

# The Specter of Big Solar “NIMBY”

## Personal Encounters and a Research-Based Response

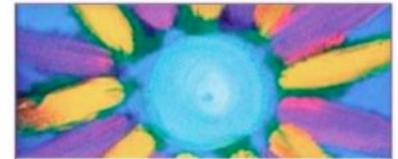
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[communitysolarvalueproject.com](http://communitysolarvalueproject.com)

American Solar Energy Society  
Solar 2023 Conference  
August 10, 2023



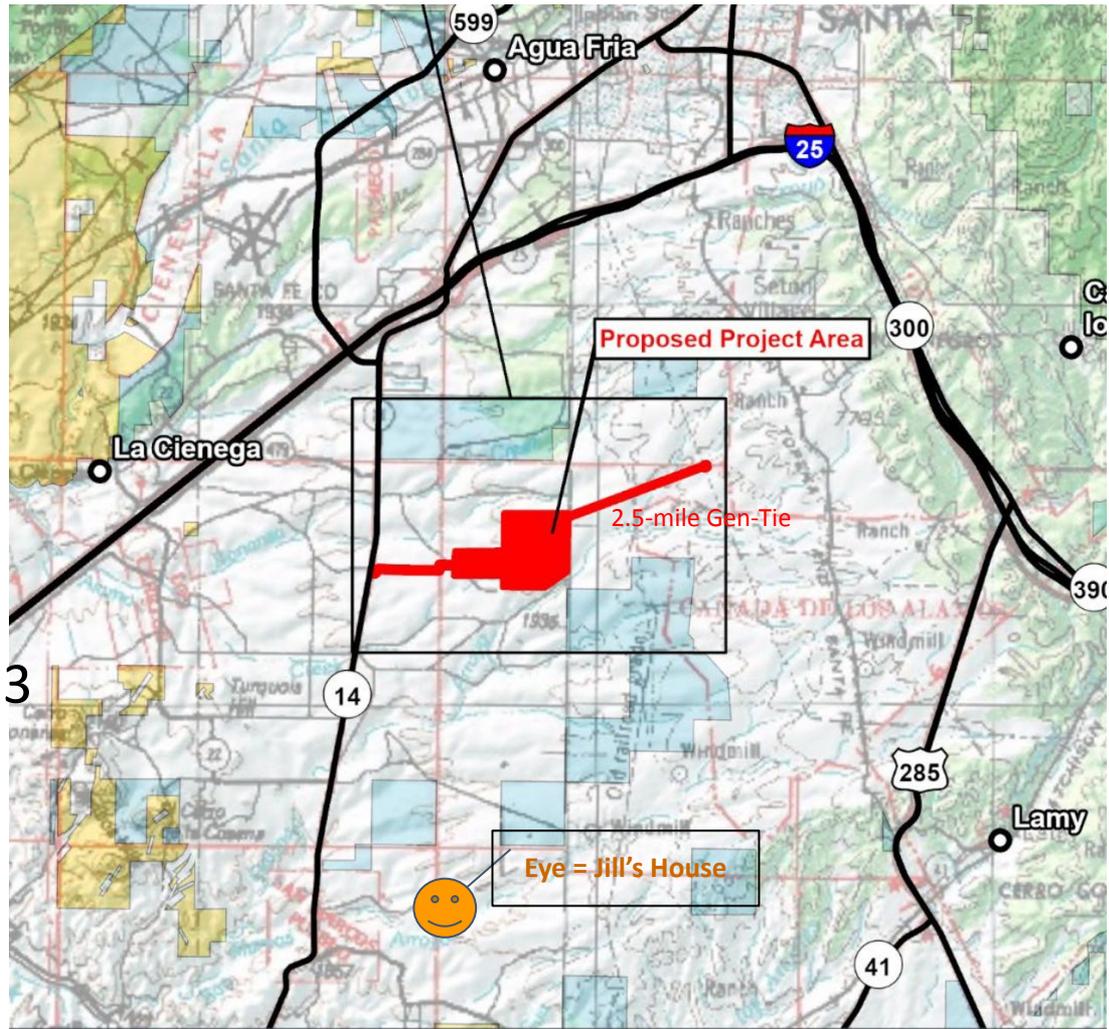
Cliburn and Associates, LLC

## Rancho Viejo Project - AES

- 96 MW Solar
- 48 MW, 4-hr BESS
- 2.3-mile gen-tie line
- Apx 800 acres on an 8000-acre leased site

## Timeline (So Far)

- Announced August 2022
- CUP application March 2023
- Hearing targeted for June
- Delayed to September
- Possible moratorium?





## Personal Encounters

- Initial gut reaction... shifted
- A reluctant local activist
- Motivated to work towards national-scale solutions

## Big Objective

- To meet decarbonization goals, the rate of solar development through 2035 needs to grow 2x to 8x over... NREL's All-Options scenario calls for building >1 GW a week of new solar
- ...and for 120 to 350 GW of new 2- to 12-hour energy storage (a 5x to 15x increase)

## Growing Challenge

- Opposition to Renewable Energy Development (2023) from Columbia University's Sabin Center found rapidly growing local opposition
  - Delaying or stopping some 300 projects in 35 states
  - 230 local restrictions; 9 state-level restrictions
- Counties are under-staffed and unprepared

*When you hear "solar" you think great, but there is a dark side. There's more to the story. Learn how solar contributes to climate change, produces toxic waste, as well as the real economic drivers of the industry.*

[Citizens for Responsible Solar Website](#)

## Small Start

- Study documentation regarding the opposition's sources and sentiments
- Focus on letters
- Develop a methodology for analysis and recommendations to share

# Methodology

A methodology-focused presentation optimizes the “sharing value” of what we found in Santa Fe. Here we only give an overview of our findings. Contact us for a final paper this fall.

## Steps

1. Encounters in the literature and the neighborhood
2. Manual sorting and coding of letters into 6 broad categories, 32 sub-categories... Finding common themes pro and con (and mostly con)
3. Cross-referencing and further examining thematically related groups of letters, using
  - Geographic mapping tools to see variations by proximity to solar, gen-tie and/or storage
  - Word cloud analysis to spot common concerns and language used
  - Chat-GPT to analyze large amounts of narrative information, summarizing letters and groups of letters, spotting patterns that convey a specific tone, and benchmarking them against key sources (leaders or social media)
4. Review our findings against a “working hypothesis” and reflect on conclusions

# Geographic Mapping Tools

## Key:

**Purple:** letters coded for the noted concern

**Red:** opposition letters not coded for the noted concern

**Blue:** supportive letters - not coded for the concern

**Green:** Fig 2 opposition letters - re: wildlife

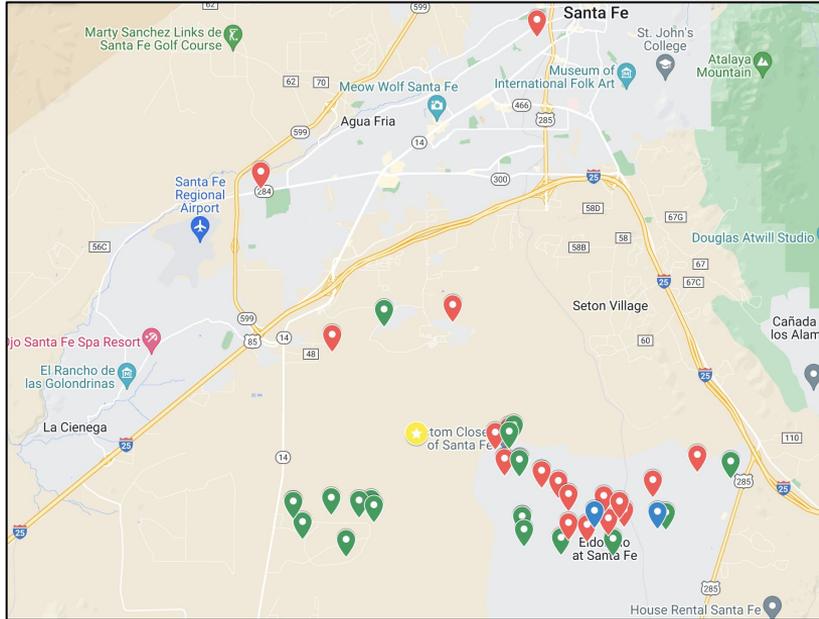


Fig 1. Letters coded as mentioning concern over “wildlife”

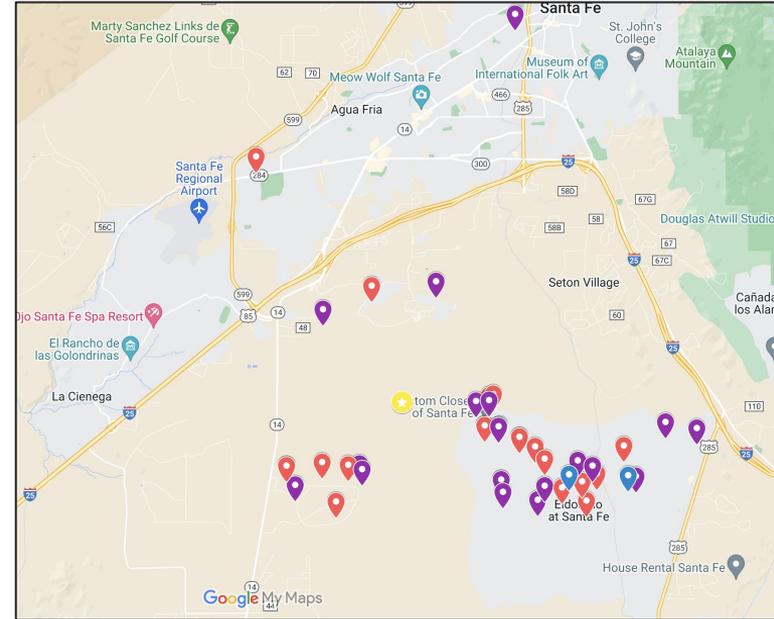


Fig. 2: Letters coded as relating concern over “risk battery fire”

*Note: refer to Slide 2 for full solar project footprint*

# Word Cloud Analysis

## 1. All opposition letters



## 2. Opposition letters addressing concern over risk of battery fire



## 3. Negative letters that do not address concern over risk of battery fire



## Chat GPT – Why?

ChatGPT is a **natural language processing tool** developed by OpenAI that enables users to refine and steer a narrative (or conversation) towards a desired length, format, style, level of detail, and language used.

- ChatGPT can speed and refine analysis of large volume of narrative information.
- Our work tests its usefulness for analyzing a large volume public comments.

Link to free software (requires Google account): <http://chat.openai.com>

# Chat GPT Example

fire	<u>28 total</u> (Letters 1, 3, 4, 7, 8, 10, 22, 24, 25, 26, 27, 28, 37, 39)
storage/lithium batteries	<u>26 total</u> (Letters 1, 3, 4, 7, 21, 22, 24, 26, 28)
Untrained/unequipped fire fighters	<u>7 total</u> (Letters 8rop,
	<u>23 total</u>



Narrow the list to the most common and important themes



Based on the summaries provided, the most common and important themes among the letters are:

1. Opposition to the proposed Rancho Viejo Solar Project: Many of the letters express strong opposition to the specific solar project planned for Rancho Viejo or its surrounding areas.
2. Concerns about fire risk and safety: A significant number of letters raise concerns about the potential fire hazards associated with large-scale solar projects, especially due to the use of lithium-ion battery storage systems.
3. Preference for alternative locations: Several writers suggest that solar projects should be located in industrial-zoned areas, away from residential communities, or in open spaces to minimize potential risks and impacts.
4. Request for more thorough investigations and evaluations: Many letters ask for comprehensive research and studies to be conducted to fully understand the environmental and safety implications of the proposed solar projects.

# Chat GPT Analysis (pt 2)



## Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



## Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021



Which group is more thematically similar to letter 15?



Based on the thematic similarities identified, Group 1 appears to be more thematically similar to Letter 15. Both Group 1 and Letter 15 share common concerns about fire dangers from lithium-ion battery storage systems, potential impacts on neighboring communities, lack of comprehensive regulations, and the need for safety measures in large-scale solar projects. Additionally, both express support for solar energy while highlighting specific concerns related to the proposed solar project.

While some themes are present in both groups, Group 1 shows stronger alignment with Letter 15 in terms of the specific concerns raised and the emphasis on safety and regulations.

## Preliminary Findings

- Manual reading and coding remains a useful step
- Advanced methods allow interrogation of more specific questions, comparisons among a large set of letters
- ...and comparisons between a group of letters and another data source (e.g., opposition leaders' comments, media content, or content that is confirmed to contain falsehoods or emotionally charged language)
- 65% of RVS opposition letters bore *qualitative similarity* to that of opposition leaders
- Top themes in this Santa Fe area study, based on frequency in letters
  - Proximity to residential areas
  - Opposed to “industrial scale”
  - Fire/Lithium-Ion batteries
  - Pro-solar (52% of the opposition)
  - Impacts on wildlife

# Conclusions

We must step up to study and address public concerns ... to prepare a public *that says they support solar*—before that support proves too fragile to contribute to climate-driven goals.

- Engage! Just 13% of letters received favored the project
- Focus not just winning a project, but on turning the tide
- Do you have ideas for a national network and repository of *reliable information and tools*?
- Join us at Breakfast Friday morning on the Terrace!

