

**GOAL:****8** Develop policies and actions necessary to assure safe and reliable utility services to better account for New Hampshire's changing demographics, and promote energy efficiency.

Safe and reliable utility services are vital to maintaining quality of life in New Hampshire, supporting economic development, and protecting the health and well-being of residents. Utility services as discussed here includes electricity, deliverable fuels, drinking water, sewer, septic, stormwater systems, and telecommunications. New Hampshire's changing demographics, including increased population and decreasing densities, as well as the changing business landscape, will require utility services to keep pace and meet continually shifting demands. To ensure adequate and continued supply requires efficiency in both consumption and infrastructure construction.

Although New Hampshire is fiercely independent, in many ways, the State is largely dependent upon outside sources of energy and home heating fuels. The State's citizens rely on consistent, plentiful energy for their homes, businesses, and transportation needs. Energy is increasingly considered a critical component of the State's economic vitality and environmental quality.

Energy generation and its associated emissions have a significant impact upon the environment, personal health, natural resources, and quality of life. Energy delivery infrastructure also impacts land use decisions that in turn affect where people live and work. As a result, by considering energy, environmental and economic policies together, it is possible to protect the air, the water, and open space in the State, providing a cleaner and healthier

environment for all citizens while continuing to have a strong and diverse economy.<sup>1</sup>

Deliverable fuels, such as home heating oil, propane, and kerosene, are an important part of New Hampshire's fuel mix and energy provision. 55.3 percent<sup>2</sup> of New Hampshire's households heat with oil, compared to the national average of 7.5 percent.<sup>3</sup> Residents, businesses, and governments can reduce their dependence on all fuels through energy efficient alternatives. Keene, Nashua, and Epping are among those leading the way through the purchase of clean fleets, municipal facility upgrades, and adoption of energy efficient development ordinances, setting an example for residents and business owners.

New Hampshire relies on several sources of drinking water: public water systems and private wells, ground and surface waters. Public water systems supplied 63 percent of the State's residents or about 820,516 people in 2004. The remaining 37 percent of the State depends upon private wells for drinking water.<sup>4</sup> Additionally, approximately 40 percent of New Hampshire households are connected to a sewer system. The remaining 60 percent are dependent upon private subsurface septic systems. The Department of Environmental Services estimates that 80 percent of new development has occurred in areas without sewer service.

Stormwater management has become an increasing problem with urbanization and continued development where runoff volumes and velocities parallel land use changes. The result is increased flood risks and non-point pollution leading to impaired water quality.<sup>5</sup> Scattered low-density development often results in a greater conversion of land from its natural, and most environmentally effective state, to developed impervious surfaces, resulting in greater stormwater runoff. Development of concentrated, higher density centers, in balance with open space protection, can ultimately ensure that a greater percentage of watersheds are left undisturbed. Low impact stormwater management systems coupled with low impact development techniques can work jointly to ensure continued environmental protection while still permitting growth necessary for economic well being.<sup>6</sup>

“New Hampshire’s telecommunications infrastructure is a key component of the state’s economic engine.” While nearly all areas of the State have access to high speed Internet service, access to *affordable* bandwidth is a greater concern for the State’s businesses and residents. Affordable Internet access is essential for telecommuting to achieve its social, economic and environmental benefits. The State’s businesses depend on high speed Internet service as a means to lower business-operating expenses, drive sales, and increase marketing opportunities. It also increases connectivity between business locations and facilitates communication through video conferencing and file sharing.<sup>7</sup>

**STRATEGY 1:**  
**Encourage demand reduction through energy efficient development, practices, and policies.**

Energy production is a major contributor to pollution in New Hampshire and around the world. Changes in fuel use, energy conservation and efficiency, and advances in

technology all play a role in reducing pollution levels. The Regional Greenhouse Gas Initiative (RGGI), as enacted by State Legislature in its 2008 session, is a regional plan to reduce carbon dioxide emissions, a major cause of global warming, and encourage energy conservation and efficiency. Also available through RGGI, is the Greenhouse Gas Emissions Reduction Fund to support energy efficiency, conservation, and demand response programs<sup>8</sup>

Increased efficiency not only reduces harmful emissions, it also helps make heating costs more affordable for the State’s residents and businesses. The Office of Energy and Planning’s weatherization assistance program helps low-income families reduce household energy use and costs. Utilizing renewable energy sources and energy efficient development techniques in both retrofits and new construction can further reduce emissions and, in some cases, costs.

Strategy Implementation:

- A. Achieve greater energy efficiency in state government.
- B. Encourage municipalities to develop and adopt energy efficient zoning ordinances and development regulations.
- C. Encourage cities, towns, companies, and households to become more energy-efficient and exceed state building energy codes which can provide significant energy and dollar savings for the life of a building.
- D. Increase education, targeted at both the general population and classroom curricula, that addresses energy efficiency, personal carbon-footprints, and residential efficiency improvements.

- E. Coordinate energy efficiency measures and renewable energy utilization at all levels within the State and across state agencies and their programs.

**STRATEGY 2:**  
 Promote a diverse and affordable range of heating fuel options for NH residents and businesses with an emphasis on renewable energy supplies.

Diversity or a variety of fuel supplies protects the State from the price swings and supply constraints of any one fuel source. Diversity also increases opportunities to utilize emerging technologies and in-state resources.<sup>9</sup> In 2006, Governor Lynch declared that the State shall participate in the national 25x25 initiative and set a goal of obtaining 25 percent of its energy from clean, renewable energy sources by 2025.<sup>10</sup> New Hampshire’s Renewable Portfolio Standards (RPS) policy was signed into law in May 2007 requiring electricity suppliers in New Hampshire to demonstrate that they are obtaining about 25% of their electricity from renewable energy resources by the year 2025.<sup>11</sup>

Renewable energy not only decreases dependence on foreign oil but also helps to diversify our energy supply, stabilize prices, combat climate change, and bolster the State’s economy by creating new jobs and industries.

Strategy Implementation:

- A. Promote, research and develop advanced renewable technologies such as tidal, wind and solar power.
- B. Promote the development of a renewable energy economic sector based primarily on biomass from forests, farm fields and farm animal wastes, and landfill gas.

- C. Promote existing energy efficiency incentives including net-metering and the option to establish municipal tax credits for renewable energy use.
- D. Develop a series of incentives, perhaps with RGGI and RPS funds to promote renewable energy production and demand reduction.
- E. Promote alternate fuels for transportation which may include bio-diesel, hydrogen, and others and develop an in-state bio-diesel production facility to meet potential demand for alternative fuel sources.
- F. Increase the utilization of indigenous, renewable energy sources by state government.
- G. Establish a revolving loan fund, perhaps with RGGI and RPS funds, to help businesses and households overcome initial capital cost barriers associated with energy efficiency improvements and installation of small-scale renewable energy systems.

**STRATEGY 3:**  
 Develop and provide for maintenance and upgrades of water supply, wastewater, and stormwater management systems that protect natural resources.

The cost of water and sewer service to a home on a 0.25-acre lot, in a compact development near a community center, is less than half that of the same home, consuming an equal quantity of water, moved to a one-acre lot in a dispersed development far from the community’s center. This price difference is due to the increased size and quantity of infrastructure, additional and larger pump stations, and energy costs required to service large-lot developments outside the community

center. Larger lots also consume more water for landscaping. Concentrated provision of services within core community areas lessens the materials, resources, and costs required to supply these services.<sup>12</sup>

The Department of Environmental Services manages several grants and loan funds for drinking water and wastewater improvements. Both the loan funds are available for the design and construction of facilities and system infrastructure. Drinking water supply protection grants are available for initiatives to plan for and protect water supplies, including through land acquisition.<sup>13</sup>

Strategy Implementation:

- A. Ensure that the design, construction, operation and maintenance of wastewater treatment facilities (WWTF) occur in accord with federal and state standards and in compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements.
- B. Ensure that industrial discharges to municipal WWTFs do not adversely impact the facility or cause violations of a NPDES permit or other state rules and regulations.
- C. Ensure that all septage and sludge management activities are permitted and performed in accordance with state standards.
- D. Encourage municipal officials and residents, through incentives, to remediate failed septic systems, particularly multiple deficient systems within a single area; upgrade waste- and stormwater systems, and create alternatives that minimize pollution.
- E. Provide grants and low interest loans for eligible projects including the planning, design and construction of certain sewage disposal facilities by municipalities and the closure of unlined landfills.

- F. Require septic system inspections be conducted prior to property sales and that any identified and necessary repairs be completed within two years.
- G. Evaluate the costs and benefits associated with the establishment of State-level land use regulation within sourcewater protection areas.
- H. Establish a State water conservation policy for all operations and programs that affect the planning, use, and management of the State’s water resources.
- I. Develop educational materials addressing the relationship between land use and available clean water.
- J. Encourage the development of incentives for water utilities to promote water conservation measures.

**STRATEGY 4:**  
 Establish opportunities to create community water and septage systems as well as regional connections between independent water and sewer systems.

Compact village center developments use far less water, but are not built as often, as suburban and more disperse developments. Individual private septic systems, which typically require minimum lot sizes of 0.70 to 3 acres for adequate system space and to prevent groundwater contamination, are often cited as the impetus for disperse development. However, smaller lot sizes can be achieved through cluster subdivision or utilizing small scale community or neighborhood water and septic systems.<sup>14</sup> Community and municipal water and wastewater systems can avert disperse development that consumes the State’s natural resources. Coordinated

land use planning can identify the appropriate locations and need for small scale community systems, municipal service, and regional interconnections that promote traditional New England village-like development patterns.

Once community or municipal services are established they can be interconnected to create a regional system. For example, the Nashua Regional Planning Commission developed a “Mutual Aid Study” that examined the technical, financial, and political feasibility of transferring water between nine public and private water supply systems, including Manchester and Pennichuck Water Works, that currently supply water to approximately 300,000 people in south-central New Hampshire. Such interconnections can maintain water service during emergencies through a mutual aid system.<sup>15</sup> Additionally, the UNH Technology Transfer Center provides a mutual aid program for municipal public works departments, building inspectors, and water and wastewater systems.

Strategy Implementation:

- A. Maintain municipal water quality by assessing existing water distribution and storage systems’ needs, implementing wellhead and aquifer protection measures, and establishing community wells.
- B. Encourage compact development in areas with utility services or where utilities are most feasible to establish.
- C. Maintain adequate capacity at existing WWTFs and encourage communities without wastewater systems to ensure the long-term availability of receiving facilities for private septage.
- D. Encourage communities to join the Public Works Mutual Aid Program administered by the University of New Hampshire’s Technology Transfer Center.

- E. Expand municipal assistance through water supply infrastructure improvement review and identification of infrastructure upgrade financing strategies.
- F. Foster inter-municipal cooperation through regular mutual aid meetings with stakeholders and regional planning commissions and the formation of regional water utility networks in high water demand regions.
- G. Support local and regional efforts to provide greater access to public utilities and adequate water and sewer capacity to facilitate economic development.
- H. Investigate cost-effective opportunities to provide municipal public utilities, including the coordination of services and regional emergency preparedness.

**STRATEGY 5:**  
 Promote affordable access to the highest quality broadband and telecommunication services available throughout the state for all residents, businesses, and government entities.

The existing levels of affordable high speed Internet access vary across the State. While service is available through much of the State, the cost of service is not always equitable, with some regions lacking affordable options. For these regions, particularly northern New Hampshire, competitive and affordable service is essential in order to ensure the State is not only a desirable place to live, but also to work. Such service is also necessary for the state to be able to compete within the global marketplace. Additionally, with more affordable telecommunications services, businesses may reinvest their cost savings in other employment benefits, such as dental plans, health care, or expanded business

production, thereby increasing employment opportunities.<sup>16</sup>

Strategy Implementation:

- A. Create a dialog between providers, users, policy makers and regulators that pro-actively identifies issues and creates collaborative solutions.
- B. Identify existing telecommunications infrastructure and service gaps, along with the necessary improvements such as high-capacity fiber cables or wireless systems.
- C. Develop a strategic technology implementation plan that includes phased infrastructure and technology project development and identifies potential funding sources.
- D. Foster equitable and competitive options for affordable broadband access and services, across the State.
- E. Develop infrastructure and services that support entrepreneurship and economic development initiatives throughout the state.
- F. Create an education and outreach plan to provide technology training and technical assistance to ensure that businesses and entrepreneurs have essential skills.
- G. Create a long-term telecommunications technology program to assist with planning, funding, and implementing infrastructure development projects.

<sup>1</sup> Governor's Office of Energy and Community Services, NH Energy Plan, (Concord, NH: November 2002) 1-3.

<sup>2</sup> Office of Energy and Planning, "New Hampshire Energy Facts – Residential Sector," (July 2008) 3.  
<[www.nh.gov/oep/programs/energy/nhenergyfacts/](http://www.nh.gov/oep/programs/energy/nhenergyfacts/)>

<sup>3</sup> Energy Information Association, "Residential Heating Oil Prices: What Consumers Should Know," (Washington, DC: Department of Energy, January 2008).  
<[www.eia.doe.gov/bookshelf/brochures/heatingoil/index.html](http://www.eia.doe.gov/bookshelf/brochures/heatingoil/index.html)>

<sup>4</sup> NH Department of Environmental Services, "Second Triennial Report to the Governor and USEPA on New Hampshire's Capacity Development Program for Public Water Systems," (2005).  
<[www.des.nh.gov/dwgb/capacity/pdf/2005Gov\\_and\\_EPArpt.pdf](http://www.des.nh.gov/dwgb/capacity/pdf/2005Gov_and_EPArpt.pdf)>

<sup>5</sup> Center for Watershed Protection, Impacts of Impervious Cover on Aquatic Systems (Ellicott City, MD: 2003) 2.  
<[www.cwp.org/Downloads/ELC\\_impacts.pdf](http://www.cwp.org/Downloads/ELC_impacts.pdf)>

<sup>6</sup> U.S. Environmental Protection Agency, Protecting Water Resources with Higher-Density Development, (Washington, DC: US EPA, 2006) 25.  
<[www.epa.gov/livablecommunities/water\\_density.htm](http://www.epa.gov/livablecommunities/water_density.htm)>

<sup>7</sup> NH Division of Economic Development, Moving New Hampshire into the Digital Economy, (Concord, NH: NH Department of Resources and Economic Development, 2002) 2-3.

<sup>8</sup> State of New Hampshire, Chapter Law 182, Laws of 2008.  
<[www.gencourt.state.nh.us/legislation/2008/HB1434.html](http://www.gencourt.state.nh.us/legislation/2008/HB1434.html)>

<sup>9</sup> Governor's Office of Energy and Community Services, 8-1.

<sup>10</sup> Office of the Governor, "Gov. Lynch: New Hampshire Must Act to Help Secure its Energy Future," (Laconia, NH: August 29, 2006).  
<[www.nh.gov/governor/news/2006/082906energy.htm](http://www.nh.gov/governor/news/2006/082906energy.htm)>

<sup>11</sup> NH Department of Environmental Services, "Renewable Portfolio Standards," (July 2008)  
<[www.des.state.nh.us/ard/climatechange/rps.htm](http://www.des.state.nh.us/ard/climatechange/rps.htm)>

<sup>12</sup> Cameron Spier and Kurt Stephenson, "Does Sprawl Cost Us All?" APA Journal, Winter 2002: 56-70.

<sup>13</sup> Department of Environmental Services, "Grants and Loans," (May 2008). <[http://www.des.state.nh.us/grants\\_loans.htm](http://www.des.state.nh.us/grants_loans.htm)>

<sup>14</sup> NH Department of Environmental Services, "Env-Ws 1000 Subdivision and Individual Sewage Disposal System Design Rules," (Concord, NH: NH DES, 1999) Env-Ws 1005.02 – 1005.06. <<http://www.des.nh.gov/rules/envws1000.pdf>>

<sup>15</sup> SEA Consultants, Mutual Aid Study, Phase II: Final Report, (Nashua, NH: Nashua Regional Planning Commission, June 2007).

<sup>16</sup> Design Nine, Inc., Northern NH Technology and Telecommunications Master Plan, (NH: New Hampshire Rural Development Council, February 2005).