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September 2, 2015

Interim Study Committee on Energy, Utilities, and Telecommunications

Evansville Water and Sewer Utility

Allen Mounts – Director

EWSU serves approximately 62,000 customers in Evansville and Vanderburgh County

Sewer Utility

- 2016 Overall Budget: $63.6 Million
- Two wastewater treatment plants
- 92 lift stations.
- Over 800 miles of sewer lines Including 300 miles of Combined Sewer System pipes.
- Rate increases: 2014 = 32%, 2015 = 8%, 2016 = 18%
- Typical Daily "Dry Weather" consolidated wastewater treated: 30 MGD (excluding wet weather events)
- Annual Electric Bill: $2 million +

Waterworks District Utility

- 2016 Overall Budget: $32.9 Million
- One Surface Water Filtration Plant located on the Ohio River
- Treated Water Volume: $25 MGD
- 6 Water Towers (.5M to 1.5M gallons)
- 2 Reservoirs (4M to 20M gallons)
- 7 Booster Stations
- 1,000+ miles of water lines … 600 miles of cast iron pipe (average age 90 to 100 Yrs Old)
- Annual Electric Bill: $1.2 million

Active EWSU Cogeneration Projects

- Methane is a byproduct of the wastewater treatment and digestion processes.
- The West Wastewater Treatment plant was originally built with reciprocating engines powered by methane driving raw sewage pumps in 1956. We save $100,000.00 per year in natural gas.
- Methane is used to provide fuel for the boilers for both wastewater treatment plants. The wastewater has to be heated to keep the biology alive, especially in the colder months. The estimated savings from using methane is $150,000 for both treatment plants.

New EWSU Cogeneration Projects

- New Receiving station built at the East Treatment Plant to receive Fats Oils and Grease (FOG) from food establishments and Septic Bulk waste from Septic system haulers. Two large scale generators have been installed to produce electricity from the additional methane that will be produced from the FOG and Septic waste. Construction was configured to add a 3rd generator at a later date to produce more electricity.
- Estimate annual electric bill savings from current system: $285,000/Year.
- Added benefit: FOG haulers currently have to travel out of state to unload FOG. Evansville has 900+ establishments that serve food. The new facility will reduce the haulers transportation expenses.

What else could we do to cogenerate more power?

We could add gas conditioning equipment and a generator at West treatment plant. The gas conditioning equipment will help offset maintenance cost resulting from impurities in the current methane.

Are there any state regulations you would change that impact our ability to use to cogeneration?

- The opportunities for regulatory changes are still under evaluation.
- The Utility would like to see support, credit or incentives to maximize uses of methane for cogeneration.
- Research opportunities to explore how a regional strategy or plan could be pursued to leverage utilization of cogeneration assets at regional wastewater utilities. Wastewater Utility has expertise in digestion processes that produce methane. For example, the treatment plants could receive food waste from Universities or large

scale food service facilities (i.e. hospitals) to produce more methane to generate more electricity.

How can an Investor Owned Utility help? Cogeneration projects are large scale capital projects that take significant planning to determine and prioritize projects. Any support (financial) or intellectual capital that IOU's could provide would help move cogeneration projects forward.

Are there other potential benefits / services that could result from an expansion of cogeneration at wastewater treatment plants?

- If cogeneration "fuel sources" such as food waste could be added, cogenerated heat and power could be increased. The additional heat could be used to pasteurize dewatered solid waste into a "Class A" Biosolids that can be used as a fertilizer. This could be used by a city for Parks (golf courses) or other city departments. The biosolids could be a sold as a fertilizer for large scale applications.
    - **What are Biosolids?** They are nutrient-rich organic materials resulting from the treatment of domestic sewage in a treatment facility. When treated and processed, these residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth.
- By repurposing the solids, the Utility would reduce transportation cost significantly related to hauling wastewater solids to the landfill.

Can we produce more electricity than we can use?

- It is unlikely the Utility would ever produce get off the grid.
- However, the cogenerated electricity will significantly reduce the demand and energy charges. EWSU used extremely large motors and pumps that draw tremendous amounts of electricity demand when they are turned on. The monthly demand charge represents almost 25% of the Utility's total electric bill.
- Plus, cogeneration gives the utility a redundant source of electricity in the event of power outage that impacts power received from Vectren.

What other challenges are facing the Utilities? Aging infrastructure and regulatory compliance

- Compliance with the Clean Water Act and federal mandates enforced by EPA and IDEM and increase maintenance needs will result in significant increases in capital and operating expenses for the wastewater utilities. Evansville's Long Range Control Plan, which is still in negotiations with the EPA, will require 100's of millions in funding over the next 2 decades. Eventually, sewer rates paid by citizens will be climb dramatically.
- Electrical power requirements will also increase significantly to power massive infrastructure improvements needed to capture, store and treat storm water that will help the city comply with the Clean Water Act mandates.
- The currently wastewater treatment plants were built in the mid 1950's
- The Water Utility's infrastructure challenges will be similar primarily related to end of life assets that will need to be replaced or upgraded. The Evansville Water Filtration Plant was originally built in 1900, with plant additions in 1950 and 1970.
- The majority of the water system's water lines are at or approaching their end of life. Since 2013, the water utility has had over 1,100 water main breaks resulting in 650 boil advisories.
- It takes about 10 months to navigate through a water rate case with the IURC.