Advancing Water Efficiency through Leak Detection for Low-Income Housing in Southern California

2021 Summary

California is in a **severe drought**, and cities are being asked to **conserve water**. Leaky toilets are the single biggest source of **water waste** in multi-family buildings. Billions of gallons of water are wasted by toilet leaks across Southern California. These leaks are **easy** to fix, but **hard** to detect.

The Pacific Institute, BEF, and Sensor Industries have partnered with the California Water Action Collaborative to launch a project using remote sensor technology in low-income apartments to catch toilet leaks and send alerts in real time, reducing building water use by an average of 20%.

**BEFORE**
47% of toilet water use due to leaks

**AFTER**
4.4% of toilet water use due to leaks
Results in 2021

Three pilot installations were completed in 2021; a total of 1,200 leak detection sensors were installed. Over the course of their 10-year lifetimes, these installations will save an estimated 64 million gallons (242 million liters, or 196 acre-feet) of water.

- **MacArthur Park Tower, Los Angeles**
  - Housing for low-income seniors
  - 183 toilet leak sensors installed
  - Estimated annual water savings: 980,000 gallons
  - Installed July 2021 – 500,000+ gallons saved to date

- **Grand & Venice, Los Angeles**
  - Housing for low-income residents
  - 124 toilet leak sensors installed
  - Estimated annual water savings: 664,000 gallons
  - Installed Dec. 2021 – water savings not yet measured

- **Vista Del Campo Norte, Irvine**
  - Housing for UC Irvine students
  - 893 toilet leak sensors installed
  - Estimated annual water savings: 4,800,000 gallons
  - Installed Dec. 2021 – water savings not yet measured

Scaling Potential in 2022

In 2022, this project will be replicated throughout Southern California with additional leak detection installations and will expand to include more water efficiency solutions for low-income housing. The project is also pursuing scaling opportunities through public policies and programs, such as California’s state-funded low-income weatherization programs. In addition, there will be a strong focus on communications and outreach in 2022 to increase interest, investment, and uptake of the work – this will include an international presentation at Stockholm World Water Week.
Water Context

Southern California is a water-scarce region, and the city relies on water imported from hundreds of miles away from the Sacramento River, eastern Sierra Nevada, and Colorado River. As the region’s population grows and climate change causes more frequent and intense droughts, water is becoming more scarce and more expensive.

Urban water conservation helps alleviate water stress, reduces reliance on imported supplies from distant vulnerable watersheds, and helps increase Southern California’s long-term water resilience.

Project Overview

This project launched in 2021 with three buildings and is adding buildings to the portfolio on a rolling basis as funding becomes available. All buildings are non-profit-owned, low-income housing located in disadvantaged communities.

The project provides volumetric water benefits for 10 years. Other benefits include energy and associated greenhouse gas emissions savings based on the energy embedded in water; financial savings on water bills of nonprofit, low-income building owners; demonstration of innovative water technology; and leveraging public co-funding via water agency rebates.

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