



Wastewater Assessment User Manual

Created By: Oak Ridge National Laboratory

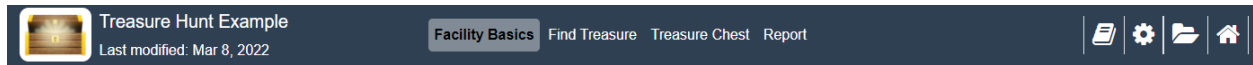
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Module Navigation

Use the top banner to navigate around the module. A footer bar with “Next” and “Back” button can also be used to move through the System Setup to the Report.



Main Tabs

Facility Basics – Setup your assessment and establish your baseline energy usage and cost.

Find Treasure – Use calculators to find and quantify savings opportunities.

Treasure Chest – An overview of identified opportunities.

Report – Full printable breakdown potential saving scenarios.

Additional Buttons

Book – The book will open a new window with the Treasure Hunt User Manual you are reading.

Gear – The gear wheel will navigate you to MEASUR’s global settings page.

Folder – The folder will navigate you to the assessment dashboard folder this assessment is in.

Home – The house will bring you to MEASUR’s home page.

Facility Basics

The facility basics tab is where you setup your assessment and establish your baseline energy usage and costs. In “Assessment Basics”, set your Operating Hours and the units of measure you want the opportunity calculators to be in.

Energy Usage and Costs

Use this tab to specify current utility costs, annual consumption and emissions rates. Help text is provided in the right hand panel.

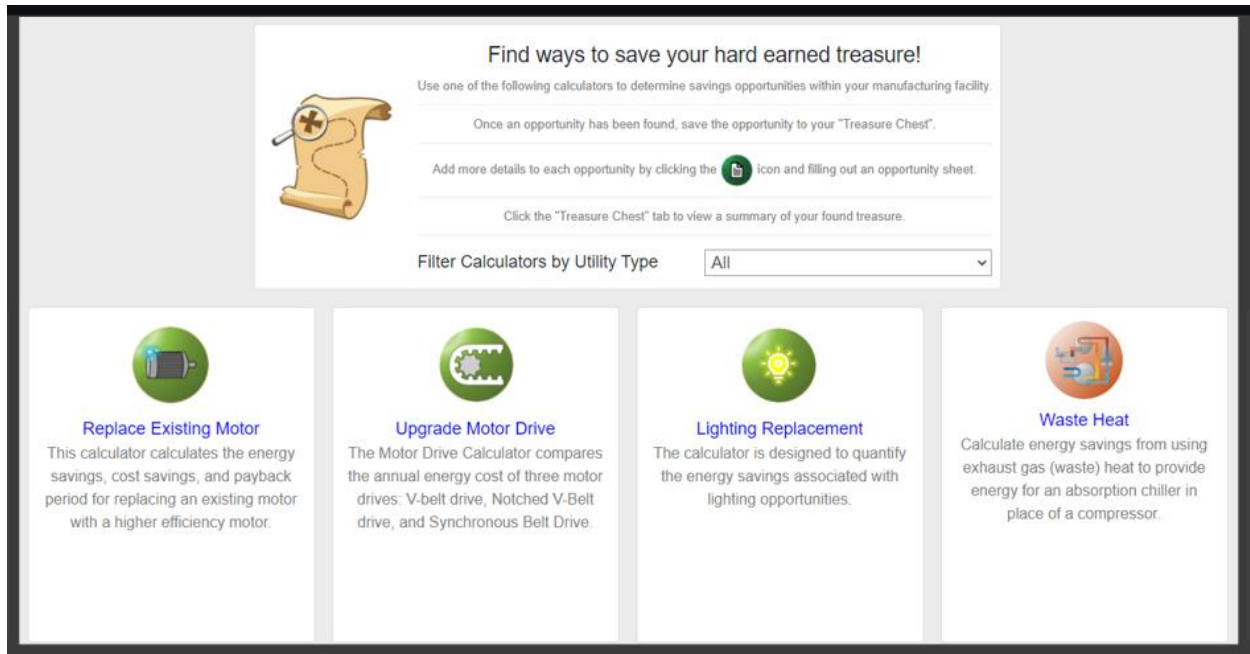
Click the checkboxes to include a utility.

Only use Compressed Air and Steam if you receive them as a utility, not generated on-site.

Assessment Basics	Energy Usage and Cost
ANNUAL UTILITY USAGE AND COSTS	
<input checked="" type="checkbox"/> Electricity	
Electricity Unit Costs	0.05 \$/kWh
Electricity Annual Consumption	32000000 kWh
Electricity Annual Costs	1600000 \$
Total CO ₂ Emission Output Rate	401.07 kg CO ₂ /kWh
Calculate Emission Output Rate from zip code	
<input checked="" type="checkbox"/> Natural Gas	
Natural Gas Unit Cost	4 \$/MMBtu
Natural Gas Annual Consumption	125000 MMBtu
Natural Gas Annual Costs	500000 \$
Total Emission Output Rate	53.06 kg CO ₂ /MMBtu
<input type="checkbox"/> Other Fuel	
<input checked="" type="checkbox"/> Water	
Water Unit Cost	0.0025 \$/gal
Water Annual Consumption	40000000 kgal
Water Annual Costs	100000 \$
Total CO ₂ Emission Output Rate	0 kg CO ₂ /gal
<input type="checkbox"/> Wastewater	
<input type="checkbox"/> Compressed Air (as utility)	
<input type="checkbox"/> Steam (as utility)	

Find Treasure


Use the “Find Treasure” tab to discover potential savings opportunities. Select from a series of calculators to quantify savings opportunities. Each card represents a calculator, and each calculator can be used to find savings opportunities tied to a specific utility type. Use the dropdown to filter the calculator options by utility type.



Find ways to save your hard earned treasure!


Use one of the following calculators to determine savings opportunities within your manufacturing facility.

Once an opportunity has been found, save the opportunity to your "Treasure Chest".

Add more details to each opportunity by clicking the  icon and filling out an opportunity sheet.


Click the "Treasure Chest" tab to view a summary of your found treasure.

Filter Calculators by Utility Type:




Replace Existing Motor

This calculator calculates the energy savings, cost savings, and payback period for replacing an existing motor with a higher efficiency motor.




Upgrade Motor Drive

The Motor Drive Calculator compares the annual energy cost of three motor drives: V-belt drive, Notched V-Belt drive, and Synchronous Belt Drive.



Lighting Replacement

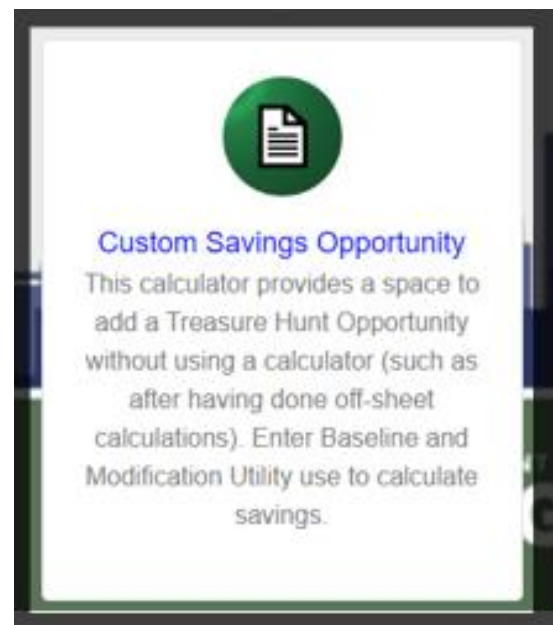
The calculator is designed to quantify the energy savings associated with lighting opportunities.




Waste Heat

Calculate energy savings from using exhaust gas (waste) heat to provide energy for an absorption chiller in place of a compressor.

The “Custom Savings Opportunity” calculator can be used if you already know the savings potential of a given project and want to directly include it. You can find it at the end of the list of calculators.





Custom Savings Opportunity

This calculator provides a space to add a Treasure Hunt Opportunity without using a calculator (such as after having done off-sheet calculations). Enter Baseline and Modification Utility use to calculate savings.

Filling Out Calculators

The majority of the calculators will follow the same format. Establish the baseline for your current system setup in the left hand panel and apply modifications for savings in the middle panel.

The right hand panel will contain a detailed table of the baseline, modification and potential savings. For field by field help text, click on the “Help” tab. Help text for a given field will appear when it is click on for data entry.

LIGHTING REPLACEMENT

Click the save icon to add the treasure to your chest! Click cancel to discard the opportunity and return to method selection.

BASELINE [+Add Fixture](#)

Electricity Cost: 0.05 \$/kWh

Metal Halide 175W

Operating Hours: 8760 hrs/yr

Fixture Category: Custom

Watts Per Lamp: 175 W/lamp

Ballast Factor: 1

Lamps Per Fixture: 2

Number of Fixtures: 50

[Show Lighting Level Details +](#)

Metal Halide 400W

Operating Hours: 8760 hrs/yr

Fixture Category: Custom

Watts Per Lamp: 400 W/lamp

Ballast Factor: 1

Lamps Per Fixture: 1

Number of Fixtures: 25

[Show Lighting Level Details +](#)

Metal Halide 250W

Operating Hours: 8760 hrs/yr

Fixture Category: Custom

Watts Per Lamp: 250 W/lamp

Ballast Factor: 1

Lamps Per Fixture: 2

Number of Fixtures: 20

[Show Lighting Level Details +](#)

MODIFICATION [+Add Fixture](#)

Electricity Cost: 0.05 \$/kWh

LED 25W

Operating Hours: 8760 hrs/yr

Fixture Category: Custom

Watts Per Lamp: 25 W/lamp

Ballast Factor: 1

Lamps Per Fixture: 2

Number of Fixtures: 50

[Show Lighting Level Details +](#)

LED 30W

Operating Hours: 8760 hrs/yr

Fixture Category: Custom

Watts Per Lamp: 30 W/lamp

Ballast Factor: 1

Lamps Per Fixture: 1

Number of Fixtures: 25

[Show Lighting Level Details +](#)

Fixture #3

Operating Hours: 8760 hrs/yr

Fixture Category: Custom

Watts Per Lamp: 30 W/lamp

Ballast Factor: 1

Lamps Per Fixture: 1

Number of Fixtures: 20

[Show Lighting Level Details +](#)

RESULTS [HELP](#)

Baseline Summary

	Operating Hours (hrs/yr)	Electricity Use (kWh/yr)	Total Lighting (lumens)
Metal Halide 175W	8,760	153,300	0
Metal Halide 400W	8,760	87,600	0
Metal Halide 250W	8,760	87,600	0

Modification Summary

	Operating Hours (hrs/yr)	Electricity Use (kWh/yr)	Total Lighting (lumens)
LED 25W	8,760	21,900	0
LED 30W	8,760	6,570	0
Fixture #3	8,760	5,256	0

Totals

	Operating Hours (hrs/yr)	Electricity Use (kWh/yr)	Total Lighting (lumens)	Total Annual Cost (\$/yr)
Baseline	26,280	328,500	0	\$16,425
Modification	26,280	33,726	0	\$1,686

Electricity Savings: 294,774 kWh/yr

Electricity Cost Savings: \$14,739 /yr

Change in Lighting Level: 0 lumens

[Copy Table](#)

[Generate Example](#) [Reset Data](#)

Click the save icon to add the treasure to your chest! Click cancel to discard the opportunity and return to method selection.

[RESULTS](#) [HELP](#)

Use the save file icon in the upper right hand corner to save the opportunity to the “Treasure Chest”. Clicking the “X” icon will delete the opportunity without saving it.



An opportunity sheet icon will appear if you are modifying an existing opportunity and will allow you to adjust the data entered in the corresponding opportunity sheet. More details about opportunity sheets on the next page.

Opportunity Sheets

Use the opportunity sheet to provide additional information about the opportunity you are adding to your "Treasure Chest". This will appear whenever a new opportunity is being saved and can be modified inside of the "Treasure Chest".

- Name the project.
- Specify location, identifying team.
- Provide additional details and description.
- Add implementation costs and rebates.

OPPORTUNITY DETAILS

Project Title	<input type="text" value="Office Lighting"/>	Team	<input type="text" value="Facilities"/>
Equipment	<input type="text" value="Lights"/>	Owner / Lead	<input type="text" value="Alisha"/>

Description

Various lighting replacements

ENERGY USE

Energy use data will be filled out by calculator.

IMPLEMENTATION COSTS

Engineering Services	<input type="text" value="500"/>	\$
Material	<input type="text" value="15000"/>	\$
Labor	<input type="text" value="1000"/>	\$
Effort to Implement	<input type="text" value="3"/>	

[+Add Other Cost](#)

Rebates / One-time Savings

<input type="text" value="Rebate Savings"/>	<input type="text" value="1000"/>	\$
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Other Annual Savings

<input type="text" value="Maint. Annual Savings"/>	<input type="text" value="1500"/>	\$
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Opportunity Notes

Cancel


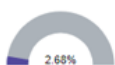


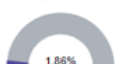


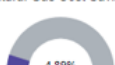




Save

Treasure Chest

The “Treasure Chest” allows you to view and manage all of your opportunities that were found and saved in the “Find Treasure” tab.

A list of saved opportunities and a summary of their potential impact is provided. Use the far right column to manage the opportunities. The checkbox on the left can be used to decide which projects you plan to implement and include in the reports.

Atop the list is a menu of different filters that can be applied to sort the opportunities that are displayed. Additionally, use the “Export” button to export the selected opportunities that can be imported into other Treasure Hunt treasure chests with the “Import” button.

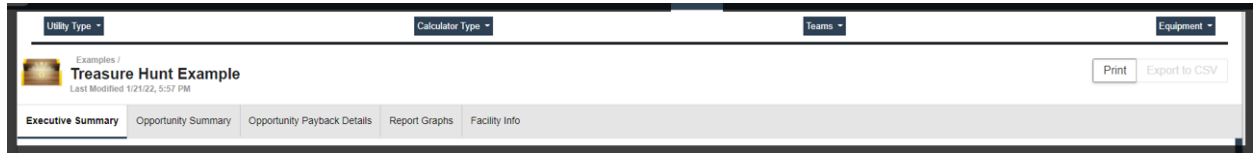
Sort By (Annual Savings) ▾		Utility Type ▾		Calculator Type ▾		Import	Export	Select All	Deselect All	Add Filters	
<input checked="" type="checkbox"/>	 Replace blower motor	Owner/Lead/Team	Process	Annual Savings (\$)	42,886	Implementation Cost (\$)	32,000	Payback Period	0.75	Electricity Cost Savings  2.68%	 Edit Opportunity Sheet Edit Calculations Create Copy Delete
<input checked="" type="checkbox"/>	 Process Lighting A	Owner/Lead/Team	Process	Annual Savings (\$)	29,784	Implementation Cost (\$)	30,000	Payback Period	0.99	Electricity Cost Savings  1.86%	 Edit Opportunity Sheet Edit Calculations Create Copy Delete
<input checked="" type="checkbox"/>	 Insulate Hoses in Yard	Owner/Lead/Team	Utilities	Annual Savings (\$)	24,456	Implementation Cost (\$)	9,500	Payback Period	0.39	Natural Gas Cost Savings  4.89%	 Edit Opportunity Sheet Edit Calculations Create Copy Delete
<input checked="" type="checkbox"/>	 Insulate pipe near burner	Owner/Lead/Team	Utilities	Annual Savings (\$)	18,926	Implementation Cost (\$)	0	Payback Period	0.00	Natural Gas Cost Savings  3.79%	 Edit Opportunity Sheet Edit Calculations Create Copy Delete

On the right hand side of the “Treasure Chest” there is a series of gauges that show the impact of the applied opportunities. Total Savings, and savings by each utility type is provided!



Report

The report allows you to view the consolidated opportunities and provides a detailed summary of costs, savings and payback details. The “Print” button in the top right hand corner will generate a PDF report.



Use the filter at the top to choose which opportunities to include in the report. Filter by:

- Utility Type
- Calculator Type
- Teams
- Equipment

There is a secondary set of tabs to navigate to different pieces of the report.

- Executive Summary: A consolidated breakdown of opportunity impact by utility. Including cost, energy and emissions savings.
- Opportunity Summary: A table summary of each opportunity included in the report.
- Payback Details: Table and graphical representations of the payback details of the opportunities.
- Report Graphs: A variety of graphical representations of the opportunity cost savings.
- Facility Info: The facility information provided for the folder that this assessment was created in.