



Midwest city upgrades critical infrastructure without raising taxes or fees

\$39 million project cost will be offset by guaranteed energy and operational savings

Along the banks of the Ohio river in southwest Indiana, the city of Evansville is in the midst of a transformation. The community is taking steps to address its aging infrastructure, reduce operating and maintenance costs, improve service to its taxpayers and enhance sustainability—all part of an initiative known as Evansville Smart City 2.0.

The goal is to position the city of 120,000 for future growth. The challenge is to do so without raising taxes or fees, especially since much of the work involves making behind-the-scenes improvements to an infrastructure most people never see, and to services most people take for granted.

"Mayors want a viable water and sewer utility, right? But it's not very sexy," said Mayor Lloyd Winnecke. "No mayor wants to raise water and sewer rates."

No capital required: the energy savings performance contract option

The solution was to fund the upgrades through an energy savings performance contract (ESPC). Under the contract, the city's strategic and technical partner, Johnson Controls, guaranteed that a series of improvements would generate enough energy and operational savings to pay for the project over time.

"It was a big surprise," said Evansville Water and Sewer Utility Director Allen Mounts. "It's sort of like, is this for real? Does this really work?"

Skepticism turned to belief as the details of the project and its guarantees became clear.

Project AT-A-GLANCE:

Location: Evansville, Indiana

Population: 120,000

Project Highlights:

- Lighting, HVAC, controls
- Valve automation
- Methane biogas systems
- Automated Meter Infrastructure (AMI)

Project Cost:

Investment: \$39M

Guaranteed Annual

Savings: \$3.1M

Payback: 20 years

The Comprehensive Plan

The Johnson Controls team designed a plan to:

- **Reduce energy use by 30 percent at the wastewater treatment plant:** The city's wastewater treatment facility uses a tremendous amount of electricity to pump and process the wastewater that comes through the plant each day. To reduce overall energy use at the facility, the team installed energy-efficient lighting, HVAC, controls and power-factor correction.
- **Reduce solid waste at the plant by 20 percent:** The plan also included unconventional measures, such as valve automation and a solid waste centrifuge that has reduced the plant's solid waste (and the cost to haul it away) by 20 percent.
- **Generate power from restaurant and commercial kitchen fats, oils and grease (FOG):** When restaurants and food kitchens dump their grease, it's brought to the treatment plant and processed in a methane biogas system that generates power. The process itself is not new but this marks the first time a municipality has incorporated FOG into a guaranteed energy performance contract. Today, the process supplies about 40 percent of the needed power at the plant. Ultimately, it's expected to generate 460kW of clean power—enough to take the east wastewater treatment plant completely off the electric grid.
- **Increase meter-reading accuracy and efficiency with an Automated Metering Infrastructure:** A new automated metering system wirelessly gathers real-time data from 64,000 meters throughout the city and from 10 wireless towers. The system is guaranteed to deliver a greater level of meter-reading accuracy, allowing the city to bill customers more precisely and capture significant revenue that might otherwise have been lost. The system also flags unusual spikes in water or sewer usage that may signal a leak, which city workers can then proactively address.

The initiatives carry a combined price tag of \$39 million, a cost offset by guaranteed energy and operational savings of \$3.1 million a year—for a total payback of just 20 years.

"To say it's a win-win situation might be trite," said Mayor Winnecke. "But nothing could be more accurate."

As a result of the improvements, Evansville, the third largest city in Indiana, is now well positioned for future growth – and future gains. Discussions are already underway to capture even greater savings at the wastewater treatment plant.



In this video, hear Evansville city leaders talk about the benefits of the project and the value of energy performance contracting.

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– Lloyd Winnecke, Mayor,
Evansville, Indiana

