



# Energy Efficiency Assessment for Small Wastewater Systems

Responses in grey areas indicate potential for gains in energy efficiency

## 1. INFLUENT/EFFLUENT PUMPING

- A. Do you have influent and/or effluent pumps?
- B. If yes, do you have variable speed control on influent pumps?
- C. If yes, are premium-efficiency motors currently installed on influent pumps?
- D. If yes, do you have variable speed control on effluent pumps?
- E. If yes, are premium-efficiency motors currently installed on effluent pumps?

Yes	No

## 2. PRE-AERATION/POST-AERATION

- A. Do you utilize aeration blowers and/or compressors?
- B. If yes, can you throttle the amount of air delivered or otherwise adjust output?

Yes	No

## 3. INTERMEDIATE PUMPING

- A. Do you have intermediate pumps to convey flow between treatment processes?
- B. If yes, do you have variable speed control on the intermediate pumps?
- C. If yes, are the intermediate pumps equipped with premium-efficiency motors?

Yes	No

## 4. ACTIVATED SLUDGE PROCESSES

- A. Does you have aeration blowers/compressors in an activated sludge process?
- B. If yes, can you throttle the amount of air delivered or otherwise adjust output?
- C. If yes, are premium-efficiency motors currently installed?
- D. Does your plant use mechanical aerators (including mixers)?
- E. If yes, do the aerators have variable speed control?
- F. Is the aeration system controlled via DO levels and/or pressure differentials?
- G. If yes, are dissolved oxygen/pressure sensors located within the aeration basins?
- H. Do you currently use a fine-bubble aeration system?
- I. If you have a pure oxygen system, do you have a VPSA O2 generation system?
- J. Do you currently have variable speed return activated sludge (RAS) pumps?
- K. Do you currently have variable speed waste activated sludge (WAS) pumps?

Yes	No

## 5. FIXED FILM PROCESSES

- A. Does you have aeration blowers/compressors as part of a fixed film process?
- B. If yes, can you throttle the amount of air delivered or otherwise adjust output?
- C. If yes, are premium-efficiency motors currently installed?
- D. Do you utilize pumping for conveying flow to the trickling filters?
- E. If yes, do you have variable speed control on these pumps?
- F. Are your trickling filter distribution arms mechanically driven?

Yes	No

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## 6. DISINFECTION

- A. Do you currently use an ultraviolet disinfection system?
- B. If yes, does the UV system utilize low-pressure, high-output lamps?
- C. If yes, is the UV system operated via flow-pacing and/or dosing setpoint?

Yes	No

## 7. SLUDGE PUMPING

- A. Do you process sludge on an intermittent (less than 24 hours per day) basis?
- B. If yes, do you currently process sludge during off-peak hours?
- C. Do you have equalization capacity within your existing sludge handling process?
- D. If no, do you have variable speed capability on your sludge transfer pumps?

Yes	No

## 8. SLUDGE STABILIZATION

- A. Does your plant utilize aerobic digestion?
- B. If yes, have considered switching to anaerobic digestion or another method?
- C. Do you currently produce biogas (methane) from anaerobic digestion processes?
- D. If yes, is biogas currently flared and/or vented?
- E. If yes, is biogas currently being used for thermal or electrical power generation?
- F. Does your plant currently accept hauled waste at the headworks to the plant?
- G. If yes, is there equalization capacity for the introduction of hauled wastes?

Yes	No

## 9. SLUDGE THICKENING AND DEWATERING

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

Yes	No

## 10. FACILITY / OPERATIONS

- A. Do you monitor your power bills?
- B. Is there significant inflow/infiltration into the collection system?
- C. Has your plant had any energy efficiency improvements in the last 5 years?
- D. If yes, have you switched to more efficient lighting?
- E. If yes, have you done any load shedding and/or off-peak load shifting?
- F. If yes, have you installed new or improved HVAC equipment?
- G. Are energy efficiency measures included with future improvement plans?

Yes	No

**11. ADDITIONAL COMMENTS & INFORMATION**

**12. PRIORITY AREAS FOR POTENTIAL ENERGY EFFICIENCY GAINS**

<b>Efficiency Project</b>	<b>Estimated Project Cost</b>	<b>Potential Savings/Year</b>	<b>Payback Period</b>

**13. FUNDING MECHANISMS**