

The Ten Steps to Achieving Energy Efficiency

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Did you realize that labor and energy costs typically comprise approximately two-thirds or more of a municipal water or wastewater facility budget? Energy, primarily due to pumping and treatment requirements, comprises roughly 30 percent of the budget. Unfortunately the prices of fuel, oil, gas, electricity (and just about everything else!) are continuing to increase, but, chances are, the bottom line of your budget is not.

The good news is that both labor and energy costs can be manipulated and controlled. What can you do? If you're feeling incredibly generous, perhaps you could offer to take a reduction in pay to offset the increases in energy costs. However, many operators may prefer to look for ways to reduce costs on the energy side of this equation.

Sounds like a good idea, but you're unsure of how to get started? Most facilities can achieve a reduction in energy costs by 10 to 20 percent through operational changes or minor capital investments. Here are "Ten Steps" to get you started on the path to achieving improvements in energy efficiency today!

1. Understand Your Utility Bill. Obtain copies of the last 12 months of electric and gas utility and fuel oil bills, review the various types of charges (i.e., consumption, demand, supply, delivery charges) and the rate structure (i.e., off-peak vs. on-peak billing, variable vs. fixed rates).

2. Collect Plant Data. Valuable plant data includes plant flows and loads, electric load profiles, equipment performance curves, and normal operating time for intermittently operated processes.

3. Create or Update Your Equipment Inventory. Your inventory should be organized by process and include the nameplate horsepower and other nameplate information, hours of operation per year, field measured power, and kilowatt hours per year. It should also include the age and manufacturer of the equipment, key design criteria, and the energy-efficient replacement model recommendation.

4. Conduct an Energy Audit. Energy audits should answer three main questions: How much energy is being used? Where is energy being used? When is energy being used? Calculate your kilowatt hours (kWh)

per million gallons or pounds of BOD or biosolids, and track on a monthly or shorter basis. Consider using NYSERDA's (New York State Energy Research and Development Authority) resources for technical and financial assistance with eligible engineering or technical evaluations.

5. Benchmark Energy Use. Evaluate your energy use over time to identify fluctuations and variations in your energy use and to monitor the effect of energy efficiency improvements. Compare your facility's energy use to other, similar treatment facilities to assess your performance relative to your peers and to reassess over time as energy efficiency improvements are implemented. Identify areas for improvement using commonly used metrics (kWh/MGD, kWh/lb BOD removed, etc.).

6. Identify Energy Efficiency Opportunities. Use the information obtained through an audit and benchmarking efforts to identify energy efficiency opportunities. Oftentimes, basic operational changes can result in significant energy savings. In addition, you may consider upgrading and/or maintaining equipment and processes to improve energy efficiency, or developing a cost-effective gas and electricity purchasing strategy. Focus on those pieces of equipment with the largest motors or longest run-times first.

7. Select and Prioritize Energy Efficiency Opportunities. Prioritize implementation of identified energy efficiency opportunities taking into account factors such as: capital costs, payback periods, availability of rebates, financing or funding, labor effort, implementation span, complexity, and risk. Be sure to incorporate monitoring equipment needed to satisfy any measurement and verification requirements that may be a condition of funding.

8. Implement Selected Energy Efficiency Measures. Establish a timeline for implementation, and be aware of operational changes associated with equipment and process upgrades that may impact routine operations – train your operators accordingly. Take advantage of NYSERDA's many funding and technical assistance programs!

9. Monitor Results. Calculate the energy savings and cost savings on a monthly basis. Compare actual savings to anticipated savings to ensure best

implementation of the practice. Diligently monitor finished water quality or wastewater effluent to ensure quality standards are upheld.

10. Celebrate Successes. Publicize your efforts and your accomplishments, particularly to elected officials, board members, employees, and the public. Post notices on your website, issue a press release, or host a luncheon celebration for facility staff. Establish a culture of energy efficiency at your facility, and reap the benefits of continual energy efficiency improvement!

Get Engaged in New York's Energy Culture!

For more information, visit <http://water.nyserdera.org> or email water@nyserdera.org today!



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