



Smart Management for
Small Water Systems

Managing Energy at Your Small Drinking Water System – A Workshop Series for New Hampshire Utilities

Workshop 1 – 07/19/16
Ashland Fire Station, Ashland, NH

Facilitator – Stacey Isaac Berahzer

This program is made possible under a
cooperative agreement with EPA.



UNC
ENVIRONMENTAL
FINANCE CENTER





Review of Energy Assessments – by Dawn Nall *(remotely)*

Energy Management Workshop 1

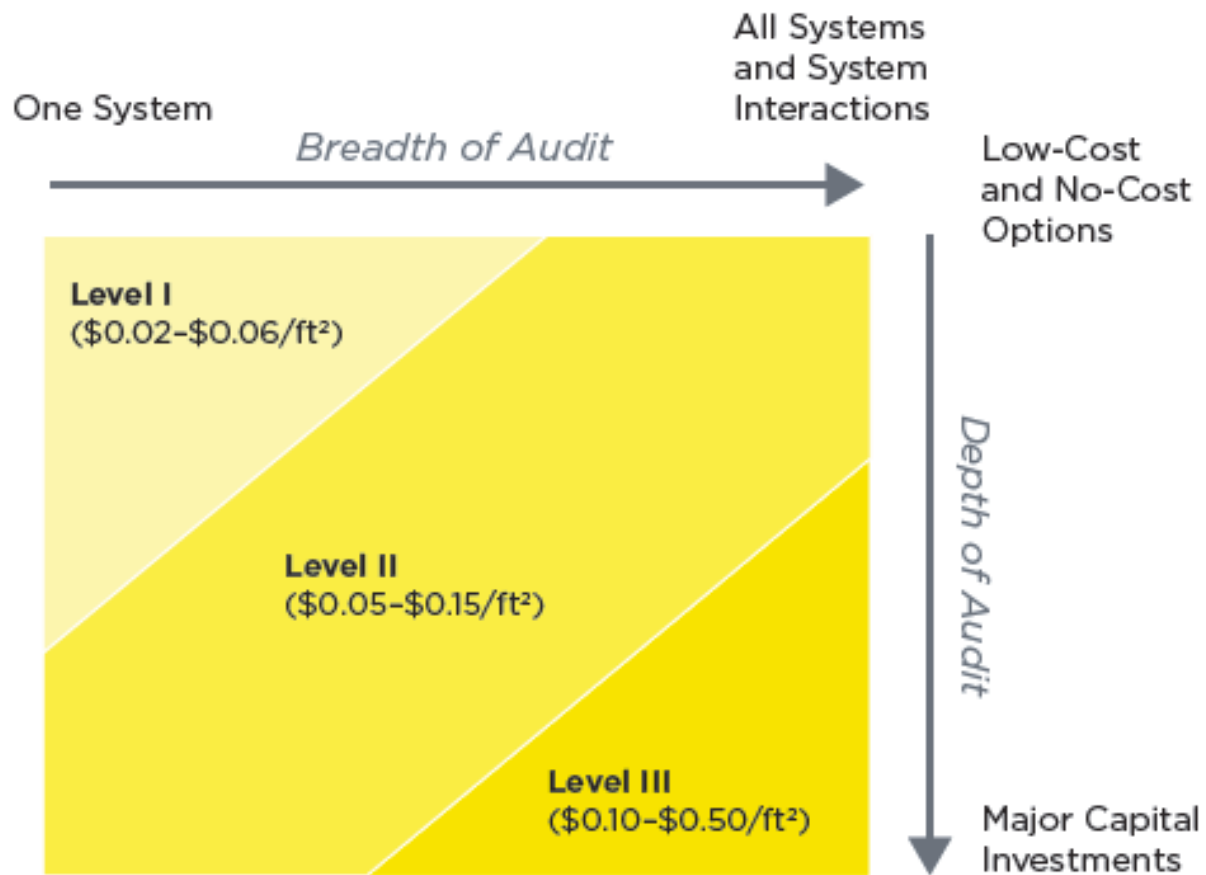


Figure 2-3 Cost and quality of the three levels of energy audits beyond preliminary analysis

Source: NRAL Advanced Energy Retrofit Guide – K-12 Schools



Level 1 Energy Audit

1. Visit each water system to complete a “walk through” inventory of facilities
2. Interview personnel to understand how each facility is used.
3. Gather data on energy use, facility capacity, and energy cost
4. Prepare energy use inventory report to serve as documentation of baseline energy use of facilities and to identify potential opportunities to reduce energy use



Water System	Annual Energy Costs to Pump and Treat Water	Annual Energy Costs Per Capita	Energy Costs Per Thousand Gallons
Ashland Water and Sewer Departments	\$ 9,996.00	44,052,900	\$ 0.15
Canaan Water Department	\$ 2,745.00	3,496,355	\$ 0.15
Carroll Water Dept.	\$ 14,870.00		\$ 0.16
Groveton Water System	\$ 29,291.00	75,138,900	\$ 0.17
City of Lebanon			
Plymouth Village Water & Sewer District	\$ 26,375.00	146,914,800	\$ 0.10



Review of Your Energy Assessments

- Assets – Primarily associated with drinking water system
- Nameplate Horsepower (HP)
- Variable Speed – for motors
- Calculated Power Consumption = Horsepower x 0.746 (conversion factor)



Review of Your Energy Assessments

- Hours of Operation per Year – Either based on observation or staff report
- Total kWh per Year – Calculated power consumption x Hours of operation per year
- Average Run Time - Either based on observation or staff report
- Design Specs – Based on observation (HP and head) or staff report



Review of Your Energy Assessments

- Operating Status – Based on observation or staff report
- Average Cost – Based on current WAPA rates
- Total Cost = Total kWh per year x Average cost
- Cost per MG = Total cost/Total flow (Total flow based on estimates)