



# Turning Water Pipes Into Power Sources

InPipe Energy, in partnership with Grundfos, is helping municipalities advance climate goals with HydroXS®, a patented, digitally enabled system that transforms excess pressure in water pipelines into clean, low-cost electricity. The City of Aurora, Colorado, adopted HydroXS® as part of its strategy to decarbonize water operations and shift to renewable energy. This marks the first use of Grundfos's pump-as-turbine technology within the HydroXS® system, enabling Aurora Water to generate electricity directly from its distribution network. The project tackles a major gap in the sector: the lack of energy recovery in potable water systems, which are among the most energy-intensive parts of the water cycle.

By capturing otherwise wasted energy, HydroXS® helps reduce carbon emissions, cut operational costs, and improve infrastructure resilience, demonstrating how existing water assets can support Circular Water Economy.

✓ **REDUCE**

✓ **RECOVER**

📍 **AURORA, COLORADO, USA**

🥛 **DRINKING WATER**



## CHALLENGES FACED

Within the water cycle, water distribution is the application that consumes the most energy and, unlike wastewater treatment, has no means to produce or recover resources to create energy. There was a need for efficient, intelligent renewable energy solutions that reduced greenhouse gas emissions and lowered energy costs, while transforming how water was managed.

## TECHNOLOGIES & SOLUTIONS USED

HydroXS® is a modular, turnkey energy recovery system that uses Grundfos pump-as-turbine (PaT) technology to convert excess pipeline pressure into electricity for water utilities and water-intensive industries, featuring smart controls and remote monitoring for optimized energy generation and CO<sub>2</sub> reduction. It converts excess pipeline pressure into electricity using Grundfos PaT technology.

### IMPACT & INSIGHTS



The system generates renewable electricity that offsets CO<sub>2</sub> emissions and reduces fossil fuel reliance, demonstrated in multiple deployments.

#### Key Benefits:

- Generates approximately 60 kW of renewable electricity annually in Aurora, offsetting nearly 6 metric tons of CO<sub>2</sub> over its lifetime.
- Achieves a payback period as low as 2.4 years, reducing electricity costs to US \$0.034/kWh.
- Generates over US \$5.6 million in cumulative revenue per unit over 30 years.

### LESSONS LEARNED



The project strengthens institutional resilience by enabling utilities to generate on-site renewable energy, offering greater control over energy costs and reducing reliance on a volatile grid. Its modular design and digital intelligence allow the system to adapt to diverse operating conditions, supporting long-term efficiency and performance.

In addition, HydroXS® enhances stakeholder engagement and builds public trust by showcasing visible climate action, supporting ESG reporting, and positioning utilities as leaders in innovation.

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**HydroXS® represents a paradigm shift in how water utilities view energy and infrastructure. It reframes pressure as an opportunity to generate clean power.**

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