ENERGY DECENTRALIZATION

Resilience in numbers

ERSS 49, 26–35 (2019)

Microgrids, powered by renewables such as wind or solar, that are connected to the central grid but are capable of operating independently in case of grid failure are being adopted in increasingly greater numbers. With multiple benefits, from back-up supply during grid failure to lower emissions, the reasons for adoption of microgrids can be complex. Now, Warda Ajaz at Oregon State University explores how microgrid adoption in the United States correlates to factors such as number of natural disasters and environmental awareness, finding that adoption is higher in states facing a greater number of disasters.

Ajaz identifies the number of microgrid projects added in a given state in a particular year as the dependent variable. Using a correlation analysis, she studies the impact of a number of parameters measured in the preceding year: the number of federally declared disasters; the environmental score of the state, based on House representatives' voting records on environmental legislation; and the presence of energy choice laws that allow selection of utility, amongst other variables. She finds that the frequency of disaster in a state had a significant impact on microgrid deployment in the state, with a 1% increase in frequency affecting a 0.06% increase in number of microgrid projects. This suggests that resilience to disasters is an important motivator for grid decentralization and economic analyses should include the value of this benefit.

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Published online: 10 December 2018
<https://doi.org/10.1038/s41560-018-0302-1>