

Dear Operators of Wastewater Treatment Systems:

The Awwa Research Foundation (AwwaRF) in cooperation with the California Energy Commission and the New York State Energy Research Authority is conducting a national survey of wastewater systems using the attached questionnaire. This survey is part of a research effort to develop energy metrics that will ultimately support energy management benchmarking efforts in the wastewater industry.

Comparing energy use among utilities requires consideration of the constraints of operating conditions and requirements imposed by local conditions and existing configurations. The survey asks about your energy use as well as key characteristics of collection and treatment that impact energy use. The goal of the project is to produce the analysis that will consider all of these parameters in a metric that will make energy use among different utilities comparable. More information about the project scope is available on the AwwaRF website at:

<http://www.awwarf.org/research/TopicsAndProjects/projectSnapshot.aspx?pn=3009>

The success of the project depends on the availability of statistically representative data about the wastewater industry. Your utility was chosen to represent a portion of the industry. Please complete the survey and return it in the enclosed envelope. We will only make use of the information you provide when it has been aggregated with responses of many other utilities. We will never disclose your name or the name of your water system in any public documents.

Should you have any questions you may contact the contractor performing the survey at 608-882-0111.

*Please return the survey in the enclosed envelope*

*or mail it to:*

CDH Energy Corp.  
P.O Box 641  
Cazenovia, NY 13035-0641

Sincerely,

Steven W. Carlson, P.E.  
Principal Investigator  
CDH Energy Corp.  
Voice: 608-882-0111  
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# Wastewater Utility Energy Use Survey

## Contact Information

NPDES Permit Number: ..... \_\_\_\_\_

Facility Name:..... \_\_\_\_\_

Facility Address: ..... \_\_\_\_\_

Name of Person Completing Survey: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

Number of wastewater treatment plants in utility..... (No. plants) \_\_\_\_\_

**Plant Characteristics** (please provide data for the single plant identified by the NPDES permit number on the ID label on page 3. You might receive separate surveys for other plants in your utility.)

1. What is the design flow rate?..... (million gallons per day - MGD) \_\_\_\_\_

2. What is the average flow rate?..... (million gallons per day – MGD) \_\_\_\_\_

3. What percentage of flow is from industrial users?..... (%) \_\_\_\_\_

4. What is the treatment level (check one)?

- |   |  |
|---|--|
| a. <input type="checkbox"/> Primary                         | e. <input type="checkbox"/> Advanced I                         |
| b. <input type="checkbox"/> Advanced Primary                | f. <input type="checkbox"/> Advanced I with Nutrient Removal   |
| c. <input type="checkbox"/> Secondary                       | g. <input type="checkbox"/> Advanced II (Permit BOD < 10 mg/l) |
| d. <input type="checkbox"/> Secondary with Nutrient Removal | h. <input type="checkbox"/> Advanced II with Nutrient Removal  |

5. Please mark [yes] or [no] for each treatment process used at your treatment plant.

*Activated Sludge - Aeration Method*

- Mechanical ..... a. [yes] [no]
- Course Bubble ..... b. [yes] [no]
- Fine Bubble ..... c. [yes] [no]
- Pure Oxygen ..... d. [yes] [no]
- Is automated dissolved oxygen control use to modulate air flow in the aeration process? ..... e. [yes] [no]

*Fixed Film*

- Rotating Biological Contactor ..... f. [yes] [no]
- Trickling Filter..... g. [yes] [no]

*Nutrient Removal*

- Biological Nitrification..... h. [yes] [no]
- Biological Denitrification ..... i. [yes] [no]
- Biological Phosphorus Removal....j. [yes] [no]

*Disinfection*

- Chemical..... k. [yes] [no]
- Ultraviolet (UV) ..... l. [yes] [no]

*Sludge Treatment*

- Thickening ..... m. [yes] [no]
- Dewatering ..... n. [yes] [no]

*Sludge Digestion*

- Aerobic ..... o. [yes] [no]
- Anerobic ..... p. [yes] [no]

*Sludge Use*

- Composting..... q. [yes] [no]
- Land Application ..... r. [yes] [no]
- Incineration..... s. [yes] [no]
- Land Fill ..... t. [yes] [no]

**Plant Loading**

6b. What was the average daily biosolids production in 2004? .....(dry tons per day)\_\_\_\_\_

6a. Does the plant send biosolids to another plant for processing?.....[yes] [no]

6c. Does the plant process biosolids from another plant?.....[yes] [no]

7. What were the average concentration levels of conventional pollutants in 2004?

<i>Concentration (mg/l)</i>	<i>Influent</i>	<i>Effluent</i>
a. Average BOD		
b. Average COD		
c. Average TSS		

**Collection System** (*The collection system data may serve multiple plants, if so, please note in 8e.*)

8a. Do you operate pump stations within your collection system?.....[yes] [no]

8b. What is the total pumping capacity? ..... (million gallons per day - MGD)\_\_\_\_\_

8c. What is the total motor horsepower (excluding backup pumps)? .....(hp)\_\_\_\_\_

8d. How many pumps are included above? ..... (No. pumps)\_\_\_\_\_

8e. How many treatment plants are served by the collection system..... (No. plants)\_\_\_\_\_

**Energy Use** (*For a utility with multiple treatment plants, please provide energy data for the treatment plant that corresponds to the plant characteristics noted on page 1.*)

9. Please provide electricity use and cost for the collection system and treatment plant in 2004.

<i>Electricity</i>	<i>Use (kWh)</i>	<i>Peak Demand (kW)</i>	<i>Total Electricity Cost (\$)</i>
a. Collection			
b. Treatment Plant			
c. Total			

10. Please provide natural gas use and cost for 2004.

<i>Natural Gas</i>	<i>Use (therms)</i>	<i>Total Natural Gas Cost (\$)</i>
a. Total		

11. Total floor area of buildings served by above utilities..... (square feet)\_\_\_\_\_

- 12a. Are any engine driven pumps used? .....[yes] [no]
- 12b. What is the total engine horsepower.....(hp) \_\_\_\_\_
- 12c. What is the engine fuel?..... biogas, natural gas, diesel, other: \_\_\_\_\_
- 13a. Do you purchase other energy?.....[yes] [no]
- 13b. Type of energy source? (propane, oil, etc) .....specify: \_\_\_\_\_
- 13c. Amount of energy used? ..... (specify units: \_\_\_\_\_) \_\_\_\_\_
- 13d. Energy cost? .....(\$) \_\_\_\_\_
- 14a. Is digester gas recovered? .....[yes] [no]
- 14b. How much biogas is used? ..... (ccf) \_\_\_\_\_
- 15a.. Is electricity generated on-site?.....[yes] [no]
- 15b. What is the fuel source?..... biogas, natural gas, or other: \_\_\_\_\_
- 15c. What was the annual electricity production in 2004? .....(kWh) \_\_\_\_\_
16. Does someone in operations regularly (monthly/quarterly) review the utility energy bills? ...[yes] [no]
17. Were there any extraordinary events in 2004 that impacted energy use or plant loading?.....[yes] [no]
18. Please feel free to make any additional comments on utility energy use, plant loading or system characteristics below:

