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Berkeley Lab study explores energy justice implications of renewable energy siting patterns

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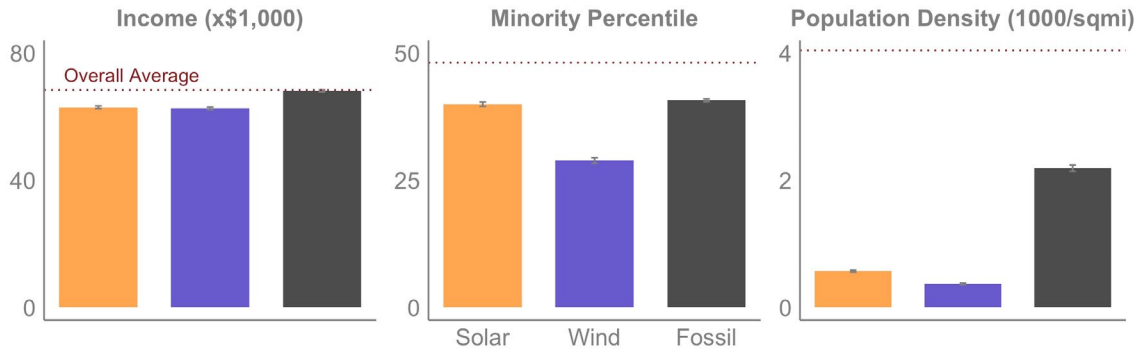
In a new study, the Berkeley Lab explores the technoeconomic and demographic factors that influence renewable energy project siting patterns. The study focuses on utility-scale project siting patterns and does not include small-scale, distributed projects such as rooftop solar. The study finds that siting decisions are primarily driven by technoeconomic factors, especially solar intensity, average wind speeds, and access to undeveloped open spaces. This result shows how project developers prioritize sites that can host large projects and maximize energy output. The need for undeveloped open spaces tends to drive projects into sparsely populated rural areas. Further, solar and wind projects tend to site in areas with relatively lower income levels, like the siting patterns of fossil fuel plants. In the case of wind, the skew toward low-income levels is evident even when controlling for other technoeconomic factors.



Predicted demographic characteristics of areas that host solar, wind, and fossil fuel projects. The predicted values are based on the results of a two-part regression model, see paper for methodological details.

The Berkeley Lab authors explore three potential justice implications of these siting patterns that depend on whether project development is a net burden or a net benefit to the communities that host these projects. At one extreme, if project hosting is a net burden, the results reinforce the need for measures to ensure fair procedures in project siting to prevent disproportionate project hosting burdens for rural, low-income areas. At the other extreme, if project hosting is a net benefit, current project siting patterns suggest these benefits will be disproportionately enjoyed by rural areas and bypass more densely populated urban areas. Between these two extremes lies the possibility that project hosting is, on average, neither a clear burden nor a clear benefit. In this case, existing project siting patterns could be viewed as just insofar as these siting patterns maximize deployment and clean energy benefits. Future research can explore these three perspectives to analyze the justice implications of solar and wind project siting patterns more precisely

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The Berkeley Lab study, *Drivers and energy justice implications of renewable energy project siting in the United States,* is published in the *Journal of Environmental Policy and Planning*. A preprint version of the study is available at https://emp.lbl.gov/publications/drivers-and-energy-justice.

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