Office of Energy

Strengthening Energy Efficiency and Resilience in Illinois Public Water Infrastructure

Public water and wastewater treatment facilities are among the most energy-intensive assets operated by local governments, yet many—particularly in small and rural communities—lack the technical capacity and financial resources to pursue energy efficiency improvements. To address this challenge, the Illinois EPA Office of Energy launched the Public Water Infrastructure (PWI) Energy Efficiency Assessment Program, a statewide initiative designed to improve operational efficiency, reduce costs, and strengthen the long-term resilience of public water systems.

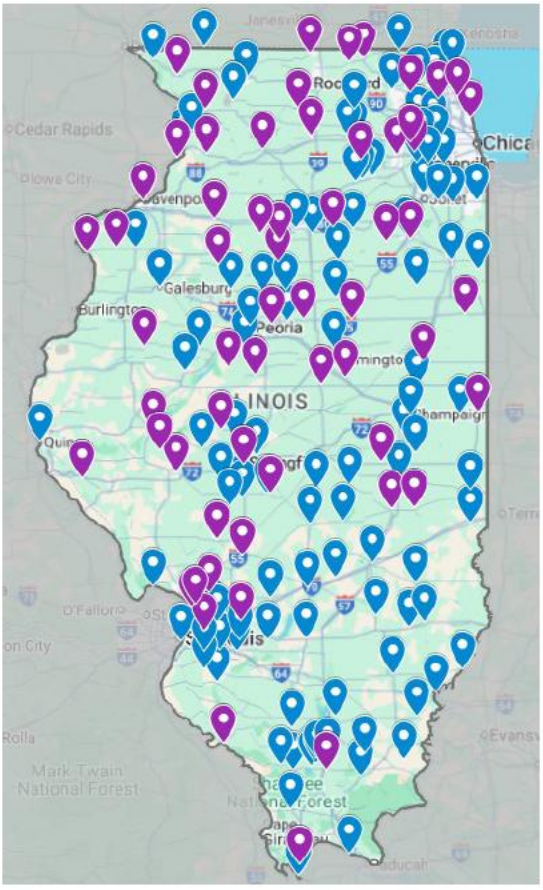
Between 2018 and 2025, the program completed 281 comprehensive energy assessments to drinking water and wastewater treatment facilities across Illinois, serving more than 4.6 million residents. The assessments identified 677 cost-effective energy efficiency measures, representing over $6 million in recommended energy cost savings and the potential to avoid more than 432,000+ metric tons of CO_2e. A strategic expansion of the programs scope to include both wastewater and drinking water systems – combined with targeted outreach to small, rural, and high-energy-burden communities- enabled the program to achieve near-statewide reach while advancing equitable access to technical expertise and energy planning support.

The program was designed not only to identify opportunities, but to support implementation. Through technical assistance and follow-up engagement, communities translated assessment findings into action. As a result, 64 recommended efficiency measures were implemented at 45 facilities statewide. These projects are currently generating over $540,000 in verified annual energy cost savings and reducing greenhouse gas emissions by nearly 5,900 metric tons of CO_2e. Implemented measures included motor variable frequency drives (VFDs), aeration and blower upgrades, lighting and HVAC improvements, thermostat controls, building envelope enhancements, and targeted equipment repairs – demonstrating that both capital upgrades and low-cost operational improvements can deliver meaningful results.

Capacity building and workforce education were core components of the PWI Program's success. Over the performance period, the program delivered 43 educational webinars and 7 in-person field days, awarding more than 4,200 continuing education credits to industry

operators and municipal staff. In addition, an active Wastewater Treatment Plant (WWTP) Advisory Council facilitated peer learning, shared best practices, and accelerated adoption of proven technologies and operational strategies across the state.

Together, these efforts positioned the PWI Program as a trusted, high-impact resource that demonstrated how a coordinated approach – combining technical assessments, implementation-focused assistance, and ongoing education – can drive measurable savings, reduce emissions, enhance operator knowledge, and strengthen the sustainability of public water infrastructure. The program serves as a replicable model for states seeking to support local utilities in addressing rising energy costs, workforce capacity constraints, and climate-related operational challenges.



- Wastewater Plants - Public Water Supplies