Implementing Real-Time Resource Use Feedback to Motivate and Empower Conservation

Project No. 901  
Timeline 2008 – 2016  
Award Amount $812,000  
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Project Website https://environmentaldashboard.org/

The project team developed, deployed and evaluated a prototype system that provides users instant feedback on the consequences of their water and electricity use and motivates them to reduce consumption. They piloted the work in the Plum Creek watershed, which runs through Oberlin, OH and ultimately drains into Lake Erie. The team installed displays in student dorms, apartment buildings, and mixed-use housing that shows what is being consumed, how much it costs, and what the effect is upon local air and water resources. Users can also see how their use matches up against other users. The technology displays changes at the individual residence, neighborhood, city, and watershed scales.

In the pilot the team fitted 26 campus dorms, 33 apartments, 17 businesses & offices, the Oberlin Public Library, all four public schools, and four nonprofit organizations with meters and dashboard displays showing electricity and water use by building. The team worked closely with the Oberlin Municipal Light and Power System and the drinking water and wastewater treatment plants to connect to the utilities’ SCADA systems and install meters in Plum Creek to measure water flows, electricity consumption and water quality parameters.

The team tested different modes of information delivery in shaping pro-environmental behavior including: websites, digital signage, and environmental orbs, and have tested the impact on empathetic characters on behavior. The team found that all of these different modes of display drive reduced use of energy and water. More importantly, these devices drive persistent and long-term drops in consumption that continue well beyond the use of these devices. The team has learned from this work how to better use technology and how to advance the social psychology of sustainable living.

The team piloted the first national competition among dorms to reduce electricity and water use. They supplied the strategy and technology backbone for the competition. The Campus Conservation Nationals has been taken up by the U.S. Green Building Council and the National Wildlife Federation. In the 2015 competition 125 colleges and universities (345,000 students and staff) participated.

For more on this project and to learn how to bring this feedback system to your community visit the team’s website at http://environmentaldashboard.org/.