

# StreamLine



**ALSO INSIDE:**

Continuing Education • How to Develop a Safety Program • Infrastructure Crisis





# Utilities Doing More With Less

BY ANTHONY HESS, SUSTAINABILITY COORDINATOR – VDH-OFFICE OF DRINKING WATER

**UTILITIES EVERYWHERE ARE** being asked to do more with less as budgets get tightened and their needs are placed on the backburner. What can a utility manager or operator do when placed in this situation? Is there a playbook out there to help operate a utility on a shoestring budget? Can this be done without jeopardizing their customer's health or compliance with regulations? This article will attempt to answer some of these questions. There are some things every utility can do to survive budget cutbacks. In a previous article, I pointed out several ways utilities can cut costs. Some of these include: increasing energy efficiency (Oliver & Putnam, 2000), operational process improvements, decreasing the labor force, and reducing waste such as repairing leaky pipes. (George, 2010) (Hess, 2016) In many cases small utilities can tackle these as do-it-yourself projects.

What can a utility manager or operator do when placed in this situation? Is there a playbook out there to help operate a utility on a shoestring budget? Can this be done without jeopardizing their customer's health or compliance with regulations?

## Energy efficiency

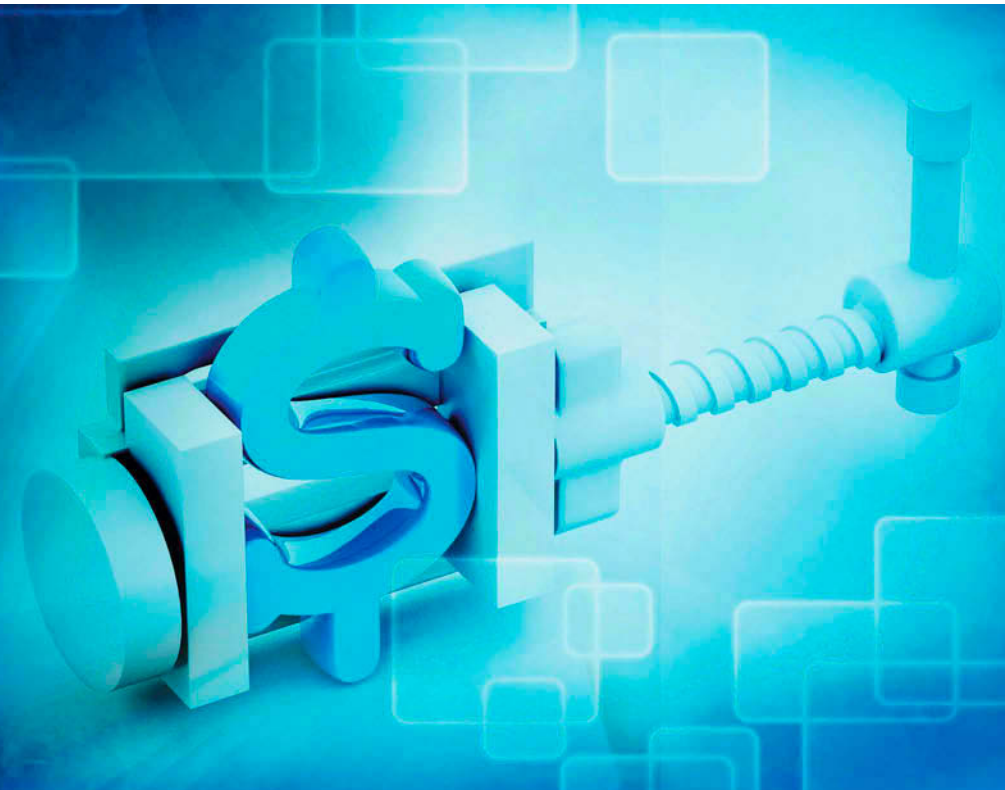
Most utility operators have heard by now that variable frequency drive pumps and motor controls can save money on electricity costs. However, the initial cost of installing these devices may prevent utilities from purchasing them during cash-strapped years. There may be other ways utilities can save on electrical costs in a pinch. Consider how your utility is operated. Using large pumps when they are not needed can waste a lot of energy and money. Are there larger pumps that can be operated in a lead/lag fashion so that they only run during surge conditions? Is there surge or storage capacity in the system to allow pumps to be operated when electricity is cheaper? Many utilities negotiate special rates with their electricity supplier so they can get lower rates by using electricity at off peak hours. Examine how water is moved around in the system and make changes to minimize pumping. For example, consider operating the system by managing pressure zones so water does not get pumped up only to be consumed later at a lower elevation. Understanding how electricity is used in your utility and changing the way you operate it to use less will ultimately save money.

## Operational process improvements

There are many things utilities can do to lower their operational expenses. The first would be to operate in a manner so that they never incur extra expenses. Closely monitor equipment and

processes in order to predict problems before they occur. This can decrease downtime and associated expenses. An example may be an operator that notices increased pump motor vibration or heat and schedules maintenance before it breaks. Cost savings can be realized in scheduled maintenance of the motor instead of emergency repair. More savings can be realized by avoiding an interruption of service. Another example may be an operator that discovers a large leak on the first day it occurs due to close monitoring of pump run time hours and water meter readings. The savings comes from not losing the product that took so much energy and staff time to produce.

Utilities can become more efficient through the use of tools such as standard operating procedures (SOPs), a work order management system to keep track of tasks that need to be completed, adequate training for their operations staff, and reevaluating chemicals used in their treatment process. Standard operating procedures provide clear expectations to staff and ensure the most critical tasks are accomplished. A work order system helps utilities transition from a reactionary mode, just putting out fires, to become proactive so they can control the flow and direction of their work. They simply help everyone keep track of what needs to be done, when it needs to be done, who needs to do it, and how much time was spent doing it. Every effort should be made to make sure staff is adequately trained for their duties. Vernon Law once said "Experience



is a hard teacher because she gives the test first, the lesson afterward.” (Law, 2016) Another way to cut costs on operations is to not overuse chemicals or to switch to more effective chemicals in the treatment process.

### **Decreasing the labor force**

The right training, good SOPs, and a functional work order management systems all help lower costs by increasing operational efficiency so more work can be done in less time with fewer operators. With that said, utilities should strive to provide the right number of operators to accomplish the tasks at hand, and not use this cost cutting tool to determine the size of their labor force. Many utilities are already operating very lean on personnel and may risk expensive mistakes if the workforce is cut too deeply.

### **Reduce waste**

Utilities should listen to the age old adage of “waste not, want not,” and reduce waste to save money. This could come in the form of optimizing chemicals used in a treatment process,

optimizing the route operators travel to reduce fuel costs, turning the thermostat down in buildings to just above freezing when personnel aren’t there, reducing the amount of parts inventory on hand and establishing a relationship with parts suppliers for quick delivery, reducing downtime for operators, and reducing number of operators needed by becoming more efficient wherever possible.

One action that can save the most money for utilities is to reduce the waste of water that occurs from leaky pipes. Waterworks spend lots of money to pump, treat and store water, only to allow it to leak into the ground. If we compare water to your favorite bottled beverage, what would the company do if every morning when they arrived at the bottling plant, 20 percent of the bottles they produced the day before were missing? How much does it cost them to lose 20 percent of their production, and what measures would they take to reduce this loss? Most utilities could lower their expenses the most by repairing leaking pipes. This is also true for the sewer system that has to pay more to treat water that has leaked into the

pipes through inflows and infiltration. One unmetered town in Virginia had a large water leak which was found and repaired because it caused a sinkhole in the parking lot of a fast food restaurant. Prior to the leak, they had to operate two shifts at the water treatment plant. After the leak was repaired, they had to cut production so much that they no longer needed the second shift. Consider the savings in electricity, staff time, lab expenses, etc. Even waterworks that don’t have residential meters can account for water loss by using production meters on their sources and zone meters on their large branch lines.

### **Summary**

There are many ways that utilities can lower their costs. Energy efficiency projects do not necessarily require the purchase of new pumps or motor controls. Utilities can be operated more efficiently through preventing expenses, using SOPs to provide clear expectations, properly training their operators, using work order management systems, and optimizing chemicals used. Labor cuts should always be a last resort to cut costs, and only when it is clear that the job will still get done. Possibly of greatest consequence, reduce all waste, especially leaking pipes. Even though budgets are tighter than ever for some utilities, good operators can always do more with less. ●

### **Works Cited**

- George, M. O. (2010). *Lean Six Sigma Guide To Doing More With Less*. Hoboken, N.J.: Wiley.
- Hess, A. (2016, April). *Decline of Coal: Economic Effects on Utilities*. *Streamline*, pp. 25-26.
- Law, V. (2016). *BrainyQuote*. Retrieved 10 6, 2016, from *BrainyQuote*: [www.brainyquote.com/quotes/quotes/v/vernonlaw1152555](http://www.brainyquote.com/quotes/quotes/v/vernonlaw1152555)
- Oliver, J., & Putnam, C. (2000, June). *How to Avoid Taking a Bath on Energy Costs*. *Opflow*, pp. 14-16.