



HOW TO USE THIS CHECKLIST: Energy costs occupy up to 40% of operating budgets at small treatment facilities (WEF 2009), but many facilities could save 20-40% of the energy they are using through energy efficiency. Use this Checklist to assist Hawai'i Energy in highlighting potential energy savings at your facility. Email this checklist to your local Hawai'i Energy representative at the address below with your results to learn how your facility can start saving energy and money, and what incentives and other resources we have to offer.

DISCLAIMER: This Checklist is an informational tool. Submitting the completed Checklist to Hawai'i Energy entails no commitment on the part of yourself or your facility to make process or operational changes. Consult with a professional engineer prior to making process changes that may impact effluent quality. This Checklist was developed by CEE with help from engineering professionals.

1. Facility In General

A. Which process types does your facility employ (check all that apply)?

Primary	Secondary	Tertiary	Nutrient Rmvl
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dewatering	Thickening	Aerobic Dign	Anaerobic Dign
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Which solids processing types does your facility employ (check all that apply)?

C. Please provide your average day design and current flowrates

Design	Current
<input type="text"/>	<input type="text"/>
MGD	MGD

D. Please provide your average day design and current organic loading

<input type="text"/>	<input type="text"/>
lbs BOD/day	lbs BOD/day

E. How many full-time equivalents does the facility employ?

F. If using blowers, what type and size (hp) of blowers do you use?

G. Is the majority of your motors NEMA Premium® efficiency?

<input type="radio"/> Yes	<input type="radio"/> No
<input type="radio"/> Yes	<input type="radio"/> No

H. Do you receive and review the facility's monthly electric and gas bills?

2. Influent & Effluent Pumping

A. Do you have influent or effluent pumps?

Yes	No	Comments
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	

B. If yes, do you have variable speed control on these pumps?

C. Are any of these pumps not operating at design flow and head?

3. Pre- & Post-Aeration

A. Do you utilize aeration blowers for pre- or post-aeration, or other aerated channels?

<input type="checkbox"/>	<input type="checkbox"/>	Comments
<input type="checkbox"/>	<input type="checkbox"/>	

B. If yes, are there currently means to adjust the amount of air delivered (describe in box to right)?

4. Intermediate Pumping

A. Do you have intermediate pumps to convey flow from primary to secondary processes, or from secondary to tertiary treatment processes?

<input type="checkbox"/>	<input type="checkbox"/>	Comments
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	

B. If yes, do you have variable speed control on these pumps?

C. Are any of these pumps not operating at design flow and head?

5. Biological Process: Activated Sludge & Aerated Lagoons

A. Does your facility use mechanical aerators?

<input type="checkbox"/>	<input type="checkbox"/>	Comments
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	

B. If yes, do the aerators have variable speed control?

C. Are the aerators controlled by a timer?

D. Do you utilize aeration blowers as part of the activated sludge process?

E. Is the DO level in any of your aeration basins >2.0? If yes, please explain.

F. Is your aeration system automatically controlled via DO levels and/or pressure differentials?

G. If yes, are DO sensors located within each aeration basin?

H. Do you currently use a fine-bubble aeration system?

I. Do you have means of detecting diffuser fouling (please describe in box to right)?

J. Do you currently have variable speed RAS pumps?

K. Do you currently have variable speed WAS pumps?

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6. Biological Process: Fixed Film

- A. Does your facility use supplemental aeration blowers as part of a fixed film process?
- B. If yes, are there currently means to automatically adjust the amount of air delivered?
- C. Do you utilize pumps to convey flow to the trickling filters or bio-towers?
- D. If yes, do you have variable speed control on these pumps?
- E. Are your trickling filter or bio-tower distribution arms mechanically driven?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

7. Disinfection

- A. Do you currently use an ultraviolet disinfection system?
- B. If yes, does the UV system utilize low-pressure, high-output lamps?
- C. Is the system currently operated via flow-pacing and/or dosing set point based on water quality?

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

8. Sludge Pumping

- A. Does your facility process sludge less than 24 hrs/day?
- B. Does your sludge handling process have equalization capacity?
- C. If no, do you have variable speed capability on your sludge transfer pumps?
- D. Are any of these pumps not operating at design flow and head?

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

9. Sludge Stabilization

- A. Does your facility utilize aerobic digestion?
- B. If yes, has there been consideration of anaerobic digestion?
- C. Do you currently have the capability to produce biogas from anaerobic digestion processes?
- D. If yes, do you practice beneficial reuse of biogas?

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

10. Sludge Thickening & Dewatering

- A. Does your thickening/dewatering equipment run less than 24 hrs/day?
- B. Do you use centrifuges for thickening, dewatering, or both?
- C. Do you use sludge drying beds for dewatering?
- D. Do you haul sludge to another location for processing?
- E. Do you use incineration for sludge stabilization/disposal?

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

11. Other

- A. Has your facility undergone any energy improvement projects in the past 5 years?
- B. Is or will your facility be undergoing renovation to comply with permitting requirements or to meet capacity needs?
- C. If yes, are energy conservation measures included as part of this renovation?
- D. Do you have a backup generator capable of powering your facility?

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Do you have ideas or plans that could improve the operating efficiency of your facility? Please provide them below:

Contact Information

Name: _____
 Facility Name: _____
 Facility Address: _____
 Email Address: _____
 Phone Number: _____

FOR MORE INFORMATION ON ENERGY CONSERVATION AT YOUR WASTEWATER TREATMENT FACILITIES,
 CONTACT KEITH BLOCK AT (808) 848-8579 EMAIL YOUR COMPLETED CHECKLIST TO
KEITH.T.BLOCK@LEIDOS.COM.