Seminario de Microeconomía Aplicada - Soaking Up the Sun: Battery Investment, Renewable Energy, and Market Equilibrium

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Resumen del documento: Renewable energy and battery storage are seen as complementary technologies that can together facilitate reductions in carbon emissions. We develop and estimate a dynamic competitive equilibrium model of storage investment and operations to evaluate the adoption trajectory of utility-scale storage under different counterfactual policy environments. Using data from California, we find that the first storage unit breaks even in 2027 when renewable energy share will reach 52%. Despite this, battery adoption is virtually non-existent until 2040 without a storage mandate or subsidy. Our model indicates this is because equilibrium effects reduce the marginal value of subsequent storage investments; expected future capital cost reductions incentivize delayed investment; and depreciation from cycling lowers the value of investment. We show that California's 2024 storage mandate decreases future electricity generation costs by $511 million but also increases expected capital costs by $944 million by shifting adoption earlier, before projected capital cost declines are realized.

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Acerca del Expositor

Jackson Dorsey: is an Assistant Professor of Economics at the University of Texas at Austin. He was previously an Assistant Professor at Indiana University Kelley School of Business and completed his Ph.D. in Economics from the University of Arizona in 2018. His research focuses on environmental economics, energy economics, and industrial organization. His recent work aims to understand the market impacts of clean energy technologies, such as solar photovoltaics, electric vehicles, and energy storage. This includes investigating the determinants of energy technology adoption and drawing implications for public policy.

Tiempo de exposición: 1:30 p. m. a 2:30 p. m.

Fuente: https://www.banrep.gov.co/es/seminario-microeconomia-aplicada-soaking-sun-battery-investment-renewable-energy-and-market