

## Comments of HotZero LLC

On Statewide Energy Plan – February 18, 2014

We greatly appreciate the opportunity to provide some commentary on the development of a statewide energy plan pursuant to SB191. HotZero LLC was created in 2013 to help bring to New Hampshire communities tools which are used broadly elsewhere in the world to reduce the cost of heating buildings. Our three principals have over one hundred years collective experience in the ever changing energy industry. Mike Jesanis, our Managing Director, formerly led National Grid's US business, an acknowledged leader in promoting energy efficiency and increasing competitive dynamics in the production and delivery of electric energy. Mike also serves as a board member of companies engaged in the natural gas and energy efficiency sectors. Dick Henry, our Founding Director, headed the efforts of several non-profits to help building owners maximize energy efficiency opportunities, and has aided utilities in developing creative uses for aging infrastructure. Doug Foy, our Chairman, is known nationally and internationally for integrating strong economic and environmental principles into policies and actions which protect both our environment and our economy. Doug also serves on the boards of companies involved in emerging energy technology and services, and in energy efficiency.

We have had a chance to review the materials presented by Navigant earlier this month and want to provide our insights with respect to the materials and to provide our suggestions as to issues which should be addressed in a new state energy plan.

The Navigant presentation sharply reminds us why energy matters. Residents and businesses spend approximately \$6 billion each year on energy. Nothing in the Navigant forecasts suggests that the state's energy bill will fall. It also reminds us that our energy bills have more to do with transportation and heating costs, than electricity costs. The forecasts suggest that consumption of natural gas, particularly with business customers, will rise, but they are silent as to how that natural gas will make its way through the bottlenecks which exist today and are likely to exist in the future as natural gas is used for heating, industrial processes, production of electricity and potentially transportation.

It is this last point, the potential for greater use of natural gas, where we want to make our first observation and recommendation. Our observation is that the use of per capita figures for energy consumption obscures a significant problem facing the state – not all regions or cities and towns are average. Only 51 cities and towns have any natural gas service available, and **only 17 of those communities have more than 1,000 connections.** In other words only 7% of NH's cities and towns have economically significant access to natural gas. Customers in the other 217 cities and towns remain almost entirely dependent on petroleum products - oil, propane or kerosene for heating and are paying on average two or more times what those having access to natural gas are paying for the same amount of heat. Petroleum customers are also more exposed to high levels of price volatility, which can be highest when weather is coldest. This winter also proved that petroleum customers bear significant delivery risk as the state's largest oil dealer failed to deliver product during the coldest part of the winter.

The communities paying a higher share of heating costs are also likely to be paying a higher share of transportation costs, as these communities tend to be farther away from major New Hampshire and New England cities. On the other hand electricity costs are **not** likely to be materially different among communities now that most restructuring costs have been repaid, however it is likely from our past experience that more remote communities often have less resilient electric systems.

Beyond energy, there appears to be some correlation between local energy costs and local property taxes. In New Hampshire, the communities with the highest property tax rates are generally unlikely to have access to natural gas. For the 17 communities with a property tax rate above \$30/\$1000 of value, only 6 have any access to natural gas – **only 1 has connections with more than 1,000** customers. For the 50 communities with the highest property tax rates in the state, only 15 have any access to natural gas – of **which 3 have more than 1,000** connections. We are not suggesting a causal link between property taxes and access to natural gas; however, these communities will have greater difficulty attracting new businesses and residents given the double whammy of high property taxes and high energy costs.

These observations naturally lead to our principal policy suggestion – NH’s focus needs to be on the competitiveness of every part of the state rather than the state as a whole. A primary focus on macro policies such as the right level of renewables or whether the state spends enough money (collected through customer rates) on energy efficiency, **will not likely reduce the disparity among New Hampshire communities**. And a strategy to expand natural gas availability may pay dividends for those customers near an existing pipeline, but are unlikely to help the hundreds of thousands of residents who are not near existing pipelines. This is especially true in the “granite” state because the cost of building high pressure transmission lines is unusually expensive due to our geology.

Instead, the state’s policy should focus on increasing local competitiveness – including greater support for community based initiatives to support improving building efficiency, and to develop local sources of thermal energy and electricity. Distributed thermal and electric generation backed up by the grid will be more resilient and much cheaper to build than hardening the existing grid that never was designed for the increasingly extreme weather events we are and will be facing in the decades to come.

Turning to the nine questions posed in the Navigant document:

1. What does a secure and resilient energy system look like in 2023?

We believe that the definition of security and resiliency should focus on end customer and community. Goals might include:

- a. A significant reduction (say 1/3) in regional differences in energy costs within NH
- b. A significant reduction (say 1/3) in the volatility of energy costs due to markets and/or weather
- c. A significant reduction (say 1/3) in the amount of energy **not** delivered due to shortcomings in energy delivery systems (including long-term outages and momentary interruptions). Given our prior electricity expertise, a focus on utility response times will always be inadequate to deliver order of magnitude improvements in energy delivery.

2. Is the electric grid stable and reliable during extreme weather events in 2023?
  - a. We would recommend a focus beyond the electric grid. Is the energy system stable? Customers shouldn't lose their power or their fuel supplier because of weather. Customers shouldn't experience the level of cost volatility now experienced. CNG and LNG may work for some customers, but will have deliverability and price risks under extreme conditions. Thermal reliability is as important if not more important to our built environment as electricity. Without heat the damage to our built and social infrastructures can be extremely expensive.
  - b. More undergrounding would be deemed economic if we correctly assessed the cost of lost power (i.e. beyond overtime paid to utility crews). The ever growing digital world can rarely tolerate bumpy service.
3. Is NH's grid vulnerable to security threats (cyber security and others) in 2023?
  - a. Yes, but not worth the State's time. This is a national issue and can be left to FERC and NERC to oversee.
4. What effect does resource intermittency have on NH's energy system?
  - a. This is principally a regional, rather than a local issue, and principally impacts **transmission resources** needed in the area. The problem of resource intermittency is related to our dependency on a bulk power system delivered to customers through Transmission & Distribution lines (T&D). A better alternative is to design a system for the future which relies more heavily on distributed generation and storage resources (both customer and community based). This would make local systems much more resilient and potentially less costly with centralized thermal generation and/or expanded combined heat & power capabilities.
5. In 2023, where is NH ranked amongst its peers regarding energy efficiency, cost, or emissions?
  - a. Energy efficiency is a means to an end. Our strategy should be about cost and cost volatility. More efficient buildings cost less to operate and are less vulnerable to fuel prices/weather/etc. The effectiveness of efficiency programs should be measured based on the outcome of building efficiency metrics, rather than the input of utility or state

sponsored efficiency programs. Emission standards need to be part of regional/national solution to ensure cost competitiveness. Our greatest challenges are not statewide threats but local air and water violations that are close to triggering EPA non-attainment standards. For example an EPA county-wide air quality non-attainment classification will be devastating to the businesses within these local economies.

6. Do businesses and individuals actively seek to locate operations and settle in NH because of its energy policy in 2023?
  - a. It is probably unrealistic to expect NH to compete on cost, but an innovative and wide spread resiliency implementation could be attractive to residential and business immigrants. Put another way we should insure that no one leaves the state or fails to come to the state because of disparity in energy prices, particularly at the local level.
7. Are consumers able to protect themselves from fuel price fluctuations?
8. Are consumers empowered to manage their energy consumption?
  - a. Yes in the future, but only if we stop babying customers. Customers, both residential and commercial, are quite capable of making supplier choices and placing orders for products and services. This includes energy for those reliant on heating oil, kerosene, and propane, and those requiring transportation fuels. But we treat electricity and natural gas customers differently, as if they're all incapable of bearing any responsibility for their choices. Currently gas and electric customers can purchase all they want, and can change their order quantity any time they want without any change in price and without any notice to their supplier. If we want customers to be engaged, they need to be responsible for their entire transaction. How much electricity do they want this month? Who are they buying it from? Is it green or brown? Are prices fixed or variable? If we engage customers, they will become smarter about their use, and more actively seek out tools to manage that use, whether they are efficiency tools, or smart grid tools.
  - b. We need to break the current practice of managing energy consumption by gas and electric consumers as a utility responsibility.
  - c. Customers need more self-help resources, critically access to low-cost, long term, financing. PACE or PACE-like programs can minimize the need for the use of utility-sponsored rebate programs.

9. Are natural resources including air, water, and the scenic vistas of the state adequately protected in 2023?
  - a. Air and water quality resources have steadily improved over the last 40 years due to ever stringent regulatory requirements. These are often affected by energy decisions and air and water quality should continue to improve as we develop better and better energy performance standards and tie our financing mechanisms and availability to meeting these requirements. By giving strong price signals to violators and rewarding innovators should be the best way to protect these critical shared resources well into the future. As our society becomes more and more digital our natural resources become one of the main attributes which help to attract and retain a highly skilled workforce.