

April 2, 2018

Debra Howland Executive Director and Secretary
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10
Concord New Hampshire 03301
RE: DG 17-068
Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities - Keene Division

Thank you for accepting my comments on the rehearing of DG 17-068. Although I am not a resident of Keene I feel very connected and invested in it, as it's the closest city to my home in Rindge, NH. I also feel that as a resident of the state, I have an interest in fossil fuel infrastructure expansion in any region of the state as it impacts our climate and environment. I wish that I could be allowed to intervene.

I am very fond of Keene and impressed with the community for its support of people with disabilities, the arts, cultural and educational opportunities, business, innovation and clean technology. Keene is committed to the goals of the Paris Climate Accord. Almost every week there is an announcement of a new energy efficiency or renewable energy project being planned or built in Keene. This was in last week's news, http://www.sentinelsource.com/news/local/harper-acres-solar-project-part-of-keene-housing-s-renewable/article_66930fa2-e496-5e4e-ad44-70e84c1b3dc8.html?utm_medium=social&utm_source=facebook&utm_campaign=user-share

But Keene is also concerned with cost and the safety of its citizens. The city is challenged with reducing Greenhouse Gas (GHG) emissions while also saving taxpayer money. The municipality has been very successful in doing both. A recently released 20-year study of GHG emissions in Keene reveals that the municipality itself reduced GHG emissions by 25% while also reducing costs and expanding the building space square footage. The city is determined to be business friendly, but also environmentally and socially responsible.

Most of the homes and businesses in Keene heat with oil or wood. As of 2016, Liberty Utilities had 748 residential customers and 449 commercial and industrial customers. <https://www.puc.nh.gov/Gas-Steam/Annual%20Reports/2016/Liberty%20KEENE%202016%20Annual%20Report.pdf>

Liberty Utilities plans to expand service in Keene and convert the existing system from an air/propane mixture to Compressed Natural Gas/Liquid Natural Gas. They will probably need to convert the remaining 7 to 9 miles of cast iron and steel pipes to a polyethylene type before they can flow the gas through existing distribution lines.

Cheshire Medical Center currently uses trucked-in CNG/LNG but are temporarily under contract to another company. As of 2015, Cheshire could also burn oil when necessary. <http://millyardcommunications.com/index.php?src=news&refno=5156&category=News> Rumor has it that there are other organizations in discussion with Liberty who are looking for "sustainable" solutions like trucked landfill methane as the only acceptable source for CNG.

Landfill methane is a win-win for the environment. The only problem is the availability. A check of the EPA website to see what's available or has potential in New Hampshire reveals that it isn't significant. <https://www.epa.gov/lmop/project-and-landfill-data-state> Of course, it should be pursued, but if an organization is betting that it's going to be a long-term solution, and installs equipment to use it, will

they be willing to abandon the investment in new equipment if the landfill methane runs out or becomes more expensive? Would they truck it in? If it's delivered by pipeline, wouldn't the whole city need to run on landfill methane? Liberty has made this offer in Lebanon too. How realistic is it?

Liberty has ambitious plans for Keene. This is from testimony delivered by Director Randy Knepper from NH Pipeline Safety Division when Liberty purchased Keene's existing air/propane system.

<https://www.puc.nh.gov/Regulatory/Docketbk/2014/14-155/TESTIMONY/14-155%202014-09-25%20STAFF%20DTESTIMONY%20OF%20R%20KNEPPER.PDF>

"1. (Reference Leehr Testimony p II of 17 Line I9-21) states: *"As stated, the Keene System 23 has approximately 1,250 customers along with a total annual consumption of approximately 130,000 Dth. EnergyNorth has a market forecast of increasing customer connections that*

2 would result in annual consumption levels approaching 500,000 Dth within 5 years of the 3 acquisition "

4 The Safety Division found this to be an unrealistic forecast considering an LNG supplied 5 plant needs to be installed, a new supply location selected, larger gas piping extended to 6 reach larger commercial customers, multiple regulator stations would be required, existing 7 customers converted from propane air, lowered delivery rates and lowered costs of gas 8 absorbed by existing EnergyNorth base customers. Given all those expenses, it is doubtful 9 that within 5 years a customer base could be expanded by that much within a single 10 community. There are numerous contingencies that would be encountered that make this 11 formidable.

12"

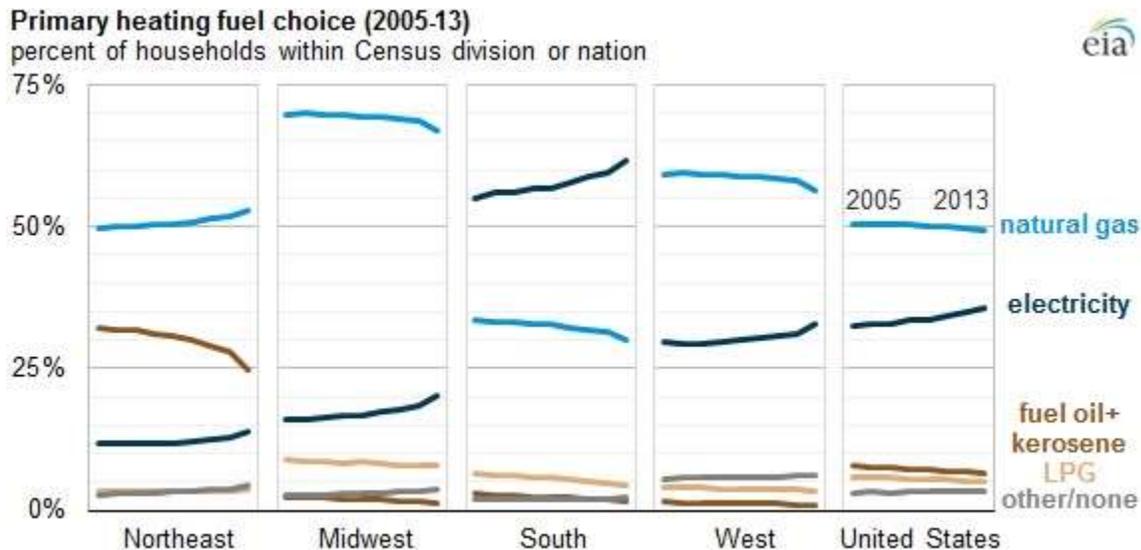
There are approximately 10,000 housing units in Keene. For Liberty to reach 500,000 Dth, they would need to provide service to every household in Keene or 1000 additional businesses. Why does it matter? It matters because that is the amount of business Liberty will need to manifest to make the purchase of the Keene system profitable enough to protect ratepayers from increases.

Keene has always strived to lead when it comes to sustainability and environmental responsibility. Is it reasonable to expect that most Keene households will elect to convert from oil to gas service instead of installing cold temperature air source heat pumps in the next three years?

Wouldn't large institutional customers be better served with biofuel/biomass cogeneration boilers that could provide heat and electricity from local sources?

Energy efficiency should be the first step in reducing costs and fossil fuel consumption. Liberty is content to rely on the Eversource NHSAVES program to provide energy efficiency services. This is, in part, because the way the NHSAVES program works, fuel consumption is reduced through weatherization or installing more efficient heating systems, BUT the overall electric consumption of the household cannot go up. The impact of this is that a NHSAVES audit and recommendations will NOT include installation of cold weather heat pump systems run on electricity. This is important because running a heat pump initiative helped Efficiency Maine move from 16 in the ACEEE rankings in 2014 <http://aceee.org/sites/default/files/publications/researchreports/u1408.pdf> to 13 by 2017. New Hampshire remains stuck at number 21. <http://aceee.org/state-policy/scorecard>

The path to a clean energy future requires electrification of transportation and heating systems. Every region of the United States is moving away from natural gas toward electric heat pumps for home heating except for the Northeast.



Keene’s Cities for Climate Protection Committee recently released a 20-year review of their Greenhouse Gas (GHG) reduction efforts. Although the municipality exceeded its goal of a 20% reduction in GHG (achieved 25%) and the Commercial/Industrial sector also exceeded its goal of 10% (14%); the residential and transportation sectors combined to reduce overall community reductions by only 2.8% compared with an overall goal of 10%. The report which tracks GHG emissions in 2015 compared with the base year of 1995 can be found here,

https://ci.keene.nh.us/sites/default/files/Keene%20GHG%20Report%20FINAL_no%20draft%20mark.pdf

Keene is evaluating the results of the GHG report to develop new goals and initiatives meant to accelerate the transition to a clean energy economy that engages the entire community. Converting oil heat customers to natural gas could potentially reduce carbon dioxide emissions by up to 27%.

<https://www.eia.gov/tools/faqs/faq.php?id=73&t=11> This number does not take low sulfur and biodiesel oil blends into account. Unfortunately, investing in a natural gas heating system is a 10 to 20-year investment.

Will this narrow reduction in carbon dioxide be sufficient to meet GHG goals for the community in 2030 or 2040? Moreover, a good weatherization effort can reduce fuel consumption by an average of 20% for most homeowners. Combining the weatherization effort with an electric powered air source heat pump and purchase or production of Renewable Energy Certificate-covered electricity would move Keene toward a 50% reduction in GHG emissions.

Unfortunately, in addition to the release of carbon dioxide during burning, the use of methane gas also ties into a chain of leaks of methane from the fracking operations through the delivery system. Over the first 20 years of release into the atmosphere, methane is a much more powerful GHG than carbon, “The drilling and extraction of natural gas from wells and its transportation in pipelines results in the leakage of methane, primary component of natural gas that is 34 times stronger than CO₂ at trapping heat over a 100-year period and 86 times stronger over 20 years [3]. Preliminary studies and field measurements

show that these so-called “fugitive” methane emissions range from 1 to 9 percent of total life cycle emissions [4].” From <https://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/environmental-impacts-of-natural-gas#.WrOR0Zch1PZ>

At the very moment that we need to stop the rise in global temperature, we are releasing more methane for the sake of reducing carbon emissions during burning. The impact is like having one foot on the brake and the other on the gas pedal. If you only look at one metric (carbon dioxide), gas heating seems superior to oil as a fuel. Unfortunately, even in New Hampshire,

From page 42 (and 49) "GAS UNACCOUNTED FOR" of <https://www.puc.nh.gov/Gas-Steam/Annual%20Reports/2016/Liberty%20KEENE%202016%20Annual%20Report.pdf>

3725 (36) Total Unaccounted For (Total of Lines 30 thru 35)
129,501 (37) Total Deliveries & Unaccounted For (lines 28 + 36)
 $3725/129,501 = 2.8\%$

Another way to look at this is that a 27% reduction in carbon dioxide comes at the cost of $(2.8\% * 86)$ a 240.8% increase in warming effects on the atmosphere over the next 20 years. Unfortunately, even the EPA’s original Clean Power Plan only considered the carbon dioxide metric. It’s little wonder that many state and local energy plans still encourage replacing other fossil fuels with natural gas since many of them were written before the methane impacts were well understood by climate science.

Liberty’s other franchises do much better.

From page 42 "GAS UNACCOUNTED FOR" of <https://www.puc.nh.gov/Gas-Steam/Annual%20Reports/2016/Liberty%20ENNG%202016%20Annual%20Report.pdf>

282,776 (36) Total Unaccounted For (Total of Lines 30 thru 35)
15,716,088 (37) Total Deliveries & Unaccounted For (lines 28 + 36)
 $282,776/15,716,088 = 1.8\%$

Even if the Keene system were improved to the 1.8% Distribution losses of the rest of the system, a 27% reduction in carbon emissions if every business and residence converted to Liberty gas, would still result in a $(1.8\% * 86)$, 154% increase in the warming effects on the atmosphere over the next 20 years.

It should also be noted that ratepayers pay for the leaks in the Distribution system.

Speaking of leaks; in the order granting Liberty a franchise in a Declaratory Ruling, the Commission states,

“While we agree with Liberty that it has the legal authority to offer CNG/LNG service in Keene, it is critical that any new CNG/LNG installations be accomplished safely. We note that CNG/LNG installations of the type contemplated by the Company include technology and piping that requires much higher operating pressures than are found in New Hampshire gas distribution systems. Pursuant to RSA 374:1 (utilities must provide safe and adequate service), RSA 374:3 (Commission's general supervision of utilities), RSA 374:4 (Commission's duty to keep informed), and related statutes, the Commission has the authority and responsibility to ensure that all utility installations are safely and reliably engineered in conformance with all applicable standards, and that public utilities like Liberty meet their duty to provide safe and adequate service under RSA 374:1. To that end, pursuant to RSA 374:1, RSA 374:3, and RSA 374:4, with respect to the system conversion in Keene, we order Liberty to provide all final plans for

engineering, construction, installation, testing, operations, public awareness, maintenance, emergency response, procedures, and schematics, including qualifications and training of personnel, in sufficient detail as requested by the Commission's Safety Division.”

https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-068/ORDERS/17-068_2017-10-20_ORDER_26065.PDF

This paragraph alone seems to cry out for a process like one conducted with the Site Evaluation Committee in which public/community meetings are held at a time and location within the community that make them accessible to working families. The public is invited to ask questions and make comments in the presence of their neighbors so that they can learn from each other in addition to simply hearing company marketing plans.

Is there a map of leaks in Keene? What are these higher pressures that, “requires much higher operating pressures than are found in New Hampshire gas distribution Systems?” What are current pressures? How much will it cost to accelerate the replacement of old piping?

Randy Knepper, Director of Safety, responded to some of these issues in an email,

“1) We are preparing a staff memo to the Commission regarding review of plans and submissions by Liberty. It should be ready to be filed in mid April.

2) Liberty CNG would be at 60 psig when it leaves its property. At that point it is no longer compressed as it has gone through a decompression skid and is just considered a traditional natural gas system. This is standard pressure in the mains in most towns in New Hampshire. Pressure provided to customers is reduced again at the service to approximately 0.25 psig and this is how (the pressure) to the majority of customers equipment is delivered.

3) The cast iron system for mains is not allowed to operate at pressures higher than 0.25 psig so Liberty has 2 options: either replace the cast iron system with a different material or install regulator station vaults that reduce the pressure to 0.25 psig as they expand the natural gas system. New Hampshire does not allow cast iron systems to operate higher than 0.25 psig as a safety measure. For comparison, Massachusetts allows 20 psig and the federal government allows 25 psig.

4) A CNG or LNG system would not have to go before the SEC. The SEC process is primarily for larger projects involving multiple towns.

5) The Keene system has no leaks so there is nothing to map. When and if a leak occurs the leak is typically repaired either the same day or coordinated with town’s plans for repaving of roads to minimize road disruption. The majority of leaks in Keene are because of damage caused by another excavator, so we have strict Dig Safe Rules in place to help minimize those occurrences. Typically those damages are classified as Class I and immediately repaired. The last occurrence was in 2012.

6) New Hampshire’s leak definitions are defined within our Puc 500 rules (Puc 508.04). Again we have stricter requirements on leaks and getting them repaired promptly than most other states as the federal government has very little requirements regarding this. “

Mr. Knepper’s fourth point is highly debatable given Liberty Utilities ambition to “lock in” so many businesses and households to methane for the next 10 to 20 years. It seems that Liberty’s marketing plan

is being given precedence over Keene's stated climate goals and plans to develop infrastructure to support a clean energy future. Liberty intends to more than triple the amount of gas service it delivers to customers in Keene. It also seems highly doubtful that it will succeed given public awareness that we must take action to combat climate change. In either case, allowing Liberty to push forward with a build out of infrastructure that depends on expanding service to so many customers will result in either stranded costs for ratepayers or Keene missing the mark on its climate goals.

Mr. Knepper's fifth point about there not being any leaks in the Keene system is inconsistent with page 42 of the 2016 annual report. Liberty reports 3725 DTH as Distribution Losses.

<https://www.puc.nh.gov/Gas-Steam/Annual%20Reports/2016/Liberty%20KEENE%202016%20Annual%20Report.pdf>

The responsible direction for the NH Public Utilities Commission is to declare a moratorium on any future gas expansion in New Hampshire and to recommend legislation that would revamp the NHSAVES program to include an initiative to support the use of air or ground source heat pumps. In the meantime, Liberty Utilities should repair their systems to reduce Distribution Losses.

Such a moratorium by a regulatory body is not unprecedented. Arizona regulators recently announced a moratorium on any new gas fired electric generating plants larger than 150 MW.

<https://www.utilitydive.com/news/arizona-regulators-move-to-place-gas-plant-moratorium-on-utilities/519176/>

The NH PUC might consider requiring this project to be reviewed and approved by the NH Site Evaluation Committee so that all aspects of the impact that Liberty's expansion in Keene can be properly assessed with robust public input.

As a minimum, the conditions surrounding "public awareness" should be expanded to include public listening sessions and financial conditions, such as were imposed in the Lebanon decision, should be added to the final order. <http://www.vnews.com/Opponeants-Pleased-with-PUC-Decision-16050108>

Sincerely,

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