



COORDINATING RESOURCE CONSERVATION PROGRAMS INCREASE BENEFITS, CUT COSTS

Home water reports create energy savings that rival home energy reports.

Utilities nationwide are prioritizing efficiency for a variety of reasons. Electric utilities use conservation programs to cut costs, improve reliability, reduce pollution, meet regulatory requirements, among other benefits. Water utilities use them for similar reasons as well as to respond to drought conditions. But what if service providers worked together, creating singular, shared-cost programs that generate savings for both resources?

A [working paper](#) out of the Center for Water-Energy Efficiency Center at the University of California, Davis, *Spillovers from Behavioral Interventions: Experimental Evidence from Water and Energy Use*, by Associate Professor and The E2e Project faculty affiliate, Katrina Jessoe and Associate Professor at Iowa State University, Gabe Lade shows that when home water reports are provided to customers, not only do consumers conserve water, they also save energy.

Home water reports are a conservation tool used by utilities to help customers better understand their consumption. Much like home energy reports, they work by comparing a household's water use to that of its neighbors with similar house-

hold characteristics. The reports, which are either included in a customer's bill or provided separately, also include advice for conserving and saving money. While energy reports are being used by at least 100 utilities globally and sent to more than 60 million residential customers, water reports are less common but growing in popularity. The largest company in this space currently works with over 50 water utilities serving around 3 million customers.

[Previous research](#) shows that home energy reports nudge consumers to conserve electricity, resulting in a two percent reduction in household energy use. The low cost of implementing the program coupled with the resulting energy savings and pollution abatement make home energy reports a cost-effective investment.

This first-of-its-kind study used a randomized controlled trial where researchers analyzed hourly water- and energy-consumption data and household attribute information amongst 4,500 randomly selected households in Burbank, California from a set of more than 7,300.



Magnitude of spillover savings rivals home energy reports

According to this new study, the energy savings that result from home water reports are on par with those from home energy reports - about 1.5 to 2 percent. This finding is an example of a spillover – when nudges aimed at altering one behavior (water conservation) also influence other behaviors (electricity conservation). The findings point to how subtle messaging about one type of action can affect households’ decisions about their consumption of other goods. The scale of these effects highlights potential complementarities between conservation instruments that policymakers and program designers could leverage to encourage conservation of limited resources at lower cost.

Energy savings as a result of two behavioral changes

In residential uses, energy and water are often consumed together in activities such as laundry, washing dishes, and showering. Interestingly, researchers found that the declines in energy use due to home water reports were not solely mechanical. That is, consumers’ increased energy efficiency was not exclusively the result of doing one less load of laundry or waiting until the dishwasher was full before running it. In fact, these types of actions only accounted for about 25% of the energy savings. The rest was the result of behavioral changes – households saved energy even when the activity is not related to water use. This could be due to a heightened focus on resource conservation because consumers are alerted to their level of water consumption. For example, customers realizing they can save money by conserving water might also take similar actions when it comes to energy use.

Energy efficiency via water conservation benefits peak demand

Electricity consumption peaks at certain times of day and in certain seasons. In great news for grid operators, researchers also found that households participating in the water saving program tended to conserve energy between 3 PM and 7 PM, a time-frame that includes peak electricity demand hours both for residences in the study and the electric grid as a whole.

Partnered conservation programs provide more bang for the buck

When the energy savings from home water reports were considered, researchers found an increase of 62 percent in net savings. Put another way, when the benefits of water savings and energy savings are combined, the value of the singular program grew substantially.

This finding underscores the advantage that could be gained if service providers of energy and water worked in tandem to design conservation programs.

Utilities of all kinds are looking for ways to optimize their investments in efficiency. By working together to gently nudge their customers to change their behavior, not only are they more likely to reap their intended benefit, they may achieve those savings at a better value to their customers, the public, or their investors.

Contact: Jessica Lubetsky, Executive Director

Email: jessica_lubetsky@berkeley.edu

Website: e2e.haas.berkeley.edu

The E2e Project



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The E2e Project is the nation's leading research center focused on understanding what is technically possible and what is practically achievable for energy efficiency in a wide variety of settings.