3 STEPS for NH Water Systems to Offset Electric Utility Energy Cost Increase!

Step #1: No-Cost Adjustments you can make NOW!

Turn all unit heater thermostats down to 50°F* or lower in unoccupied pump stations and process areas. Every degree reduced is approximately a 2% reduction on your heating costs.

Replace all unit heater high/low knobs with a wall thermostat to ensure the station temperature is maintained at 50°F* or lower.

Adjust pump station dehumidifiers to 60% humidity instead of operating the units at 30% or in constant mode.

*Do not include areas containing 50% caustic soda, which solidifies at 58°F.

Inspect all building doors and windows and replace damaged seals. Consider cutting pieces of rigid foam insulation that can be inserted into ventilation openings that are not used during the winter months.

Pull out your well/booster pump VFD manual and find out if kW is available on your panel display. Manually adjust the VFD to several speeds and record kWh/gph. Set your wells/booster pump VFD speed to operate at the most efficient speed (lowest kWh/gph pumped). Be aware that speed increases may increase the station electric bill demand.

Proposed Eversource Rate Schedule Change for the Hinsdale Village Water System

Month	Energy Use (kWh)	Actual Demand (kW)	Well Run Time (Hours both wells)	Pump Energy Use (kWh)	Misc. Energy	Total
Jan	2,955	19.0	140	2,554		
Feb	2,824	19.0	134	2,447		
Mar	2,919	19.2	150	2,750		
Apr	3,417	19.4	149	2,720		
May						
Jun						
Jul						
Aug						
Sep						
Oct						
Nov						
Dec						
Totals/Avg						

Annual "Time of Day" savings for this well pump station was over 50%!

Operation	Energy Use (kWh)	Billed Demand (kW)	Pump Energy Use (kWh)	Misc. Energy Use (kWh)	Demand Cost	Total
2021 Well Energy Bills	38,565	231	34,760	3,805	$3,494	$9,325

Operation	Pump Energy Use (kWh)	On-Peak Demand (kW)	Misc On-Peak (kWh)	Misc Off-Peak (kWh)	New Demand Cost	Monthly Cost	Total
2021 Energy Use with "G-OTOD"	34,760	9.6	1,903	1,903	$199	$720	$5,230
Annual Savings							**$4,095**

Step #2: Increase Savings by Taking Minimal Cost Actions.

Become more aware of your energy bills. "Dissect" your electric bill to identify charges for delivery/supply energy use (kWh) and demand (kW) charges. The supply energy cost part of your bill is the value that will be impacted by the latest cost increases.

What changes can be done to reduce electrical demand charges? After compiling monthly demand use/costs, review pump station/facility operation to evaluate if adjusting VFD speeds or alternating equipment operation is an option.

Comparing monthly pump station run time with energy use can help determine how much miscellaneous loads are costing you to prioritize improvements.

Track fuel oil and propane use/costs for every station.

Eversource offers a Time-of-Day (TOD) rate schedule that has the potential for reducing pump energy costs **by over 50%!** Review your available tank storage, daily flow needs and get NHDES assistance to estimate savings.

With the new energy cost increase potentially raising commercial electric bills by over 45%, the simple payback for energy saving projects is now 45% faster!

Fundamental Rule for Cost Effective Energy Savings:
Match existing equipment capacity to what the SYSTEM REQUIRES (using VFDs, timers, controls) before pursuing new "efficient" equipment.

Step #3: Take Action to Provide Long-Term Energy Cost Savings.

Review the energy savings/costs for replacing inefficient equipment or optimizing existing equipment operation. This includes pumps, motors, and application of VFDs, hydraulic system improvements and replacing electric heaters with heat pumps. Be sure to contact your electric utility for potential incentives early in the process as you start developing energy projects.

Improve your estimates for unaccounted/non-revenue water to evaluate energy costs for system leaks. Information on leak detection program funds is available from NHDES.

Contact solar contractors to review your plant/pump station sites for potential solar photovoltaic (PV) array applications.

Many of the ideas presented can be done without assistance, but when needed, free technical support is available to explain electric bill charges, provide sample energy tracking templates and assist with cost saving calculations. This support can help you start reducing costs until a full energy evaluation can be performed at your facility.

To schedule technical assistance or a full energy evaluation contact Luis Adorno, NHDES at (603) 271-2472 or Luis.S.Adorno@des.nh.gov.

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