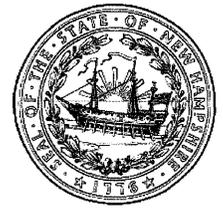




The State of New Hampshire
Department of Environmental Services



Robert R. Scott, Commissioner

February 5, 2020

The Honorable Robert Backus, Chair
Science, Technology and Environment Committee
Legislative Office Building, Room 304
Concord, New Hampshire 03301

Re: HB 1301, AN ACT establishing a committee to study applications of microgrids in electricity supply

Dear Chair Backus and Members of the Committee:

Thank you for the opportunity to testify on HB 1301. This bill establishes a committee to study the changes in law necessary to allow for microgrids in electricity supply. The New Hampshire Department of Environmental Services (NHDES) takes no position on this bill, but offers the following information for the committee's consideration.

Electrification is an important strategy for reducing greenhouse gas and other smog-forming and toxic air pollutants that come from our cars and trucks and from heating and cooling our homes and buildings. To achieve significant electrification of the transportation and building sectors we must have a reliable supply of electric power, one that is resilient to the increasing number of outages we are experiencing in conjunction with the extreme weather events. Microgrids can make our electrical system more resilient and reliable, thus reducing concerns that electrifying homes and cars might leave one stranded and cold.

The US Department of Energy (DOE) defines a microgrid as:

"a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island mode."

The concept of microgrids is of growing interest in New Hampshire as more frequent and extreme storm events have impacted the electric power grid over the last several decades. The top five most significant power outages have all occurred since 2008 and include (in order of severity): the 2008 ice storm; the 2010 wind storm; the 2011 pre-Halloween storm; the 2017 windstorm; and the Thanksgiving Eve 2014 Nor'easter. Each of these storms affected more than 230,000 customers and with outage durations that exceeded 100 hours.¹ The increasing frequency of these storms reduces the time to recover completely between incidents. During March 2018 alone, the Northeast experienced four Nor'easters and learned the new terms "bomb cyclone" and "bombogenesis."²

Microgrids offer the potential to counter some of the impacts of these extreme storms by enabling entire facilities, such as hospitals or campuses, or even whole communities to remain online during power outages. This would provide significant public safety and economic benefits by allowing critical services and downtown business to continue operation uninterrupted.

¹ PUC (2019). New Hampshire Historical Outages All Utilities For Wide Scale Storms, <https://www.puc.nh.gov/Safety/Electrical%20Safety/Safety-Chart-Of-Historical-Storms.pdf>. (Last accessed February 3, 2020).

² Thompson, A. (2018). Bombogenesis: What's a 'Bomb Cyclone'?, Live Science, January 3, 2018, <https://www.livescience.com/61327-bombogenesis.html>, (Last accessed February 3, 2020).

The importance of microgrids was highlighted in the 2014 New Hampshire 10-Year State Energy Strategy, which stated that:

“Grid modernization offers important opportunities to improve the resiliency of our energy systems. Advanced development of self-contained ‘micro-grids’ in combination with on-site generation can allow facilities to withstand major storms and other energy outages.”³

The 2018 New Hampshire 10-Year State Energy Strategy similarly recognized the value of grid modernization in increasing the reliability and resilience of New Hampshire’s electric power supply:

“Grid modernization refers to the utilization of new technologies, equipment, and controls to make energy systems more resilient, efficient, and reliable. “Smart grid” improvements have the potential to reduce the frequency of power outages, minimize storm impacts, restore electricity service faster when outages occur, and enable stakeholders to more efficiently manage electricity use.”⁴

The New Hampshire Public Utilities Commission (PUC) opened a docket in 2015, IR 15-296, to investigate grid modernization in New Hampshire. A report, Grid Modernization in New Hampshire, was submitted to the PUC by a working group in March 2017 following a nearly year-long investigation.⁵ This docket touched on, but did not fully address, the issue of micro-grids and so further exploration is warranted. An order from the PUC on this docket is expected in the very near future.

It is important to ensure that existing law does not inadvertently prevent our State from incorporating advanced energy solutions that will provide both greater efficiency and greater resiliency. A legislative study committee is the appropriate mechanism to review current law and recommend appropriate changes.

Thank you again for the opportunity to comment on HB 1301. If you have any questions or require further information, please contact either Chris Skoglund, Climate and Energy Program Manager, Air Resources Division (Christopher.Skoglund@des.nh.gov, 271-7624) or Rebecca Ohler, Administrator, Technical Services Bureau (Rebecca.Ohler@des.nh.gov, 271-6749).

Sincerely,



Robert R. Scott
Commissioner

cc: Sponsors of HB 1301: Representatives Somssich, Towne

³ NH OEP (2014). 2014 New Hampshire 10-Year State Energy Strategy, <https://www.nh.gov/osi/energy/programs/documents/energy-strategy.pdf>, pp. 32, (Last accessed February 3, 2020).

⁴ NH OSI (2018). 2018 New Hampshire 10-Year State Energy Strategy, <https://www.nh.gov/osi/energy/programs/documents/2018-10-year-state-energy-strategy.pdf>, pp. 13, (Last accessed February 3, 2020).

⁵ Grid Modernization Working Group (2017). Grid Modernization in New Hampshire: Report to the New Hampshire Public Utilities Commission, https://www.puc.nh.gov/regulatory/docketbk/2015/15-296/letters-memos-tariffs/15-296_2017-03-20_nh_grid_mod_grp_final_rpt.pdf, (Last accessed February 3, 2020).



NEW HAMPSHIRE HISTORICAL OUTAGES ALL UTILITIES FOR WIDE SCALE STORMS
Prepared by NHPUC Safety Division Rev. 01/2019

	Event Name	December 11-24, 2006	February 25-March 4,	Oct 29-Nov 4, 2011	Oct 29-Nov 4 2011		Aug 28 - Sept 1 2011
		Ice Storm	2010 Windstorm	Nor'easter (snow)	Severe Rain and Wind Event		Tropical Storm Irene
State Wide	Concurrent Peak Customers Affected	432,632	337,542	209,235	308,001		184,701
	% of Concurrent Customers Affected	63%	50%	43%	42%		27%
	Duration of Restoration (hrs)	312	144	150	100		70
	Non Concurrent Peak Customers Affected*	434,828	384,082	323,949	317,125		187,905
	% of NonConcurrent Customers Affected	63%	57%	47%	44%		27%
	# of Restoration Crews (ex. Tree/Dmg Assess)*	908	667	511	601		610
	Wire Reattached/Replaced (R)*	997,351	Incomplete Data	Incomplete Data	135,131		Incomplete Data
	# of Transformers Replaced*	1,462	Incomplete Data	Incomplete Data	558		Incomplete Data
	# of Poles Set*	908	Incomplete Data	Incomplete Data	659		Incomplete Data
	# of Cross-arms Replaced*	1,894	Incomplete Data	Incomplete Data	611		Incomplete Data
	Total Cost*	\$78,983,940	\$34,337,774	\$20,429,067	\$41,167,055		\$10,824,287