

Boris Lukanov, Physicians, Scientists and Engineers for Healthy Energy (PSE)

Title: Distributed Solar and Environmental Justice: Exploring the Demographic and Socioeconomic Trends of Residential PV Adoption in California

Abstract: The rapid growth of distributed solar adoption in California provides an opportunity to significantly lower electricity bills for the adopters and bring numerous additional co-benefits to communities, including grid resilience and lower marginal grid emissions. It is unclear, however, whether this transition is occurring equitably across the state's various demographic and socioeconomic groups and whether historically disadvantaged environmental justice (EJ) communities have been able to exploit the bill savings and other associated benefits of rooftop solar. We present an analysis of the cumulative and annualized (spatial and temporal) rates of PV adoption across communities in California and compare those with data from the state's cumulative impact EJ methodology (CalEnviroScreen). We find that disadvantaged communities in California have experienced disproportionately lower levels of PV adoption that continue to persist to this date. The data illustrate that there are clear distributive and equity impacts of existing PV support policies and that the benefits are bypassing some of the most vulnerable populations in the state. The analysis also reveals inverse correlations of solar adoption with not only socioeconomic variables, but also with demographic, health and environmental indicators. The results provide a baseline from which to develop more effective policies, strategically design incentives, and track the efficacy of existing solar programs that target disadvantaged communities. The findings also contribute to our growing understanding of the role that various demographic, socioeconomic and environmental factors play in household clean-energy adoption trends.