

Update on the OH EPA/U.S. EPA Water & Energy Pilot

**Ohio Water Environment Association
Plant Operations & Laboratory Workshop
October 27, 2016**

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and
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Why is energy efficiency important?

True or False?

Most wastewater treatment works are designed to operate with a lot of energy efficiency.

False

Why is energy efficiency important?

True or False?

Improvements in energy efficiency usually cause effluent violations.

False

Why is energy efficiency important?

True or False?

Reductions in energy cost can often be obtained without upfront capital expense.

True

Why is energy efficiency important?

True or False?

Electric utilities are reluctant to provide assistance in reducing energy use because they will lose money.

False

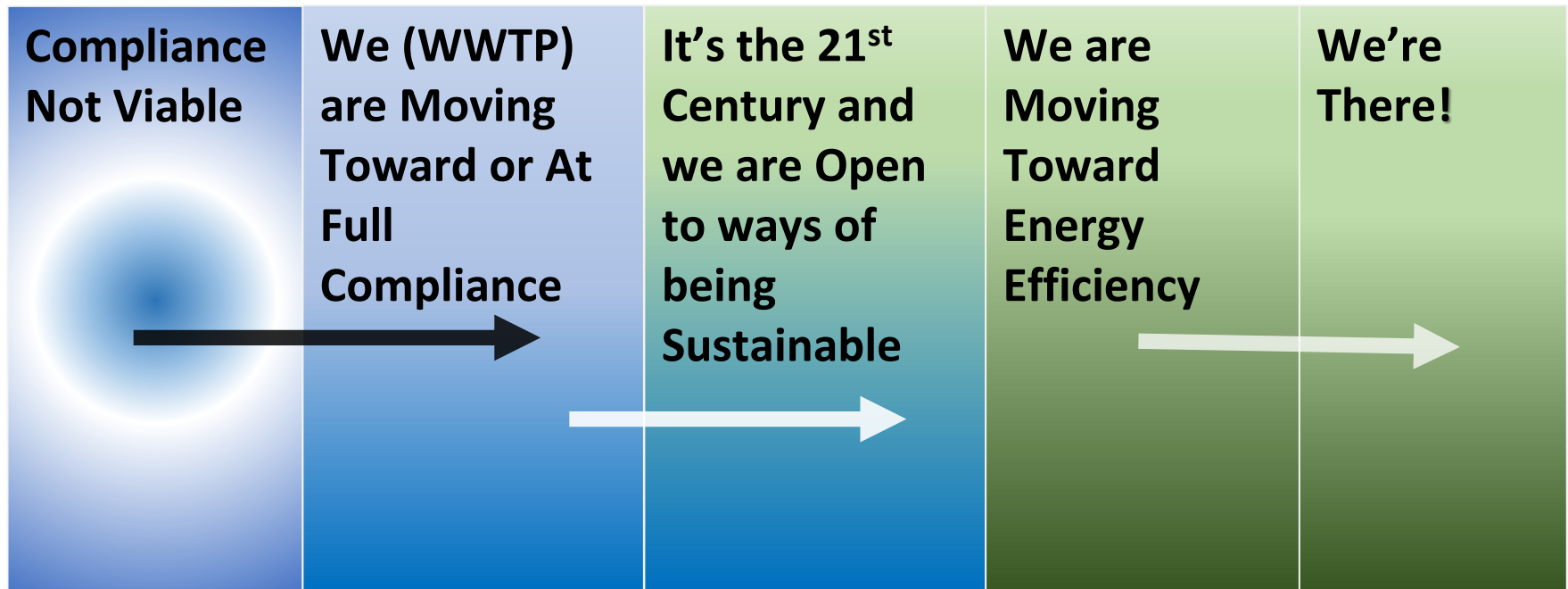
Why is energy efficiency important?

Money saved can be used to invest in other plant improvements.

Good PR for your utility.

Decreases your plant's carbon footprint.

Where does *your* plant fit?



Water & Energy Pilot

Started in October 2014

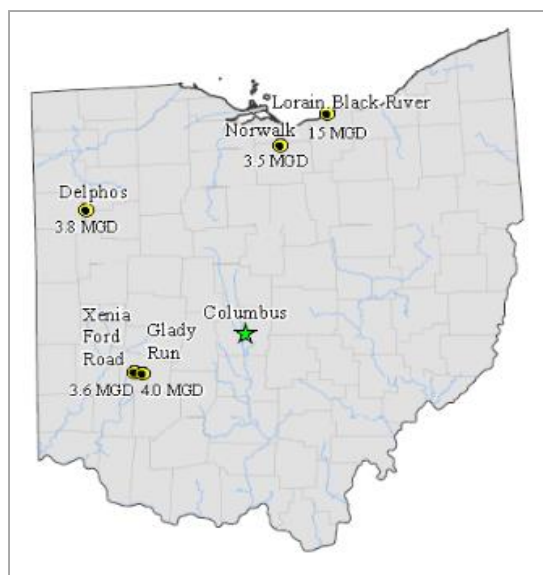
Volunteer WWTPs in 1-15 MGD flow range

Norwalk

Lorain

Xenia

Delphos



Water & Energy Pilot

- Promote energy efficiency with a group of WWTPs
- Gather feedback from the WWTPs as they work toward using less energy while maintaining effluent and biosolids quality
- Duration 2014 to 2016

Water & Energy Pilot

- Ohio Development Services Agency (ODSA) provided a contractor for energy audits
- Audits conducted by Graphet, Inc. in 2014
- Graphet looked at WWTP data a little differently than we are used to
- Each audit identified potential short- and long-term measures for energy efficiency

Ohio Funding for Energy Projects

- State funding agencies
 - Ohio EPA Division of Environmental and Financial Assistance (DEFA) – low interest loans, 0% planning more
 - ODSA - low interest loans
 - Ohio Water Development Authority (OWDA) – loans/grants

Ohio Funding for Energy Projects

- Federal funding agencies
 - U.S. Department of Agriculture – loans and grants
- Electric suppliers
 - American Electric Power Ohio – Incentives for permanent energy efficiency projects
 - Dayton Power & Light – Rebates
 - Duke Energy – Incentives
 - First Energy – Savings opportunities for large customers
- Learn about these funding agencies from Ohio EPA's new information sheet

Ohio EPA

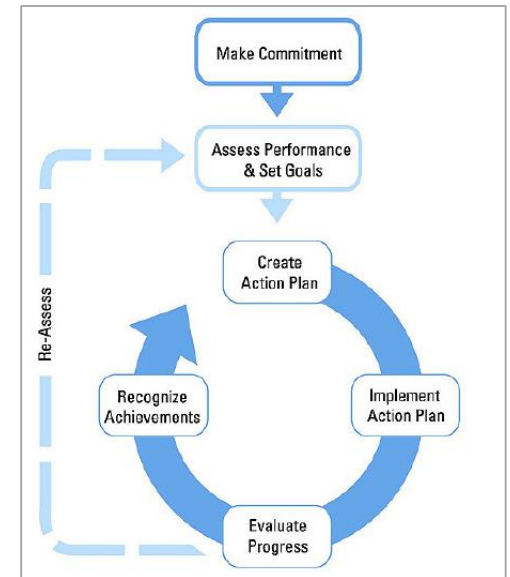
Compliance Assistance Unit

- Still in Ohio EPA but part of DEFA
- Available to small WWTPs for assistance with process control, compliance, and energy savings
- Call Jon Bernstein at DEFA: (614) 644-3715

Water & Energy Pilot

Advocates a foundational energy management approach

- Leadership commitment
- Assess WWTP performance
- Set goals
- Make and carry out a plan
- Monitor, measure and evaluate
- Continuous improvement

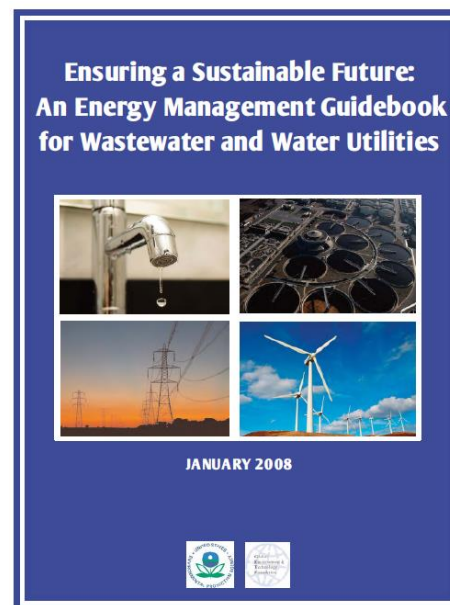


Water & Energy Pilot

Learn more about energy management at epa.gov



Guidelines for Energy Management



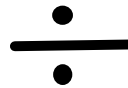
We asked ...

How well does the treatment plant perform?

In addition to effluent quality, look at energy use intensity (kWh/MG), energy cost..



kWh



divided by



Million Gallons

We saw...

The importance of writing things down.

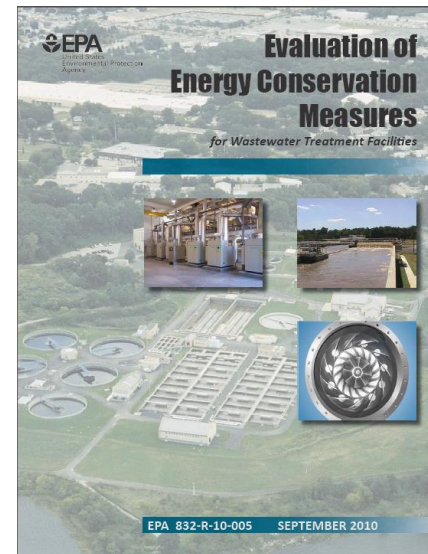
- Succession planning
- Scaffolding (build on what you know)



We explored...

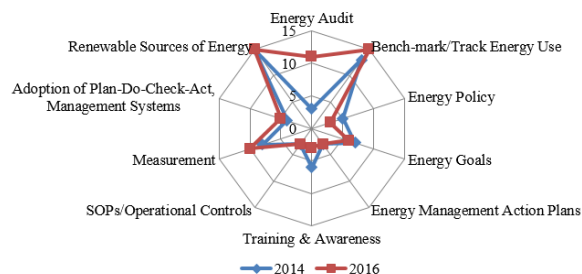
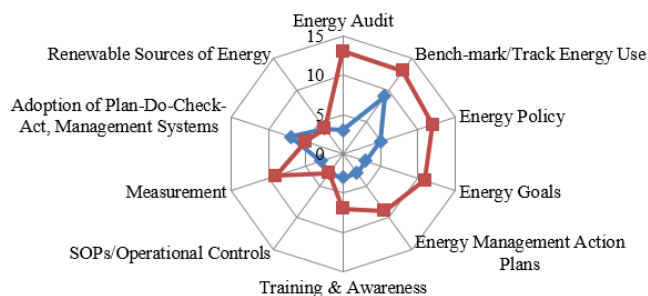
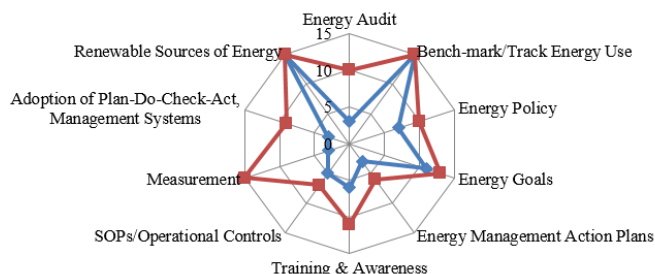
EPA tools and technical resources to address energy efficiency.

- Portfolio Manager
- Self-Assessment Tool
- Priority Ranking Tool
- Energy Use Assessment Tool
- Evaluation of Energy Conservation Measures for Wastewater Treatment Facilities



We observed...

Varying levels of progress over time with energy management system elements.



Recognizing achievement

- Part of the continuous improvement approach
- Multiple benefits
 - Promotes achievement
 - Informs and influences outside stakeholders
 - Sets the stage internally for continued improvement
- Example: Water Resources Utility of the Future Today
 - NACWA, WEF, WERF with input from EPA.
 - Includes energy efficiency, energy generation & recovery

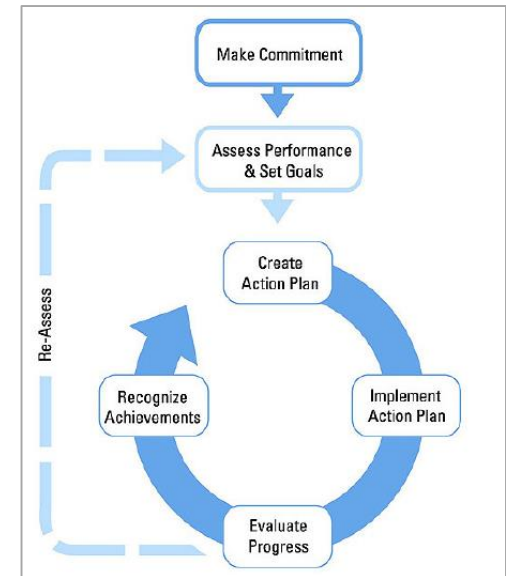




Photo taken at Xenia Ford Road WWTP

Presentation credits and references

- Cuyahoga River fire. <https://cfpub.epa.gov/watertrain/pdf/modules/IntrotoCWA.pdf>
- Love Canal <https://cfpub.epa.gov/lovecanal/pdf...>
- Harmful Algae Blooms <http://epa.ohio.gov/Portals/0/general%20pdfs/HABGeneral.pdf>
- Sun Clip
<http://www.bing.com/images/search?q=sun+free+clip+art&view=detailv2&adlt=strict&id=7D075BFB B2529191E55E7692E8FB582F484CEB71&selectedindex=56&ccid=bEL9ZYyl&simid=608014271917067426&thid=OIP.M6c42fd658ca522e2b41399545b8d854fo0&mode=overlay&first=1>
- Energy Star Guidelines for (Foundational) Energy Management
<https://www.energystar.gov/buildings/about-us/how-can-we-help-you/build-energy-program/guidelines>
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