

Climate Change Research Program Round 3 Awards

Physicians, Scientists, and Engineers for Healthy Energy

Toward Resilient California Communities: A statewide and case-based assessment of solar+storage potential at schools and community centers

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\$868,528.04

Partners:

- Asian Pacific Environmental Network (APEN)
- Communities for a Better Environment (CBE)

Research Priority Area(s):

- Supporting and Protecting Vulnerable Communities from the Impacts of Climate Change
- Accelerating and Supporting Transitions to Climate Smart Communities

Crosscutting Thematic Lenses:

- Social Dimensions of Change
- Integrating climate vulnerability/adaptation w/climate-smart approaches

Research Activities:

This research will evaluate the potential for community solar + storage to align California's emissions reductions goals with the urgent need to increase local resilience, especially within disadvantaged communities. The project will evaluate solar + storage potential at schools and community centers statewide, complementing this analysis with detailed project design and community engagement in Richmond (East Bay Area) and Wilmington (Los Angeles), an effort led by APEN and CBE. At the state level, solar + storage potential on school buildings and community centers will be assessed, along with evaluating the design parameters needed to meet critical electric loads in the event of earthquakes, wildfires, public safety power shutoffs, or other disaster-induced electricity outages. Finally, analysis will be performed on demographics and vulnerability metrics for populations in proximity to these sites to inform deployment scenarios and priorities. On the community level, the project will work closely with underserved populations in Richmond and Wilmington to identify specific community center sites, develop community engagement strategies, and incorporate community-specific priorities into project designs. Data from the statewide analysis will be synthesized to support community efforts, and community-level findings will refine the state analysis. The coupled analyses will inform grounded recommendations for developing resilient solar + storage systems at schools and other community sites statewide.

Facilitates Greenhouse Gas Emissions Reductions:

Distributed solar + storage can reduce greenhouse gas emissions during normal grid operation by displacing fossil fuels and facilitating renewable energy integration. This project will analyze the greenhouse gas reduction potential of solar + storage projects at schools and community centers statewide, and their impact on average and marginal grid emissions while helping catalyze on-the-ground solar + storage deployments.

Benefits Disadvantaged, Low-Income, and/or Underserved Communities:

A key research objective is to develop scenarios for strategic solar + storage deployment at schools and community centers that prioritize resilient site access for disadvantaged and vulnerable populations. The project will develop these scenarios by evaluating various demographic, socioeconomic, and vulnerability metrics such as frequency of power outages, frequency of school closures, wildfire risk, air conditioning access, electricity-dependent medical needs, and heatwave risks. This effort is bolstered by partnership with APEN and CBE on community engagement and developing resilient site designs in Richmond and Wilmington. Direct community input will be incorporated into statewide analyses, and engagement strategies synthesized and disseminated to support low-income and disadvantaged communities via similar efforts across the state.