



BIG energy seminar series

Addressing the scale and complexity of the global energy challenge.



Knowledge is (less) Power: Experimental Evidence from Residential Energy Use

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3:30 p.m. in ECON 117 (Economics Building)

Summary: This paper presents experimental evidence that information feedback dramatically increases the price elasticity of demand in a setting where signals about quantity consumed are traditionally coarse and infrequent. In a randomized controlled trial, some residential electricity customers are exposed to price increases, with some of these households also receiving displays that transmit high-frequency information about usage and prices. The displays substantially lower information acquisition costs and allow us to identify the marginal information effect. Households experiencing only price increases reduce demand by 0 to 7 percent whereas those also exposed to information feedback exhibit a usage reduction of 8 to 22 percent, depending on the amount of advance notice. The differential response across treatments is significant and robust, and not attributable to the awareness of price changes. Conservation extends beyond the treatment window, providing evidence of habit formation, spillovers, and, consequently, greenhouse gas abatement. Results suggest that information about the quantity consumed facilitates learning, which likely drives the observed treatment differential.

David Rapson, Ph.D.

David Rapson joined the Economics Department at UC Davis in 2008. Professor Rapson specializes in the fields of industrial organization, energy and the environment, with a focus on how to achieve efficiency in energy markets. His research includes several collaborative studies with regulated utilities. These include the evaluation of dynamic pricing regimes, carbon offset programs, and the design and analysis of large-scale randomized field experiment to test the effectiveness of Home Area Network Technology (the customer-facing side of the “Smart Grid”). Professor Rapson received his B.A. from Dartmouth College in 1999, an M.A. in economics from Queen’s University, and a Ph.D. in economics from Boston University in 2008.

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