

# Outreach and Education: Energy Efficiency for Rural Water Supplies

## Final Program Report



April 2012

Prepared By:

Upper Valley Lake Sunapee  
Regional Planning Commission

*Program Partners:*

Granite State Rural Water Association  
US EPA Efficiency Program, Region 1  
NH Department of Environmental Services, Water Division  
Lake Sunapee Protective Association

*Program Funded by:*

NH Office of Energy and Planning State Energy Program



# Table of Contents

<b>I. PROGRAM OVERVIEW .....</b>	<b>2</b>
Background .....	2
Program Scope and Goals .....	2
Program Partners .....	3
Implementing the Program .....	4
<b>II. WATER SUPPLY SYSTEM OPERATORS.....</b>	<b>5</b>
Regional Outreach and Education .....	5
Statewide Outreach and Education.....	7
<b>III. MUNICIPAL DECISION MAKERS.....</b>	<b>10</b>
Municipal Policy Stakeholder Engagement.....	10
<b>APPENDIX – SUPPORTING MATERIALS</b>	

# I. PROGRAM OVERVIEW

## Background

According to the EPA *National Water Program Strategy: Responses to Climate Change* (2008), the collection, distribution, and treatment of drinking water and wastewater nationwide consume tremendous amounts of energy and release approximately 116 billion pounds of carbon dioxide (CO<sub>2</sub>) per year—as much global warming pollution each year as 10 million cars. According to the Consortium for Energy Efficiency National Municipal Water and Wastewater Facility Initiative, facilities that treat and distribute drinking water and collect and treat wastewater have potential to achieve 15 to 30 percent energy savings through energy conservation measures alone.

The Upper Valley Lake Sunapee Region is primed to capture momentum from recent energy initiatives, increasing awareness of cost savings through energy efficiency practices, and increasing demands on municipal budgets. This initiative sought to inform and enable water supply system operators and municipal leaders to recognize opportunities to reduce energy use and increase water supply efficiencies. The desired result is reduced energy demands, increased system efficiencies to deliver clean water, and reduce operational costs that can then be directly transferred to lower fees to residents and businesses.

In addition to the direct energy efficiency of plant operations, there are long-term water supply issues that affect a significant portion of the region's population. Many rural residents are served by public water systems that use surface water reservoirs, lakes, or rivers. These sources are susceptible to pollution from direct runoff, atmospheric pollution sources, and changes in land use. As the region's population increases there will be concurrent trends in water supply demands and increasingly stringent water quality standards for these rural suppliers. Pro-active planning can reduce water treatment and infrastructure costs and benefit water supply system maintenance and operations.

## Program Scope and Goals

The Commission and its Program Partners engaged water supply system operators and municipal leaders to promote energy efficiency for rural water supply systems:

### *Water Supply System Operators*

The original intent of the program was to focus on outreach and education for regional water supply system operators. The effort would include peer-to-peer discussions, and a day-long workshop. The program would establish peer-to-peer support and collaboration to share knowledge of system operations and resolve issues on a day to day basis.

### *Municipal Representatives*

The Commission worked with the towns of New London, Newbury, Springfield and Sunapee, NH, to examine land use and municipal policy solutions in the Lake Sunapee Watershed. The municipal leaders worked jointly on land use strategies to maintain and improve the quality of water in the watershed. Such strategies would have a beneficial impact on future water treatment operations and energy efficiency that would translate into better water quality and reduced need for more water treatment facilities.

### Goals and Measurable Impacts

The program goals included:

- Promote a peer-to-peer network of water system operators to discuss energy efficiency, operational innovations, and solutions.
- Help municipal representatives identify needs and goals to help maintain good water quality and avoid future treatment and infrastructure costs.
- Provide professional training and education to water system operators so they can evaluate their individual systems and work toward cost-saving improvements to existing water supply systems.

At the beginning of the process, UVLSRPC and its partners imagined short and long-term measurable impacts from the result of this project:

- Completion of the Water Supplier Workshop and site visits.
- Operator commitments to make operational or capital changes.
- Operator participation in a baseline inventory of systems.
- Survey responses indicating benefits of program.
- Reports of operational changes and estimates of savings based on short-term feedback.
- Development of priorities and implementation plans for municipal policies favoring water quality and water supply system efficiency.
- Project wrap-up interviews with participants to review benefits, innovations, and issues.

### **Program Partners**

UVLSRPC Staff assembled an exceptional team to implement the proposed program. Program partners included:

#### *Granite State Rural Water Association (GSRWA)*

GSRWA Staff provided technical expertise regarding rural water supply system operations and well-established relationships with water supply operators statewide. GSRWA Staff provided services as a subconsultant under this contract.

#### *US EPA, Region 1, New England Energy Team*

Staff from the EPA New England Energy Team made commitments to provide technical services and expertise in organizing and facilitating workshops for water supply operators. EPA Staff have conducted similar workshops and peer-to-peer programs in Massachusetts and other regions in New England and aided in developing this program in New Hampshire.

#### *NH Department of Environmental Services, Drinking Water and Groundwater Bureau (NHDES)*

NHDES Staff have been developing materials for water and wastewater system operators directed at financing capital improvements to promote energy efficiency as a concurrent project to this program. NHDES Staff helped plan and participated in the water supply system operator workshop.

#### *Lake Sunapee Protective Association (LSPA)*

LSPA Staff hosted regularly scheduled municipal leader meetings at the LSPA offices in Sunapee, NH. LSPA staff aided in organizing events and coordinating speakers for the final program workshop in Low Impact Development techniques.

## **Implementing the Program**

### *Water Supply Operator Workshops*

In the summer of 2011, UVLSRPC Staff conducted telephone interviews with public water supply system operators and Town officials. Contact was made with most operators in the region to inquire about system issues and whether the operators were interested in participating in energy and operational efficiency workshops during Fall 2011. There was a strong positive response to the program goals and concept. System operators provided feedback on their interests and primary concerns, which Program Partners used in development of the program outline.

Commitments to participate in the program, which was planned to begin late September 2011, were too low to proceed. Regardless of stated interest in energy efficiency, participating in numerous workshops and peer-to-peer sessions in a 6-month period (the original format of this outreach program) would not work for the target audience; the time commitment was too great. There was need to revise the approach for this outreach and education program.

The revised format for the outreach education for water supply operators included a revised participation format:

- Engage up to four water supply system operators for in depth assessments and potential system audits by electric utilities. Use these four systems as case studies during an energy efficiency workshop.
- Coordinate an energy efficiency workshop for water supply operators in spring 2012. Invite statewide participation by water supply system operators.

### *Municipal Workshops*

Concurrent with the water supply operator coordination, UVLSRPC Staff and Project Partners organized an initial evening discussion group with representatives from the four communities in the Lake Sunapee watershed. The evening workshop focused on water quality and policies to aid in future sustainability and energy efficiency for infrastructure. Each municipality was asked to identify representatives to participate in regularly scheduled sessions to review existing policies and develop goals for future policies.

## II. WATER SUPPLY SYSTEM OPERATORS

### Regional Outreach and Education

#### Regional Contacts

UVLSRPC contacted all large public water supply districts in the Upper Valley Lake Sunapee (UVLS) Region (Table 1) to review individual operator needs and interests in energy and operational efficiencies.

**Table 1: Contacts for Major Public Water Supply Districts, UVLS Region**

Water System Name	Water System Contact	Contact Title	Town	State
Claremont Department of Public Works	Bruce Temple	Director of Public Works	Claremont	NH
Lebanon Water Department	Jim Angers	Superintendent	Lebanon	NH
Hanover Water Department	John Dumas	Superintendent	Hanover	NH
Newport Water Department	Bob Naylor	Superintendent	Newport	NH
New London-Springfield Water System Precinct	Rob Thorp	Superintendent	New London	NH
Charlestown Water & Wastewater Department	David Duquette	Superintendent	Charlestown	NH
Sunapee Water and Sewer Department	David Bailey	Superintendent	Sunapee	NH
Enfield Water & Sewer Department	Jim Taylor	Director of Public Works	Enfield	NH
Village District of Eastman	William Weber	District Manager	Grantham	NH

Among those who responded to initial telephone interviews, the following issues were of importance:

- Inventory of the system's energy usage and developing an energy plan to help track usage and need for improvements would be helpful.
- Stated interest in wastewater system efficiencies, too.
- Existing facilities could use improvement, but need to know more about opportunities and costs. This program would help.
- Gravity system, chemical treatment is the major cost (not energy), interested in participating.
- Recent substantial pump upgrades and new pumphouse have made major reductions in system costs.
- In process of big project replacing pumps and looking at solar supply for operations.

#### Regional Site Visits and Assessments

Due to lack of commitments, the program proposal to host ongoing discussion sessions in Fall 2011 was abandoned. Instead, Program Partners coordinated efforts to engage four water

treatment facilities to help inventory energy usage and evaluate energy efficiency opportunities. The four facilities were: Lebanon Water Treatment Plant, Enfield Water Facility, the Village District of Eastman, and Claremont Water Treatment Plant. These are four of the larger regional water supply facilities and represented a range of experience in managing energy as part of daily operations and capital improvements.

Each facility volunteered to participate in site assessments, an interview by Program Partners, receiving an energy audit from the local electrical utility companies, and participating in the Energy Efficiency Roundtable in spring 2012.

### *Lebanon Water Treatment Plant*

The Lebanon Water Treatment Plant serves approximately 10,000 residents and receives water directly from the Mascoma River. The Superintendent has been practicing day-to-day operational management including energy consumption management. Practices include:

- Utilizing the staff electrician for the City to ensure all electrical connections and systems are well-maintained.
- Monitoring and managing the electrical usage of the pumps and processes in the plant including the timing and duration of pumping water from the water treatment plant to the system of reservoirs in the City.
- Utilize an electrical power brokerage to minimize energy costs.
- Practice asset management programs help maintain optimum operational efficiency for the system.
- Utilize a recent energy assessment of the water treatment plant buildings will yield minor changes to reduce energy usage for lighting, heating, and cooling.
- The City is assessing very high efficiency lighting for city-owned outdoor lighting.
- The City recently completed a water quality planning study to seek ways to maintain good water quality in the Mascoma River to reduce costs and issues related to water treatment.

As part of this program, the local electrical utility committed to conducting a detailed audit of the facility pumps and operations to further reduce energy consumption. This detailed process audit focused on aspects of plant operations that were not addressed in earlier energy audits and evaluations. This energy audit report is pending release at the time of this report, but the conversations between the Superintendent and the consultant for the electrical utility yielded insights about operational efficiencies (e.g. recirculating water in fountains and closer management of water line valves) that could be implemented immediately.

### *Enfield Water Facility*

The Enfield serves approximately 1,200 residents in its historic downtown from two primary well sites. The quality of water produced by the principal well does not require treatment prior to distribution. The pump stations operate with minimal support heating or lighting facilities. The Superintendent is aware of opportunities for energy efficiency, but has not identified specific management plans given the unique circumstances for the system. The Town received an energy audit from the electrical utility, but the consultant did not find any immediate solutions for Enfield to implement. The principal finding was that leaks in the existing water mains would be the best measure of efficiency for the overall system, but grants for this work are not available through the electrical utility's energy efficiency program. A copy of the energy audit report is not yet available.

### *Village District of Eastman*

The water district that serves the Eastman Community Association provides water for approximately 3,000 residents. The Superintendent has been successful in receiving the support of the District Commissioners and volunteers. The water district customers receive a high level of service and are made aware of the need and cost of projects, which has resulted in good will and support for funding of capital improvement projects. As a result this water district has been able to:

- Implement well upgrades to increase energy efficiency.
- Develop management and maintenance programs to reduce operational costs.
- Install an advanced management software program that allows remote monitoring and information sharing among water district staff.
- Maintain a 10-year Capital Improvement Program for the water district.
- Encourage residential water conservation to reduce operational costs and unnecessary power consumption.

The Superintendent describes himself as a champion for constant improvement. The water district staff are currently investigating renewable energy projects including installing photovoltaic solar arrays to meet operational energy consumption at the water treatment plant. Further projects and regular maintenance of water lines and valves helps keep the system running efficiently at low cost to the customers. The local electrical utility operator has committed to conducting a lighting audit for the water treatment plant, but this audit has not yet occurred.

### *Claremont Water Treatment Plant*

The City of Claremont has hired a contractor to operate the water and wastewater treatment plants. The contractor is responsible for system operations and upgrades. During the interview with City and contractor representatives, it was apparent that energy efficiency was not a priority in plant operations, nor was the contract between the City and the contractor structured to encourage making energy-related improvements.

Later, when Claremont was contacted to participate in the Energy Efficiency Roundtable, the Director of the Department of Public Works noted that the City was opting to put the operational contract out to bid. The Director was encouraged to integrate energy efficiency into the new contract. The City has demonstrated interest in an energy efficiency program by sending a staff member to the Energy Efficiency Roundtable.

## **Statewide Outreach and Education**

### *Concurrent Educational Efforts and Collaboration*

#### *US EPA Energy Efficiency Program*

Representatives from the New England Energy Team are working to expand education and outreach efforts to New Hampshire. These programs range from municipal and public education to technical assistance for water and wastewater operations. Participation by US EPA and its contractors in this program helped provide expertise to water supply operators, particularly during the statewide Energy Efficiency Roundtable.



### *NHDES Drinking and Groundwater Bureau*

NHDES Staff have been conducting research into financing mechanisms for energy efficiency programs at water and wastewater facilities. This report is included in the Appendix for reference.

### *Statewide Energy Efficiency Roundtable*

The Project Partners developed a half-day workshop, the “Water Supply Energy Roundtable”, on March 14, 2012. The roundtable included the following topics:

- Sharing of Success and Obstacles in Energy Improvements (Group Discussion)
- Energy Planning and Self Assessment (Facilitated Exercise)
- Energy Improvements at Upper Valley Drinking Water Plants (Panel Discussion – Lebanon, Enfield, Eastman Water District)
- Energy Assessment Tool for Small Systems (Presentation)
- Financing and Funding Energy Improvements (Presentation)
- Setting Priorities-What You Could Do to Improve Energy Management (Close-out Discussion)

Participants toured the Eastman Village Water District facility after the roundtable.

Facilitators for the workshop included the following specialists:

- **Madeline Snow, Director of the EMS Service Program**, has expertise and experience in developing and auditing Environmental Management Systems in public transit authority facilities, colleges, universities, and municipalities. She recently developed An Environmental Management Guide for Colleges and Universities for EPA Region 1 and contributed to the development of Ensuring a Sustainable Future: An Energy Management Guidebook for Water and Wastewater Utilities for EPA. She spent 25 years in the Massachusetts Department of Environmental Protection in a variety of programs, including enforcement, water quality planning, waste site cleanup, emergency response, and strategic planning. She holds a B.A. in Biology and Environmental Studies from New College of Florida and an M.P.A. from Harvard University’s Kennedy School of Government.
- **Derek Bennett, Manager, Water Conservation, NH Department of Environmental Services**, Derek manages the Water Use & Conservation Program in the Drinking Water and Groundwater Bureau of NHDES. Derek is responsible for working with the state’s largest water users to ensure accurate water use measurement and to identify opportunities for improvement in water efficiency. Derek was previously employed as a Hydrogeologist with the New Hampshire Geological Survey, and has been with DES for more than 10 years. He obtained his degree in environmental conservation from the University of New Hampshire in 1999.
- **Nicholas Sceggell, Source Water Protection Specialist, Granite State Rural Water Association**, Nick is a licensed professional engineer with experience in both treatment plant and distribution system design. Nick most recently managed the EPA-funded Sourcewater Protection Program for GSRWA. In this role, he provided assistance to systems and municipalities on important drinking water protection issues and developing source protection plans. In his current position with GSRWA, Nick provides consultative support services on a variety of different projects. Nick graduated from The Catholic University of America in Washington, DC with a degree in civil engineering with an environmental concentration.
- **Linda Darveau, EPA Region 1**, holds a Bachelor of Science degree in Public Health and a Masters Degree in Biostatistics from Boston University. She worked as an

industrial hygienist for Dupont for eight years before joining the Massachusetts Department of Environmental Protection in 1989. At MA DEP Linda was involved in implementing the landmark Toxics Use Reduction Act legislation. Linda joined EPA New England in 1991 as a member of the New England Environmental Assistance Team, providing regulatory compliance and pollution prevention assistance to small businesses, hospitals, municipalities, and colleges and universities. Linda recently began incorporating Lean Manufacturing into her work with these sectors, promoting Lean and the Environment and Lean and Energy reviews. Linda joined EPA's Energy and Climate Team in October of 2008, and currently works on energy efficiency and renewable energy projects with municipalities, schools, hospitals, and water and waste water treatment plants.

The workshop was attended by approximately 34 people ranging from water supply operators and consultants to local energy committee members and a representative from an electrical utility company. The majority of participant responses rated the event as exceeding their expectations and provided further comments about aspects found to be most useful as summarized in the following bullets:

- Good to hear different people's thoughts/input
- Meeting other peers and discussing energy usage resolutions
- Ways to save energy
- Financing, Funding, Grants
- Just to start thinking about energy conservation
- EPA tools available, methods of tracking/auditing energy use
- Open discussion format
- Hearing success stories
- Importance of developing a management plan

Respondents also provided comments on their 'take-aways' from the workshop:

- Get others involved in energy savings
- Monitor energy bills more closely, continue monitoring energy usage & develop an Energy Action Plan
- Look for money and rebates to make system improvements
- There are smart people working in government on this issue
- Think out of the box and look at 'the small things'
- Providing an Open House for water system customers to learn about the water system
- Educate users of positive programs employed – share the success stories

Participants were also asked about specific actions they would take after the workshop:

- Check files & bills, do the math to track usage
- Conduct follow-up on energy audits
- Look for money for alternative/renewable energy
- More of these free ½ day roundtables
- Document and communicate accomplishments
- Take information and pass it on
- Keep pressure on funding for green energy products
- Look into efficiencies for existing systems: HVAC, pumps, conduct a benchmark assessment
- Look closer at the facility to save more energy
- Monitor
- Disseminate knowledge learned to members of Energy Committee

### **III. MUNICIPAL DECISION MAKERS**

#### **Municipal Policy Stakeholder Engagement**

UVLSRPC held four work sessions with town representatives from the Lake Sunapee Watershed: New London, Newbury, Springfield, and Sunapee.

##### Stakeholder Sessions

On September 28, 2011, 11 town representatives came to a meeting to discuss the project of working with the watershed towns to discuss low impact development (LID). It was determined that each of the four town governments should select two town representatives to participate in the project. It was also suggested that a spreadsheet comparing regulations among the four towns be developed to see what LID components might already exist and compare the four towns' regulations. This spreadsheet was developed and provided to each town as well as used in discussions of following meetings.

On December 7, 2011, the appointed town representatives met to discuss LID in general and how it could be applied in their towns to reduce and clean up stormwater. The group felt a public workshop would be beneficial to the area.

At the January 25, 2012, the group outlined a potential LID workshop to be held for municipal officials and local contractors. The workshop was to include a broad scope of LID, specific LID techniques especially for single family homes, and a discussion of how to implement LID at the local level through ordinances and regulations. A major topic of discussion was how the four towns could work together and consider similar regulations and ordinances to work together in their watershed. This would also reduce costs to the towns if they shared an enforcement officer and reduce costs to the contractors who would know what to anticipate in the watershed towns.

##### Low Impact Development Workshop

On April 5, 2012, the public workshop was held in Sunapee. Press Releases and advertisements had been distributed, various boards and departments were notified, and local contractors were contacted to invite them to attend.

Speakers for the public workshop included James Houle of the UNH Stormwater Center who provided a general overview of LID and why it is so important; Charlie Hirshberg, P.E. of CLD Engineers, Inc. provided information on LID techniques including sketches of proper construction and maintenance; and Victoria Davis, Planner at UVLSRP discussed reviewing existing zoning ordinances and regulations for impediments to LID and how to incorporate requirements and encouragements of LID.

The workshop was filmed and after the workshop, four volunteers were separately interviewed on film for educational purposes. They were each asked the same questions to garner opinions about the importance of LID in general, how it could be important to their town specifically, and how their town could implement LID. There were 17 participants, primarily town representatives although two contractors attended as well.

# APPENDIX – SUPPORTING MATERIALS

## Utility Contacts

### **NH Electric COOP**

Craig Snow  
579 Tenney Mountain Highway  
Plymouth, NH 03264-3154  
1-800-698-2007x8673  
fax: 603-536-8687 –  
[snowc@nhec.com](mailto:snowc@nhec.com)

### **PSNH**

Anne Karczmarczyk  
Energy Efficiency Services  
780 North Commercial Street  
Manchester, NH, 03105  
P 603-634-2760  
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[anne.karczmarczyk@nu.com](mailto:anne.karczmarczyk@nu.com)  
[karczam@nu.com](mailto:karczam@nu.com)

Marl Toussaint  
Energy Efficiency Services  
780 North Commercial Street  
Manchester, NH, 03105  
Phone: 603-634-2301  
Fax: 603-634-2449  
[toussmd@nu.com](mailto:toussmd@nu.com)

## US EPA

5 Post Office Square  
Boston, MA 02109

Linda Darveau  
(617) 918-1718  
[Darveau.linda@epa.gov](mailto:Darveau.linda@epa.gov)  
Jason Turgeon  
(617) 918-1637  
[Turgeon.jason@epa.gov](mailto:Turgeon.jason@epa.gov)

### **Unitil**

Gary Miller  
Senior Business Development Executive  
1 McGuire Street  
Concord, NH  
(603) 227-4516  
[millerg@unitil.com](mailto:millerg@unitil.com)

### **NGRID**

Christopher J. Kintz  
Lead Engineer  
Phone: 603-770-0120  
Fax: 315-460-8554  
[Christopher.kintz@us.ngrid.com](mailto:Christopher.kintz@us.ngrid.com)



## Energy Management Roundtable for Water Utilities

**Date:** March 14, 2012

**Location:** Bistro Nouveau at the Center at Eastman  
6 Clubhouse Lane, Grantham, NH 03753

**Cost:** Free due to funding from NH Office of Energy and Planning and EPA Region 1

**Credit:** 3.0 TCH's will be awarded to those who attend 100% of the course.  
Water credit approved.

**Objectives:**

- ✓ Share experiences between water utilities in:
  - Increasing energy efficiency
  - Increasing the use of renewable sources of energy
  - Reducing costs
- ✓ Learn how a Plan-Do-Check-Act approach can support existing energy management & initiate new ones
- ✓ Develop a roadmap for funding, implementing and maintaining energy improvements

**Agenda:**

8:00-8:30 AM	Registration and Refreshments
8:30-8:45	Welcome and Introductions <i>Mike McCrory, UVLSRPC</i>
8:45-9:00	Sharing of Success and Obstacles in Energy Improvements <i>Roundtable Discussion</i>
9:00-9:30	Energy Planning and Self Assessment <i>Madeline Snow, UMass Lowell</i>
9:30-10:30	Energy Improvements at Upper Valley Drinking Water Plants <i>Eastman, Claremont, Lebanon, Enfield</i>
10:30-10:45	Break

10:45-11:15	Energy Assessment Tool for Small Systems <i>Nick Sceggell, Granite State Rural Water Association</i>
11:15-11:45	Financing and Funding Energy Improvements <i>Derek Bennett, NH DES</i>
11:45-12:15	Setting Priorities-What You Could Do to Improve Energy Management <i>Roundtable Discussion</i>
12:15-12:30	Evaluations and Adjourn

Optional Tour of Eastman Drinking Water Treatment Plant to Follow

**Registration:** There are two ways to register: by internet or by mail. To register online go to our website: [www.granitestatewater.org](http://www.granitestatewater.org). To register by mail fill in the form below and mail to: GSRWA, PO Box 596, Walpole, NH 03608

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~Registration Form~

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Name of Attendee(s): \_\_\_\_\_

\_\_\_\_\_

Name of System  
or Business:

\_\_\_\_\_

\_\_\_\_\_

Address:

\_\_\_\_\_

City, State, Zip:

\_\_\_\_\_

Phone:

(      ) \_\_\_\_\_

E-mail:

\_\_\_\_\_

*Any Questions, please contact Nick Sceggel (603)756-3670 x 7*



## Upper Valley Lake Sunapee Regional Planning Commission

**Class Title:** *Energy Efficiency for Rural Water Supplies*  
**Class Date/Time:** March 14, 2012 8:30 AM – 12:30 PM  
**Class Location:** Lake Sunapee Protective Association Offices, Main Street, Sunapee, NH  
**Credit:** Three (3) TCH will be awarded to those who attend 100% of the class

### **Class Description/Agenda:**

This workshop will draw from detailed local, regional, and national expertise on energy efficiency and rural water supplies. The program structure will integrate technical presentations with hands-on exercises for the program participants. Technical sessions include energy planning for individual systems, financing and funding water system improvements, and management of a rural water supply with energy efficiency as a goal. Part of the overall goal of this workshop is to encourage networking and hands-on exercises. Discussions and exercises will include water system operators presenting energy efficiency efforts completed/planned for their systems, conducting an energy efficiency self-assessment, and a discussion of typical rural water system energy efficiency improvements.

### **Speakers:**

***Madeline Snow, Director of the EMS Service Program***, has expertise and experience in developing and auditing Environmental Management Systems in public transit authority facilities, colleges, universities, and municipalities. She recently developed *An Environmental Management Guide for Colleges and Universities* for EPA Region 1 and contributed to the development of *Ensuring a Sustainable Future: An Energy Management Guidebook for Water and Wastewater Utilities* for EPA. She spent 25 years in the Massachusetts Department of Environmental Protection in a variety of programs, including enforcement, water quality planning, waste site cleanup, emergency response, and strategic planning. She holds a B.A. in Biology and Environmental Studies from New College of Florida and an M.P.A. from Harvard University's Kennedy School of Government.

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## Energy Efficiency at a Glance For Drinking Water and Wastewater Systems

New Hampshire Department of Environmental Services – October 2011

The processes that provide safe drinking water and treat wastewater are very energy intensive. Energy costs are a major component of all water utilities' overall operating budgets. Nationally, water treatment facilities spend almost 11 percent of their operating budgets on energy alone. Given ever increasing energy costs and strained budgets, reducing the energy used by water and wastewater systems can significantly reduce operating costs and allow for investment in long-term capital projects. Several studies have suggested that water utilities can reasonably achieve energy savings between 15 percent and 30 percent.

**The most important things a water or wastewater system can do to become more energy efficient is to call the system's electric utility!** They can assist with understanding a system's electric bill, conducting energy use assessments, and identify available equipment replacement costs.

New Hampshire's electric utilities all subscribe to a core set of programs under the title **NHSaves** [www.nhsaves.com](http://www.nhsaves.com). In addition, some of the utilities offer incentives beyond the core NHSaves program. **Generally, electricity providers will help fund any project that has a demonstrated energy savings with reasonable payback periods.** Many times these incentives can be integrated into existing capital improvement projects. There may be additional opportunities such as off-peak pumping incentives. Contact your utility to learn more and start saving today!

Utility	Website	Customer Service Phone
National Grid	<a href="http://www.nationalgrid.com/">http://www.nationalgrid.com/</a>	1-800-322-3223
NH Electric Coop	<a href="http://www.nhec.com/">http://www.nhec.com/</a>	1-800-698-2007
Public Service of N.H.	<a href="http://www.psnh.com/">http://www.psnh.com/</a>	1-800-662-7764
Unitil	<a href="http://www.unitil.com/">http://www.unitil.com/</a>	1-800-852-3339

**Additional information on energy efficiency is available in the DES guidance document *Energy Efficiency Planning, Funding and Improvements for New Hampshire's Drinking Water and Wastewater Systems* located at:**

<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-25.pdf>

### State Incentives

Additional programs offered through the State of New Hampshire may be able to provide technical and financial assistance. Although the programs are numerous, key programs include:

**N.H. Office of Energy and Planning: Energy Technical Assistance Planning Program (ETAP)**  
[www.etapnhc.org/](http://www.etapnhc.org/).

The program offers energy efficiency technical assistance at no charge to municipalities and counties in New Hampshire. ETAP's goal is to advance energy efficiency in all New Hampshire municipalities and provide the tools communities need to monitor energy performance, make recommendations, and connect you with additional resources.

**N.H. Public Utilities Commission: Pay for Performance Program**  
[www.nhp4p.com](http://www.nhp4p.com)

The Pay for Performance Program addresses the energy efficiency needs of the commercial, industrial, and municipal government sectors by working with participants, such as developers, building owners and their representatives, to improve energy efficiency of commercial and industrial buildings. The

program is implemented through a network of qualified Program Partners. Partners are selected based on their demonstrated experience to develop comprehensive energy efficiency work scopes in commercial and industrial facilities, oversee the installation of the proposed scope, and verify that the installation will achieve the estimated energy performance. The program offers a three-tiered incentive program that offers rebates for energy efficiency upgrades. The program is only available to large energy users, which is defined as users who have an electric demand of 100kW.

**N.H. Department of Environmental Services: Drinking Water and Clean Water State Revolving Funds** <http://des.nh.gov/organization/divisions/water/dwgb/capacity/dwsrf.htm>  
<http://des.nh.gov/organization/divisions/water/wweb/grants.htm#srf>

The Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF) provide assistance in the form of low interest loans and principal forgiveness to public water systems and wastewater systems to finance the cost of drinking water and wastewater infrastructure.

**N.H. Department of Resources and Economic Development: Renewable Energy Incentives: Local, State and Federal**

[www.nh.gov/oep/programs/energy/RenewableEnergyIncentives.htm](http://www.nh.gov/oep/programs/energy/RenewableEnergyIncentives.htm)

Financial incentive programs have been developed on the local, state and federal levels to help encourage the development of renewable energy. This page includes links to possible funding opportunities for energy efficiency and renewable energy applications.

**Community Development Finance Authority: Municipal Energy Reduction Fund**

[www.nhcdfa.org/web/erp/merf/merf\\_overview.html](http://www.nhcdfa.org/web/erp/merf/merf_overview.html)

CDFA’s Municipal Energy Reduction Fund is available to help municipalities improve the energy efficiency of their municipal buildings, street lighting, and water and sewer treatment facilities. Loans are structured out of energy savings. The savings are calculated based on the last several years of energy usage and several years of future projected usage. The terms of the loans are flexible and can be structured as a service contract if desired by the town.

**Examples of Recent Energy Efficiency Projects**

Facility	Project	Cost	Annual Energy Savings	Annual Cost Savings
Concord Water Department	Pump Overhaul and Retrofit	\$490,000	67,200 kWh	\$11,800
		Efficiency rebates secured through Unitol: \$128,873.		
Newmarket Water Department	Metering Improvements / Water Loss Control	\$600,000	kWh Not quantified/ 330 gal gasoline	\$27,686
Keene Water Department	Treatment Facility Hydropower Production	\$573,862	129,000 kWh	\$18,500
Franklin Wastewater Treatment Facility	Blower Technology Update	\$2,523,000	Not quantified	\$107,000
		Efficiency incentives secured through PSNH: \$105,870.		
North Conway Wastewater Treatment Facility	Solar and Geothermal Energy Production	\$2,400,000	200,000kWh / 6,000 gallons oil	Not quantified



# Renewable Energy Production Opportunities at Water and Wastewater Utilities

## Reduce Operating Costs, Reliance on the Grid, and Carbon Dioxide Emissions Using Renewable Energy with Little-to-No Upfront Costs

Energy costs are a major concern for water-wastewater utilities and municipal officials. Across the U.S., municipalities spend almost \$4 billion annually on energy, consume almost three percent of the nation's energy resources, and contribute about 45 million tons of greenhouse gases per year.

### Power Purchase Agreements (PPAs)

**Power Purchase Agreements (PPAs) are an excellent way to initiate and fund renewable energy projects in the water sector. PPAs in the water sector are finance contracts between a water/wastewater utility owner, and a third-party renewable energy developer that owns, operates, and maintains the renewable energy system. In exchange for upfront costs and maintenance, the signatory must commit to buying the energy from the provider at a predetermined rate (delineated in the contract) for a period commonly lasting 15-20 years. This financial arrangement ensures stable and often lower-cost electricity with zero maintenance costs.**

### Benefits to Participating Utilities

- FEWER UPFRONT COSTS
- LOWER ESCALATORS
- ZERO MAINTENANCE
- CO<sub>2</sub> REDUCTIONS
- AIR QUALITY PERMIT COMPLIANCE
- RENEWABLE ENERGY GENERATION
- REDUCED GREENHOUSE GAS EMISSIONS
- 15-30% ENERGY SAVINGS
- LOWER OPERATING COSTS
- STABLE ENERGY COSTS
- LESS RISK
- LOWER GRID DEMAND

These CA utilities have recently entered into PPAs and drastically lowered their CO<sub>2</sub> emissions while saving energy and money:<sup>1</sup>

Utility Name	Treatment Capacity, Million Gallons per Day (MGD) for Wastewater Utilities	Expected Annual Energy \$\$ Savings	Annual kWh Generation / Generating Capacity (kW)	*Est. Annual CO <sub>2</sub> Reductions (pds)
Inland Empire Utilities Agency (Solar)	53 MGD	\$500,000	30,660,000 kWh/yr 3,500 kW	5,918,012
Inland Empire Utilities Agency (Fuel Cell)	45 MGD	Same Price as Grid	24,528,000 kWh/yr 2,800 kW	15,529,157
San Diego MWD (Fuel Cell)	175 MGD	\$338,000	39,420,000 kWh/yr 4,500 kW	24,957,575
San Diego County Water Authority (Solar)	100 MGD	\$85,000	15,768,000 kWh/yr 1,800 kW	3,043,549
Thousand Oaks (Solar)	14 MGD	\$200,000	5,115,840 kWh/yr 584 kW	987,462
Thousand Oaks (Fuel Cell)	14 MGD	\$60,000	3,679,200 kWh/yr 420 kW	2,329,373
Rancho California Water District (Solar)	5 MGD	\$152,000	9,636,000 kWh/yr 1,100 kW	1,859,946
<b>TOTALS:</b>	<b>347 MGD</b>	<b>\$1,335,000.00</b>	<b>128,807,040 kWh/yr 14,704 kW</b>	<b>58,176,412</b>

<sup>1</sup> If your utility would like to be added to this list, please contact Eric Byous at [Byous.Eric@epa.gov](mailto:Byous.Eric@epa.gov).



\* Calculations from table on previous page: CO<sub>2</sub> Calculations are based on 2007 eGRID subregion output emission rates for the Western Electricity Coordinating Council California (WECC).<sup>2</sup> 730 (average hours in a month) x # of months (9 months for off-peak demand emissions + 3 months for peak demand emissions) x kW (project size) = kWh x eGRID CO<sub>2</sub> lb / kWh x capacity factor (25% for solar, 90% for fuel cells) = Estimated annual CO<sub>2</sub> reductions. Because fuel cells have a high capacity factor and run during off-peak hours, we calculated peak demand for biogas as 6 hours per day, and off-peak demand for 15.6 hours per day to determine the total off-peak demand emissions.

## How to Get Started:

- ✓ Know the type of energy you wish to generate and propose a site.
- ✓ Obtain permission from the building owner/managers.
- ✓ Calculate your energy needs based on average and peak demands.
- ✓ EPA strongly recommends the completion of a comprehensive energy audit (completed by an auditor experienced in water/wastewater) as part of any energy management effort.
- ✓ Know your energy costs so you can negotiate savings.
- ✓ Consider adding grants and other rebates to increase your savings.
- ✓ Contact your utility to determine their requirements including: additional metering requirements and departing load charges which may affect your decision.
- ✓ Research the feed-in tariff guidelines for your energy provider and negotiate the terms. Consult the Federal Regulatory Commission's website for advice: <http://www.ferc.gov/industries/electric/gen-info/mbr/authorization.asp#skipnavsub>.
- ✓ Contact a PPA firm to get the ball rolling. Once you have chosen a firm, you can request preliminary designs and pricing.

## Industry Advice:

- ◆ Before signing a PPA, consult other entities that have entered into a PPA with the power provider you're considering. This will give your utility a true indicator of their quality of work and customer service.
- ◆ To ensure better pricing for everyone over the term of the PPA, negotiate a joint<sup>3</sup> Request for Proposal (RFP) and PPA. If the project is large enough, renewable energy companies will likely visit the site, draft preliminary designs, and estimate project costs.
- ◆ Consult an attorney who is familiar with renewable energy contracts.
- ◆ Ensure the "cap of power"<sup>4</sup> is included in the PPA and that the RFP specifies the company that will be responsible for repairs and maintenance. Repairs and maintenance should be done in a timely manner; therefore, the contract should specify travel time, ability to obtain parts, etc.
- ◆ Negotiate the escalator (energy utility rate) based on past utility trends.
- ◆ Don't install more renewable energy than you need, unless the cap of power is included in the PPA.
- ◆ Ensure that the contract includes the latest renewable energy technology available by consulting with industry professionals and other entities that have entered into PPAs.
- ◆ Make certain that the project adheres to local planning and building codes.
- ◆ Set performance standards in the PPA. Provide incentives for equipment operation during times where grid power is most expensive and financially incentivize the PPA to reward outstanding performance.

<sup>2</sup> [http://www.epa.gov/cleanenergy/documents/egridzips/eGRID2010V1\\_0\\_year07\\_SummaryTables.pdf](http://www.epa.gov/cleanenergy/documents/egridzips/eGRID2010V1_0_year07_SummaryTables.pdf)

<sup>3</sup> "Joint" definition: a collaborative effort involving multiple municipally-owned facilities, buildings, lots, etc. within a political boundary such as a city or a county.

<sup>4</sup> The "cap of power" has to do with the Feed-in Tariff contractual guidelines. Will your utility be charged by its renewable energy provider for generating excess electricity? Can your utility sell the excess electricity back to the grid? If so, how much? These are questions that all utilities should try and answer.

## Learn More:

California Solar Center: <http://www.californiasolarcenter.org/sppa.html>

EPA Webinar: [http://www.epa.gov/greenpower/events/july28\\_webinar.htm](http://www.epa.gov/greenpower/events/july28_webinar.htm)

Solar Alliance: <http://www.solaralliance.org/home/index.html>

Solar Electric Power Association: <http://www.solarelectricpower.org/>

Solar Energy Industries Association: <http://www.seia.org/>

California Public Utilities Commission: <http://www.cpuc.ca.gov/PUC/energy/Procurement/Procurement/ppa.htm>

DOE Sample PPAs: [http://www1.eere.energy.gov/femp/financing/ppa\\_sampledocs.html](http://www1.eere.energy.gov/femp/financing/ppa_sampledocs.html)

Fuel Cell PPA Sample: <http://www.green.ca.gov/EnergyPrograms/FuelCells.htm>

Thousand Oaks Solar RFP: <http://www.ci.thousand-oaks.ca.us/civica/filebank/blobdload.asp?BlobID=13765>

## Technical Assistance:

- 1) Solution Center: EECBG and SEP grantees and sub-grantees are eligible for technical assistance, which includes RFP reviews <http://www1.eere.energy.gov/wip/solutioncenter/>.
  - The Solution Center's sidebar contains a wealth of information on various renewable energy systems including: events calendars, "peer-peer resources," project resources, case studies, and a guide for local governments.
- 2) NREL Technical Assistance Webinars: They provide information on state and local policies and programs affecting renewable energy and energy efficiency technology deployment, project financing, and technical innovations that can drive market growth [http://www.nrel.gov/applying\\_technologies/state\\_local\\_activities/webinars.html](http://www.nrel.gov/applying_technologies/state_local_activities/webinars.html).
  - Technical Assistance: Utilities can request assistance in the following categories: program design, project assistance, contract assistance, financing policy and programs, planning, policy analysis, and skills development: [http://www.nrel.gov/applying\\_technologies/state\\_local\\_activities/technical\\_assistance.html](http://www.nrel.gov/applying_technologies/state_local_activities/technical_assistance.html).

Regional Water Supply System Contacts - Municipal Systems

Water System Name	Water System Contact	Contact Title	E-mail	Tel	Address	Town	State	Zip	Est Pop Served	
Claremont Department of Public Works	Bruce Temple	Director of Public Works	btemple@claremontnh.com	603-542-7020	8 Grandview St	Claremont	NH	03743	11,250	Left Msg - 8/24, 8/25
Lebanon Water Department	Jim Angers	Superintendent	jim.angers@lebcity.com	603-448-2514	65 Pumping Station Rd	Lebanon	NH	03766	10,050	Interested in hosting a session
Hanover Water Department	John Dumas	Superintendent	john.dumas@hanovernh.org	603-643-3439	194 Lebanon Street	Hanover	NH	03755	8,500	Interested in hosting a session, new system
Newport Water Department	Bob Naylor	Superintendent	waterandsewer@newportnh.net	603-863-4271	15 Sunapee Street	Newport	NH	03773	5,000	Interested in hosting a session, gravity system, chemical treatment is the major cost, interested in participating, will want parameters for hosting session.
New London-Springfield Water System Precinct	Rob Thorp	Superintendent	rob.nlswp@rds.net	603-526-4441	72 Old Dump Rd	New London	NH	03257	2,750	recent substantial pump upgrades and new pumphouse have made major reductions in system costs.
Charlestown Water & Wastewater Department	David Duquette	Superintendent	dduquette@charlestown-nh.gov	603-826-5535	PO Box 385	Charlestown	NH	03603	2,500	Left Msg - 8/25
Sunapee Water and Sewer Department	David Bailey	Superintendent	sunws@town.sunapee.nh.us	603-763-2115	23 Edgemont Rd, PO Box 347	Sunapee	NH	03782	2,100	Left Msg - 8/25 - 1997 plant with good operations and is willing to host the sites.
Enfield Water & Sewer Department	Jim Taylor	Director of Public Works	jtaylor@enfield.nh.us	603-632-4605	23 Main Street, PO Box 373	Enfield	NH	03748	1,200	Left Msg - 8/25 In process of big project replacing pumps and looking at solar supply for operations. Interested in hosting the session and has state of the art system.
Village District of Eastman	William Weber	District Manager	weber@eastmanh2o.org	603-863-6512	PO Box 990	Grantham	NH	03753		

## ATTENANCE LIST TO MARCH 14, 2012 - ENERGY EFFICIENCY ROUNDTABLE

John Adie	2 Sawmill Road	603-718-0618	adiej@nashuanh.gov	636	Reg online.
Jim Angers	City of Nashua Waste Water Treatment Lebanon Utility Operations	603-448-2514	jim.angers@lebcity.com		
April Hyde	Colebrook Water Works	603-331-1898	kevincpw@myfairpoint.net	2720	Reg online.
Dana Arey	Pathways Consulting	603-304-8585	dana.arey@pathwaysconsult.com	586	Reg online.
David Bailey	Sunapee Water & Sewer Department	(603)504-4077	sunws@town.sunapee.nh.us	2635	Reg online.
Derek Bennett	NHDES				
David Borden	New Castle Energy Committee	603-848-0463	david@oursustainableh.com		Reg online.
Scott Clang	GSRWA	603 756-3670	sclang@granitestatewater.org		
Matthew Cross	Claremont Water System	603-542-6531	Matthew.Cross@Unitedwater.com	3193	
Jon Dame	New London-Springfield Water System Precinct	196 Winter St Claremont NH 03743	nlswp@tds.net	2751	Reg online.
Dan Frechette	Colebrook Water Works	72 Old Dump Rd. New London, NH 03257	kevincpw@myfairpoint.net	3110	Reg online.
Linda Darveau	US EPA	17 Bridge St, Colebrook, NH 03576	Darveau.linda@epa.gov	2754	Reg online.
Donald Drew	Mountain Lakes District	5 Post Office Square, Boston, MA 02109		1734	Reg online.
John Dumas	Hanover Water Department	75 White Mountain Drive, woodsville nh	John.dumas@hanovernh.org	wtr2560wst1028	Reg online.
George Eaton	Seabrook Water Dept	194 Lebanon Street Hanover, NH 03755		957	Reg online.
Robert Fagnant	Woodsville Water & Light	4900 Dartmouth College Highway Woodsville NH 03785	wwl@kingcon.net		Reg online.
Ross Hansen	Shoals Marine Laboratory	PO Box 88 Portsmouth, NH 03802	msr222@cornell.edu	3201	Reg online.
Arie Keus	Tamworth Pines Co-op	1701 White Mt Hwy	ariekeus@aol.com	3140	Reg online.
Christopher Leonard	Sunapee Water & Sewer Department	26 Mary's Road	leonard-c@comcast.net	2310	Reg online.
Holly Leonard	Lebanon Energy Advisory Committee	P.O. Box 347	mtlunter@yahoo.com		
Michael Lunter	Lebanon Energy Advisory Committee	51 North Park St. Lebanon, NH 03766	sunws@town.sunapee.nh.us		
Michael McCrory	UVLSRPC	10 Water Street, Suite 225	mmccrory@uvlsrpc.org	NA	
Neil Perez	Village District of Eastman	31 Draper Road, Grantham NH 03753	admin@eastmanh2o.org		Reg online.
Kimberley Quirk	Enfield Energy Committee	78 Main St, Enfield, NH	kim.quirk@gmail.com		Reg online.
Roderic Reyelt	New London-Springfield Water System Precinct	72 Old Dump Rd. New London, NH 03257	nlswp@tds.net	652	Reg online.
Robert Riendeau	Cheshire County Complex	201 River Rd, Westmoreland, NH 03467	rriendeau@co.cheshire.nh.us	1914	Reg online.
Michael Rosen	Shoals Marine Laboratory	PO Box 88 Portsmouth, NH 03802	msr222@cornell.edu		
Bill Weber	Village District of Eastman	PO Box 990, Grantham, NH 03753	weber@eastmanh2o.org		Reg online.
Josh Worthen	Village District of Eastman	31 Draper Road, Grantham NH 03753	admin@eastmanh2o.org		
Nick Sceggell	GSRWA	PO Box 596, Walpole, NH 03608	nsceggell@granitestatewater.org		Reg online.
Anne Karczmarczyk	PSNH	780 N. Commercial St, Manchester, NH 03105			
Christene Walker	UVLSRPC	10 Water Street, Suite 225	cwalker@uvlsrpc.org		
Heleen Waldorf	UMASS-Lowell				
Maddeline Snow	UMASS-Lowell				



**SUMMARY OF EVALUATIONS, NH ENERGY MANAGEMENT ROUNDTABLE, 3/14/12, GRANTHAM [24 evaluations (out of appr.35 participants)**

Affiliation	WERE EXPECTATIONS MET?					WAS IT WORTH YOUR TIME?					
	Way more than met	More than met	Met	Not Met	No response	Very Worthwhile		Worthwhile		Not worthwhile	
						5	4	3	2	1	No Response
Water Utilities (11)		73%	27%			36%	36%	27%			
Utilities that are both Water AND Wastewater Utilities (6)	33%	33%	33%			50%	33%	16%			
Other (3)	33%	33%	33%			66%	33%				
Consultant (3)	33%	33%	33%				100%				
No affiliation noted (1)	100%					100%					

	THINGS PEOPLE FOUND <u>MOST</u> USEFUL	THINGS PEOPLE FOUND <u>LEAST</u> USEFUL	'TAKE AWAY' POINTS, INSIGHTS, LESSONS
Water Utilities (11)	<ul style="list-style-type: none"> <li>Different people's thoughts/input (4)</li> <li>Discussion</li> <li>Meeting other peers and discussing energy usage resolutions</li> <li>Ways to save energy</li> <li>Info</li> <li>Financing, Funding, Grants (5)</li> <li>Energy supplier refunds</li> <li>Open House idea (2)</li> <li>Contacts/networking (2)</li> <li>Portfolio Manager (2)</li> <li>Avoided costs</li> <li>Slides</li> <li>Presentations</li> <li>EPA guidance</li> </ul>	<ul style="list-style-type: none"> <li>Large system info</li> <li>Setting priorities</li> <li>Energy assessment tool</li> <li>Starting success stories (session)</li> <li>It was all good</li> <li>None</li> <li>I don't think any of it was unuseful</li> </ul>	<ul style="list-style-type: none"> <li>Get other PWS involved</li> <li>DES info</li> <li>EPA info</li> <li>Interactive info</li> <li>Continue monitoring</li> <li>Look for money and rebates</li> <li>There are smart people working in government on this issue</li> <li>Think out of the box</li> <li>Energy savings</li> <li>Solar power</li> <li>Peak demand</li> <li>Conservation</li> <li>Energy use investigation</li> <li>Open House</li> <li>Energy Action Plan</li> <li>Tracking energy usage &amp; use resources</li> </ul>

	THINGS PEOPLE FOUND <u>MOST</u> USEFUL	THINGS PEOPLE FOUND <u>LEAST</u> USEFUL	'TAKE AWAY' POINTS, INSIGHTS, LESSONS
<b>Utilities that are both Water AND Wastewater Utilities (6)</b>	<ul style="list-style-type: none"> <li>• Funding options/directions (3)</li> <li>• Just to start thinking about energy conservation</li> <li>• Records</li> <li>• Hearing ideas from others</li> <li>• Other issues with energy</li> <li>• How to deal with some issues</li> <li>• EPA tools available</li> <li>• Networking</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> <li>• Roundtable</li> <li>• Energy assessment tool</li> <li>• This has been a very useful seminar</li> </ul>	<ul style="list-style-type: none"> <li>• Look at the small things (2)</li> <li>• Re-evaluate heat system</li> <li>• Get records—monitor</li> <li>• Monitor energy bills more closely</li> <li>• Set goals</li> <li>• Involve all employees</li> <li>• Involve the public</li> </ul>
<b>Consultant (3)</b>	<ul style="list-style-type: none"> <li>• EPA Audit Info</li> <li>• Method of tracking/auditing energy use</li> <li>• Funding options</li> <li>• Aspects from attendees</li> <li>• Various resources from energy providers</li> <li>• Open discussion format</li> <li>• Hearing success stories</li> <li>• Importance of plan</li> </ul>	<ul style="list-style-type: none"> <li>• Acoustics were marginal</li> <li>• Peak shaving topic</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate/verify energy efficiency method</li> <li>• Educate users of positive programs employed</li> <li>• Alternative energy efficiency approaches (e.g., pumping, leak detection)</li> <li>• Electrical component efficiencies (peak factoring)</li> <li>• Benchmarking</li> </ul>
<b>Other (3)</b>	<ul style="list-style-type: none"> <li>• Panel discussion (2)</li> <li>• Funding (2)</li> <li>• Stories/information/examples (2)</li> <li>• Interactive group</li> <li>• Roundtable format</li> <li>• Madeline's energy</li> <li>• Monitor</li> </ul>	<ul style="list-style-type: none"> <li>• Energy assessment tool</li> <li>• Long list of things to do (at the end)—give us 3 things to remember, not 27</li> </ul>	<ul style="list-style-type: none"> <li>• Plan your projects—get others to buy in/get involved</li> <li>• Baseline importance</li> <li>• Engaging public</li> <li>• Operator input</li> </ul>
<b>No affiliation noted (1)</b>	<ul style="list-style-type: none"> <li>• VFD</li> <li>• Leak detection</li> <li>• Alternate energy</li> </ul>		<ul style="list-style-type: none"> <li>• I've taken all of it and will learn from it</li> </ul>

	WHAT COULD HAVE MADE THE WORKSHOP MORE USEFUL	THINGS YOU WOULD LIKE TO SEE HAPPEN AS A RESULT OF THIS WORKSHOP	WHAT YOU WILL DO AS A RESULT OF THIS WORKSHOP
<b>Water Utilities (11)</b>	<ul style="list-style-type: none"> <li>• A microphone</li> <li>• Hands on, show how items work or don't work</li> <li>• More operators talking</li> <li>• More roundtables</li> <li>• More people with specific examples/visuals/results</li> <li>• Having business cards of Linda, Jason, Derek</li> <li>• Black tea to keep my supervisor happy</li> <li>• N/A—good job!</li> </ul>	<ul style="list-style-type: none"> <li>• Work with my staff on savings</li> <li>• Talk to my Boss on implementation</li> <li>• Talk to water commissioners</li> <li>• I will try to attend another of these trainings</li> <li>• Keep the roundtable conversations</li> <li>• People working together better on these issues</li> <li>• Better communication between utilities</li> <li>• Not sure</li> <li>• People be more involved in energy savings</li> </ul>	<ul style="list-style-type: none"> <li>• Check files, bills</li> <li>• Do the math</li> <li>• Follow up on energy audits</li> <li>• Look for money for alternative/renewable energy</li> <li>• More of these free ½ day roundtables</li> <li>• Think in different areas</li> <li>• Evaluate electricity at work</li> <li>• Look into solar</li> <li>• Document and communicate accomplishments</li> <li>• Take information and pass it on</li> </ul>
<b>Utilities that are both Water AND Wastewater Utilities (6)</b>		<ul style="list-style-type: none"> <li>• Save money</li> <li>• Reach out to people and selectmen for support</li> <li>• Talking about upgrading</li> <li>• Start small, think big</li> <li>• Better communication between energy providers and users</li> <li>• Energy providers to offer more incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Keep pressure on funding for green energy products</li> <li>• HVAC upgrades</li> <li>• Look into pump efficiency</li> <li>• Take a better look at where our power is going</li> <li>• Evaluate results of VFD installation</li> </ul>
<b>Consultant (3)</b>	<ul style="list-style-type: none"> <li>• Case histories on successful project</li> <li>• Have utilities present</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the use of power</li> </ul>	<ul style="list-style-type: none"> <li>• Track energy use vs. output</li> <li>• Bring information out in the field</li> <li>• Consult with systems on benchmarking/audits</li> </ul>
<b>Other (3)</b>	<ul style="list-style-type: none"> <li>• More talk about renewables &amp; functions to benefit water uses</li> <li>• The initial exercise was great—More explanation on how to use the form at the beginning—use some examples</li> <li>• Perhaps explain acronyms for lay people</li> </ul>	<ul style="list-style-type: none"> <li>• Save energy in NH</li> <li>• More renewables</li> <li>• More incentives</li> <li>• More people attend</li> <li>• Municipalities improve energy efficiencies</li> </ul>	<ul style="list-style-type: none"> <li>• Look closer at the facility to save more energy</li> <li>• Monitor</li> <li>• Disseminate knowledge learned to members of Energy Committee</li> </ul>
<b>No affiliation (1)</b>	<ul style="list-style-type: none"> <li>• No changes/it was great</li> </ul>		<ul style="list-style-type: none"> <li>• Energy evaluation of our facility</li> </ul>

**Contact**

Michael McCrory  
 UVLSRPC  
 mmccrory@uvlsrpc.org  
 603-448-1680

**When**

Wednesday September 28, 2011 from 4:30 PM to 7:30 PM EDT

[Add to my calendar](#)

**Where**

Lake Sunapee Protective Association  
 63 Main Street  
 Sunapee, NH 03782



[Driving Directions](#)

# Planning Across Municipal Boundaries

*Seeking Sustainable Solutions for*

*Water Quality & Rural Water Supplies*



**Forum Agenda:**

4:30 PM to 5:30 PM – *Light Refreshments:* Arrive early to enjoy refreshments, sign-in, and network.

5:30 PM to 7:30 PM – *Planning Session:* In the evening the workshop will be directed toward municipal staff, decision makers, and volunteers. There will be a brief presentation on the recently completed Sunapee Watershed Infrastructure Project. Based on this presentation, attendees will work on a dynamic brainstorming session to explore promoting water quality through the adoption of land use planning and municipal policy.

Click here to register:

## Registration



**Overview:**

Over half of the residents in the Upper Valley Lake Sunapee Region are served by municipal or privately-owned water supply systems and many more individuals use public water supplies at work, school, and businesses. UVLSRPC, in collaboration with its program partners is hosting an evening forum on Wednesday, September 28, 2011, to explore the relationship between land use and water quality in the Lake Sunapee watershed. This workshop will be the kick-off to a series of discussion groups for municipal leaders and policy makers from the four communities surrounding Lake Sunapee: Springfield, Sunapee, Newbury, and New London.

Two years ago, the National Oceanic and Atmospheric Administration (NOAA) awarded the Lake Sunapee Protective Association and a team of scientists to study and prepare the Lake Sunapee watershed for increased stormwater runoff based on observed increases in storm frequency and intensity in recent years. The project, the Lake Sunapee Watershed Infrastructure Project, provided valuable information to support community-driven decision making, and promote safe communities. By developing a reliable, local-scale adaptation protocol, the project aimed to maintain historical flood protection levels for the study site and other communities facing significant impacts from climate change and population growth.

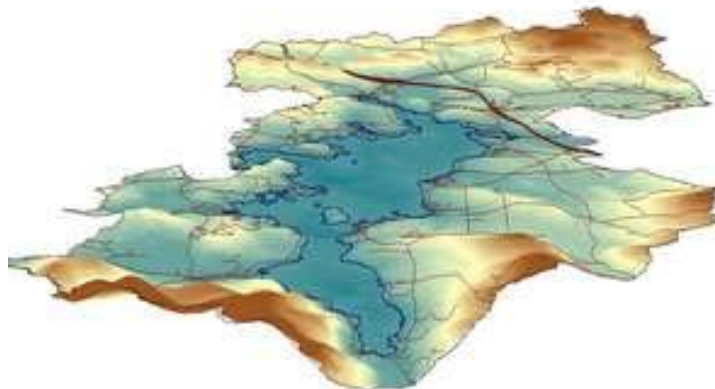
Following presentations of the NOAA project, municipal leaders began to formulate the idea of continued facilitation that would enable the four surrounding communities to work jointly on LID and other land use strategies to improve water quality and address stormwater runoff and potential flooding issues identified in the study. The September 28 workshop, hosted by the Lake Sunapee Protective Association, will be the first step in continuing this discussion.



the Sugar River, which serves as a back-up drinking water supply for Claremont. UVLSRPC will assist local municipal planning boards to outline policy strategies that will maintain or improve water quality within Lake Sunapee, and reduce the need for future energy dependent infrastructure.

Future Discussion Groups will meet monthly to complete the following work:

- Asses municipal LID policies
- Determine if there are policies that could be coordinated and unified throughout the watershed
- Outline priorities for the region to address water quality issues
- Outline priorities for infrastructure needs over the next 10-20 years
- Determine if there are funding strategies that could be implemented watershed-wide. And provide grant writing assistance and identify potential funding sources to implement projects.
- Identify opportunities for warrant articles to implement changes in land use policies leading to reduced future infrastructure and energy needs.



Digital Model of Lake Sunapee and Surrounding Lands

Try it FREE today.



# L I D is Low Impact Development

## How Contractors, Municipalities and Homeowners Can Benefit from LID Techniques

- Address stormwater runoff
- Prevent private and municipal property damage
- Protect water quality and maintain groundwater recharge
- Reduce private and public infrastructure costs

**Thursday, April 5, 2012, 6:30 to 8:30**

**Location: LSPA – Knowlton House, 63 Main St., Sunapee  
(Sunapee Harbor)**

**Free  
Workshop**

### Presenters

*James Houle, UNH Stormwater Center*  
**What is LID? Why do LID? Benefits of LID**

*Charlie Hirshberg, CLD Engineers*  
**Examples of LID practices/measures and “How to”**

*Vickie Davis, UVLSRPC*  
**Incorporating LID into town ordinances**

**Free  
Workshop**

**For more information call:  
Robert Wood at LSPA ~ 763-2210  
Vickie Davis at UVLSRPC ~ 448-1680**

Sponsored by:



**LSPA**

*Devoted to the Environmental Quality  
of the Lake Sunapee Watershed*



**UPPER VALLEY LAKE SUNAPEE  
REGIONAL PLANNING COMMISSION**



Upper Valley Lake Sunapee  
Regional Planning Commission

## Memorandum

TO: Lake Sunapee Watershed Municipal Working Group  
FROM: Vickie Davis, Regional Planner & Mike McCrory, Senior Planner  
DATE: January 12, 2012  
RE: **Water Quality Planning for Energy Efficiency**  
**Next Meeting: January 25<sup>th</sup> at 7:00 pm, Sunapee Safety Building**

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The purpose of convening the four communities in the Lake Sunapee watershed has been to discuss and review water quality issues and solutions to manage the costs of collecting and treating public drinking water. Municipal governments have limited resources to influence protecting and maintaining water quality. The following three general approaches are available:

### **Municipal Land Ownership and Conservation**

Protecting a water source by owning and conserving the surrounding lands is a long-standing practice for protecting public water supplies. Purchasing land or obtaining conservation easements ensures an enduring measure of protection of the municipal water supply.

### **Land Use Regulations and Design Standards**

The municipality might act, based on planning assessments or public petition, to implement land use regulations to protect water quality. This approach requires developing specific land use regulations, enacting them, and having the capacity to enforce the regulations.

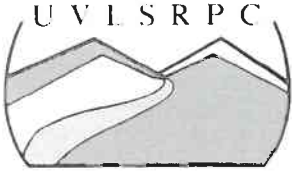
### **Community Engagement**

A broader approach to maintaining water quality requires engaging neighboring communities, property owners, and other organizations, like the Lake Sunapee Protective Association, to achieve a common goal. These partnerships can benefit all parties by drawing from the strengths and capabilities of each member. This approach enables the municipality to be involved in regional watershed initiatives, which extend beyond municipal boundaries.

The next working group meeting will include achieving the following tasks:

1. Refine the long-term goals for all municipalities in the Lake Sunapee watershed.
2. Determine methodology for attaining these goals that each community representative can promote to their respective land use boards.
3. Develop an outline for a watershed workshop.

Please give some thought to these topics and review the enclosed model ordinances for stormwater management. Consider the topic of water quality from the perspective of your community's interests, challenges, and broader development goals (e.g.: What does your Master Plan or Zoning Ordinance say?). What is the most effective way of promoting water quality in your community? What reasonable steps can be made to maintain this effort into the future?



## Upper Valley Lake Sunapee Regional Planning Commission

October 3, 2011

Springfield Select Board  
P.O. Box 22  
Springfield, NH 03284

Dear Select Board Members,

You are aware by now of the National Oceanic and Atmospheric Administration (NOAA) Water Infrastructure project that the Lake Sunapee Protective Association (LSPA) conducted with Antioch University. During final presentations of the project by Antioch's Michael Simpson and Jim Gruber, and Robert Wood, Associate Director of the LSPA, members of the communities that surround Lake Sunapee requested that continued conversation take place in order to outline implementation of some of the project's recommendations so that the valuable data that had been collected goes beyond the 'study' phase.

The Upper Valley Lake Sunapee Regional Planning Commission (Commission) was asked to seek funding to facilitate continued discussions about the project for the communities of Springfield, New London, Sunapee and Newbury. The Commission was successful in obtaining funding from the NH State Office of Energy and Planning to continue the project begun by NOAA.

Recently, the Commission and LSPA held a "kick-off" meeting on the evening of September 28<sup>th</sup> at the Lake Sunapee Protection Association offices in Sunapee Harbor. Invitations had been sent out to municipal boards. Many of the people attending had been part of the process of the National Oceanic and Atmospheric Administration (NOAA) Water Infrastructure project (attendance sheet enclosed).

Funding from OEP was received to; "foster better knowledge and understanding among the four town rural water supply operators, administrators, and municipal leaders regarding implementation of energy efficiency in rural water supply systems." A major premise of our project is that *clean* water requires less treatment, so anything towns can do to reduce erosion and sedimentation helps achieve the energy-reduction goals of the project. The project will have two parts which we hope to bring together for joined decision-making. One part is working with municipal representatives to come up with municipal or sub-regional policy recommendations to take back to the towns. The second part is working with municipal water treatment facility workers to develop peer-to-peer learning as well as providing any expert education the participants feel would be helpful. Concerns relevant to the latter part will be related to saving energy costs and mitigation measures such as addressing water leakage.

During the meeting on the 28th, **it was reaffirmed that participants in conversations that may result in policy recommendation should be municipal representatives selected by the Select Boards.** Recommendations may include such things as prioritizing culverts within the region, replacing culverts identified as being inadequate to meet future storms (identified in the NOAA study which has not been published as yet), changes in regulations and ordinances to address Low-Impact Development strategies to retain storm water run-off within developed property bounds, and possibly combining municipal



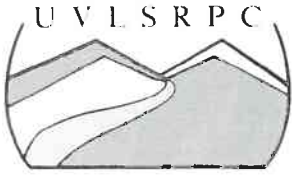
efforts as a sub-region with similar land use requirements to protect the watershed. These were among the possibilities discussed by participants at the meeting on the 28<sup>th</sup> as well as throughout the NOAA project.

**The Commission is requesting that you choose at least two people to represent your municipality for this short project. Please provide their names, titles, and contact information.** The commitment is limited to four meetings that will take place of the next few months and any outside research that the group themselves desires to take on. At the end of the four meetings the participants may be asked to reflect on what issues need addressing and how they see those being implemented in their communities over the next 5 to 10 years. Given the information available and the results of the NOAA project, the group that met on the 28<sup>th</sup> proposed that the communities ideally have representation from the following areas within their communities; Selectboard, Planning Board, Road Agent/Public Works Director and the Budget Committee.

George McCusker from your community attended the meeting on the 28<sup>th</sup> and volunteered to contact you regarding this project, so you should be hearing from him shortly. If you have any questions please give me a call at 603-448-1680 or e-mail me at [vdavis@uvlsrpc.org](mailto:vdavis@uvlsrpc.org).

Sincerely,  
  
Victoria Davis  
Planner

cc: George McCusker



## Upper Valley Lake Sunapee Regional Planning Commission

October 3, 2011

New London Select Board  
375 Main Street  
New London, NH 03257

Dear Select Board Members,

You are aware by now of the National Oceanic and Atmospheric Administration (NOAA) Water Infrastructure project that the Lake Sunapee Protective Association (LSPA) conducted with Antioch University. During final presentations of the project by Antioch's Michael Simpson and Jim Gruber, and Robert Wood, Associate Director of the LSPA, members of the communities that surround Lake Sunapee requested that continued conversation take place in order to outline implementation of some of the project's recommendations so that the valuable data that had been collected goes beyond the 'study' phase.

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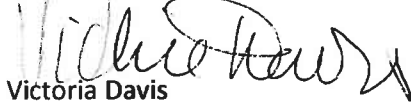
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Tina Helm, Peter Stanley, Kim Hallquist, and Terence Dancy from your community attended the meeting on the 28<sup>th</sup> and volunteered to contact you regarding this project, so you should be hearing from them shortly. If you have any questions please give me a call at 603-448-1680 or e-mail me at [vdavis@uvlsrpc.org](mailto:vdavis@uvlsrpc.org).

Sincerely,



Victoria Davis  
Planner

cc: Tina Helm, Peter Stanley, Kim Hallquist, and Terence Dancy



## Upper Valley Lake Sunapee Regional Planning Commission

October 3, 2011

Sunapee Select Board  
23 Edgemont Road  
Sunapee, NH 03782

Dear Select Board Members,

You are aware by now of the National Oceanic and Atmospheric Administration (NOAA) Water Infrastructure project that the Lake Sunapee Protective Association (LSPA) conducted with Antioch University. During final presentations of the project by Antioch's Michael Simpson and Jim Gruber, and Robert Wood, Associate Director of the LSPA, members of the communities that surround Lake Sunapee requested that continued conversation take place in order to outline implementation of some of the project's recommendations so that the valuable data that had been collected goes beyond the 'study' phase.

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Donna Larrow, William Larrow, Sue Gottling, and Tony Bergeron from your community attended the meeting on the 28<sup>th</sup> and volunteered to contact you regarding this project, so you should be hearing from them shortly. If you have any questions please give me a call at 603-448-1680 or e-mail me at [vdavis@uvlsrpc.org](mailto:vdavis@uvlsrpc.org).

Sincerely,



Victoria Davis  
Planner

cc: Donna Larrow, William Larrow, Sue Gottling, and Tony Bergeron



## Upper Valley Lake Sunapee Regional Planning Commission

Newbury Select Board  
P.O. Box 296  
Newbury, NH 03255

Dear Select Board Members,

You are aware by now of the National Oceanic and Atmospheric Administration (NOAA) Water Infrastructure project that the Lake Sunapee Protective Association (LSPA) conducted with Antioch University. During final presentations of the project by Antioch's Michael Simpson and Jim Gruber, and Robert Wood, Associate Director of the LSPA, members of the communities that surround Lake Sunapee requested that continued conversation take place in order to outline implementation of some of the project's recommendations so that the valuable data that had been collected goes beyond the 'study' phase.

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Cal Prussman and Katherine Holmes from your community attended the meeting on the 28<sup>th</sup> and volunteered to contact you regarding this project, so you should be hearing from them shortly. If you have any questions please give me a call at 603-448-1680 or e-mail me at [vdavis@uvlsrc.org](mailto:vdavis@uvlsrc.org).

Sincerely,



Victoria Davis

Planner

cc: Cal Prussman  
Katherine Holmes

## Lake Sunapee Watershed Municipalities Town Zoning Ordinances

	<b>Newbury</b>	<b>New London</b>	<b>Springfield</b>	<b>Sunapee</b>	<b>New Hampshire</b>
<b>Date of Zoning</b>	<b>March 2011</b>	<b>March 2010</b>	<b>March 2011</b>	<b>March 2011</b>	
<b>Shoreland Overlay District</b>	250' from edge of lakes and permanent streams	250' from reference line of lakes and ponds	Considering amendment to add	All lands within 300' of lakes and ponds greater than 10 acres and the Sugar River	250' to reference line of all lakes, ponds, impoundments >10 acres and ≥4 <sup>th</sup> order streams & rivers
<b>Waterfront Buffer</b>	50': no primary structures; no pesticides, herbicides, fertilizers; rocks, stumps remain; no ground cover removal exc. 4' path; limited tree/sapling removal	50': no primary structures; no pesticides, herbicides, fertilizers; rocks, roots, stumps remain; no ground cover removal exc. 4' path; limited tree/sapling removal	Refer to current State restrictions	Refer to current State restrictions	50': no primary structures; pesticide and herbicide applied by licensed applicator only; low phosphorus fertilizer beyond 25'; limestone up to reference line; natural ground cover exc. 6' path; limited tree/sapling removal
<b>Natural Woodland Buffer</b>	Cutting restrictions within 150'	Cutting restrictions within 150'	None	Cutting restrictions within 150'	150' natural woodland buffer; ≥25% between 50' & 150' must be maintained in unaltered state
<b>Waterfront Setback</b>	75' setback for structures, buildings, and septic	50'	100' 150' for multi-unit, cluster, or commercial	50'	50' for primary buildings
<b>Minimum Lake Shore Frontage</b>	200' per dwelling	200' per unit	150' minimum for building	200' minimum shore for building	Some restriction within 250'
<b>Stream setback</b>	75' building setback and 50' buffer zone on streams	100'	100' from perennial streams	Min. 50' setback from all water bodies inc. rivers, streams, creeks	Permit required for changes of watercourses
<b>Maximum Lot Coverage (impervious surfaces)</b>	In Shoreland area, no more than 30%; if >20%, must implement storm water plan	In Shoreland area, no more than 30%; if >20%, must implement storm water plan	None	20 – 60% within the Shoreland District	If >30% impervious within district, need approved storm water management system; if >20%, storm water plan must be implemented



	<b>Newbury</b>	<b>New London</b>	<b>Springfield</b>	<b>Sunapee</b>	<b>New Hampshire</b>
Septic inspection	Any alteration to building requires septic inspection	Any expansion increasing sewage load to on-site system requires inspection	None	None	75-125' setback; when selling developed property w/septic within 200' of water body, need site assessment
Erosion & Sedimentation Control Plan	Temporary Control: within 250'; Permanent Control: within 300'; LID encouraged	Any earth work (inc. new and modified structures) shall be in accordance of standards in Subd regs; post-dev runoff shall not exceed pre-dev runoff	See State requirements	See State requirements	See "Maximum Lot Coverage"
<b>Streams Overlay District</b>	None	All streams and buffers shown on town's overlay map	None	None	Part of Protected Shoreland
	See Shoreland Overlay	natural woodland buffer 100' from high water mark; cutting by PB approval only; erosion & sedimentation plan required for land disturbance	See Shoreland Overlay	See Shoreland Overlay	See Protected Shoreland
<b>Wetland Overlay District</b>	No map referenced	Use National Wetlands Inventory map	Use National Wetlands Inventory map	Use NRCS poorly and very poorly drained soils Maps	
Wetland Definition	Wetlands > 10,000 sf but all bogs; NH RSA definition	NH RSA definition	Any wetland > 10K sf; NH RSA definition	NH RSA definition	NH RSA definition
Wetland Buffer	75' : no earth disturbance (exc. as provided) or chemicals	Prime wetland 200' Wetland connecting to prime 150' Other wetlands 100'; Cutting plan required for 100' natural woodland buffer	100' or 660' from McDaniel's Marsh	None	None except if they are designated as "prime wetlands"
Septic	No specific restriction	100' from wetland with well-drained soil; 75' otherwise	Per State	Per State	125' (or 75' with soil provisions)
Erosion & Sedimentation Control	Not specifically stated for this District	Erosion control plan for any land disturbance within District	Any excavation or grading requires erosion control; considering amendment to recommend LID	Erosion control plan for any construction or land disturbance	All projects must prevent release of runoff across exposed soil

	<b>Newbury</b>	<b>New London</b>	<b>Springfield</b>	<b>Sunapee</b>	<b>New Hampshire</b>
<b>Aquifer Overlay District</b>	Stratified drift aquifers mapped by USGS	NA	NA	Areas having any potential to yield groundwater	None
<b>General Restrictions</b>	Prohibits potential contaminating uses; limits lawn size	General reference	General reference	20% maximum lot coverage; minimum lot size two acres; drainage, erosion, vegetation to be maintained; limited uses	NA – provides local groundwater protection ordinance models
<b>Steep Slopes Overlay District</b>	All areas with slope >25% with elevation change of ≥20’	All areas with a slope >15%	None	None	None
<b>Slope Restrictions</b>	No building or clear cutting (except for Mt. Sunapee District)	No building on >25%; regulated development on slopes 15-25%; erosion and sedimentation plan required for any land disturbance	No restriction to build on steep slope	No building on >25% with elevation change of 20’	NA – provides model ordinance for local steep slope protection
<b>Skyline &amp; Hillside Overlay District</b>	Restricted cutting and development in defined areas	None	None	None	None
<b>Flood Plain Overlay District</b>	Per FEMA maps	Per FEMA maps	Per FEMA maps	Per FEMA maps	Per FEMA maps
	No new development	New development per State model ordinance	New development per State model ordinance	New development per State model ordinance	NA
<b>General Requirements</b>					
<b>Minimum Lot Size</b>	2 – 6 acres dependent on developable density	Must be 20,000 sf contiguous developable land for lots without public water/sewer or 15,000 sf for lots with public water/sewer; total lot size by district	1.5acre /house. Increase by factor for soil and slope	0.5 – 3acre for Village, Mixed-use, Res., Rural-res. and Rural	NA – except for septic system/well requirements
<b>Developable Density</b>	No allowance for >25% slope, floodplain, wetland or surface water; 50% deer wintering area	15% or 25% allowance for wetlands depending on water/sewer or areas >25% slope	No maximum	Maximum 60% lot coverage – dependent on district and overlays – See Section 3.20	None except protected shoreland

	<b>Newbury</b>	<b>New London</b>	<b>Springfield</b>	<b>Sunapee</b>	<b>New Hampshire</b>
Storm water: Erosion and Sedimentation Control (include any LID)	Various applications dependent on 15% slope and 1000 sf area; uses 1992 "green book"; preferred method is LID but not required; temporary and permanent controls	Plans required within 100' of stream, in the Steep Slopes District, Shoreland District, Wetlands District; reference to Subdivision Regulations; New major subdivisions & any development in Shoreland must incorporate LID: sufficient to infiltrate first 1/2" rain	General requirements recommending LID proposed (not current in zoning)	Within Shoreline Overlay District; use "green book"; any new construction exceeding 1000 sf on slopes greater than 15%; any land clearing > 1000 sf	Alteration of Terrain permit required if 100K sf (50K sf if any in Shoreland) disturbed; Natl Pollutant Discharge Elimination System Program Storm Water Program
Innovative Planning	Cluster development	Forest Conservation District: 25 acre min. lot size; Planned Unit Development; Cluster development; Conservation District: if problematic subsoils, min. 10 acre lot size	Cluster development; lot size averaging; minimum 50 acre lot size in Mountain & Forest District	Cluster development; Planned unit development	NA

- Impervious surface restrictions
- Excavation regulations
- Landscaping standards
- Building and property maintenance codes (RSA 674:51)
- Land conservation programs
- Limit lawn watering?
- Inspection programs?
- Health ordinance addressing existing threats?

PLEASE SIGN IN - Energy Efficiency for Rural Water Supplies Meeting - Sunapee Lake Protection Assoc. Office - September 28, 2011

Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1 CAI BRUSSMAN	Highway Administ. Town of Newbury	PO BOX 296 Newbury NH	938-5494	Newbury@MCTTELEC.COM
2 KATHERINE ADAMS	Newbury Chair ZBA	PO Box 2233 Newbury NH 03255	763-5671	omkat143@myfairpoint.net
3 Donna D. Larrow	Planning Sunapee	PO Box 362 Georges Mills 03751	763-4650	donnaclavis28@gmail.com
4 Wm Howard	Planning Sunapee	" "	"	"
5 Tina Helm	New London Bd. of Selectmen	PO Box 2637 New London, NH 03257	526-9874	-tinahelm@tds.net
6 See Gottling	Sunapee Bd. of Selectmen UVLSR/PC	173 Lake Ave	763-5904	sgottling@comcast.net
7 PETE STALEY	NEW LONDON PLANNING & TOWN ADMIN	375 MAIN ST NEW LONDON NH 03257	526-4821 X16	ZANUKS@AOL.COM
8 Kim Hallquist	TOWN ADMINISTRATOR New London	375 MAIN ST. New London 03257	526-4821 ext. 13	TownAdmin@NL-NH.COM
9 George McCusker	Planning Board Springfield	PO Box 530 New London	763-2473	cooneyrabbitt@netzero.net
10 Terence Dancy	NH-Conservation Commission	10 Box 183 Elkins, 03233	526-4972	tdancy@tds.net
11 Tony Bergeron	Sunapee Road Agent	621 Rte 11 Sunapee, N.H. 03782	763-5060	tany@town.sunapee.nh.us

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
12	(Woody) Robert Wood	LAKE	SUNAPEE PROTECTIVE ASSOC		
13	UVLSRPC Christine Walker				
14	UVLSRPC Mike McCrory				
15	UVLSRPC Victoria Davis				
16					
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18					
19					
20					
21					
22					

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PLEASE SIGN IN - Energy Efficiency for Rural Water Supplies Meeting - Sunapee Safety Building - January 25, 2012

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1	Tony Bergeron	Sunapee			
2	PAUL STACEY	NEBO LAWN			
3	TERRY DANCY	NEW HANDBAN			
4	Byron O Day	Springfield			
5	Robert Wood	Sunapee - HSPA			
6	SUEY <del>SMITH</del> RUSSELL	NEWBURY			
7	Sue Goutley	Selectband Sunapee			
8	STEVE RUSSELL	Newbury			
9					
10					
11					

PLEASE SIGN IN - Low Impact Development Workshop: LSPA Offices - April 5, 2012

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1	Elythe MS Anderson	Citizen New London	New London		
2	Tomy Bergeron	Road Agent Sunapee			
3	Bryan O'Car	Springfield Zoning			
4	George [unclear]	Springfield Planning			
5	Kevin Roberts	Springfield Excavation	Po 441 Springfield 03204 N.H.	603-763-5041	
6	Jim Anderson	JCB Designscaps Sunapee	Po box 413 Sunapee NH 03782	603 763 4949	
7	[unclear]	New London	PO Box 183, FLETCHERS NH 03223	603 526-4972	- COPY OF CID PRES.
8	Peter Fichter	NEWBURY	PO BOX 353 NEWBURY 03255	763 9934	PMGB173@gmail -COM
9	Gene Venable	Springfield	454 Massachusetts New London, NH 03257	763-5694	
10	Barbara Freeman	Newbury	434 Old Post Rd Newbury NH 03255	938-5255	mehreufreeman@aol
11	Sue Grotting				

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
12	PETER WHITE.	PARRIS SUNAPEE	P.O. BOX 1702 NEW LONDON, NH.	603-219-3456	white@sheerwhite.com
13	MICHAEL MAROISE	PLANNING SUNAPEE	23 EDGEMONT RD SUNAPEE, NH 03762	603-263-3194	mraoise@sunapee.net
14	GERARD COYNE	-		526 984	?
15	DONNA DAVIS LARROW	Planning Sunapee	PO Box 362 Geo. Mills, 03751	603-263-4650	donnadavis280@gmail.com
16	Bill Larrow	Sunapee Zoning	"	"	bill.larrow@gmail.com
17	Travis Richardson	Sunapee	PO Box 472 Georges Mills, NH 03751	603-504-9489	
18					
19	Robert Woods	LSPA			
20	Victoria Davis Mike McCrory Charlie Hirschberg	UVLSRPC UVLSRPC CLD Engineers			
21	James Houle	UNH Stormwater Center			
22					
23					

X