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Title: Developing a Cleveland Metro Region Environmental Dashboard: A partnership between Oberlin College and the Great Lakes Science Center to scale-up behavior change and community-based STEM education

Abstract: 50 years ago troubling images of flames rising from Cleveland's Cuyahoga River powerfully impacted the American psyche, and helped motivate the environmental movement. The Clean Air and Water Acts, and the creation of the EPA followed. Today, the Great Lakes Science Center (GLSC) stands at the mouth of a Cuyahoga that is significantly cleaner but faces new threats from climate change. With STEM-focused programming targeted to reach the full diversity of this rust-belt city, GLSC is ideally situated to initiate educational and behavior change programming focused on the many links between water, energy, climate change and urban life. Through a unique partnership, faculty and students at Oberlin College have partnered with the GLSC to make this programming a reality. Over the last decade this Oberlin team has married campus sustainability with community-based learning and research in a collaboration with the city of Oberlin and its public schools. "Environmental Dashboard" (ED) technology is now installed on 20 digital signs throughout Oberlin: 1) "Building Dashboard" dynamically displays real-time resource consumption in individual buildings to promote resource conservation; 2) "Citywide Dashboard" animates whole-community resource flows and environmental conditions; 3) "Community Voices" combines images and text to celebrate thought and action that advance social, ecological and economic dimensions of sustainability. Extensive research on this small-city pilot demonstrates that exposure to ED content significantly enhances systems thinking and pro-environmental and pro-community social norms and behaviors. This talk will focus on our early experiences scaling ED technology up in Cleveland. In fall 2018, metering technology was installed in the GLSC for real-time monitoring of total water use, gas use, electricity consumption and electricity production through an on-site wind turbine and a solar array. Concurrently we accessed data on Cleveland and Lake Erie air and water quality through a variety of automated and publically accessible buoys and sensors. Through their coursework, students at Oberlin College are now deeply engaged in the initial design and assessment of an interactive ED display. A major long-term exhibit that features all components of ED, tailored for a diverse Cleveland audience, is now taking shape in the lobby of GLSC. If successful, partner organizations including Cleveland Metroparks, the Mayor's office of Sustainability, Cleveland 2030 and the Cleveland Water Alliance are eager to expand dashboard digital signage throughout the city to promote a more unified citywide effort on climate action and other pro-environmental behaviors.