



Benchmarking Wastewater Facilities in Portfolio Manager

Introduction

U.S. Environmental Protection Agency June 23, 2009 Cheryl McGovern



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Today's Agenda



- Introduction
- ENERGY STAR Portfolio Manager
 - Getting Your Score
 - Creating Views
- Goal Setting
- Reporting
- Sharing

What is ENERGY STAR?



- Mission: reduce greenhouse gas emissions through energy efficiency
- ENERGY STAR establishes specifications and labeling for Products; Home Improvements; Buildings and Plants; and New Homes; 12 Sectors
- Energy saving guidelines, technology information, recommendations, and contractors

ENERGY STAR Impact

- Americans, with the help of ENERGY STAR, saved enough energy in 2007 alone to avoid greenhouse gas emissions equivalent to those from 29 million cars — all while saving \$17 billion on their utility bills.
- Over 80,000 buildings have been rated using Portfolio Manager
- Over 6,000 buildings have earned the ENERGY STAR

What is Portfolio Manager?



An assessment tool that measures your facility's energy efficiency now and over time – benchmark and track improvements

Potential award, educate functions for WWTP

Mirror that shows your facility in a new light



What is Portfolio Manager?



- ENERGY STAR Portfolio Manager interactive energy management tool to get an energy efficiency rating, track and assess energy and water consumption
- Originally designed for buildings and industrial applications – bronze awards for 75 + score
- October 1, 2007, wastewater treatment plants added to Portfolio Manager – not drinking wtr at this point – awards may be added

Benchmarking - Assessment



- Regression analysis energy use per unit of flow
- Normalized for external factors
- Wastewater results against model shows statistical significance at 90% confidence level
- Energy generated onsite may or may not be part of calculation but needs to be added to reflect true energy efficiency

Benefits of Portfolio Manager



- Compare your facility against similar facilities in a national database
- Get a rating from 1-100 (100 most efficient, 50 being average) using uniform, tested criteria, easy message
- Get GHG emissions varied by geographic region based on the type of power used, in international metric
- Track online baseline, current energy use and costs over time automated through Energy Service Provider while completing efficiency and clean energy projects

Why Bother?



- U.S. drinking water and wastewater systems spend about \$4 billion/ yr on energy to pump, treat, deliver, collect and clean water with much of this cost borne by ratepayers and municipalities.
- Nationwide, <u>drinking water and wastewater systems use 75</u> billion kilowatt hours/ yr – as much as the pulp and paper, and petroleum industries combined (enough electricity to power 6.75 million homes/yr).
- Reducing energy and water at wastewater facilities can make a significant difference for the environment and for the pocket book

How Can Wastewater Facilities Get Involved?

- Use EPA's January 2008 Guidebook "Ensuring a Sustainable Future: An Energy Management Guidebook for Wastewater and Water Utilities
- <u>http://www.epa.gov/infrastructure/bettermanagement_energy.html</u>
- Get energy audit from the local power company or California Energy Commission – SRF & DOE funds are available for energy efficiency
- Create Energy Teams, Regional Partnerships
- GO FOR IT AND CELEBRATE !

Contact Information

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HANDS ON SESSION

- Complete the Benchmarking Process
 - Login To Your Account
 - Review Your Facility Information
 - Do You See Your Score?
 - If Not, Is ABS Energy Data in Your Energy Meter?
 - If Not, Add Energy Data
 - How Can You View Your Score, GHG Emissions?

HANDS ON SESSION

Viewing Your Data – CREATE A VIEW

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PORTFOLIO MANAGER	ACCOUNT INFORMATION CONTACTS ASKED QUESTIONS) LOGOUT
<u>Home</u> > <u>My Portfolio</u> > space1		

Facility Summary: **space1** How do Luse this page?

Building ID: 1613627 Level of Access: Building Administrator

Electric Distribution Utility: Pacific Gas & Electric Co Regional Power Grid: <u>WECC California</u> <u>Select my Power Generation Plant</u> to calculate my electric emissions rate Electric Emissions Rate (kgCO₂e/MBtu): 95.2 (<u>what is this?</u>)

General Information Edit			
Address: 75 Hawthorne Street San Francisco, CA 94105			
Year Built: 1990			
Property Type: Water Utility/Wastewater Plant			
Baseline Rating: 100	Current Rating: 100		
Eligibility for the ENERGY STAR			
Not Eligible: Water Management Facil Energy Star	ities are not eligible to apply for the		

Generate a Statement of Energy Performance for uses other than applying for the ENERGY STAR.

Facility Performance Set Baseline	cility Performance Set Baseline Period Set Energy Performance Target								
Select View: Performance: Envi	ironmental 💌	<u>Create View</u> <u>Edit View</u>	۷						
12 Months Ending	Current Rating (1-100)	Current Source Energy Intensity (kBtu/Sg. Ft.)	Change from Baseline: Adjusted Energy Use (%)	Change from Baseline: GHG Emissions (MtCO ₂ e)					
	1	1	•	•					
December 2007 (Current) 💌	100	N/A	N/A	0.00					
Select Date		N/A							
Change									
REFRESH VIEW									

Space Use				General Facility Administration Track Energy Performance Improvements
Space Name	Space Type	Average Influent	Alerts	Delete this Facility from Portfolio Manager Contact us

Pick Your Top Seven



O 25 ⊙ 50 O 100 O All (note: larger Portfolios will take longer to load)

To create/edit a custom View of your Facilities in Portfolio Manager, select up to 7 columns from the list below. Use "Preferred Column Order" to set the order in which they will display in the View.

View Name:	main Set this View as	My Portfolio De	efault: 🗖
Preferred Column Order	Facility Data	Preferred Column Order	Facility Data
ENERGY STA	R Rating	Water	
1 -	Baseline Rating (1-100)		Indoor Water Cost (US Dollars (\$))
2 -	Current Rating		Indoor Water Use (kGal)
	(1-100)		Indoor Water Use per Sq. Ft. (kGal)
	Target Rating (1-100)	•	Outdoor Water Cost (US Dollars (\$))
(NA for Campuses) Period Ending Dates		•	Outdoor Water Use (kGal)
	Baseline Energy Period Ending Date		Total Indoor and Outdoor Water Cost (US Dollars (\$))
3 🗸	Current Energy Period Ending Date		Total Indoor and Outdoor Water Use (kGal)
•	Water Use Period Ending		Wastewater/Sewer Cost (US Dollars (\$))
Site Energy			Wastewater/Sewer Use (kGal)
	Baseline Site Electric Use (kWh)		Water Use Alerts (WA for Campuses)
			(compared)

You Can Create Different Views

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	Baseline Site Electric Use (kWh)		Water Use Alerts (N/A for Campuses)	1	
	Baseline Site Energy Intensity (kBtu/Sq. Ft.)	Performance:	GHG Emissions		
	Baseline Site Natural Gas Use (therms)		Baseline Direct GHG Emissions (MtCO2e)		
•	Baseline Total Site Energy Use (kBtu)		Baseline Indirect GHG Emissions (MtCO2e)		
•	Current Site Electric Use (kWh)		Baseline Total GHG Emissions (MtCO2e)		
•	Current Site Energy Intensity (kBtu/Sq. Ft.)		Change from Baseline: GHG Emissions (MtCO2e)		
	Current Site Natural Gas Use (therms)		Current Direct GHG Emissions (MtCO2e)		
	Current Total Site Energy Use (kBtu)		Current Indirect GHG Emissions (MtCO2e)		
	National Average Site EUI (kBtu/Sq. Ft.) (N/A for Campuses)	5 💌	Current Total GHG Emissions (MtCO2e)		
•	Target Site Energy Intensity (kBtu/Sq. Ft.)	Building Chara	acteristics		
Source Ener	(N/A for Campuses)		Number of Students (N/A for Campuses)		
	% Difference from National Average Source EUI	-	Number of Workers on Main Shift		
	(N/A for Campuses)		(N/A for Campuses)	_	
•	Baseline Source		Total Floor Space (Sq. Ft.)		
	Energy Intensity (KBtu/Sq. Ft.)	Energy and En	vironmental Reduction		-
	Baseline Weather Normalized Source Energy Intensity (kBtu/Sq. Ft.)		Change from Baseline: Adjusted Energy Use (kBtu)		
	(N/A for Campuses)		Change from Baseline: Adjusted Energy Use (%)		
	Current Source Energy Intensity (kBtu/Sq. Ft.)	•	Change from Baseline: Adjusted Energy Use Intensity (kBtu/Sq.		
	Current Weather Normalized		Ft.)	_	
	Source Energy Intensity (kBtu/Sq. Ft.) (N/A for Campuses)	-	Change from Baseline: Energy Use (kBtu) (N/A for Campuses)		
	National Average Source EUI (kBtu/Sq. Ft.) (N/A for Campuses)		Change from Baseline: Energy Use Intensity (kBtu/Sq. Ft.) (N/A for Campuses)		
Financial Ind	icators	Water Utilities	and Wastewater Treatment Facilities		
4 💌	Annual Energy Cost (US Dollars (\$))		% Difference from National Average Source EUI (N/A for Campuses)		

Name Each Created View

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	National Average Source EUI (kBtu/Sq. Ft.) (N/A for Campuses)		Change from Baseline: Energy Use Intensity (kBtu/Sq. Ft.) (N/A for Campuses)			
Financial Ind	icators	Water Utilities	and Wastewater Treatment Facilities			
4 🗸	Annual Energy Cost (US Dollars (\$))		% Difference from National Average Source EUI (N/A for Campuses)			
	Cumulative Investment in Facility Upgrades (US Dollars (\$)) (N/A for Campuses)	•	Average Flow (MGD) (N/A for Campuses)			
	Cumulative Investment per Sq. Ft. (US Dollars (\$)) (N/A for Campuses)	•	Baseline Site Energy per Flow (kBtu/MGD) (N/A for Campuses)			
-	Total Energy Cost per Sq. Ft. (US Dollars (\$))	7 -	Baseline Source Energy per Flow (kBtu/MGD)			
Organization	al Descriptors Building Owner (N/A for Campuses)		Baseline Weather Normalized Source Energy per Flow (kBtu/MGD) (N/A for Campuses)			
	Building Profile Status (N/A for Campuses)		Current Site Energy per Flow (kBtu/MGD) (N/A for Campuses)			
	Building Type		Current Source Energy per Flow (kBtu/MGD) (N/A for Campuses)			
-	City	6 -	Current Weather Normalized			
-	County		Source Energy per Flow (kBtu/MGD)	-		
•	Last Modified		Effluent BOD5 (mg/l) (N/A for Campuses)			
	Service and Product Provider (N/A for Campuses)		Influent BOD5 (mg/l) (N/A for Campuses)			
	Shared By (N/A for Campuses)		National Average Site EUI (kBtu/MGD) (N/A for Campuses)			
	State		National Average Source EUI (kBtu/MGD) (N/A for Campuses)			
-	ZIP Code	ENERGY STAR	Application Information			
		•	Eligibility for the ENERGY STAR (N/A for Campuses)			000
			ENERGY STAR Application Status (N/A for Campuses)			
			Enerav Use Alerts			

That's It!

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	(N/A for Campuses)		Baseline Site Energy per Flow (kBtu/MGD) (N/A for Campuses)	
	Total Energy Cost per Sq. Ft. (US Dollars (\$))	7 💌	Baseline Source Energy per Flow (kBtu/MGD)	
Organization	al Descriptors		Bacaline Waather Normalized	
	Building Owner (N/A for Campuses)		Source Energy per Flow (kBtu/MGD) (N/A for Campuses)	
	Building Profile Status (N/A for Campuses)		Current Site Energy per Flow (kBtu/MGD) (N/A for Campuses)	
	Building Type		Current Source Energy per Flow (kBtu/MGD) (N/A for Campuses)	
	City	6 -	Current Weather Normalized	
	County			
•	Last Modified		Effluent BOD5 (mg/l) (N/A for Campuses)	
	Service and Product Provider (N/A for Campuses)		Influent BOD5 (mg/l) (N/A for Campuses)	
	Shared By (N/A for Campuses)		National Average Site EUI (kBtu/MGD) (N/A for Campuses)	
	State		National Average Source EUI (kBtu/MGD) (N/A for Campuses)	
	ZIP Code	ENERGY STAR	Application Information	
			Eligibility for the ENERGY STAR (N/A for Campuses)	
			ENERGY STAR Application Status (N/A for Campuses)	
			Energy Use Alerts (N/A for Campuses)	
			Full Year	
		•	Space Use Alerts	

(N/A for Campuses)

Set Your Target

If rating is below 69, you can use PM to set a percent energy reduction target



Set Energy Performance Target

Portfolio Manager provides the ability to establish an energy performance target by either defining a target rating or a target reduction (%). The energy use and costs displayed reflect required levels to meet either the target rating or percent reduction goal for this facility.

To establish a performance target, a Baseline Period must first be set.

Select "RECALCULATE" to refresh this screen after making any changes to target rating or percent reduction. Select "SAVE" to store the entered targets in Portfolio Manager.

Bas	Baseline Period (12 Months Ending): 12/31/2006 Modify Baseline Period							
(1-1	Target	Baseline Rating (1-100)	Baseline Energy Use (kBtu/year)	Target Energy Use (kBtu/year)	Energy Cost Savings (\$/year)	Target Reduction		
۲	69	47	2,333,817	1,914,136	\$12,325	0 18 %		
					CANCEL RECAL	CULATE SAVE		

Reports

- Three Ways To Get Reports
 - 1. From <u>My Portfolio</u> Request Energy Performance Report
 - 2. From the <u>Facility Summary Screen</u> Generate a Statement of Energy Performance
 - 3. From <u>My Portfolio</u> Download View Data into Excel
 - Create different views of different data you want to capture in Excel and download

Request Energy Performance Report

🚰 Portfolio Manager - Microsoft Internet Explorer	_ 8 ×
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Address 🕼 https://www.energystar.gov/istar/pmpam/index.cfm?fuseaction=epreport.showEPRCriteria	Links »
business day.	
Energy Performance Report Criteria	
* Please select the type of report:	
O Summary for year ending: Month ▼ Year ▼	
C Comparative for year ending: Month 💌 Year 💌 to year ending: Month 💌 Year 💌	
○ Partner of the Year comparative for year ending: Month 💌 Year 💌	
* Please select the facilities:	
O All facilities in my portfolio	
O Group: Shared Facilities ▼	
O I'll choose specific facilities from my portfolio	
Select a facility location (optional):	
State: All States	
Or	
Zip Code:	
* Please select at least one report column:	
□ Site Energy Intensity (kBtu/Sq.Ft.)	
Weather Normalized Source Energy Intensity (kBtu/Sq.Ft.)	
□ Site Electric Use (kWh)	
Site Natural Gas Use (Therms)	
CANCEL CONTINU	E
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Generate a Statement of Energy Performance



Download Data To Excel

Current En

En

 Select Option to Download From P M

ergy Period ding Date	Current Total Site Energy Use (kBtu)
	<u>N/A</u>
3/31/2009	3,758,294.71
4/30/2009	20,547,828.29
4/30/2009	19,827,873.49
4/30/2009	7,611,142.20
11/30/2008	6,355,266.26
12/31/2008	79,743,751.88
12/31/2008	<u>N/A</u>
	<u>N/A</u>
4/30/2009	<u>N/A</u>
12/31/2008	<u>N/A</u>
	<u>N/A</u>
4/30/2009	404,858,507.04
4/30/2009	<u>N/A</u>
10/31/2008	51,689,705.03
	<u>N/A</u>
2/28/2009	114,547,268.16
3/31/2009	70,255,476.59
	<u>N/A</u>
2/28/2009	21,489,194.83
3/31/2009	25,376,604.67

The Master Accounts feature allows master users to track progress of their constituents, such as local governments, state agencies, and school districts (1) or, Click Share Facilities to create a Master Account

Sharing Facilities



Sharing Facilities (Continued)



<u>Home > My Portfolio</u> > Share Facilities (Step 1)

Select User or Master Account

Users with whom you share facilities will now be able to see your name and e-mail address on their Facility Summary page for that shared facility. In addition, users will also have the option to select your name and email address to appear in their custom views. Select Cancel if you do not wish to share any facilities.

Portfolio Manager provides the ability to share multiple facilities from your account with other users of the system in a single transaction. Users with whom access is being shared or removed MUST have a Portfolio Manager user account. To share facilities, select a Portfolio Manger user in Step 1.

If you are only removing access to facilities in your account, select "Remove this User's Access" in Step 1 after selecting a user from the Current Access List or enter a username in the textbox. You will then be able to select all of the facilities from which you want to remove this user's access.

Portfolio Manager User:			(2)				
Enter Portfolio Manag	er Username:		(2)				
	- OR -						
Select a Portfolio Manag Master Accounts	er Master Account: Po	rtfolio Manager Master A	ccount		*	Learn more a	ibout
	- OR -						
Energy Service Provider:	Select an Energy Serv	ice Provider	Learn more	about Energy Service	Provider		
				(3)		/ DELETE	C/

- (1) In My Portfolio, click on "Share Facilities"
- (2) Type in <u>Portfolio Manager</u> <u>User Name</u>

<u>or</u>

- (2) Select a Portfolio Manager Master Account from the drop down menu
- (3) Click "Add and Modify"

Identify and Move Toward Best Practices

The metric isn't the destination, Just the mile marker... A hint that potential Improvements exists.

Still need to figure out where to go

- Apply expertise
- Investigate systems
- Devise and implement changes
- Assess performance



Energy Use at 6 Similar Plants

Energy Use and Cost vs Flow at similar sized plants

FY 2006 data

