



# Capturing Heat From Sewers

The Sewer Heat Recovery program at King County's Wastewater Treatment Division (WTD) captures a sustainable and renewable energy source by recovering heat that would otherwise be lost in wastewater. This innovative system taps into the thermal energy from everyday activities like showers, dishwashing, and commercial processes and uses heat pumps to warm buildings. As hot water travels through sewer pipes, its temperature remains relatively constant, making it a reliable energy source. The system can also operate in reverse, using chillers to cool buildings or equipment, offering significant water savings when replacing traditional cooling towers. Wastewater Treatment Division's outreach has strategically targeted the real estate development sector, particularly green building organizations and their developer members, to promote adoption of this clean energy solution.



**REDUCE**



**RECOVER**



**SEATTLE, WASHINGTON, USA**



**WASTEWATER**





## CHALLENGES FACED

King County Wastewater Treatment Division faced the challenge of valuable heat energy from wastewater being consistently wasted as it traveled through sewer pipes to treatment facilities. Additionally, there was no established framework or streamlined process for developers to tap into this renewable energy source, creating barriers to adoption in the real estate and green building sectors.

## TECHNOLOGIES & SOLUTIONS USED

The utility launched the Sewer Heat Recovery program to capture and repurpose the thermal energy in wastewater for building heating and cooling. By developing standardized tools, contracts, and streamlined review processes, WTD made it easier for developers to integrate this renewable energy source into projects.

## IMPACT & INSIGHTS



The system demonstrates significant potential to reduce emissions, while opening new revenue opportunities.

### Key takeaways:

- Projected to reduce carbon emissions by 99% for one development compared to similar buildings in Seattle.
- Expected to supply 70% of campus heating needs, lowering demand for electricity and fossil fuels.
- Supports climate targets in King County and Seattle's Climate Action Plans to reduce building-sector emissions.
- Presents new revenue opportunities for utilities through user fees and renewable energy credits.

## LESSONS LEARNED



To improve the success of sewer heat recovery projects, utilities should:

- Plan construction during periods of historically low flows and incorporate geotechnical evaluations into early feasibility assessments
- Assess overall system health and anticipate unusual debris
- Build in educational components, which can enhance community engagement. For example, King County is developing an installation using preserved piping to showcase the technology and its benefits.

**“Utilities are interested in capturing new revenue sources, while property owners are seeking ways to develop and operate green buildings to reduce their carbon footprint, qualify for financial incentives, and comply with stringent energy codes.”**