

UNITED STATES SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES
Subcommittee on Water and Power
Senator Jeanne Shaheen, Chair

TESTIMONY OF

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HEARING ON OPPORTUNITIES AND CHALLENGES TO ADDRESS DOMESTIC AND
GLOBAL WATER SUPPLY ISSUES

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Good afternoon, Madam Chairman, Members of the Committee. I am Harry T. Stewart, Director of the Water Division of the New Hampshire Department of Environmental Services. I am here today to present the State of New Hampshire's views on the challenges that we face as a northeastern state to address water supply issues, as well as some of our successes and opportunities to ensure sustainable water resources into the future. Thank you for this opportunity.

WATER SUPPLY CHALLENGES

New Hampshire's population is currently just over 1.3 million people, over double the population that existed in 1960. This growth has generally occurred in multi-year surges of 5 to 10 years over the last 50 years, predominately in the southern tier of the state. New Hampshire is also predicted to continue to be the fastest growing state in New England going forward to 2030, with an expected population increase of about 260,000 people. As a result, since 1960, the water use has also doubled with the population to an estimated 100 million gallons per day and is expected to continue to increase. Water supply for new residential development is supplied by a combination of municipal water supply extensions, small community water supplies and private residential wells. About 36% of the state's population is served by private residential wells and about 64% by community public water supplies. In the national context, while there are some separate industrial and agriculture consumptive water users, the use by public water supplies are predominate as compared with other states. New Hampshire is also generally perceived to be relatively "water rich", which is partially true, but there are also some watersheds in the southern tier especially near the Seacoast where water resources are increasingly stressed due to increasing demands caused by growth.

While private residential wells are not the primary topic of my testimony, it is worth noting that these wells, which serve over 400,000 individuals, are a challenge in New Hampshire and nationally. New Hampshire has basic regulations that control the location for sanitary protection and well capacity (although these can deteriorate with time). Many of these wells have been drilled into bedrock to tap into fractures for water supply. As a result, around 20% have exceedances of the arsenic drinking water standard of 0.10 mg/l, while numerous others have problems with radon, other radionuclides, fluoride, iron, manganese and other natural contaminants. New Hampshire has an active education and outreach program to address these wells.

Groundwater and surface water are both important water supply sources in New Hampshire. New Hampshire has a total of 721 community public water supplies. The water supply sources for the population served are

- 38% groundwater only
- 39% surface water only
- 23% surface water plus groundwater

There are also over 600 very small public water systems, all supplied by groundwater wells, that pose a very significant management challenge. Most of these systems are under-managed and

under-financed. And, the older systems typically have inadequate piping and storage infrastructure. In addition, since most of these systems are supplied by deep bedrock wells, many of these systems also have water quality issues with arsenic, radon, other radionuclides, fluoride, iron and manganese. Compliance with the water quality and operating requirements of the Safe Drinking Water Act are a challenge for these systems in New Hampshire and nationally. In addition, the cost per user of compliance is higher than for larger systems making affordability for users, especially in low income areas, a significant issue when these systems are upgraded to current standards.

New Hampshire has around 100 municipal or major private utility public water systems. The systems tend to be relatively small on a national scale, with only two serving over 50,000 people, with water supplies that are some combination of surface water and groundwater. Significant progress has been made over the years to achieve compliance with the Safe Drinking Water Act. However, delayed investment in water infrastructure is a significant issue and challenge going forward.

In 2011, to provide more accurate and current information to a legislative study commission, the Commission to Study Water Infrastructure Sustainability Funding (discussed further below), DES contracted for a detailed needs survey to identify 20-year funding needs by polling the public water supply systems. This resulted in identification of a the 20-year need of \$1.7 billion (\$85 million/year) in the following broad categories;

- 51% (\$878.5 million) for water delivery,
- 39% (668.3 million) for water treatment,
- 6% (\$94.7 million) for water storage and
- 4% (\$71.5 million) for water supply source development.

The upgrade of this infrastructure is critical to provide safe, potable water to New Hampshire's citizens and to the long term health of New Hampshire's economy. A combination of local , state and national funding ultimately is needed to keep these investments affordable.

The actual provision of water supply is an obvious dominant factor when considering how to achieve water resource sustainability in New Hampshire. Other factors include the identification and protection of significant lands for water supply source protection, management of development patterns, and the state of other existing water infrastructure, specifically wastewater collection and treatment systems, stormwater systems, and dams. These components of water infrastructure also have very substantial investment needs to provide for long term sustainability due to regulatory requirements and aging infrastructure. DES has estimated the following needs in these areas for the next 20-years:

- Wastewater infrastructure upgrades (\$1,300 million)
- Municipal and state-owned dams (\$60 million)
- Stormwater infrastructure to meet federal permitting requirements (\$100 million)

Overall watershed management and investment in all types of water infrastructure is key to water supply sustainability and the economic health of New Hampshire. It is also important to note that, from a municipal perspective this is all "one check book." Many municipalities are could pay a large, and potentially unaffordable, price for delayed investment and upgrade requirements across

this wide array of municipal water infrastructure. This is also reflective of the undervaluation of water infrastructure and investment needs in water rates to support this infrastructure. “Full cost pricing” in the long term is also key to the sustainability of this infrastructure.

Finally, the impacts of climate change on New Hampshire’s water resources provide a significant future challenge for water supplies. There is strong evidence that these impacts exist right now. For example, over the last 5 years, consistent with predictions of volatility, New Hampshire has experienced 7 of the 15 highest flows of record in the Lamprey River on New Hampshire’s Seacoast. The effects of climate change, including the potential reduction in snow pack from warming coupled with increased storm intensity and, conversely, drought conditions, are likely to cause diminished surface water and groundwater storage thus availability for drinking water supply over the long term.

OPPORTUNITIES AND SUCCESSES

New Hampshire is fortunate to have a relative abundance of high quality water resources from a global and national perspective. This provides opportunity and potential advantage if our water resources are used and managed wisely which can only be fully realized by measures such as:

- Ensuring that consumptive withdrawals are sustainable through the right management techniques and regulatory structures.
- Making water infrastructure investment to “catch up” with identified deficiencies then ensure sustainable investment in the long term as well as compliance with federal requirements. This is our greatest challenge.
- Maximizing energy efficiency for the water supply withdrawal, treatment and pumping and the pumping and treatment of wastewater. We know that this area presents “low hanging fruit” that is gradually being realized “one system at a time” as funding allows.
- Management of watershed lands with a focus on protection and preservation of important water resources such as drinking water supply aquifers and reservoirs.
- Water conservation to preserve vital water resources and also as a means to make water use more efficient. Operation and investment costs less when less water is used to achieve the same objectives. This is an area where New Hampshire can apply lessons learned in other states where water resources are already stressed.

New Hampshire has several ongoing commissions that are evaluating these and other water resource issues:

- *Governor’s Commission to Develop a Water Sustainability Plan for the State of New Hampshire.* This is an active commission established by Governor Lynch to broadly evaluate the issue of water sustainability.
- *Commission to Study Water Infrastructure Sustainability Funding.* This commission was established by the Legislature in 2008 and renewed in 2010 to evaluate infrastructure funding needs and funding options. This is a critical concern in light of recent reductions or elimination of state aid grant programs including water supply and wastewater state aid grants a matching grant program to provide incentive to purchase sensitive drinking water source water protection lands.

These commissions in combination are focused on developing a statewide consensus on how to improve our water resources management and the funding for the long term and should help us ultimately to move towards the goal of sustainability.

New Hampshire also has two programs that are in implementation to help us to better manage our water resources: a large groundwater withdrawal permitting program (which Senator Shaheen requested that I discuss) and an instream flow pilot program. Collectively, when fully implemented, these programs will go a long way towards clearly establishing a state regulatory framework for the management of both groundwater and surface water in a sustainable manner (in conjunction with the federal Clean Water Act).

Large Groundwater Withdrawal Permitting Program

This program is fully implemented. We know from discussions and inquiries from other states that this program is the “state of the art” for permitting large groundwater withdrawals. Since 1998, all new groundwater withdrawals, irrespective of the proposed use of 57,600 gallons per day require a permit from the New Hampshire Department of Environmental Services. This permitting process has been improved since then by several statutory changes developed by a longstanding Commission to Study Groundwater Withdrawals, which was established by the state legislature principally to address concerns raised by the public by proposed large commercial groundwater withdrawals. The permitting process generally consists of an application, two public hearings (before and after withdrawal testing) to ensure municipal and public participation, development of technical information including a long term groundwater withdrawal test. Permitting decisions are based on consideration of a comprehensive list of potential “adverse impacts”, any of which could be a basis for denial:

- Reduction of the withdrawal capacity to another water users or surface water levels or flows that cause a violation of surface water quality;
- A net loss of values for wetlands;
- Causing a permitted surface water or groundwater discharges to fail to meet permit conditions;
- Causing the spread of existing groundwater contamination or
- Causing the long-term predictable rate of replenishment of the aquifer to be exceeded.

Conservation plans are required for all new permitted withdrawals to better ensure the efficient use of water resources.

Instream Flow Protection Pilot Program

This pilot program will be completed in 2012. The goal is to develop a strong scientific and regulatory basis to balance the diverse interests for uses of rivers through a consensus building process. These diverse uses include public water supply, wastewater assimilation, hydropower production, navigation, recreation, fishing, conservation, maintenance and enhancement of aquatic life, fish and wildlife habitat. There are two ongoing pilot studies to address these issues for the Souhegan River (state funded) and the Lamprey River (federal-funded). The protected instream

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flows consider the flows require to support diverse uses that include water supply for drinking, agriculture and other uses, navigation; recreation (fishing, swimming and boating); pollution abatement and environmental considerations (such as fish and wildlife habitat) and hydroelectric energy production. This pilot program for certain designated rivers will serve as a model for how to reasonably balance potentially competing interests to ensure water resource sustainability.

Conclusion

In conclusion, New Hampshire has made good progress towards ensuring a sustainable water supply over the long term and has a clear sense of the primary actions that needs to be done to further this objective. It is also important to recognize how important federal funding is to the states and local communities to promote these efforts especially in this period of shrinking resources at all levels of government. At the national level, the Drinking Water State Revolving Fund Program, the Clean Water State Revolving Fund Program as well as other water-related programs for program implementation and research need to be adequately funded for the states and local communities.

Thank you again for this opportunity to testify before your committee.

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