

City of Fort Wayne Wastewater Treatment Plant

City of Fort Wayne's WWTP:

\$255M Total Electrical Capital Costs

- EPA mandate Consent Decree
 - Approximately \$1 Billion in 2025 dollars
 - Ratepayers experience a 300% increase in utility costs.
 - Increase capacity 60 MGD to 100 MGD
- New Primaries Facility
- Additional RWW Pumps
- Aeration Blower Improvements
- Digester Gas Optimization Improvements
- Methane Optimization (CHP) Project
- Electric Utility Costs have increased over 85% in the past 6 years



Benefits of CHP at Wastewater Treatment Facilities

Benefits

Who Benefits from a Combined Heat and Power (CHP) System?

- **Food processing plants** – Corporate policy of no landfilling of waste
- **Agriculture** – Increase regulations on the handling and disposal of livestock waste
 - Livestock waste
 - Dairy farmers
- **Municipal wastewater treatment plants** – Ability to handle and treat waste to increase methane production and, in turn, electricity generation
- **Electric Utilities** – improves system efficiency and reduces demand and strain on the electrical grid
- **United States** – improving energy security

Benefits of CHP at Wastewater Treatment Facilities

How does CHP benefit

- For U.S. Businesses
 - Reduces energy costs for the user
 - Reduces risk of electric grid disruptions and enhances energy reliability
 - Provides stability in the face of uncertain electricity prices
- For the Nation
 - Improves U.S. manufacturing competitiveness
 - Offers a low-cost approach to new electricity generation capacity
 - Provides an immediate path to lower GHG emissions through increased energy efficiency
 - Lessen the need for new transmission and distribution infrastructure and enhances power grid security
 - Uses abundant clean domestic energy sources
 - Uses highly skilled American labor and American technology

Benefits of CHP at Wastewater Treatment Facilities

Benefits from 20 percent electricity generation via CHP by 2030

- The nation could save an estimate 5.3 quadrillion Btu of fuel annually, the equivalent of nearly half the total energy currently consumed by U.S. households per year.
- Generate \$234 billion in new technology investments
- Create nearly 1 million technical jobs throughout the United States
- Reduce CO₂ emissions by more than 800 million metric tons, per year.
 - Impact similar to taking more than half of current vehicles of the road.

Benefits of CHP at Wastewater Treatment Facilities

Solutions CHP creates

- **Environmental Solution** – Significantly reducing CO₂ emissions through greater energy efficiency
- **Competitive Business Solution** – Increasing efficiency, reducing business costs and creating green-collar jobs
- **Local Energy Solution** – Deployable throughout the United States
- **Infrastructure Modernization Solution** – Relieving grid congestion and improving energy security

Benefits of CHP at Wastewater Treatment Facilities

CHP can

- **Enhance our energy security** by reducing our national energy requirements and help businesses weather energy price volatility and supply disruptions.
- **Advance our climate change and environmental goals** by reducing emissions of CO₂ and other pollutants
- **Improve business competitiveness** by increasing energy efficiency and managing costs
- **Increase resiliency of our energy infrastructure** by limiting congestion and offsetting transmission losses
- **Diversity energy supply** by enabling further integration of domestically produced and renewable fuels.
- **Improve energy efficiency** by capturing heat that is normally wasted.

Benefits of CHP at Wastewater Treatment Facilities

CHP as a Distributed Energy Resource

- Located at or near the point of energy use
- On-site generation avoids the transmission and distribution (T&D) losses associated with electricity purchase via the grid from central stations
- Defers or eliminates the need for T&D investment
- Results in reduced primary energy use and lower GHG emissions
 - Only receive approximately 32% of electricity generated from a central station due to T&D losses
 - Improves to approximately 65 – 75% efficiency with on-site generation.
 - Less fuel required to get same amount of electricity, hence reduction in GHG emissions