

PERCEPTIONS OF LARGE-SCALE SOLAR NEIGHBORS

RESULTS FROM A NATIONAL SURVEY

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As of 2022, there were more than 10 million U.S. homes within 3 miles of large-scale solar (LSS) plants. Yet, until recently, no comprehensive study had examined the experiences and perceptions of these LSS neighbors. In 2023, our team conducted the first-of-its-kind nationally representative survey of people living within three miles of existing LSS projects. The survey collected information on attitudes toward projects, related perceptions, and insights for future LSS development. In total, 984 usable survey responses were collected. Overall, the responses illustrate nuanced attitudes among LSS neighbors toward their local projects and various factors (e.g., physical characteristics of the LSS project and perceptions of related impacts) that might influence their perspectives. In addition, the survey results offer insights into opportunities to improve the perceived fairness of the planning process and other important considerations for LSS development.

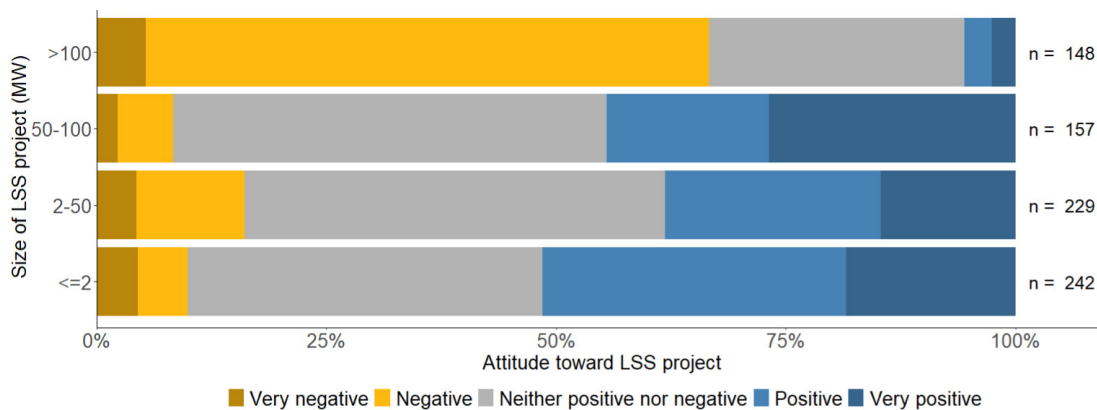
For additional information, see <https://emp.lbl.gov/publications/perceptions-large-scale-solar-project>

Attitudes Toward Local LSS Projects:

- Among LSS neighbors, “positive” attitudes outnumber “negative” by nearly a 3 to 1 margin.
- **Very large (>100 MW) projects elicit substantially more negative attitudes compared to smaller and mid-sized projects.** Negative attitudes outnumber positive by a 12:1 margin around the largest projects (>100 MW) in our sample. Yet that trend is reversed for projects below 100 MW: Attitudes are 5:1 positive for 50-100 MW projects; 2:1 positive for 2-50 MW projects, and 5:1 positive for 1-2 MW projects. (Figure 1)

Figure 1. Attitude by LSS project size (nameplate generating capacity)

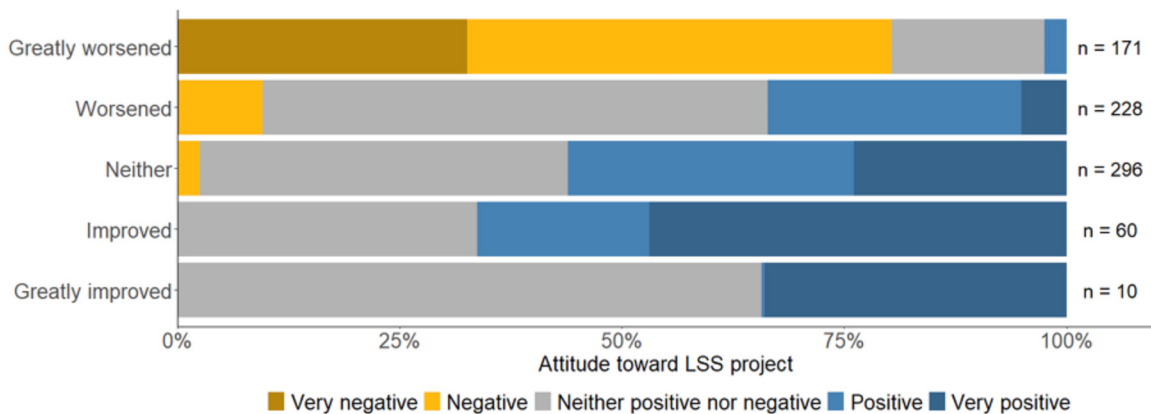
Overall, which of the following best describes your current attitude about the solar project shown on the map?



- **Support for additional LSS development is quite strong, overall.** 42% of respondents would support additional LSS in their community, compared to 18% that would oppose it.
- **Support is somewhat lower for residents within ¼ mile, where positive and negative attitudes are roughly evenly split.** For respondents beyond ¼ mile, positive attitudes vastly outnumber negative attitudes.
 - **Support for additional LSS development is significantly lower for residents living near the largest projects (>100 MW), where attitudes are 7:1 negative.** Positive attitudes for additional LSS development outnumber negative attitudes for residents near projects smaller than 100 MW.
- **Seeing LSS more frequently elicits stronger (and more negative) opinions.** But even among those who see the LSS project daily, attitudes are more positive than negative. Those who rarely see the project are overwhelmingly (nearly 7:1) positive.
- **Perceptions relating to aesthetic, economic, and quality of life impacts are strongly correlated with attitudes.** For example, those who perceive that the project 'worsened' landscape aesthetics are much more likely to have a negative attitude about it. Yet, respondents also readily navigate the tradeoffs of hosting LSS: many report a positive attitude despite perceiving that the project worsened landscape aesthetics (*Figure 2*).

Figure 2. Attitude by perceived aesthetic impact of the project

What effect has the project had on aesthetics of the landscape?



Perceptions of local impacts

- **A majority of respondents have no opinion or are unaware of project impacts (Figures 3 & 4).** This could be explained by a lack of information about many projects or an overall low perception of local impacts.

Figure 3. Many respondents have limited opinions on impacts but generally find they are more positive than negative

Overall, the solar energy project... (n= 755-776)

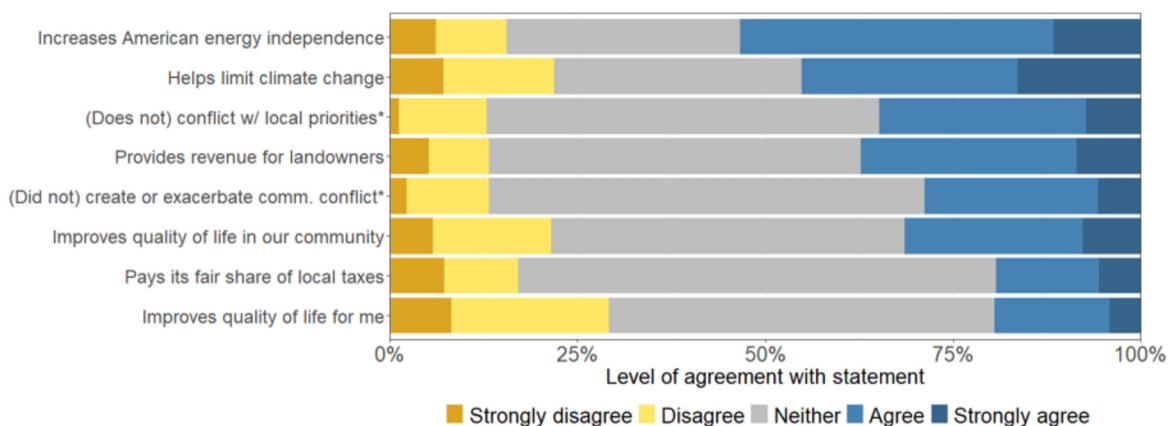
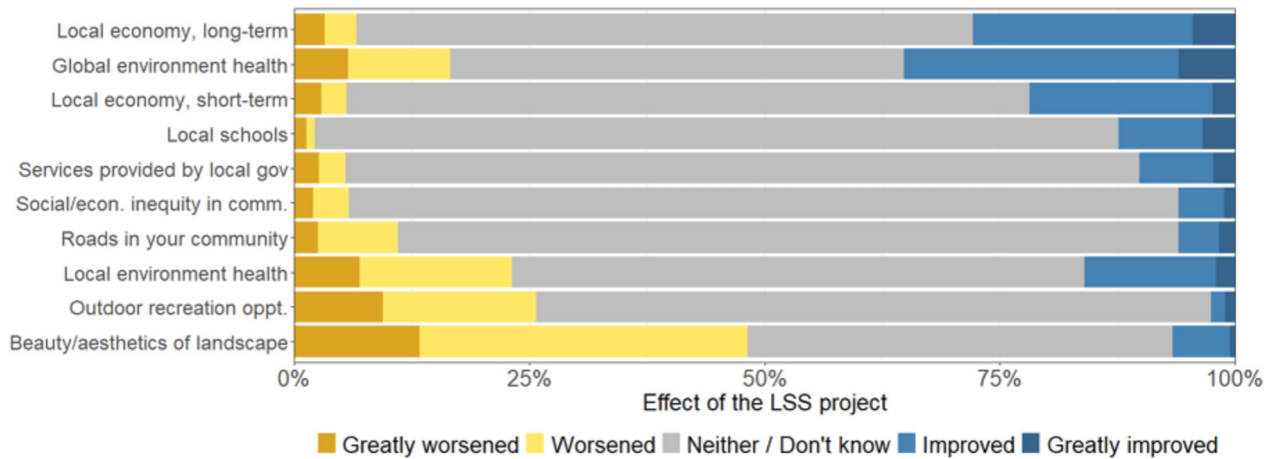


Figure 4. Most respondents do not perceive changes due to LSS across a range of economic and quality-of-life measures

What effect has the LSS project had on... (n = 759-775)

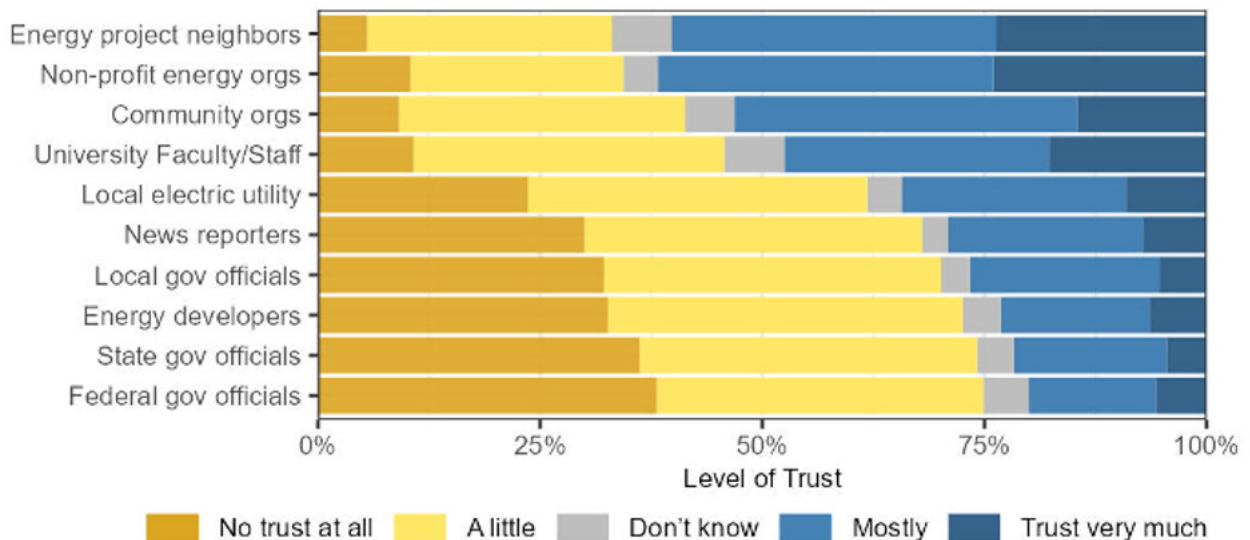


Planning Process Perceptions

- **Less than 1/5 of respondents were aware of the local LSS project prior to its construction.** This suggests there may be room for improvement in planning and engagement with project neighbors to improve awareness, participation, and enhance procedural justice.
- **Perceptions of the fairness of the planning process are correlated with attitudes.** Among respondents who were aware of the process, those who considered it 'fair' were much more likely to have positive attitudes toward their (now built) LSS project.
- **There is very little support among existing LSS neighbors for increased state-level decision-making in future LSS siting decisions.** LSS neighbors strongly support increased opportunities to participate in the planning process, the use of third-party advocates to inform community members and intervene on their behalf, and increased opportunities to provide feedback after the project is constructed.
- **Existing energy project neighbors, community and non-profit orgs, and university staff are most trusted sources of information.** LSS project developers and government officials are the least trusted. (Figure 5)

Figure 5. Trust of entities to provide information about energy projects

Which entities do you trust to provide information about energy projects? (n=955-965)

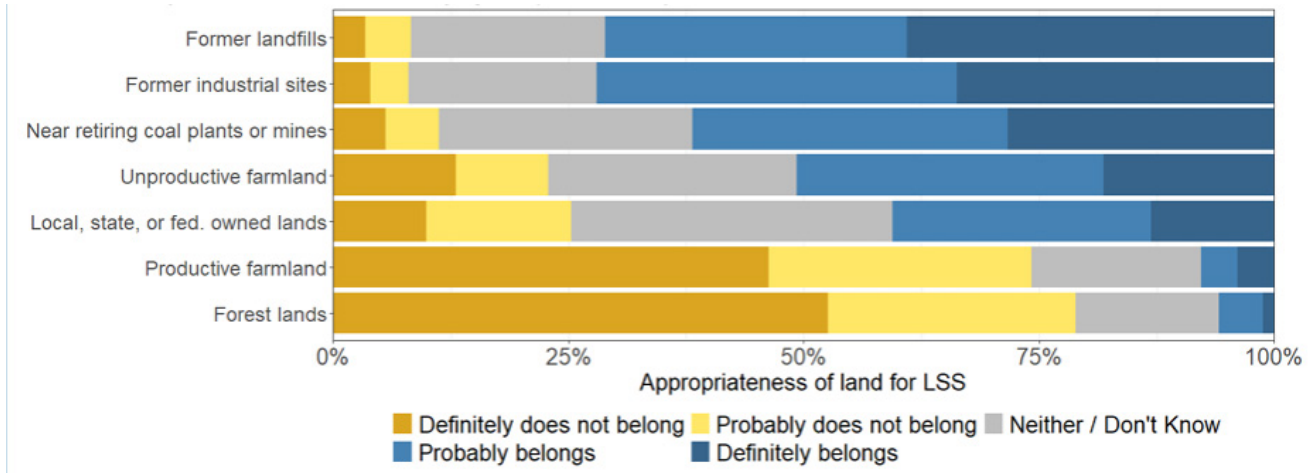


Considerations for Future LSS Development

- **Disturbed sites (e.g., landfills, industrial sites) are vastly preferred over forests and productive farmland for siting additional LSS (Figure 6).** In addition, respondents expressed a preference for future LSS projects to hire local employees, purchase local materials, and offer local ownership.
- **LSS neighbors strongly support additional rooftop solar in their community.** They express cautious support for additional solar and wind and tend to oppose fossil fuel and nuclear.

Figure 6. Land-use preferences for future LSS projects

For each type of land, how appropriate do you think it is for large-scale solar development?



While these initial results significantly advance our understanding of the perceptions of local residents coexisting with LSS, additional analyses of these survey data are planned. For additional information, graphs, and analysis, see: <https://emp.lbl.gov/publications/perceptions-large-scale-solar-project>.

Acknowledgement

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