



INDIANA UNIVERSITY BLOOMINGTON
OSTROM WORKSHOP
COLLOQUIUM SERIES

Jackson Dorsey

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Public Policy, Indiana University*

Monday, March 8: 12:00 – 1:00 pm EST

Virtual via Zoom: [Click here for link to Zoom meeting](#)



Soaking Up the Sun: Battery Investment, Renewable Energy, and Market Equilibrium

Battery storage offers a potentially valuable complement to renewable energy. Recognizing this, policymakers have incentivized and mandated storage as a means to integrate renewable energy and meet climate goals. This paper evaluates the equilibrium value and adoption trajectory of utility-scale batteries using California data, focusing on the impact of falling battery capital costs and complementarities with renewable energy. We add three key modeling features relative to the literature: (1) modeling of equilibrium effects from large-scale batteries, (2) a frontier time-series model of electricity load and costs, and (3) linked dynamic equilibrium models of battery adoption and operations. We find that: (1) the value of batteries increases sharply as solar generation increases, (2) battery operations increase expected welfare from the electricity market by \$3.8 billion, and (3) California's storage mandate moves battery adoption forward by eight years compared to a scenario without a mandate and increases deadweight loss by \$3.94 per California resident.

Jackson Dorsey, is an Assistant Professor of Business Economics and Public Policy at Indiana University's Kelley School of Business. Professor Dorsey's research focuses on topics in environmental economics, energy economics, and industrial organization with a focus on electricity markets and renewable energy. He received his Masters and Ph.D. in economics from the University of Arizona.

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