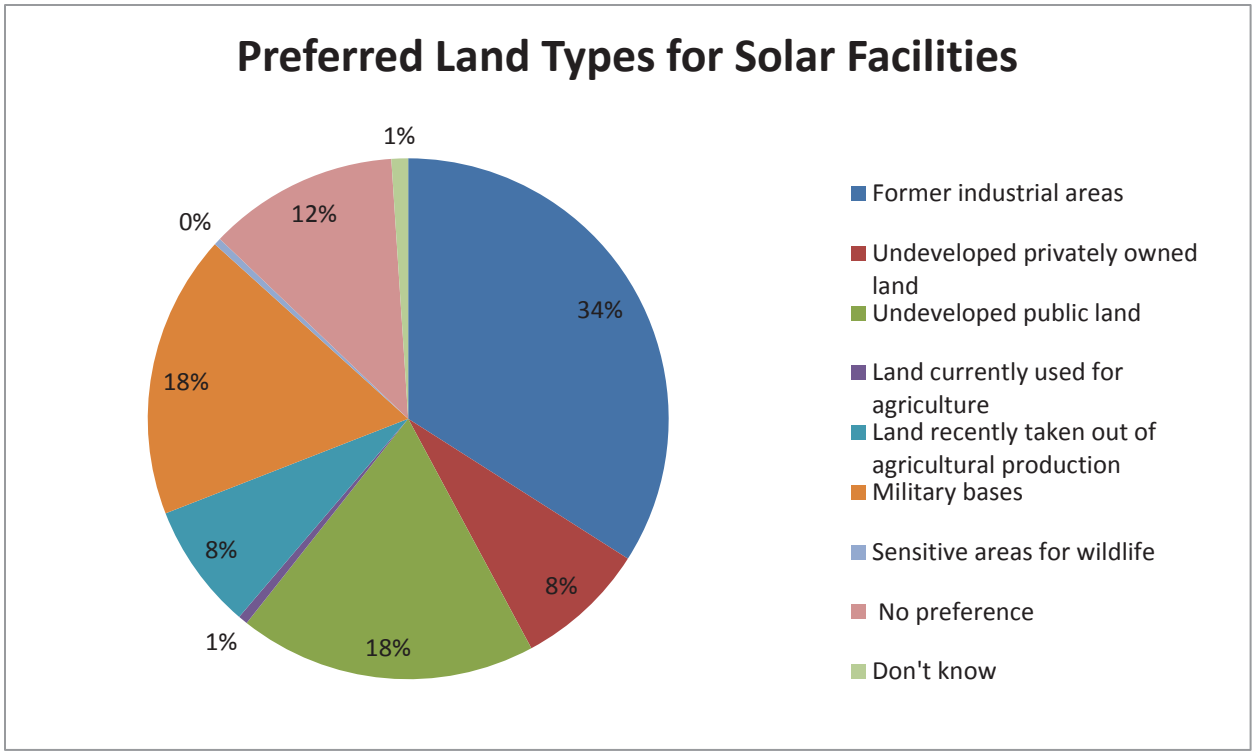

Figure 6: Preferred Land Types for Siting Large-Scale Solar Facilities, 2013

Q9. *Suppose the construction of a large solar facility was planned near your residence. How strongly would you support or oppose its construction?*

Based on literature that researches the relationship between elements of place-attachment and support for renewable energy construction projects, we included a question to gauge the degree to which respondents would support or oppose a solar facility being built within their counties. Similar to previous questions, levels of support or opposition were gauged on a five-point Likert scale ranging from strongly support to strongly oppose. Again, we condensed the levels of support and opposition into two categories from four to simplify the chart. Looking at the data provided in Figure 7, support for solar in one's county is very high (74.8%). Further, opposition (10.5%) to the construction of solar facilities in the respondents' county is very low.

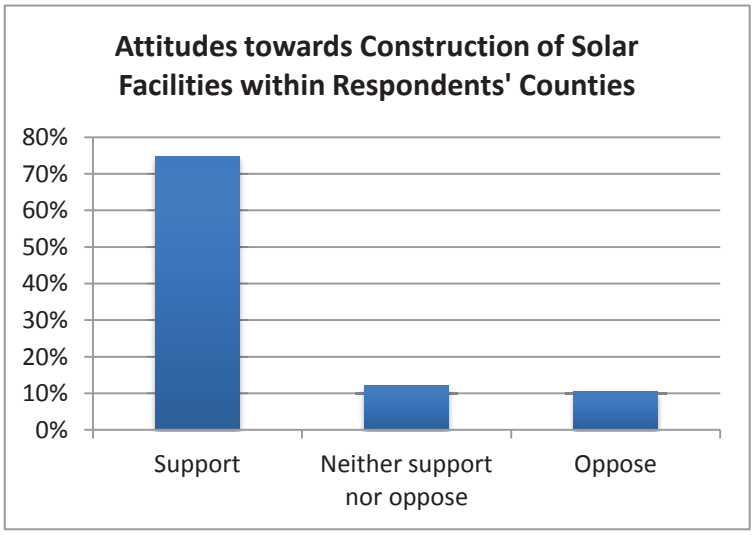

Figure 7: Attitudes towards Construction of Solar Facilities within Respondents' Counties

Respondents who neither supported nor opposed the idea of a solar facility being sited in their county were also minimal (12.2%). Those who did not know (2.5%) are not included in the graphic. Support for solar construction dropped 6.8% and opposition rose 5.1% between general support for solar construction (see Figure 1) and support for solar developments in one's own county. Despite this diminished support, respondents were still overwhelmingly supportive of solar construction if it occurred in their respective counties. These results indicate a strong preference towards solar developments, even if the construction takes place within one's county. However, later in the survey a fair number of respondents chose self-defined, outsized buffer distances for solar facilities from certain types of lands and uses. In many cases these buffers would place the facilities outside of the county. This is an important consideration for developers, implying that specific land use and siting location may be more important than supporting a "local" facility for many respondents.

Q14-21. *How much buffer distance is acceptable between a large solar facility and {a residential area; existing agricultural land; an area of cultural or historical importance; an area used as a migration route by wildlife; an area used as nesting sites or breeding grounds by wildlife; recreation areas such as hunting, fishing, or hiking locations; wetlands; or an existing large solar facility}?*

Given that large-scale solar facilities are land use-intensive, and that one concern among some members of the public is the effect these facilities might have on other existing features of the physical environment, the 2013 survey asked respondents what the acceptable buffer distance is between a large solar facility and other physical features. These questions in particular are highly relevant to *PVMapper* in that the results can be used to help determine the degree to which a proposed facility has an acceptable buffer distance between its location and other topographical features of importance.

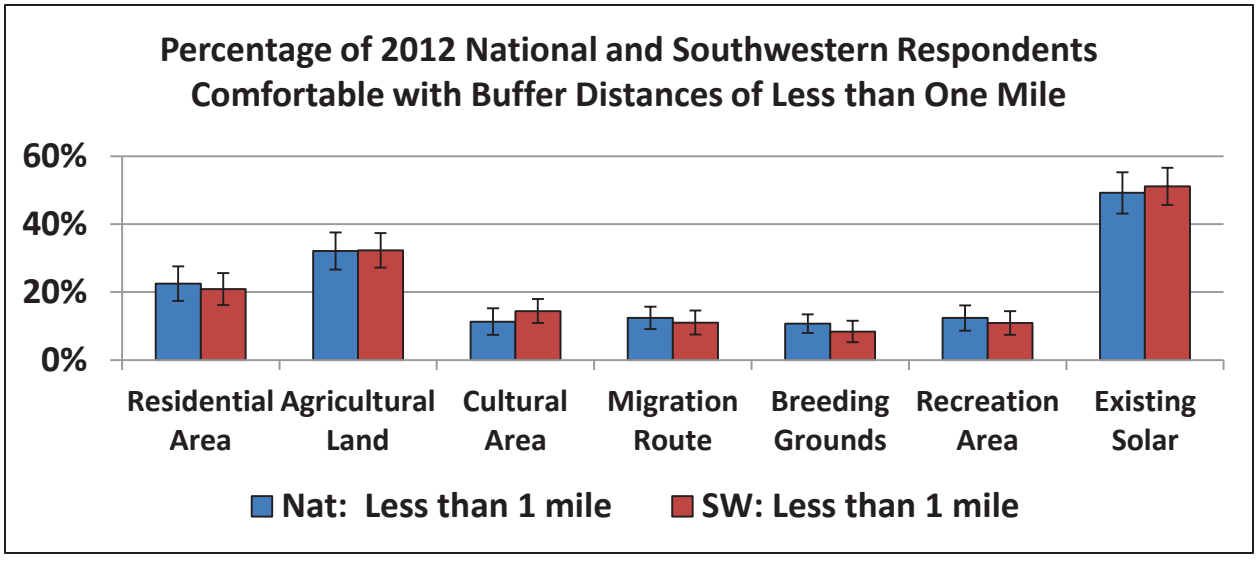

Figure 8: Percentage of 2012 National and Southwestern Respondents Comfortable with Buffer Distances of Less than One Mile

In the 2012 surveys, respondents were asked what distance they felt was an appropriate buffer distance between a solar panel facility and each of seven areas. The response categories were less than one mile, between one and five miles, between six and ten miles, and more than ten miles. Looking at the results in Figure 8, the shortest buffer distances were preferred between a utility scale solar facility and an existing such facility, with nearly half of respondents from both the southwest and national samples stating that less than a mile was an appropriate distance. In addition, respondents were more comfortable with buffers of less than a mile between agricultural land and residential areas and a solar facility, but very few respondents felt that less than a mile was an appropriate buffer between areas of cultural or historical importance, wildlife migration routes, wildlife breeding grounds, and recreation areas.

In 2013, the question about appropriate buffer distances was changed so that respondents could name any distance; all measurements were converted to miles for the purpose of analysis. The pattern of responses was the same as in 2012, with respondents preferring larger buffers between solar facilities and wildlife migration routes, breeding grounds for wildlife, recreation areas, wetlands, and existing solar facilities. Respondents were more comfortable with small buffers between solar facilities and residential areas or agricultural areas.

Next Steps

Further analysis is planned to examine the very large support for solar in the abstract, the support for solar facilities to be placed within the county, and the seemingly contradictory self-selected distances for buffer zones. In scholarly literature this is frequently observed and commonly referred to as the "social gap." The team has extensively tested a number of models for two siting buffers, agriculture and wildlife, which indicates a low correlation for almost all demographic factors and buffer distances. Based on the results, siting preferences seem to be tied more strongly to the land use itself rather than more commonly cited factors such as ideology, political party, education level, and belief in climate change to correlate with solar development. This finding strengthens *PVMapper* and the efficacy of incorporating social risk as part of the tool because the social preferences are not tied to specific demographics that may be applied to only some locations and populations. More analysis needs to be done for confirmation.

The survey team is already weighing different approaches for questions and buffer distances to the final time-series survey. Options under consideration include altering wording to reconfirm the pattern and shape of respondent preferences, supplying respondents with specific and refined sets of buffer distances that originate from a survey of actual buffer distances in existing projects, selecting a different state for the oversample, and expanding analysis and the suite of questions for the national sample.

Acknowledgement

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Disclaimer

Appendix A: Southwestern Oversample (Southern California) Frequencies

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q1. Which of the following statements best describes how closely you follow energy issues? (n = 695)	You follow energy issues very closely	214	30.3%	2.0%
	You sometimes pay attention to energy issues	357	49.4%	2.2%
	You rarely pay attention to energy issues	94	15.7%	1.7%
	You never pay attention to energy issues	28	3.9%	0.8%
	Don't know	2	0.7%	0.5%
Q2. Where do you get most of your information about energy? (n = 627)	Newspaper (print or online)	149	24.4%	2.0%
	Magazine(s)	21	3.2%	0.8%
	Books	7	1.1%	0.5%
	Friends	21	3.3%	0.8%
	The Internet	186	29.6%	2.1%
	An organization or interest group	13	1.8%	0.6%
	TV news (please specify)	190	30.4%	2.1%
	TV documentaries	33	5.3%	1.0%
	Other source (please specify)	6	0.8%	0.4%
	Don't know	1	0.1%	0.1%
Q3. In considering energy sources, which of the following factors are most important to you? (n = 695)	Cost	520	75.0%	1.9%
	Reliability	225	31.6%	2.0%
	Safety	233	33.7%	2.1%
	Whether or not it is produced domestically/locally	144	20.1%	1.7%
	Job opportunities	124	17.7%	1.6%
	Whether or not it is renewable	183	24.8%	1.8%
	Environmental impacts	318	45.9%	2.2%
	Other	17	2.2%	0.6%
Q4a. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Coal (n = 688)	Reduce a lot	196	28.6%	2.0%
	Reduce somewhat	151	22.2%	1.8%
	Maintain current levels	173	24.9%	1.9%
	Increase somewhat	55	6.8%	1.0%
	Increase a lot	52	8.3%	1.3%
	Don't know	61	9.3%	1.3%
Q4b. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Hydroelectric (n = 693)	Reduce a lot	25	3.9%	0.9%
	Reduce somewhat	36	4.7%	0.9%
	Maintain current levels	218	31.7%	2.1%
	Increase somewhat	184	25.4%	1.9%
	Increase a lot	173	26.0%	2.0%
	Don't know	57	8.2%	1.2%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q4c. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Gas (n = 693)	Reduce a lot	34	5.6%	1.1%
	Reduce somewhat	71	10.6%	1.4%
	Maintain current levels	223	32.5%	2.1%
	Increase somewhat	155	21.5%	1.8%
	Increase a lot	173	24.4%	1.9%
	Don't know	37	5.4%	1.0%
Q4d. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Nuclear (n = 692)	Reduce a lot	210	31.9%	2.1%
	Reduce somewhat	118	16.6%	1.6%
	Maintain current levels	158	21.1%	1.7%
	Increase somewhat	98	15.6%	1.7%
	Increase a lot	60	8.1%	1.2%
	Don't know	48	6.7%	1.0%
Q4e. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Oil (n = 693)	Reduce a lot	182	27.1%	2.0%
	Reduce somewhat	138	19.8%	1.8%
	Maintain current levels	147	21.8%	1.8%
	Increase somewhat	86	11.5%	1.3%
	Increase a lot	114	15.4%	1.5%
	Don't know	26	4.4%	1.0%
Q4f. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Solar (n = 693)	Reduce a lot	16	1.9%	0.5%
	Reduce somewhat	22	3.3%	0.8%
	Maintain current levels	69	10.1%	1.3%
	Increase somewhat	103	14.8%	1.6%
	Increase a lot	461	67.1%	2.1%
	Don't know	22	2.9%	0.7%
Q4f. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Wind (n = 694)	Reduce a lot	29	3.9%	0.8%
	Reduce somewhat	24	3.4%	0.8%
	Maintain current levels	91	11.9%	1.3%
	Increase somewhat	138	19.6%	1.7%
	Increase a lot	394	58.8%	2.1%
	Don't know	18	2.3%	0.6%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q5a. How expensive do you think it is to produce electricity from each of the following sources: Coal (n = 692)	Very expensive	92	13.3%	1.5%
	Somewhat expensive	110	15.0%	1.5%
	Moderately priced	189	27.7%	2.0%
	Somewhat inexpensive	142	23.2%	2.0%
	Very inexpensive	43	6.0%	1.0%
	Don't know	116	14.9%	1.5%
Q5b. How expensive do you think it is to produce electricity from each of the following sources: Hydroelectric (n = 692)	Very expensive	85	13.1%	1.6%
	Somewhat expensive	174	24.5%	1.9%
	Moderately priced	180	26.5%	2.0%
	Somewhat inexpensive	101	15.0%	1.6%
	Very inexpensive	38	5.5%	1.0%
	Don't know	114	15.3%	1.5%
Q5c. How expensive do you think it is to produce electricity from each of the following sources: Gas (n = 691)	Very expensive	56	7.3%	1.1%
	Somewhat expensive	147	22.4%	1.9%
	Moderately priced	232	34.8%	2.1%
	Somewhat inexpensive	133	19.1%	1.7%
	Very inexpensive	54	7.0%	1.0%
	Don't know	69	9.3%	1.2%
Q5d. How expensive do you think it is to produce electricity from each of the following sources: Nuclear (n = 688)	Very expensive	258	38.2%	2.2%
	Somewhat expensive	149	22.8%	1.9%
	Moderately priced	89	12.9%	1.5%
	Somewhat inexpensive	49	7.2%	1.2%
	Very inexpensive	21	3.4%	0.9%
	Don't know	122	15.5%	1.5%
Q5e. How expensive do you think it is to produce electricity from each of the following sources: Oil (n = 691)	Very expensive	266	39.1%	2.2%
	Somewhat expensive	183	25.5%	1.9%
	Moderately priced	124	18.3%	1.7%
	Somewhat inexpensive	46	7.1%	1.2%
	Very inexpensive	15	2.1%	0.6%
	Don't know	57	7.8%	1.1%
Q5f. How expensive do you think it is to produce electricity from each of the following sources: Solar (n = 690)	Very expensive	113	16.6%	1.7%
	Somewhat expensive	157	23.1%	1.9%
	Moderately priced	146	20.3%	1.7%
	Somewhat inexpensive	132	19.6%	1.8%
	Very inexpensive	85	12.1%	1.4%
	Don't know	57	8.2%	1.2%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q5g. How expensive do you think it is to produce electricity from each of the following sources: Wind (n = 689)	Very expensive	66	10.0%	1.4%
	Somewhat expensive	128	19.7%	1.8%
	Moderately priced	161	22.0%	1.8%
	Somewhat inexpensive	164	23.8%	1.9%
	Very inexpensive	91	14.1%	1.6%
	Don't know	78	10.5%	1.3%
Q6. Please stop me when I reach the category that best describes how much you paid for your electricity last month? (n = 668)	Under $25	39	5.6%	1.0%
	$25 - $50	129	20.5%	1.8%
	$50 - $75	137	19.5%	1.7%
	$75 - $100	110	15.8%	1.6%
	$100 - $125	73	11.8%	1.5%
	$125 - $150	52	7.4%	1.1%
	$150 - $200	47	7.6%	1.3%
	Over $200	68	10.0%	1.3%
	Not responsible for paying bill	10	1.5%	0.6%
	Don't know	3	0.3%	0.2%
Q7. Is there a large solar facility currently being proposed for construction in your county? (n = 688)	Yes	190	26.4%	1.9%
	No	314	45.7%	2.2%
	Don’t know	184	27.9%	2.0%
Q8. How strongly do you support or oppose the construction of large solar facilities in the U.S.? (n = 687)	Strongly support	414	62.0%	2.1%
	Somewhat support	140	19.6%	1.7%
	Neither support nor oppose	86	12.3%	1.4%
	Somewhat oppose	20	2.6%	0.6%
	Strongly oppose	21	2.8%	0.7%
	Don't know	6	0.8%	0.3%
Q9. Suppose the construction of a large solar facility was planned near to where you live. How strongly would you support or oppose its construction? (n = 684)	Strongly support	355	53.5%	2.2%
	Somewhat support	149	21.3%	1.8%
	Neither support nor oppose	86	12.2%	1.4%
	Somewhat oppose	34	4.9%	1.0%
	Strongly oppose	44	5.6%	0.9%
	Don't know	16	2.5%	0.7%
Q11. My opposition to building a large-scale solar facility in my area is so strong that I would be committed to take action against it being built. (n= 78)	Strongly agree	27	30.4%	5.5%
	Somewhat agree	14	19.7%	5.5%
	Neither agree nor disagree	19	31.2%	6.6%
	Somewhat disagree	8	8.3%	2.9%
	Strongly disagree	9	9.4%	3.1%
	Don't know	1	1.0%	1.0%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q26. If there was a large-scale solar facility built near to your home, but developers guaranteed that it would not be visible from where you live, how strongly would you support or oppose its construction? (n = 683)	Strongly support	396	59.2%	2.2%
	Somewhat support	137	19.0%	1.7%
	Neither support nor oppose	74	10.4%	1.3%
	Somewhat oppose	28	4.0%	0.9%
	Strongly oppose	35	4.9%	0.9%
	Don't know	13	2.5%	0.8%
Q10. My opposition to building a large-scale solar facility in view of my home is so strong that I would be committed to take action against it being built. (n=63)	Strongly agree	24	32.3%	6.3%
	Somewhat agree	17	27.1%	6.6%
	Neither agree nor disagree	3	8.1%	4.9%
	Somewhat disagree	8	19.0%	6.9%
	Strongly disagree	9	11.1%	3.7%
	Don't know	2	2.5%	1.8%
Q28. If a large-scale solar facility was proposed to be built in your area, how likely would you be to take action in support of its construction? (n = 675)	Very likely	210	32.6%	2.1%
	Somewhat likely	206	30.0%	2.0%
	Neither likely nor unlikely	126	16.8%	1.6%
	Somewhat unlikely	54	8.1%	1.2%
	Very unlikely	68	10.7%	1.4%
	Don't know	11	1.8%	0.6%
Q12a. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Former industrial areas (n = 681)	Strongly support	326	45.8%	2.2%
	Somewhat support	181	26.7%	2.0%
	Neither support nor oppose	86	13.6%	1.6%
	Somewhat oppose	34	5.6%	1.1%
	Strongly oppose	33	5.1%	1.0%
	Don't know	21	3.2%	0.8%
Q12b. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Undeveloped privately owned land (n = 677)	Strongly support	186	27.2%	2.0%
	Somewhat support	188	27.9%	2.0%
	Neither support nor oppose	146	21.8%	1.8%
	Somewhat oppose	57	9.1%	1.3%
	Strongly oppose	75	10.3%	1.3%
	Don't know	25	3.5%	0.8%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q12c. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Undeveloped public land (n = 676)	Strongly support	218	31.6%	2.1%
	Somewhat support	187	26.9%	2.0%
	Neither support nor oppose	105	15.1%	1.6%
	Somewhat oppose	53	8.5%	1.3%
	Strongly oppose	78	12.0%	1.5%
	Don't know	35	5.3%	1.0%
Q12d. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Land currently used for agriculture (n = 680)	Strongly support	73	10.5%	1.4%
	Somewhat support	95	14.6%	1.6%
	Neither support nor oppose	85	12.5%	1.5%
	Somewhat oppose	128	18.9%	1.8%
	Strongly oppose	277	40.0%	2.2%
	Don't know	22	3.3%	0.8%
Q12e. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Land recently taken out of agricultural production (n = 677)	Strongly support	181	25.9%	1.9%
	Somewhat support	173	26.8%	2.0%
	Neither support nor oppose	113	15.6%	1.6%
	Somewhat oppose	74	11.0%	1.4%
	Strongly oppose	109	16.8%	1.7%
	Don't know	27	3.9%	0.8%
Q12f. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Military bases (n = 678)	Strongly support	312	44.8%	2.2%
	Somewhat support	149	21.7%	1.8%
	Neither support nor oppose	104	16.8%	1.7%
	Somewhat oppose	38	5.9%	1.1%
	Strongly oppose	51	7.5%	1.2%
	Don't know	24	3.3%	0.7%
Q12g. For each of the following locations, how strongly would you support or oppose construction of a large-scale solar facility? Sensitive areas for wildlife (n = 680)	Strongly support	54	7.8%	1.2%
	Somewhat support	82	11.7%	1.4%
	Neither support nor oppose	70	10.6%	1.4%
	Somewhat oppose	116	16.8%	1.6%
	Strongly oppose	335	49.3%	2.2%
	Don't know	23	3.7%	0.9%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
13. Of all of the following land types, which one would you MOST PREFER to be selected for siting a large-scale solar facility? (n = 676)	Former industrial areas	230	32.0%	2.0%
	Undeveloped privately owned land	55	10.3%	1.5%
	Undeveloped public land	125	19.0%	1.8%
	Land currently used for agriculture	4	0.4%	0.2%
	Land recently taken out of agricultural production	53	7.7%	1.2%
	Military bases	119	16.5%	1.6%
	Sensitive areas for wildlife	3	0.6%	0.4%
	No preference	80	12.6%	1.5%
	Don't know	7	0.8%	0.3%
Q14a. What is the appropriate buffer distance between a large-scale solar facility and a residential area? (n = 493)	Less than 0.25 miles	60	13.2%	1.9%
	0.25 5o 1 miles	121	23.0%	2.1%
	1 to 5 miles	140	27.3%	2.3%
	More than 5 miles	172	36.4%	2.6%
Q14b. What is the appropriate buffer distance between a large-scale solar facility and an agricultural area? (n = 469)	Less than 0.25 miles	101	20.3%	2.1%
	0.25 5o 1 miles	100	21.1%	2.2%
	1 to 5 miles	112	23.3%	2.3%
	More than 5 miles	156	35.3%	2.6%
Q14c. What is the appropriate buffer distance between a large-scale solar facility and an area of historical or cultural importance? (n = 478)	Less than 0.25 miles	50	10.8%	1.7%
	0.25 5o 1 miles	75	15.7%	1.9%
	1 to 5 miles	150	30.0%	2.4%
	More than 5 miles	203	43.5%	2.7%
Q14d. What is the appropriate buffer distance between a large-scale solar facility and a wildlife migratory route? (n = 485)	Less than 0.25 miles	41	8.1%	1.4%
	0.25 5o 1 miles	70	13.6%	1.8%
	1 to 5 miles	115	22.6%	2.2%
	More than 5 miles	259	55.7%	2.6%
Q14e. What is the appropriate buffer distance between a large-scale solar facility and an area used as a breeding ground by wildlife? (n = 485)	Less than 0.25 miles	40	8.0%	1.4%
	0.25 5o 1 miles	59	11.2%	1.6%
	1 to 5 miles	132	26.4%	2.3%
	More than 5 miles	254	54.4%	2.6%
Q14f. What is the appropriate buffer distance between a large-scale solar facility and a recreation area? (n = 489)	Less than 0.25 miles	48	10.1%	1.6%
	0.25 5o 1 miles	61	12.7%	1.8%
	1 to 5 miles	152	30.0%	2.4%
	More than 5 miles	228	47.2%	2.6%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q14g. What is the appropriate buffer distance between a large-scale solar facility and wetlands? (n = 480)	Less than 0.25 miles	44	8.5%	1.4%
	0.25 5o 1 miles	66	13.1%	1.8%
	1 to 5 miles	140	27.9%	2.3%
	More than 5 miles	230	50.5%	2.7%
Q14h. What is the appropriate buffer distance between a large-scale solar facility and an existing solar facility? (n = 442)	Less than 0.25 miles	193	43.5%	2.7%
	0.25 5o 1 miles	51	11.5%	1.8%
	1 to 5 miles	43	9.6%	1.6%
	More than 5 miles	155	35.5%	2.7%
Q24. If you had to choose between 10 small solar facilities or 1 to 2 large solar facilities being built close to where you live, which would you prefer? (n = 658)	10 small solar facilities	204	29.9%	2.1%
	1 to 2 large solar facilities	3296	52.2%	2.3%
	No preference	104	15.4%	1.6%
	Don't know	21	2.5%	0.6%
Q25. What effect will building a large solar facility within view of your property have on its assessed value? (n = 661)	Increase greatly	41	6.3%	1.1%
	Increase slightly	96	16.8%	1.8%
	Neither increase nor decrease	180	27.1%	2.0%
	Decrease slightly	154	23.3%	1.9%
	Decrease greatly	142	19.4%	1.7%
	Don't know	48	7.1%	1.1%
Q27. Solar technology is currently capable of being a major of source of electricity? (n = 662)	Strongly agree	398	59.7%	2.2%
	Somewhat agree	158	24.9%	2.0%
	Neither agree nor disagree	33	4.7%	0.9%
	Somewhat disagree	36	5.5%	1.1%
	Strongly disagree	31	4.2%	0.8%
	Don't know	6	1.0%	0.5%
Q29. In your view, how serious a problem is global climate change? (n = 662)	Very serious problem	371	56.7%	2.2%
	Somewhat serious problem	118	16.2%	1.6%
	Slightly serious problem	69	10.1%	1.4%
	Not a problem	97	15.8%	1.7%
	Don't know	7	1.2%	0.5%
Q30. Do you think climate change is caused mostly by things people do, mostly by natural causes, or about equally by things people do and by natural causes? (n = 662)	Natural causes	116	16.2%	1.6%
	Things people do	250	38.5%	2.2%
	Both equally	276	41.4%	2.2%
	Other	5	1.1%	0.6%
	There is no change	13	2.3%	0.7%
	Don't know	2	0.5%	0.4%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q31. The industrialization that would result from building a new large-scale solar facility would be good for this area. (n = 659)	Strongly agree	285	44.4%	2.3%
	Somewhat agree	206	30.6%	2.1%
	Neither agree nor disagree	112	17.5%	1.8%
	Somewhat disagree	23	2.9%	0.7%
	Strongly disagree	19	2.7%	0.7%
	Don't know	14	2.0%	0.6%
Q32. The jobs that would be created from building a new large-scale solar facility would be good for this area. (n = 660)	Strongly agree	447	66.3%	2.2%
	Somewhat agree	140	22.9%	2.0%
	Neither agree nor disagree	31	4.3%	0.9%
	Somewhat disagree	19	3.2%	0.9%
	Strongly disagree	17	2.2%	0.5%
	Don't know	6	1.1%	0.5%
Q33. Building a large-scale solar facility nearby will bring too much construction traffic to the area. (n = 659)	Strongly agree	69	9.5%	1.2%
	Somewhat agree	129	20.6%	1.9%
	Neither agree nor disagree	107	16.7%	1.7%
	Somewhat disagree	177	26.2%	2.0%
	Strongly disagree	157	23.9%	1.9%
	Don't know	20	3.1%	0.8%
Q34. Citizens do not have enough opportunity to participate in planning how and where a new large-scale solar facility will be built. (n = 659)	Strongly agree	173	25.2%	1.9%
	Somewhat agree	196	31.3%	2.1%
	Neither agree nor disagree	101	15.0%	1.6%
	Somewhat disagree	92	13.8%	1.6%
	Strongly disagree	58	9.0%	1.3%
	Don't know	39	5.7%	1.0%
Q35. A large-scale solar facility that meets all current state and local laws should be allowed even if people living near it are opposed to it. (n = 657)	Strongly agree	149	22.6%	1.9%
	Somewhat agree	168	27.3%	2.1%
	Neither agree nor disagree	100	15.4%	1.7%
	Somewhat disagree	99	13.9%	1.5%
	Strongly disagree	123	17.6%	1.7%
	Don't know	18	3.1%	0.8%
Q36. I don’t want the landscape of this place to change. (n = 652)	Strongly agree	191	27.9%	2.0%
	Somewhat agree	147	23.0%	1.9%
	Neither agree nor disagree	183	30.3%	2.2%
	Somewhat disagree	82	11.6%	1.4%
	Strongly disagree	47	6.6%	1.1%
	Don't know	3	0.6%	0.4%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q37. This place has a great community of people. (n = 652)	Strongly agree	343	49.8%	2.3%
	Somewhat agree	177	27.6%	2.1%
	Neither agree nor disagree	61	10.0%	1.4%
	Somewhat disagree	38	6.1%	1.1%
	Strongly disagree	30	5.9%	1.2%
	Don't know	3	0.6%	0.4%
Q38. This place is a beautiful area. (n = 652)	Strongly agree	375	55.1%	2.3%
	Somewhat agree	171	27.6%	2.1%
	Neither agree nor disagree	37	5.4%	1.0%
	Somewhat disagree	44	7.8%	1.3%
	Strongly disagree	24	3.7%	0.9%
	Don't know	1	0.4%	0.4%
Q39. Nature is unspoiled in this place. (n = 650)	Strongly agree	167	24.8%	1.9%
	Somewhat agree	181	27.3%	2.0%
	Neither agree nor disagree	93	14.4%	1.6%
	Somewhat disagree	125	21.6%	2.0%
	Strongly disagree	76	10.7%	1.3%
	Don't know	8	1.2%	0.5%
Q40. This place is too quiet; it needs to liven up a bit. (n = 650)	Strongly agree	70	12.0%	1.6%
	Somewhat agree	68	11.2%	1.5%
	Neither agree nor disagree	85	13.2%	1.6%
	Somewhat disagree	150	23.7%	2.0%
	Strongly disagree	274	39.4%	2.2%
	Don't know	3	0.6%	0.4%
Q42. Do you belong to a community organization, club, church, or group in the area? (n = 651)	Yes	382	56.8%	2.3%
	No	269	43.2%	2.3%
Q30. In the past year, did you give money to a community organization, located or working in the area? (n = 650)	Yes	408	58.0%	2.3%
	No	242	42.0%	2.3%
Q31. Are you involved in any local volunteer work in the area? (n = 650)	Yes	251	35.7%	2.1%
	No	399	64.3%	2.1%

Question	Responses	Raw Frequency	Weighed Percent	Std. Error
Q63. What effect will building more large-scale solar facilities have on wildlife? (n = 633)	Very positive effect	31	4.9%	1.0%
	Somewhat positive effect	80	14.1%	1.7%
	No effect	166	25.5%	2.0%
	Somewhat negative effect	216	35.0%	2.2%
	Very negative effect	53	7.3%	1.1%
	Don't know	87	12.2%	1.4%
Q64. Have you previously taken action against the building of a solar facility in your county (attended public meetings, written letters, protested, etc.)? (n = 632)	Yes	9	98.3%	0.6%
	No	622	1.6%	0.6%
	Don't know	1	0.1%	0.1%
Q65. How important or unimportant is protecting the environment to you personally? (n = 484)	Very important	352	73.3%	2.3%
	Important	114	21.8%	2.1%
	Unimportant	11	3.0%	1.0%
	Very unimportant	4	1.0%	0.6%
	Don't know	3	0.9%	0.6%
Q67. Do you have solar panels installed on the rooftop of your residence? (n = 476)	No	384	79.7%	2.2%
	Yes	31	6.4%	1.3%
	Don't know	61	13.9%	1.9%
Q45. Do you consider yourself to live in rural, urban, or suburban area? (n = 643)	Rural	197	30.7%	2.1%
	Urban	114	19.4%	1.9%
	Suburban	325	48.4%	2.3%
	Refused	7	1.4%	0.6%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q46. What is your occupation? (n = 614)	Agriculture, forestry, fishing, mining	25	5.6%	1.3%
	Construction	18	3.4%	0.9%
	Manufacturing	7	1.4%	0.6%
	Wholesale trade	3	1.0%	0.6%
	Retail trade	26	5.0%	1.1%
	Information [publishers, television, radio, Web, telecommunications, libraries, software, etc.]	8	1.4%	0.6%
	Finance, real estate, insurance	25	3.3%	0.7%
	Professional, scientific, management, admin, waste management	29	4.5%	1.0%
	Education (all levels)	60	9.5%	1.4%
	Health care and social assistance [includes all doctors, home health care providers, social services]	31	4.5%	0.9%
	Arts, entertainment, recreation, accommodation, or food services [artists, museums, hotels, restaurants]	14	2.3%	0.7%
	Other services [inc. auto repair, religious institutions, nonprofits, dry cleaning, funeral homes]	25	3.6%	0.8%
	Public administration [courts, police, fire, city/state/Federal workers]	25	3.7%	0.8%
	Not sure (specify occupation)	142	24.0%	2.1%
	Retired	176	26.7%	2.0%
Q38. What is your current housing arrangement? (n = 639)	I am a home owner	414	58.4%	2.3%
	I rent	172	32.4%	2.3%
	I live with another person (not a spouse) who pays the cost of my housing	34	5.9%	1.2%
	I live in a dorm, nursing home, or other group facility	8	1.0%	0.4%
	Other	11	2.2%	0.8%
How many years have you lived in your current home? (n = 671)	Less than three	175	27.2%	2.0%
	Three to seven	188	30.0%	2.1%
	Eight to fourteen	141	18.9%	1.7%
	Fifteen to nineteen	47	6.5%	1.0%
	More than twenty	120	17.4%	1.7%
Q49. What is the highest level of education that you have completed? (n = 636)	8th grade or less	34	6.6%	1.3%
	9th-12th grade, no diploma	47	8.0%	1.3%
	High school graduate (includes GED)	81	13.1%	1.6%
	Some college, no degree	167	26.7%	2.1%
	Associate's degree	57	8.7%	1.3%
	Bachelor's degree	141	21.2%	1.9%
	Graduate or professional degree	109	15.7%	1.6%
Q50. Race (n = 695)	American Indian	15	2.4%	0.7%
	Asian	16	2.0%	0.5%
	Hispanic/Latino/a	164	27.2%	2.1%
	White	416	58.1%	0.9%
	Other	17	12.7%	1.5%
Q51. In general, would you describe your political views as.. (n = 606).	Very conservative	48	7.8%	1.3%
	Conservative	187	30.4%	2.2%
	Moderate	222	35.1%	2.2%
	Liberal	106	18.1%	1.9%
	Very liberal	43	8.5%	1.5%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q52. In politics today, do you consider yourself a Republican, Democrat, or Independent? (n = 620)	Republican	170	25.1%	1.9%
	Democrat	202	34.8%	2.3%
	Independent/no preference/other	236	36.0%	2.3%
	Don't know	12	2.0%	0.7%
Income (n = 582)	Less than $24,999	109	21.6%	2.1%
	Between $25,000 and $49,999	152	26.4%	2.1%
	Between $50,000 and $74,999	103	16.0%	1.7%
	Between $75,000 and $99,999	76	12.8%	1.6%
	More than $100,000	142	23.2%	2.0%
How many years have you lived in this area? (n = 657)	Less than five	135	19.3%	1.7%
	Five to nine	109	16.4%	1.7%
	Ten to fourteen	93	15.7%	1.7%
	Fifteen to nineteen	59	8.9%	1.3%
	More than twenty	261	39.8%	2.2%
County (n = 641)	Inyo	4	0.5%	0.2%
	Kern	99	16.9%	1.8%
	Riverside	211	32.1%	2.1%
	San Bernardino	204	31.6%	2.1%
	San Luis Obispo	39	6.2%	1.1%
	Ventura	84	12.8%	1.5%
Gender (n = 641)	Male	287	48.7%	2.3%
	Female	354	51.3%	2.3%
Language	English	613	86.8%	1.5%
	Spanish	82	13.2%	1.5%
Q55. Age	18-34	83.7	22.4%	3.1%
	35-44	58.4	15.6%	2.4%
	45-54	61.7	16.5%	2.3%
	55-64	70.1	18.8%	2.2%
	65 and older	99.9	26.7%	2.6%

Descriptive Statistics for Quantitative Questions

Question	Mean (miles)	Std. Error (miles)	Std. Deviation (miles)
Q14: Appropriate buffer distance between a utility scale solar facility and a residential area	21.72	7.82	3,917.68
Q15: Appropriate buffer distance between a utility scale solar facility and a agricultural area	19.85	8.02	3,852.04
Q16: Appropriate buffer distance between a utility scale solar facility and an area of historic or cultural importance	27.58	8.31	4,059.47
Q17: Appropriate buffer distance between a utility scale solar facility and a wildlife migratory route	34.16	8.59	4,227.56
Q18: Appropriate buffer distance between a utility scale solar facility and a breeding ground used by wildlife	37.15	8.80	4,322.16
Q19: Appropriate buffer distance between a utility scale solar facility and an used for recreation	33.82	9.60	4,780.42
Q20: Appropriate buffer distance between a utility scale solar facility and a wetland	35.38	9.74	4,777.67
Q21: Appropriate buffer distance between a utility scale solar facility and an existing solar facility	31.77	8.86	4,404.98

Appendix B: National Frequencies

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q1. Which of the following statements best describes how closely you follow energy issues? (n = 429)	You follow energy issues very closely	176	39.8%	2.8%
	You sometimes pay attention to energy issues	209	48.6%	2.9%
	You rarely pay attention to energy issues	30	7.5%	1.6%
	You never pay attention to energy issues	14	4.1%	1.3%
	Don't know	0	0.0%	0.0%
Q2. Where do you get most of your information about energy? (n = 428)	Newspaper (print or online)	36	7.7%	1.5%
	Local Newspaper	46	10.5%	1.8%
	Magazine(s)	15	3.4%	1.0%
	Books	3	0.5%	0.3%
	Friends	11	3.0%	1.1%
	The Internet	125	30.6%	2.8%
	An organization or interest group	12	2.8%	0.9%
	TV news (please specify)	112	25.2%	2.5%
	TV documentaries	22	4.9%	1.2%
	Other source (please specify)	43	10.9%	1.9%
	Don't know	3	0.7%	0.5%
Q3. In considering energy sources, which of the following factors are most important to you? (n = 430)	Cost	317	75.2%	2.5%
	Reliability	119	26.6%	2.5%
	Safety	143	30.6%	2.6%
	Whether or not it is produced domestically/locally	113	25.1%	2.5%
	Job opportunities	71	15.9%	2.1%
	Whether or not it is renewable	129	31.1%	2.7%
	Environmental impacts	214	52.3%	2.9%
	Other	15	3.6%	1.1%
Q4a. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Coal (n = 424)	Cease	33	9.1%	1.8%
	Reduce	138	34.7%	2.8%
	Maintain current levels	145	30.5%	2.6%
	Increase	88	20.5%	2.4%
	Don't know	20	5.3%	1.4%
Q4b. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Hydroelectric (n = 425)	Cease	3	0.5%	0.3%
	Reduce	22	4.1%	1.0%
	Maintain current levels	144	34.8%	2.8%
	Increase	226	53.2%	2.9%
	Don't know	30	7.5%	1.6%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q4c. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Gas (n = 424)	Cease	6	1.6%	0.8%
	Reduce	71	19.5%	2.5%
	Maintain current levels	138	33.3%	2.8%
	Increase	196	41.9%	2.9%
	Don't know	13	3.7%	1.2%
Q4d. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Nuclear (n = 422)	Cease	69	15.9%	2.1%
	Reduce	100	24.0%	2.5%
	Maintain current levels	128	30.1%	2.7%
	Increase	99	23.6%	2.5%
	Don't know	26	6.5%	1.5%
Q4e. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Oil (n = 422)	Cease	26	6.7%	1.5%
	Reduce	129	33.1%	2.8%
	Maintain current levels	130	28.9%	2.6%
	Increase	130	29.1%	2.6%
	Don't know	7	2.2%	1.0%
Q4f. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Solar (n = 423)	Cease	6	1.2%	0.5%
	Reduce	18	3.5%	0.9%
	Maintain current levels	49	13.4%	2.1%
	Increase	342	80.2%	2.4%
	Don't know	8	1.7%	0.7%
Q4g. Tell us whether you favor reducing, maintaining, or increasing U.S. production of the following electricity generation types? Wind (n = 423)	Cease	12	2.5%	0.9%
	Reduce	22	4.3%	1.1%
	Maintain current levels	62	15.3%	2.1%
	Increase	319	76.1%	2.5%
	Don't know	8	1.9%	0.8%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q6. How strongly do you support or oppose the construction of large solar facilities in the U.S.? (n = 423)	Strongly support	213	51.3%	2.9%
	Somewhat support	112	26.1%	2.6%
	Neither support nor oppose	50	11.7%	1.9%
	Somewhat oppose	15	4.0%	1.2%
	Strongly oppose	24	5.1%	1.2%
	Don't know	9	1.8%	0.7%
Q7. Solar technology is currently capable of being a major of source of electricity? (n = 423)	Strongly agree	163	39.9%	2.9%
	Somewhat agree	141	32.7%	2.7%
	Neither agree nor disagree	38	8.3%	1.5%
	Somewhat disagree	34	7.9%	1.6%
	Strongly disagree	39	9.7%	1.8%
	Don't know	8	1.5%	0.6%
Q8. What is an acceptable buffer distance between a large solar facility and existing agricultural land? (n = 413)	Less than a mile	107	26.3%	2.6%
	1-5 miles	90	22.5%	2.5%
	6-10 miles	44	11.6%	2.0%
	More than 10 miles	52	13.3%	2.1%
	No preference	41	8.4%	1.5%
	Don't know	79	17.8%	2.2%
Q9. What is an acceptable buffer distance between a large solar facility and your home? (n = 417)	Less than a mile	85	21.4%	2.5%
	1-5 miles	110	25.5%	2.6%
	6-10 miles	63	15.9%	2.2%
	More than 10 miles	88	20.9%	2.4%
	No Preference	29	5.6%	1.2%
	Don't know	42	10.7%	1.9%
Q10. How concerned are you about global climate change? (n = 421)	Greatly concerned	171	43.3%	2.9%
	Somewhat concerned	119	26.0%	2.5%
	Slightly concerned	46	11.1%	1.9%
	Not concerned	82	18.2%	2.2%
	Don’t know	3	1.3%	0.8%
Q11. Do you think climate change is caused mostly by things people do, mostly by natural causes, or about equally by things people do and by natural causes? (n = 420)	Natural causes	77	16.4%	2.1%
	Things people do	142	36.7%	2.9%
	Both equally	163	38.0%	2.9%
	Other	9	1.8%	0.7%
	There is no change	16	3.8%	1.1%
	Don't know	13	3.4%	1.1%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q12. I don't want the landscape of this place to change. (n = 416)	Strongly agree	151	34.3%	2.8%
	Somewhat agree	106	25.1%	2.5%
	Neither agree nor disagree	80	19.5%	2.4%
	Somewhat disagree	48	12.8%	2.1%
	Strongly disagree	22	5.7%	1.4%
	Don't know	9	2.7%	1.1%
Q13. This place has a great community of people. (n = 418)	Strongly agree	244	56.3%	3.0%
	Somewhat agree	108	26.9%	2.7%
	Neither agree nor disagree	27	6.2%	1.4%
	Somewhat disagree	22	5.8%	1.5%
	Strongly disagree	16	4.2%	1.3%
	Don't know	1	0.6%	0.6%
Q14. This place is a beautiful area. (n = 417)	Strongly agree	257	61.1%	2.9%
	Somewhat agree	98	24.2%	2.6%
	Neither agree nor disagree	33	8.2%	1.7%
	Somewhat disagree	17	4.2%	1.2%
	Strongly disagree	12	2.3%	0.8%
	Don't know	0	0.0%	0.0%
Q15. Nature is unspoiled in this place. (n = 418)	Strongly agree	89	21.4%	2.4%
	Somewhat agree	137	31.7%	2.7%
	Neither agree nor disagree	51	10.2%	1.6%
	Somewhat disagree	82	22.4%	2.6%
	Strongly disagree	49	11.7%	1.9%
	Don't know	10	2.7%	1.0%
Q16. This place is too quiet; it needs to liven up a bit. (n = 419)	Strongly agree	27	8.3%	1.8%
	Somewhat agree	29	7.8%	1.7%
	Neither agree nor disagree	42	10.7%	1.9%
	Somewhat disagree	131	32.0%	2.8%
	Strongly disagree	188	40.8%	2.9%
	Don't know	2	0.3%	0.2%
Q17. Do you belong to a community organization, club, church, or group in the area? (n = 415)	Yes	271	58.5%	3.0%
	No	144	41.5%	3.0%
Q18. In the past year, did you give money to a community organization, located or working in the area? (n = 410)	Yes	291	67.2%	2.9%
	No	119	32.8%	2.9%
Q19. Are you involved in any local volunteer work in the area? (n = 416)	Yes	192	44.6%	2.9%
	No	224	55.4%	2.9%

Question	Responses	Raw Frequency	Weighed Percent	Std. Error
Q20. Do you consider yourself to live in rural, urban, or suburban area? (n = 418)	Rural	155	35.9%	2.8%
	Urban	98	26.4%	2.7%
	Suburban	163	37.2%	2.8%
	Refused	2	0.6%	0.4%
Q21. What is your occupation? (n = 413)	Agriculture, forestry, fishing, mining	10	3.6%	1.3%
	Construction	11	3.3%	1.2%
	Manufacturing	7	1.8%	0.8%
	Wholesale trade	2	0.7%	0.6%
	Retail trade	21	4.6%	1.2%
	Information [publishers, television, radio, Web, telecommunications, libraries, software, etc.]	4	1.5%	0.9%
	Finance, real estate, insurance	18	5.3%	1.4%
	Professional, scientific, management, admin, waste management	29	7.6%	1.7%
	Education (all levels)	18	4.0%	1.1%
	Health care and social assistance [includes all doctors, home health care providers, social services]	31	7.8%	1.6%
	Arts, entertainment, recreation, accommodation, or food services [artists, museums, hotels, restaurants]	8	2.1%	0.9%
	Other services [inc. auto repair, religious institutions, nonprofits, dry cleaning, funeral homes]	22	5.2%	1.3%
	Public administration [courts, police, fire, city/state/Federal workers]	14	3.9%	1.3%
	Not sure (specify occupation)	91	22.8%	2.5%
	Retired	127	25.9%	2.4%
How many years have you lived in your current home? (n =413)	Less than three	103	31.1%	2.9%
	Three to seven	91	23.8%	2.6%
	Eight to fourteen	77	17.6%	2.2%
	Fifteen to nineteen	32	6.2%	1.3%
	More than twenty	110	21.3%	2.2%
Q22. What is your current housing arrangement? (n =416)	I am a home owner	294	63.2%	3.0%
	I rent	90	29.0%	2.9%
	I live with another person (not a spouse) who pays the cost of my housing	21	4.8%	1.2%
	I live in a dorm, nursing home, or other group facility	6	2.1%	0.9%
	Other (specify)	5	0.8%	0.4%
Q28. What is the highest level of education that you have completed? (n = 416)	8th grade or less	7	2.3%	0.9%
	9th-12th grade, no diploma	15	5.1%	1.4%
	High school graduate (includes GED)	74	18.1%	2.3%
	Some college, no degree	76	17.0%	2.2%
	Associate's degree	43	8.7%	1.5%
	Bachelor's degree	113	27.4%	2.7%
	Graduate or professional degree	88	21.7%	2.5%

Question	Responses	Raw Frequency	Weighted Percent	Std. Error
Q50. Race (n = 430)	African American	24	7.3%	1.7%
	American Indian	13	2.0%	0.6%
	Asian	9	1.8%	0.7%
	Hispanic/Latino/a	29	9.0%	1.9%
	White	327	73.1%	2.7%
	Other	15	4.0%	1.2%
Q51. In general, would you describe your political views as.. (n = 387).	Very conservative	42	11.0%	1.9%
	Conservative	102	23.6%	2.5%
	Moderate	145	36.6%	3.0%
	Liberal	71	22.4%	2.7%
	Very liberal	27	6.3%	1.4%
Q52. In politics today, do you consider yourself a Republican, Democrat, or Independent? (n = 398)	Republican	111	26.3%	2.6%
	Democrat	124	32.1%	2.9%
	Independent/no preference/other	153	39.5%	3.0%
	Don't know	10	2.1%	0.8%
Q52. Approximately how much did you pay for electricity last month? (n = 404)	Under $25	67	17.9%	2.4%
	$25 - $50	35	11.2%	2.1%
	$50 - $75	49	12.5%	2.0%
	$75 - $100	36	7.8%	1.5%
	$100 - $125	54	14.1%	2.2%
	$125 - $150	32	7.6%	1.6%
	$150 - $200	52	12.5%	2.0%
	Over $200	79	16.4%	2.0%
Income (n = 363)	Less than $24,999	54	16.1%	2.4%
	Between $25,000 and $49,999	85	26.9%	2.9%
	Between $50,000 and $74,999	88	23.4%	2.7%
	Between $75,000 and $99,999	45	10.6%	1.8%
	More than $100,000	91	22.8%	2.6%
How many years have you lived in this area? (n =410)	Less than five	65	21.5%	2.7%
	Five to nine	44	12.5%	2.1%
	Ten to fourteen	53	11.7%	1.8%
	Fifteen to nineteen	27	6.4%	1.4%
	More than twenty	221	48.0%	3.0%
Gender (n = 417)	Male	287	48.7%	2.3%
	Female	354	51.3%	2.3%
Language (n=430)	English	420	96.7%	1.2%
	Spanish	10	3.3%	1.2%
Age (n=411)	18-34	73	24.8%	2.8%
	35-44	43	11.9%	2.1%
	45-54	77	17.2%	2.2%
	55-64	100	23.3%	2.5%
	65 and older	118	22.8%	2.2%