



Providing effective energy strategies for buildings and communities

IEPA Wastewater Treatment Energy Assessment Program

October 26, 2018



About the Program

- Illinois EPA has teamed up with the Smart Energy Design Assistance Center (SEDAC) and the Illinois Sustainable Technology Center (ISTC) to help local municipalities reduce the cost of wastewater treatment
- FREE energy assessment for your publically-owned wastewater treatment facility
 - Similar assessments: \$6,000-\$12,000
- Comprehensive report listing:
 - Cost of upgrades
 - Estimated payback period
 - Any applicable incentives or available funding opportunities



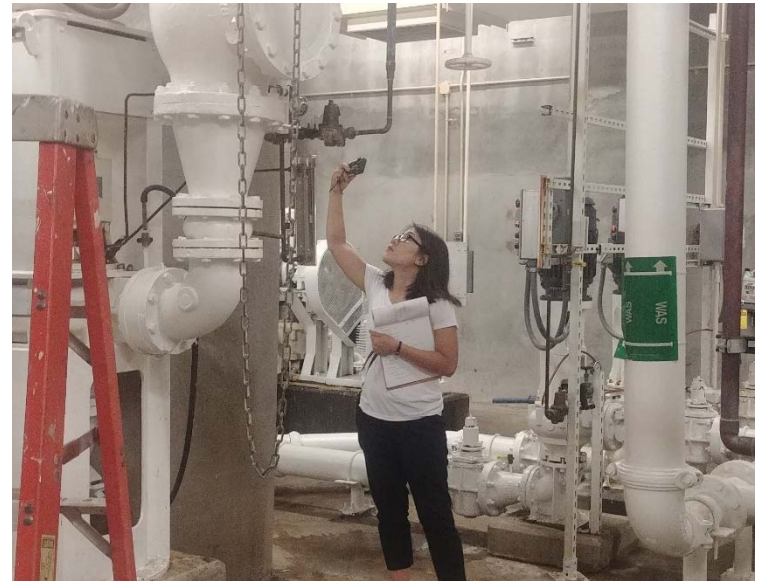
Applying for the Program

- **Step 1: Initial Application – Pre-Qualification**
 - Be located in Illinois
 - Allow SEDAC/ISTC to visit site
 - Be willing to share facility information
 - Share final assessment report with Illinois EPA
- **Step 2: Data Collection**
 - Facility information – energy use, discharge reports, process info
 - We're here to assist!
- **Step 3: Site Visit Scheduled**



Site Visit Overview and Timeline

- Project leader contacts client to schedule site visit
- Site visit occurs – More detail later
- Receive short list of energy efficient opportunities
- Receive assessment report
 - ~6-8 weeks after site visit
- Project leader follows up ~two weeks
- IEPA follows up ~two weeks



Site Visit Process

Before Assessment Begins:

- Pre-Assessment Meeting – data review
- Gather information from client regarding known issues and desired foci for assessment

During the Assessment:

- Walk-through
 - Process flow
 - Geographic
 - Equipment
- As the walk through occurs, team members may ask about ideas they may have or things they may notice
 - Anticipate many photos to be taken 300+ per team member is not uncommon
- Wrap-up and discussion of next steps



Energy Assessment Report



Smart Energy Design Assistance Center (SEDAC) Energy Assessment Report Sample Wastewater Treatment Plant

Published:	September 10, 2018
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Facility Location:	111 Main St. Anytown, IL
Site Visit Date:	July 1, 2018
Facility Contact:	John Doe, Wastewater Treatment Supervisor 847-555-1234, j.doe@anytown.il.us



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Table E1: Energy Cost Reduction Measure Analysis

Measure #	Description	Potential Energy Savings				Estimated Project Cost	Potential Incentive	SPB ¹ w/o Incentive (yrs)	SPB ¹ w/ Incentive (yrs)
		kW	kWh	Therm	\$				
1	Automated DO Control	7	55,750	0	\$5,300	\$48,000	\$0	9.1	9.1
2	Variable Frequency Drives on Pumps	10	54,500	0	\$5,200	\$9,000	\$5,750	1.7	0.6
3	Lighting Upgrades	6	28,500	0	\$2,700	\$25,000	\$14,250	9.2	4.0
4	HVAC Upgrades	0	10,000	20,000	\$15,000	\$100,000	\$5,000	6.7	6.4
PKG 1	Measures 2 & 3	16	83,000	0	\$7,900	\$34,000	\$20,000	4.3	1.8

¹ "SPB" Refers to Simple Payback, or the amount of time for projected energy savings to exceed the Estimated Project Cost

3.1 Measure-2 Variable Frequency Drives for Two Pumps



VFDs for two influent pumps

Project Cost	
Investment (\$)	\$9,000
Incentives (\$)	\$5,750
Total (\$)	\$3,250
Annual Savings	
Consumption (kWh)	54,458
Consumption (therms)	-
Savings (\$)	\$5,175
CO ₂ (kg)	34,036
Economic Data	
Simple Payback (yrs)	0.6
Internal Rate of Return (%)	>100%
Net Present Value (\$)	\$36,700

Current Issues and Observations:

Majority of pumps already have Variable Frequency Drives (VFDs) except two 25 HP influent pumps.



ILLINOIS SUSTAINABLE
TECHNOLOGY CENTER
PRAIRIE RESEARCH INSTITUTE



Lime Stabilized Sludge Mixing



Lighting Intensity



Is Thomas Edison Missing a Motor?



Start Where It Counts



Blowers Are Complicated



Sand Filters are Difficult to Maintain



Looks Good, but Does it Work?



Chemical Disinfection



UV Disinfection



Old Lighting Technology



What About Classified Locations?



Is There a Light in There?



Oh HPS and Visibility



Effluent Cleaner than Intake



Unique Equipment



Rectangular clarifier



Square Clarifier



Indoor Clarifier



Drum Filter



Disk Filter



What a Belt



I Needed Some Storage Room



Top of the Tower



What a Find!



What an Odor



Fine Bubble Aeration



It Seemed Great at the Time...



Thank you!

Questions?

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