

Energy Baseline

DVRPC Energy Efficiency at Water and Sewage
Treatment Facilities Conference

April 25, 2012

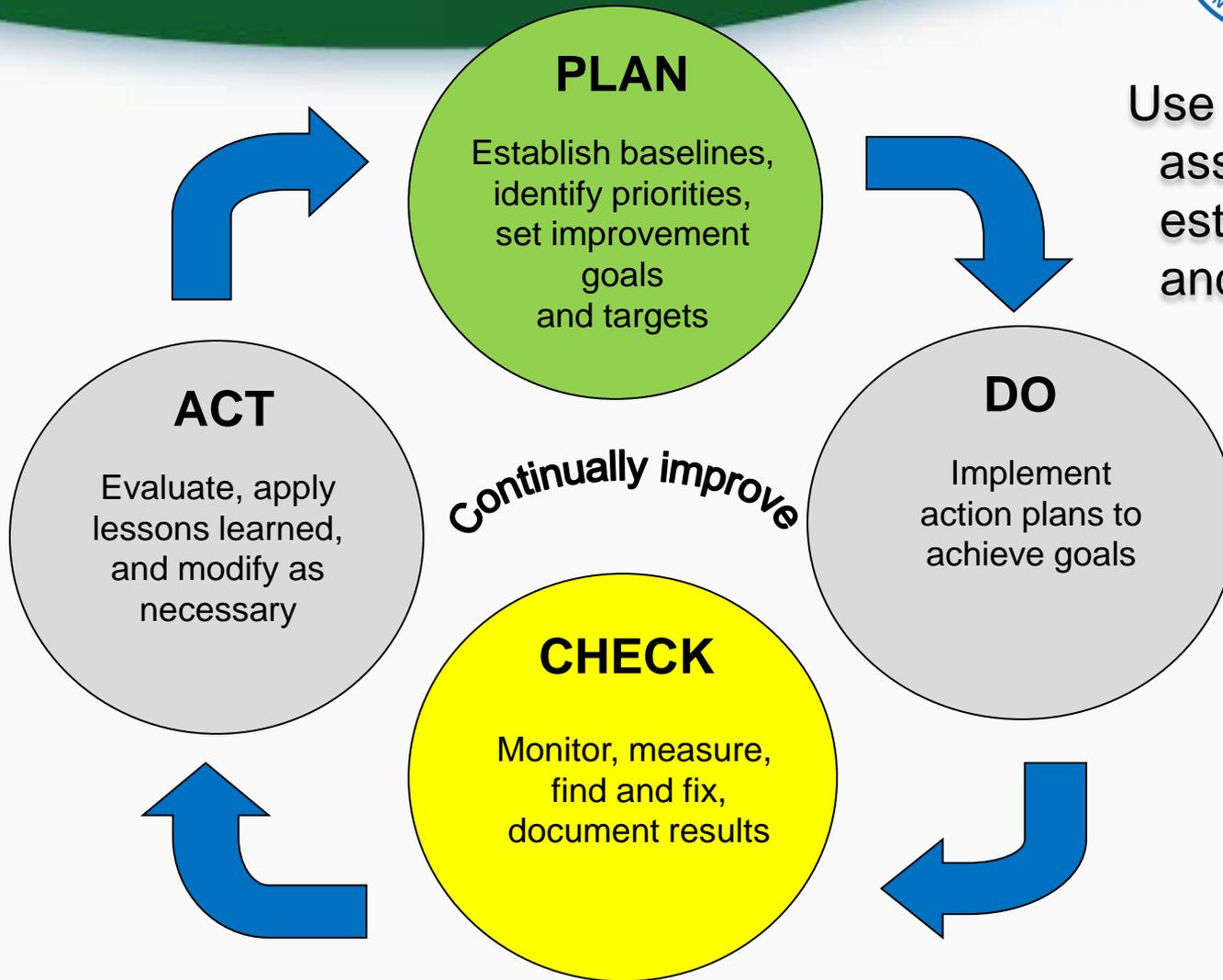
Emily Linn
U.S. EPA Region 3



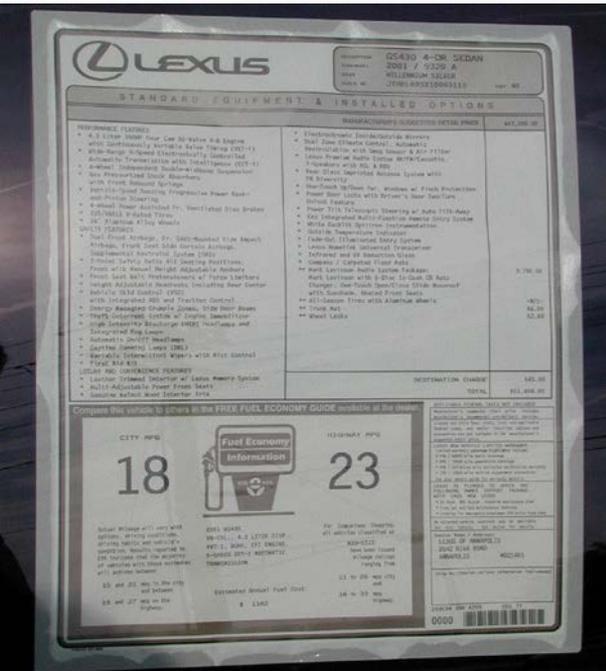
Key Questions



- What is an energy baseline?
- Why is creating a baseline important?
- What EPA tools are available to assess energy use and how do they work for W/STFs?
 - ENERGY STAR Portfolio Manager
 - Energy Use Assessment Tool



Use EPA's energy self-assessment tools to establish a baseline and monitor results!



A baseline is a point of reference from which to make comparisons.



EPA Energy Self-Assessment Tools

- ENERGY STAR Portfolio Manager
- Energy Use Assessment Tool

Non- EPA Tools

- NYSERDA Water and Wastewater Checklists
- Consortium for Energy Efficiency (CEE) Checklists
- “Radar Graph” Self-Assessment Worksheet



Portfolio Manager

- Developed by the ENERGY STAR program
- Free, online, confidential tool
- Can be used by any size water or wastewater facility (ideally ≤ 150 MGD)

The screenshot shows the top navigation bar of the Portfolio Manager website. On the left is the Energy Star logo. The main header reads "PORTFOLIO MANAGER" with a sub-header "EPA's system for helping you track and improve energy efficiency across your entire portfolio of buildings." On the right are navigation links for "FAQ FREQUENTLY ASKED QUESTIONS", "CONTACT US", and "HELP". Below the header is a dark blue banner titled "WHAT'S NEW IN PORTFOLIO MANAGER". The main content area features two news items, each starting with a yellow "New!" tag. The first item is "Water Treatment and Distribution Facilities" and the second is "Portfolio Manager Enhancements (Spaces Not Eligible to Receive a Rating)". On the right side of the page is a login form with fields for "Username:" and "Password:", each with a "Forgot your username?" or "Forgot Your Password?" link below it. At the bottom right are links for "New User? Register" and a "Login" button.

PORTFOLIO MANAGER
EPA's system for helping you track and improve energy efficiency across your entire portfolio of buildings.

FAQ FREQUENTLY ASKED QUESTIONS CONTACT US ? HELP

WHAT'S NEW IN PORTFOLIO MANAGER

New! Water Treatment and Distribution Facilities
The EPA is pleased to announce the addition of Water Treatment and Distribution Facilities to Portfolio Manager. Water Utilities will now be able to track and improve energy consumption and emissions by entering and managing data in Portfolio Manager. [Learn More](#)

New! Portfolio Manager Enhancements (Spaces Not Eligible to Receive a Rating)
Portfolio Manager now provides users the ability to manage buildings that are eligible to receive a rating as well as those that are not – all within the same online platform. [Learn More](#)

Username:
[Forgot your username?](#)

Password:
[Forgot Your Password?](#)

New User? [Register](#)



What does Portfolio Manager provide?

- Benchmark energy and water for all facilities
- Energy Use Intensity (EUI): kBtu/GPD
 - Building EUI: kBtu/sf
 - Get a 1-100 energy performance score for certain building types (includes wastewater)
- Track changes over time
 - Energy, water, utility costs, GHG emissions





Portfolio Manager Data Needs

General Data

Address

Facility Data

Varies by
space type

Energy & Water Data

12
consecutive
months



W/STF Data Needs

- Energy use for all fuels – monthly, minimum of 12 months
- Average daily influent flow (mgd)
- Average influent BOD – average over 12 months (mg/l)
- Average effluent BOD – average over 12 months (mg/l)
- Plant design capacity – treatment design (mgd)
- Fixed film trickle filtration process (yes or no)
- Nutrient removal process (yes or no)



Portfolio Averages	
Baseline Rating: 34 Facilities Included: 3	Current Rating: 34 Facilities Included: 4
Change from Baseline: Portfolio Adjusted Percent Energy Use (%): 0% Facilities Included: 3	
Averages are weighted by Total Floor Space. More about Baselines More about Change from Baseline: Adjusted Energy Use	
Portfolio Averages (for all Water Utilities and Wastewater Treatment Facilities)	
Baseline Rating: 65 Facilities Included: 2	Current Rating: 65 Facilities Included: 2
Change from Baseline: Portfolio Adjusted Percent Energy Use (%): 0% Facilities Included: 2	
Averages are weighted by Average Daily Flow. More about Wastewater	

- [Add a Property](#)
- [Import Facility Data Using Templates](#)
- Work with Facilities**
 - [Update Multiple Meters](#)
 - [Share Facilities](#)
- Reporting and Analysis**
 - New!** [Generate Reports and Graphs](#)
 - [Request Energy Performance Report](#)
 - [Request Sample Report](#)
- Apply for Recognition**
 - [Apply for the ENERGY STAR ENERGY STAR Leaders](#)
- Automated Benchmarking**
 - [Get Started Now](#)

GROUP: All Facilities [Create Group](#) | [View All](#) VIEW: Summary: Facilities [Create View](#) | [Edit View](#) | [View All](#)

[Download](#) in Excel Search Facility Name:
 Results 1 - 6 of 6 All # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Facility Name	Current Rating (1-100)	Change from Baseline: Adjusted Energy Use (%)	Total Floor Space (Sq. Ft.)	Energy Use Alerts	Current Energy Period Ending Date	Eligibility for the ENERGY STAR	Last Modified
Criminal Justice Center	9	0	571,570	Data > 120 days old	12/31/2008	Not Eligible: Rating must be 75 or above (ENERGY STAR Eligibility Rules)	04/13/2009
Township WWTP	53	0	N/A	Data > 120 days old	06/30/2008	N/A	06/04/2010
Municipal Services Building	60	0	500,000	Data > 120 days old	12/31/2008	Not Eligible: Rating must be 75 or above (ENERGY STAR Eligibility Rules)	04/13/2009
One Parkway	37	0	489,000	Data > 120 days old	12/31/2008	Not Eligible: Rating must be 75 or above (ENERGY STAR Eligibility Rules)	04/13/2009
Sample Facility	57	N/A	15,000	Data > 120 days old	01/31/2009	Not Eligible: Rating must be 75 or above (ENERGY STAR Eligibility Rules)	04/06/2009

Home > My Portfolio > [Redacted] Township WWTP

Facility Summary [Redacted] Township WWTP

Building ID: 1528976
 Level of Access: Facility/Profile Editor
 Access Provided by: Jim Kern

Electric Distribution Utility: Metropolitan Edison Co [FirstEnergy Corp]
 Regional Power Grid: [RFC East](#)
[Select my Power Generation Plant](#) to calculate my electric emissions rate
 Electric Emissions Rate (kgCO₂e/MBtu): 141.6 ([what is this?](#))

[Generate a Statement of Energy Performance](#) for uses other than applying for the ENERGY STAR.

General Information Edit	
Address	[Redacted]
Year Built: 1994	
Property Type: Water Utility/Wastewater Plant	
Baseline Rating: 53	Current Rating: 53
View Period Ending Dates	
Water Period Ending Dates Current: N/A Baseline: N/A	Energy Period Ending Dates Current: June 2008 Baseline: June 2008
Eligibility for the ENERGY STAR	
Not Eligible: Water Management Facilities are not eligible to apply for the Energy Star	

Facility Performance [Set Baseline Periods](#) | [Set Energy Performance Target](#)

Select View: Performance: Water/Wastewater Treatment Facilities [Create View](#) | [Edit View](#)

12 Months Ending	Current Rating (1-100)	Average Flow (MGD)	Current Weather Normalized Source Energy per Flow (kBtu/gpd)	National Median Source EUI (kBtu/gpd)	Current Site Electric Use (kWh)	Annual Energy Cost (US Dollars (\$))	Current Total GHG Emissions (MtCO ₂ e)
June 2008	53	3.0	13.5260	14.1	3,560,705.6	\$228,941.16	1,720.42
Select Date							

Change

REFRESH VIEW

Space Use

Space Name	Space Type	Average Influent Flow (MGD)	Alerts

General Facility Administration
[Track](#) Energy Performance Improvements
[Delete](#) this Facility from Portfolio Manager
[Contact](#) us

Edit Municipal Wastewater Treatment Plant Space: Treatment Plant

To edit a space attribute, please select the "Edit" link at the far right of each row in the Space Attribute table. To edit a flow meter, please select the "Flow Meter" link at the far left of each row in the Flow Meter table.

You are now able to update your influent flow on a monthly or annual basis. Your current flow value is considered valid through December 2010.

REQUIRED

*Space Name:

Current Space Attribute Values						
Space Attribute	Space Attribute Value (Temporary values should only be used if an Actual value is not currently known) What is this?	Use Default Value	Units	Effective Date (when this Attribute Value was first true) What is this? (MM/DD/YYYY)	Last Updated	
Average Influent Biological Demand (BOD5) Concentration (required for benchmarking)	250		mg/l (milligrams per liter)	01/01/1975	09/30/2008 by JIMKERN01	Edit
Average Effluent Biological Demand (BOD5) Concentration (required for benchmarking)	7		mg/l (milligrams per liter)	01/01/1975	09/30/2008 by JIMKERN01	Edit
Plant Design Flow Rate (required for benchmarking)	7.1	N/A	MGD (million gallons per day)	01/01/1975	09/30/2008 by JIMKERN01	Edit
Is there a trickle filtration process present at this plant? (required for benchmarking)	No			01/01/1975	09/29/2008 by JIMKERN01	Edit
Is nutrient removal part of the treatment process? (required for benchmarking)	Yes			01/01/2005	09/29/2008 by JIMKERN01	Edit

*Required for Benchmarking Average Influent Flow Meter What is this?					
Meter Name	Current Period Ending Date	Annual Average Influent Flow (MGD)	Alerts	Last Updated By	
Average Influent Flow Meter	06/30/2008	3.00	Data > 120 days old	06/04/2010 by SYSTEM	Delete Meter

Edit Energy Use: Electric Meter

Meter Information [Edit](#)
Fuel Type: Electricity, Grid Purchase (kWh (thousand Watt-hours))
Space(s): Entire Facility

Please enter the energy use for each meter entry below. Portfolio Manager requires that entries are for consecutive time periods; only one day of overlap or one day of gap can exist between meter entries to be eligible to generate an Energy Performance Rating.

[Download Meter Data in Excel](#)

Edit Energy Use:

[Add Meter Entries](#)

Remove Entry	Start Date (MM/DD/YYYY)	End Date (MM/DD/YYYY)	Energy Use (kWh (thousand Watt-hours))	Cost - US Dollars (optional)	Last Updated
<input type="checkbox"/>	06/20/2008	07/21/2008	286891.00	\$ 20,877.50	09/29/2008 by JIMKERN01
<input type="checkbox"/>	05/21/2008	06/19/2008	271082.00	\$ 19,254.37	09/29/2008 by JIMKERN01
<input type="checkbox"/>	04/19/2008	05/20/2008	306402.00	\$ 20,461.22	09/29/2008 by JIMKERN01
<input type="checkbox"/>	03/20/2008	04/18/2008	289177.00	\$ 19,941.68	09/29/2008 by JIMKERN01
<input type="checkbox"/>	02/20/2008	03/19/2008	308988.00	\$ 21,076.81	09/29/2008 by JIMKERN01
<input type="checkbox"/>	01/19/2008	02/19/2008	344727.00	\$ 23,333.76	09/29/2008 by JIMKERN01
<input type="checkbox"/>	12/19/2007	01/18/2008	317468.00	\$ 21,122.96	09/29/2008 by JIMKERN01
<input type="checkbox"/>	11/18/2007	12/18/2007	312534.00	\$ 20,725.82	09/29/2008 by JIMKERN01
<input type="checkbox"/>	10/20/2007	11/17/2007	272303.00	\$ 18,528.00	09/29/2008 by JIMKERN01
<input type="checkbox"/>	09/21/2007	10/19/2007	266802.00	\$ 18,107.45	09/29/2008 by JIMKERN01
<input type="checkbox"/>	08/22/2007	09/20/2007	281986.00	\$ 18,909.93	09/29/2008 by JIMKERN01
<input type="checkbox"/>	07/21/2007	08/21/2007	305266.00	\$ 20,302.52	09/29/2008 by JIMKERN01



STATEMENT OF ENERGY PERFORMANCE

Township WWTP

Building ID: 1528976
 For 12-month Period Ending: June 30, 2008¹
 Date SEP becomes ineligible: N/A

Date SEP Generated: April 11, 2012

Facility	Facility Owner	Primary Contact for this Facility
	N/A	N/A

Year Built: 1994
 Energy Performance Rating² (1-100) 53

Site Energy Use Summary³

Electricity - Grid Purchase(kBtu)	12,149,127
Natural Gas - (kBtu) ⁴	0
Total Energy (kBtu)	12,149,127

Energy Intensity⁴

Site (kBtu/gpd)	4
Source (kBtu/gpd)	14

Emissions (based on site energy use)

Greenhouse Gas Emissions (MtCO ₂ e/year)	1,720
---	-------

Electric Distribution Utility

Metropolitan Edison Co [FirstEnergy Corp]

National Median Comparison

National Median Site EUI	4
National Median Source EUI	14
% Difference from National Median Source EUI	-4%
Building Type	Wastewater



Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Meets Industry Standards⁵ for Indoor Environmental Conditions:

Ventilation for Acceptable Indoor Air Quality	N/A
Acceptable Thermal Environmental Conditions	N/A
Adequate Illumination	N/A

Certifying Professional
 N/A

General Information:

Township WWTP	
Year Built	1994
For 12-month Evaluation Period Ending Date:	June 30, 2008

Facility Space Use Summary

Treatment Plant	
Space Type	Municipal Wastewater Treatment Plant
Average Influent Biological Demand (BOD5) Concentration	250.00
Average Effluent Biological Demand (BOD5) Concentration	7.00
Plant Design Flow Rate	7.10
Fixed Film Trickle Filtration Process	No
Nutrient Removal	Yes

Energy Performance Comparison

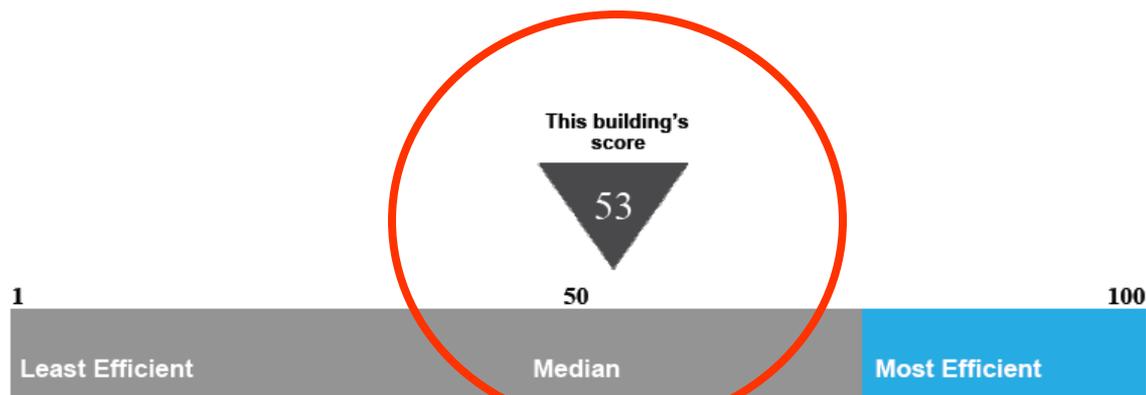
Performance Metrics	Evaluation Periods		Comparisons		
	Current (Ending Date: 06/30/2008)	Baseline (Ending Date: 06/30/2008)	Rating of 75	Target	National Median
Energy Performance Rating	53	53	75	N/A	50
Energy Intensity					
Site (kBtu/gpd)	4	4	N/A	N/A	4
Source (kBtu/gpd)	14	14	N/A	N/A	14
Energy Cost					
\$/year	\$ 228,941	\$ 228,941	N/A	N/A	\$ 238,551
\$/mgpd/year	\$76,313.72	\$76,313.72	N/A	N/A	\$79,517.01
Greenhouse Gas Emissions					
MtCO ₂ e/year	1,720	1,720	N/A	N/A	1,792
kgCO ₂ e/ft ² /year	N/A	N/A	N/A	N/A	N/A

Statement of Energy Performance

2008

Portfolio Manager Building ID: 1528976

The energy use of this building has been measured and compared to other similar buildings using the Environmental Protection Agency's (EPA's) Energy Performance Scale of 1–100, with 1 being the least energy efficient and 100 the most energy efficient. For more information, visit energystar.gov/benchmark.



This building uses N/A kBtu per square foot per year.

*Based on source energy intensity for the 12 month period ending June 2008

Buildings with a score of 75 or higher may qualify for EPA's ENERGY STAR.



Energy Use Assessment Tool

- Developed by EPA's Office of Ground Water and Drinking Water
- Free, downloadable, Excel-based tool
- Users are small to medium-size water and wastewater facilities
- Use prior to a full-scale energy audit
- Drills down to equipment-level

REQUIRED INFORMATION: We recommend that you compile the following required information before using the energy use assessment tool. This will allow you to use the tool with ease and to its full capability.

- All Plant Utility Data (use and cost information) by month (minimum of 12 months) for up to 5 years of analysis, including all Electric, Natural Gas, Fuel Oil No. 2, Water, and/or Other Utilities
- List of Lighting Fixtures (by type and size) and HVAC equipment nameplate data (horsepower, efficiency rating, full load amp rating) and average motor operating amperage (for each building and room)
- Drinking Water Treatment Plant Information, including monthly treatment/discharge volumes, pump and motor nameplate data (horsepower, efficiency rating, full load amp rating) and average motor operating amperage
- Wastewater Treatment Plant Information, including monthly treatment/discharge volumes, pump and motor nameplate data (horsepower, efficiency rating, full load amp rating) and average motor operating amperage

USER INSTRUCTIONS

1. Save a new workbook under a different name. (In the Menu, click "File", then select "Save As"). If you experience difficulties opening the Excel libraries or any other macro related issues, consult the Macro Instructions for Microsoft Excel 2007 and 2010 that are posted on EPA's Determining Energy Use website or email EnergyUseTool@epa.gov. You can save this file at any time and then return to editing or opening the spreadsheet.



Data Needs

- Utility data
 - Use and cost
 - Monthly (minimum of 12 months, max of 5 yrs.)
- Non-process information by building
 - Detailed inventory of lighting fixtures, HVAC equip.
- Treatment plant energy usage information
 - Monthly treatment volumes
 - Equipment nameplate data
 - Average motor operating amp



Home Insert Page Layout Formulas Data Review View Acrobat

Cambria 10

Clipboard: Cut, Copy, Paste, Format Painter

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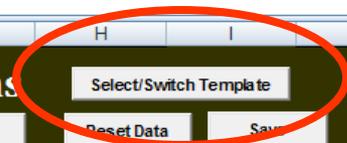
N1

A B C D E F G H I J K L M

EPA Energy Use Assessment Tool for Drinking Water Systems

General Information

Building Data Plant Energy Usage Reset Data Save



Specify Units for Treatment Volume: M GAL

Specify Units for Alternative Energy Consumption: CCF

Specify Other Utility Type (if any): Propane

Specify Units for Other Energy Consumption (if any): GAL

2011

Electric (\$/kWh) \$0.1018 Natural Gas (\$/CCF) \$1.1504 No 2 Fuel Oil (\$/CCF) \$1.0618 Water/Sewer (\$/GAL) \$0.0056 Alt. Energy: (\$/)

2011	January	February	March	April	May	June	July	August	September	October	November	December
Electricity Cost (\$) 2011	\$18,184.32	\$19,492.46	\$19,247.76	\$19,704.16	\$20,930.40	\$19,997.44						
Consumption (kWh) 2011	196,800	189,800	187,600	192,800	204,000	183,800						
Natural Gas Cost (\$) 2011	\$6,146.54	\$5,556.68	\$5,015.30	\$3,292.82	\$1,525.44	\$1,428.90						
Consumption (CCF) 2011	5,276	4,782	4,331	2,914	1,362	1,299						
No 2 Fuel Oil Cost (\$) 2011	\$16,231.03	\$11,166.71	\$8,587.05	\$5,077.59	\$534.92	\$43.09						
Consumption (CCF) 2011	14,260	10,279	8,478	5,237	562	400						
Water & Sewer Cost (\$) 2011	\$12,320.06	\$12,320.06	\$11,741.82	\$11,741.82	\$11,741.82	\$16,794.47						
Consumption (GAL) 2011	2,210,986	2,210,986	2,107,257	2,107,257	2,107,257	3,013,644						
Alternative Energy Cost (\$) 2011	\$1,914.90	\$2,035.80	\$2,571.40	\$2,394.60	\$2,012.40	\$25,071.20						
Consumption (CCF) 2011	1,473,000	1,566,000	1,978,000	1,842,000	1,548,000	229,400						
Other - Propane Cost (\$) 2011	\$1,070.30	\$1,535.60	\$2,324.30	\$3,180.10	\$2,017.40	\$1,923.90						
Consumption (GAL) 2011	973,000	1,396,000	2,113,000	2,891,000	1,834,000	1,749,000						
Total Utility Cost 2011	\$55,867.15	\$52,107.31	\$49,487.63	\$45,391.09	\$38,762.38	\$65,259.00						
Treatment Volume (MGAL) 2011	112.240	107.500	116.700	118.400	111.200	94.700						
Utility Cost/Treatment Volume (\$/MGAL)	\$497.75	\$484.72	\$424.06	\$383.37	\$348.58	\$689.11						
Electric Utilization (kWh/MGAL) 2011	1,753.39	1,765.58	1,607.54	1,628.38	1,834.53	1,940.87						

2010

Electric (\$/kWh) \$0.1020 Natural Gas (\$/CCF) \$1.0894 No 2 Fuel Oil (\$/CCF) \$1.0610 Water/Sewer (\$/GAL) \$0.0056 Alt. Energy: (\$/)

2010	January	February	March	April	May	June	July	August	September	October	November	December
Electricity Cost (\$) 2010	\$16,711.68	\$17,684.94	\$15,451.56	\$15,268.68	\$16,374.96	\$18,996.48	\$19,939.92	\$18,041.58	\$17,689.84	\$18,057.60	\$17,876.28	\$18,335
Consumption (kWh) 2010	163,200	172,200	150,600	149,400	159,600	174,600	182,600	177,400	173,600	182,400	186,600	190,600
Natural Gas Cost (\$) 2010	\$5,571.01	\$5,059.70	\$6,072.54	\$3,619.31	\$1,307.83	\$1,207.72	\$1,188.00	\$888.13	\$1,018.35	\$1,324.23	\$2,209.15	\$6,538

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Cambria 16 Font

Wrap Text Alignment Merge & Center

General Number

Conditional Formatting Styles

Format as Table Cell Styles

Insert Delete Format Cells

AutoSum Fill Clear Editing

Sort & Filter Find & Select

S1

B	C	D	G	H	I	J	K	L	M	N	O
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EPA Energy Use Assessment Tool for Drinking Water Systems

Site Structural Buildings - Major Non-Process Energy Users

Save and Continue

Reset Data

Return to General Info

BUILDING 1

Name	Administration	Operating Hours per Year	2,496 Hrs/Yr	Approximate Building Age (If known)	
Area	3,600 Ft ²	Operating Hours per Day	8 Hrs/Day		
No. of Rooms	4 Set # of Rooms	Operating Days per Week	6 Days/Wk	Average Building Lighting Power Density (LPD)	7.

! Changing the number of rooms will reset all lighting data entered.

Estimated Electric Load:

Total Building 1 Lighting	27	kW
Total Building 1 HVAC	5	kW
Total Building 1 Combined	32	kW

Estimated Annual Energy Use:

Total Building 1 Lighting	66,164	kWh/Yr
Total Building 1 HVAC	18,286	kWh/Yr
Total Building 1 Combined	84,450	kWh/Yr

Estimated Annual Energy Cost:

Total Building 1 Lighting	\$
Total Building 1 HVAC	\$
Total Building 1 Combined	\$

LIGHTING

To determine the site's lighting loads and energy use, select each of the room's lighting fixture types and quantity (Qty) using the dropdown lists below.

Select a light type from the dropdown list for each size and kind of fixture in a room. Then enter the quantity for each type. The tool provides the fixture's electrical energy load in watts. Do not include task lights (directional lights used to illuminate an area of work) when entering the room's lighting fixtures.

If a type of fixture is not available in the dropdown list, use the "Other Type" input field to enter the fixture and its total wattage.

The table automatically totals the room's lighting loads, each building's lighting energy use and the site's total lighting energy use per year for use in other areas of the tool. Enter the area of each room and the tool calculates the Lighting Power Density (LPD) in watts per square foot.

You can now take an important next step and compare LPD's from room to room and building to building to determine where excess energy might be in use.

Room 1 Name	Conference Room	Area	600 Ft ²
Room 1 Lighting (Main Lighting only - Do not include task lights)			
Select up to 6 Light Fixture Types		Fixture Qty	Total Room Wattage (W)
Light Type 1	Four F40T12 4' 40W Fluorescent La	175 Watts	16
Light Type 2	Select Light Fixture	Total Watts	2,800 W

Room 2 Name	Offices
Room 2 Lighting (Main Lighting only - Do not include task lights)	
Select up to 6 Light Fixture Types	
Light Type 1	Three F40T12 4' 40W Fluorescent L
Light Type 2	Select Light Fixture

EPA Energy Use Assessment Tool for Drinking Water Systems

Drinking Water Systems Energy Usage

Save and Continue

Reset Data

Return to General Info

EQUIPMENT ELECTRICAL ENERGY INVENTORY

System Type	Equipment Type	Equipment Description	Motor Size (hp)	Motor Efficiency (%)	Motor Full Load Amperage (FLA)	Average Motor Operating Current (Amps)	Operating Hours (Hrs/Yr)	Average Load Factor (%)	Average Electric Load (kW)	Estimated Annual Energy Use (kWh/yr)	Estimated Annual Operating Costs (\$/Yr)	Estimated Per Site Electric Cost (%)
Chemical Mix and Feed	Blower	Blower 1	7	65.0 %	660	600	880	90.91%	7.30	6,427	\$650	
Chemical Mix and Feed	Blower	Blower 2	7	65.0 %	660	600	880	90.91%	7.30	6,427	\$650	
Decarbonation	Mixer	Decarb Mixer 1	8	88.0 %	775	550	5,270	70.97%	4.81	25,364	\$2,567	
Low Service Pumping	Pump	Pump1	7	65.0 %	660	600	8,760	90.91%	7.30	63,979	\$6,475	
Low Service Pumping	Pump	Pump2	8	88.0 %	775	550	8,760	70.97%	4.81	42,161	\$4,267	
Clarification	Mixer	Rapid Mixer	8	78.0 %	775	550	8,760	70.97%	5.43	47,566	\$4,814	
Clarification	Mixer	Tk Mixers Summer	7.5	9.6 %	10.3	5.3	8,760	51.46%	29.99	262,707	\$26,586	
Distribution Pumping	Pump	HSPS	2	1.0 %	230	102.13	8,760	44.40%	69.01	604,543	\$61,180	
Distribution Pumping	Pump	HSPS	2	1.0 %	230	156.4	1,200	68.00%	105.68	126,820	\$12,834	
Filtration	Pump	Backwash Pump	75	0.9 %	98	84.7	91	86.43%	5,199.65	473,169	\$47,885	
Filtration	Pump	Backwash Blower	75	0.9 %	88	54.2	12	61.59%	3,665.97	43,992	\$4,452	
Non Process HVAC	Other kW Load	Lighting	N/A	N/A	N/A	N/A	8,760	100.00%	12.77	111,865	\$11,321	
Lighting	Other kW Load	Building HVAC	N/A	N/A	N/A	N/A	8,760	100.00%	7.36	64,474	\$6,525	

Add Row

Estimated Annual WTP Electric Use & Cost

9,127.40

1,879,493

\$190,205

Actual Annual WTP Electric Use & Cost

2,248,000

\$227,497

Difference Between Billed and Identified

-368,507

-\$37,293

Percent of Site Electrical Energy Identified

83.61%

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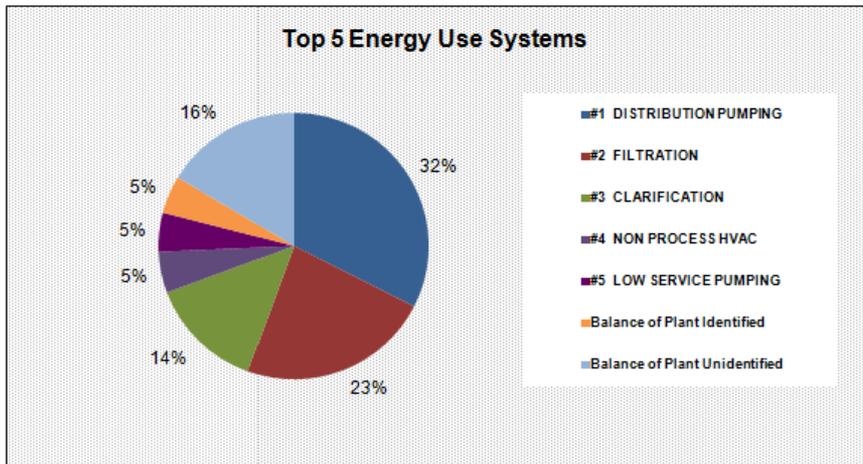
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STATEMENT OF ENERGY PERFORMANCE

DISTRIBUTION OF ELECTRICAL ENERGY USE & COST BY MAJOR PROCESS FOR 7/2010 - 6/2011



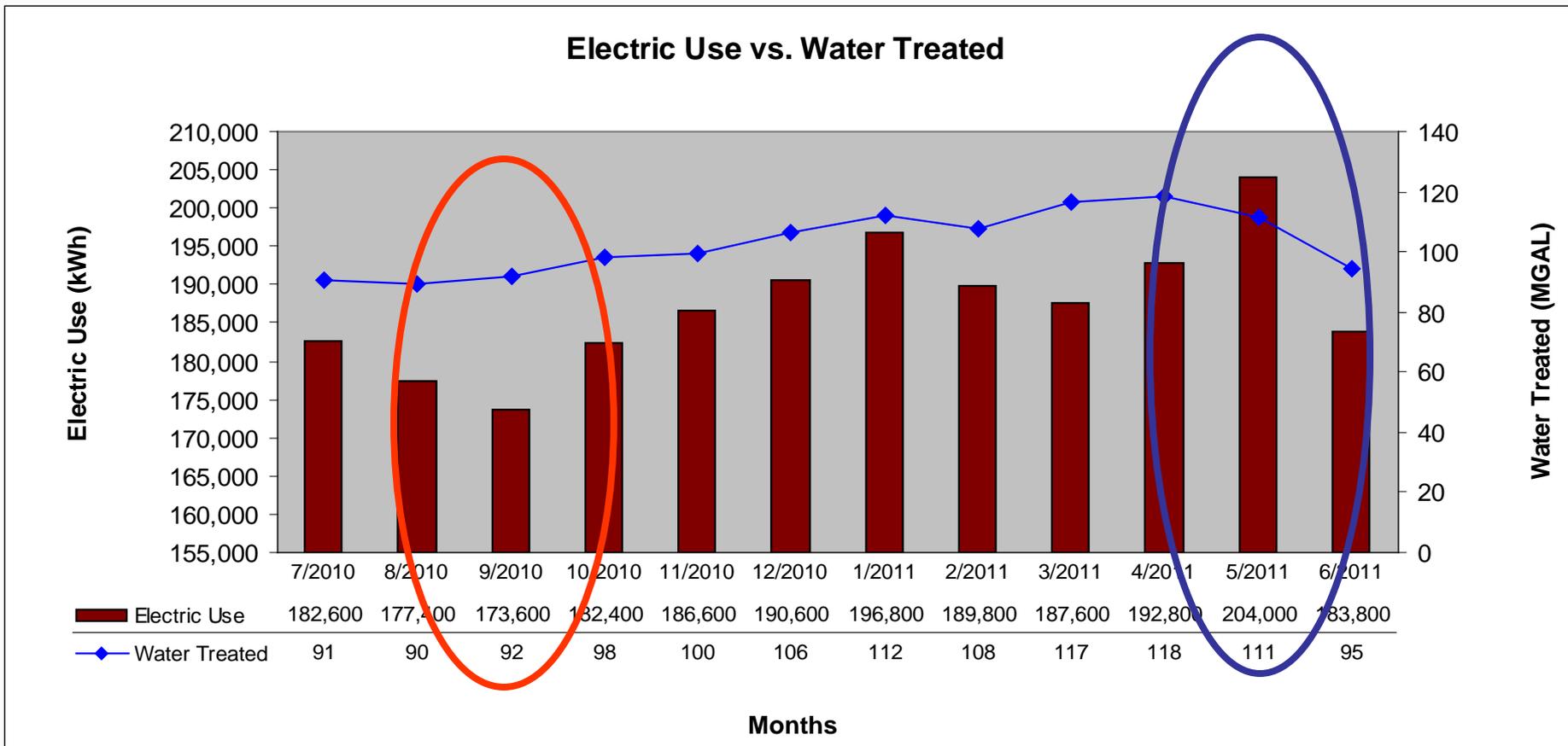
Major Process/Top Energy Use Systems	Electric Energy Use (%)	Electric Energy Use (kWh)	Electric Energy Cost (\$)
#1 DISTRIBUTION PUMPING	32.53%	731,363	\$74,014
#2 FILTRATION	23.01%	517,160	\$52,337
#3 CLARIFICATION	13.80%	310,273	\$31,400
#4 NON PROCESS HVAC	4.98%	111,865	\$11,321
#5 LOW SERVICE PUMPING	4.72%	106,140	\$10,741
Balance of Plant Identified	4.57%	102,692	\$10,392
Balance of Plant Unidentified	16.39%	368,507	\$37,293
Total	100.00%	2,248,000	\$227,497

EQUIPMENT INVENTORY: BREAKDOWN OF ELECTRICAL ENERGY USE FOR MAJOR/ENERGY INTENSIVE EQUIPMENT

Major Process/Top Energy Use Systems	Motor Efficiency (%)	Efficiency Rating	Electric Energy Use (%)	Electric Energy Use (kWh)	Electric Energy Cost (\$)
Chemical Mix and Feed					
Blower - Blower 1	65	Low	0.29%	6,427	\$650.42
Blower - Blower 2	65	Low	0.29%	6,427	\$650.42
Clarification					
Mixer - Rapid Mixer	78	Low	2.12%	47,566	\$4,813.71
Mixer - Tk Mixers Summer	9.6	Low	11.69%	262,707	\$26,585.93
Decarbonation					
Mixer - Decarb Mixer 1	88	Medium	1.13%	25,364	\$2,566.84
Distribution Pumping					
	0.96	Low	26.89%	604,543	\$61,179.72

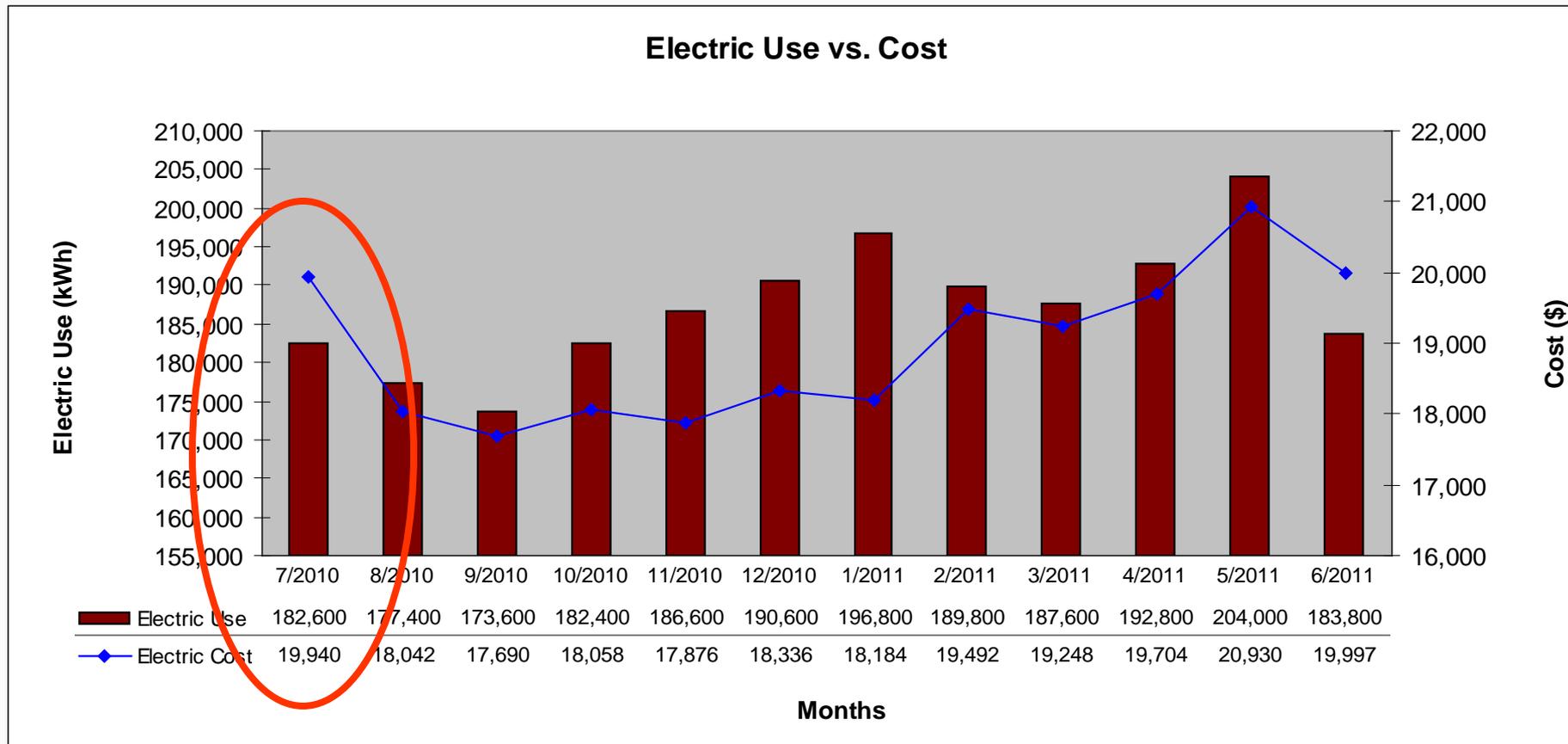


Electric Use vs. Water Treated





Electric Use vs. Cost





For More Information

Emily Linn

U.S. EPA Region 3

215-814-5273

linn.emily@epa.gov

*(General Benchmarking,
ENERGY STAR Portfolio
Manager)*

Walter Higgins

U.S. EPA Region 3

215-814-5476

higgins.walter@epa.gov

*(EPA's Energy Use Assessment
Tool)*