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To: Joint Standing Committee On Energy Utilities And Technology

From: Olin Jenner, Executive Committee, Sierra Club Maine

Re: Testimony In Favor Of LD 13 An Act to Allow Microgrids That Are in the Public Interest

Representative Berry, Senator Lawrence, my name is Olin Jenner and I am presenting testimony on behalf of Sierra Club Maine and our 18,000 members and supporters in favor of LD 13 An Act to Allow Microgrids That Are in the Public Interest. Looking toward the future, microgrids are an important infrastructure tool that can increase grid resiliency, save ratepayers money, and help stimulate local energy production. This legislation allows for the construction and operation of microgrids that are in the public interest. While the current statute allows for microgrids to be developed, the policy process is impractical and cumbersome. This updated policy creates a clear process for the development and deployment of microgrids , encouraging Maine communities to take control of their energy production and use.

The cost savings of microgrids have been made abundantly clear through a number of studies. These savings are primarily generated indirectly through a reduced need for infrastructure investments, reduced environmental costs, and increased resiliency. Microgrids provides a municipality the ability to generate its own electricity, thereby reducing their need for the infrastructure investments required to carry power from distant generation sources.

The role of microgrids in reducing the transmission infrastructure investment needs of Maine municipalities was clearly demonstrated in the Boothbay non-transmission alternative (NTA) pilot. The Boothbay NWA pilot project was designed to illustrate the cost saving potential of microgrids[1].The location was identified because the transmission line delivering power to Boothbay required costly repairs. The PUC was interested in investigating if a NTA would be cheaper than the estimated $18 million dollar rebuild of the transmission line. The plan devised by GridSolar and CMP consisted of providing distributed generation facilities with backup battery storage and energy efficiency measures. The distributed generation was a large deasil

[1] Fishell, Darren. 2013. Boothbay electricity project aims to change the grid. Mainebiz. Retrieved from: http://www.mainebiz.biz/article/20130318/CURRENTEDITION/303149991/boothbay-electricity-project-aims-to-change-the-grid

generator (500 kw) and a solar array (308 kw). These measures combined with a reduction in demand through efficient air conditioning and lighting and peak load shifting comprised the bulk of the energy needed to suspend the rebuilding of the transmission line. This project became a microgrid when GridSolar built a Smart Grid operations center that allows CMP to remotely control the different generation and storage facilities. In total this project is estimated to save the rate payers $18 million.

The savings observed in Boothbay are consistent with other microgrid projects across the country. One study from New York that modeled the costs of microgrids vs. the return on investment over time found that a microgrid can return 127% of the investment over twenty years. In this example the total cost for the microgrid was $5.6 million and the total savings was $20.8 million[2]. A separate study by Siemens showed that for an installation with a load of 40 MW, $40 million investment combined can yielded $110 million in energy savings[3]. These data show clearly that microgrids, when sited properly, can save rate payers millions in reduced infrastructure cost.

Allowing the development of microgrids in Maine would likely help to lower rates by incentivizing non-transmission alternatives (NTAs) throughout the state. Investments in transmission lines are how utilities make a profit, because they are guaranteed a 12% return on investment. While this has improved the utility infrastructure, it is not always fiscally prudent to focus investments on transmission lines due to their large expense and the burden that places on rate payers Giving power to individuals and communities to invest in a microgrid will spur investment in NTAs and lessen the need for transmission line infrastructure.

Microgrids have been shown to increase grid reliability. This is due to the microgrid's ability to isolate, or island, itself from the macrogrid. This islanding ability is an important component of

[2] Industrial Economics, inc. 2015. Assessing the benefits and costs of developing a microgrid: model user's guide. Developed for the New York State Energy Research and Development Authority.
[3]Dohn, Robert. 2011. The business case for microgrids: the new face of energy modernization. Retrieved from: https://w3.usa.siemens.com/smartgrid/us/en/microgrid/Documents/The%20business%20case%20for%20microgrids_Siemens%20white%20paper.pdf

microgrids and is the main factor that separate them from simply distributing energy resources. A report from KEMA for the Massachusetts Clean Energy Center encourages the use of microgrids for industrial facilities that "require high levels of reliability.[4]" This concept of expanded reliability by way of distributed power generation easily transfers to communities, especially those in areas of New England frequently affected by severe weather events. When the macrogrid goes down because of ice or wind, the microgrid is able to cover a portion or all of the load while the macrogrid is being repaired. An example of this can be seen in Borrego Springs, California where in 2013 a thunderstorm took out the transmission line serving the towns 2,780 customers. While power crews worked to fix the damaged poles and wires the microgrid provided power to 1,060 customers automatically using "on-site power." The customers who benefited included businesses downtown businesses, gas stations, and the local library which was designated as a local cooling shelter in the triple digit heat. The San Diego Union Tribune, who reported this story, quoted Linda Haddock, executive director of the Borrego Springs Chamber of Commerce, saying "The microgrid was really a crucial tool during this emergency situation…It truly made a difference in the lives of our residents…[5]" The ability of a microgrid to respond to emergency situations by keeping the lights on for vital facilities is an unapparelled tool for utilities to provide better services at a lower cost for their customers.

The foundation of a microgrid is distributed generation that can power the local boundaries of the microgrid in case of a blackout. Renewable energy is an excellent candidate to fill this void when combined with battery storage. Encouraging communities to invest in renewable energy projects is sensible public policy for a number of reasons. First, this investment provides local workers with high paying, high skilled jobs that will help to boost the local economy. Second, generating power locally means the money that rate payers would pay, regardless of generation source,stays in state instead of sending it to regional generators and beyond. Third, investing in renewable energy will help to push Maine as a leader in the fight against global warming. After

[4] http://files.masscec.com/research/Microgrids.pdf
[5] https://www.sandiegouniontribune.com/sponsored/business/energy/sdut-sgde-repair-crews-storm-2013nov10-story.html

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eight years of stalling on environmental issues, it is time to move forward and make the state of Maine a champion of renewable energy.

Good public policy is made when legislators give people the tools and incentives to make the right choices. LD 13 is a perfect example of putting another tool in the toolbox that communities can use to improve service and lower rates for the rate payers. This legislation improves grid reliability making blackouts less common and easier for the utility to manage. Finally, this bill encourages the use of renewable energy which will help keep money in the local economy and employ local workers. This is a policy that will help the state of Maine.

Thank you for your time,

Olin Jenner

Sierra Club Maine