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Testimony prepared for:

SENATE STANDING COMMITTEE ON HEALTH
SENATE STANDING COMMITTEE ON ENVIRONMENTAL CONSERVATION
ASSEMBLY STANDING COMMITTEE ON ENVIRONMENTAL CONSERVATION
ASSEMBLY STANDING COMMITTEE ON HEALTH

DATE: September 12, 2016

SUBJECT: Water Quality and Contamination

PURPOSE: To review issues related to water quality and contamination.

Good morning/afternoon. And thank you Senator Hannon, Senator O'Mara, Assemblyman Englebright, and Assemblyman Gottfried for holding this hearing, and for the opportunity to testify before you. My name is Jennifer Garvey and I am the Associate Director of the New York State Center for Clean Water Technology at Stony Brook University.

Our Center is charged with developing and commercializing more cost-effective technologies to address the water quality degradation issues our region is facing, and our initial efforts have been focused on removing nitrogen and other contaminants from wastewater at the household scale. In short, developing affordable, high performance systems that can replace or retrofit cesspools and septic systems.

As a Center that is funded in large part by the state, I would first like to thank you for this investment which has enabled us, in less than one year's time, to develop cutting-edge analytical capabilities, to recruit top-tier scientists and engineers, and to begin implementing a research and development program that has already resulted in the installation of three different full-scale pilot systems at a test center. Our team is also preparing to install its first set of experimental pilot systems at Suffolk County residences – hopefully this fall -- as part of the Suffolk County Department of Health Services' Innovative Alternative Pilot Program.

Briefly, I would like to reflect on some of the fundamental thinking behind the creation of the Center as a means of framing the challenges and opportunities associated with the decentralized wastewater treatment sector generally, and specifically here on Long Island, as they are integral to informing the path for future and improved solutions.

First, is the recognition that Long Island appears to have the greatest concentration of individual onsite wastewater disposal systems in the nation, with more than 500,000 systems



walk-in



between Nassau and Suffolk Counties alone. That's four times the number of onsite systems on Cape Cod, and more onsite systems than can be found in the entire state of Maryland. What's more, these are septic systems and cesspools that were not designed to address nitrogen, and deliver nutrient rich effluent directly to groundwater. Consequently, this unique designation represents an unprecedented problem that must be addressed, but it also appears to offer a remarkably compelling market for decentralized wastewater technology.

Second, is the recognition that the pace of innovation in decentralized wastewater, and the onsite scale in particular, has been very slow as a result of market challenges, primarily regulatory fragmentation coupled with an historic lack of funding for research and development. The barriers to market entry for innovative alternative systems are high; often years long and costly as demonstration requirements vary by state, county or even town. Additionally, market demand for this form of technology is driven entirely by regulation, which has been limited and contingent upon the availability of subsidies and other policies. In short, the market conditions or incentives have not been present to drive major industry-led investment in innovation within the technology sector, so it has changed little in decades.

Third, is recognition that the significant knowledge gaps that exist as a result of the longtime scarcity in research dollars within this technology sector also represent significant opportunities for improvement. As our team members often say, the lack of research available on these systems is downright shocking. By no means have we begun to reach the limits of technology in onsite wastewater.

These three key points formed the core rationale for a New York-based marshaling of public/private resources to facilitate a coordinated, multi-disciplinary and multi-institutional investment in research and development to propel innovation, with a clear goal at the outset of developing more cost-effective onsite wastewater technologies that are suitable for widespread implementation.

Beyond the immediate goal of delivering solutions to a pressing environmental problem, the approach also sets the stage for important economic opportunity and job creation through the cultivation of specialized resources and expertise here on Long Island that can be applied to a range of water technology challenges, expanding the scope and significance of the Center, and by facilitating the implementation of a widespread infrastructure upgrade -- a labor intensive undertaking.

Suffolk County has already identified 209,000 existing septic systems as priorities for upgrade, and County representatives have repeatedly noted the challenges associated with converting existing development to traditional sewerage, which would connect neighborhoods to existing large-scale wastewater treatment plants, acknowledging that the cost alone of this approach will make it unviable for most areas. This leaves only two options: cluster treatment systems



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or individual onsite treatment, infrastructure recommendations that will be made based on their cost-benefits in terms of nitrogen removal.

Ultimately, improving the cost-efficiency of these wastewater treatment alternatives will increase the likelihood that the systems are actually implemented, accelerating the infrastructure upgrades that are needed to reach nitrogen targets, and necessary to achieve water quality improvements.

The pace of these upgrades in other regions based on existing technology and programming is also a helpful point of comparison as New York formulates its own programs and policies. For example, Maryland has among the highest installation rates for innovative alternative onsite wastewater treatment systems with an annual high of 1,200 systems. In Rhode Island, which has a widely regarded extension program, the state has installed 19,000 new onsite wastewater treatment systems in 14 years, an average of roughly 1,300 per year. At these rates, consider how long it will take Suffolk County alone to address its 209,000 priority systems.

Across the range of the water technologies, opportunities to pilot new solutions and demonstrate their effectiveness is critical to supporting the innovation and commercialization process. However, identifying pilot opportunities and associated funding can be a challenging task, often causing considerable delays in the evolution or commercialization of a technology. Creating opportunities to support the pilot testing of new water technology can create the dual benefit of both facilitating the entry of new and promising technologies into the market to solve problems, as well as creating a strategic attraction for new water technology companies and experts, as proximity to opportunities often drives location choices for companies.

In conclusion, as Long Island is poised to become an epicenter for enhanced decentralized wastewater treatment, continued investment by the state to create and support the conditions necessary to propel innovation and improve the cost-effectiveness of solutions are likely to produce significant and lasting results, both in terms of delivering more economically viable solutions for an acute issue, and by positioning Long Island as a nationally unique center of gravity for water technology, capable of tackling its own infrastructure challenges and providing solutions and expertise with regional, national and international marketability.