



July 21, 2014

RE: SB191 Draft Energy Strategy

Please find below the comments of Wagner Forest Management, Ltd. in response to the Draft Energy Strategy developed under SB191.

We would like to preface our comments by thanking Navigant for their work on this project. In particular, the in-person meetings were strikingly clear despite the complex subject matter. We believe this draft represents an important first step, particularly towards measuring the current state of New Hampshire energy policy. That being said, the strengths are overshadowed by insufficiently clear objectives, a and a lack of discrete interim milestones for measuring progress towards those objectives. Also lacking are suggestions for mechanisms to provide oversight and course correction as the state strives to meet our objectives. We support the blueprint laid out by the New Hampshire Clean Tech Council, particularly the recommendation of retaining an additional \$1 billion each year within the state.

Likely due to lack of time and resources, the plan does not adequately evaluate the sources of the success or failure of New Hampshire programs. More importantly, there is insufficient analysis of why other states are doing better – for example, section 5.1 states that there is a “widening gap between New Hampshire and surrounding states” but there is no analysis of what programs surrounding states have implemented that has led to this gap. To the extent funding has not been available to perform such a study, a clear recommendation for additional analysis in this area might be a concrete recommendation and deliverable that could stem from this report.

Wagner Forest Management has been, currently is, and expects to continue to be involved in utility and small-scale renewable energy projects. As one of the largest private land managers in the state, we are also exceptionally well versed in the realities of biomass opportunities. We will focus our comments primarily on these areas of expertise.

Utility Scale Renewable Energy

As a company actively involved in both distributed and utility scale renewable energy generation projects, we are baffled by the Energy Vision’s near-omission of the role utility scale renewable energy has and can continue to play within New Hampshire’s energy mix. Although utility scale and distributed generation are given equal consideration in Figure 3-2, there is hardly a mention in the rest of the draft strategy about the important role utility scale renewable generation has in the energy mix. There is also insufficient discussion of specific policies (long term procurement policies such as those used in Massachusetts and Connecticut, raising Alternative Compliance Payment caps to match those of other New



England states, and predictable permitting criteria to name but a few) can play in fostering development of renewable energy generation resources in New Hampshire. While small scale projects certainly have a role, we disagree that “small scale” should be relied upon to the exclusion of the large commercial projects that have been an essential foundation of the energy strategy for most other states.

In Section 4.5.1, dealing with power generation, despite showing strong potential for terrestrial wind in figures 4-8 and 4-9, you limit discussion about wind to “distributed wind (smaller than utility scale).” The report referenced in footnote 49 (An Analysis of the Technical and Economic Potential for Mid-Scale Distributed Wind) would suggest this to be an unwise limitation. For example, Figures 12-14 of this report show the bulk of suitable sites within New Hampshire to be in the northern half of the state - primarily ridgelines in sparsely populated areas. As such, the vast majority of wind energy capacity coming from these locations would not be small scale distributed projects, but rather larger utility scale projects. Excluding the areas better suited to utility scale projects, New Hampshire is, by technical limitations, a fairly poor place for most small scale wind projects. Most towns are located in valleys or in southern areas of the state, where the NREL report shows that wind resources are dramatically limited by the technical realities of geography and topography. You will note that all major commercial wind projects have focused on ridgelines due to these resource-based considerations. In addition to the topography constraints, New Hampshire is the most forested state in the country – further limiting the technical effectiveness of smaller wind installations in most locations.

By contrast, utility scale wind farms represent the vast majority of new renewable energy installations over the past 5 years (by at least two orders of magnitude). Given that terrestrial wind power is a proven economical resource within the state, it would be appropriate for 4.5.1 to specifically note that utility scale terrestrial wind projects have had commercial and operational success, and are a vital resource for achieving the clean domestic energy generation potential of the state. Given that you later recognize the importance of terrestrial wind for meeting the RPS target, and also “the remaining economic potential for additional terrestrial wind power generation is actually higher than” solar technologies, we assume that the omission of Utility Scale Wind from Figure 5-10 is accidental.

We disagree that “areas with the most promising resources (largely ridgelines and coastal areas) may be undesirable because of their proximity to residences” – many ridgelines, particularly in the northern half of the state, are 3 miles or more from the nearest residence. While certain projects with proximity to residences have taken a disproportionate share of newspaper ink, the largest project in the state (Granite Reliable) continues to operate without objections, precisely because it is not proximate to residences. New Hampshire has the landbase to install several projects of similar size and remoteness to Granite Reliable, and we believe that you do a disservice to the state’s renewable energy generation potential by damning an entire industry based on the public



reaction to a subset of proposals. We would be happy to show you maps which could quickly correct this erroneous statement. We would also point out that the NREL study used to support your assertion of the feasibility of mid-scale distributed wind relies almost exclusively on these ridgeline resources you label as “undesireable.”

You present a factually incorrect statement when you assert without reference “power intermittency is another challenge for wind technology in the absence of economically feasible utility-scale storage solutions.” ISO-NE has reviewed integration of wind resources and found that “New England could potentially integrate wind resources to meet up to 24% of the region’s total annual electric energy needs in 2020 if the system includes transmission upgrades comparable to the configurations identified in the Governors’ Study “ (See the ISO-NE Wind Integration study, http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2010/nov162010/newis_i_so_summary.pdf). This report comes directly from the most authoritative voice on the subject, and should be included in your report.

We wholeheartedly reject and disagree with your conclusion that “although the technical and economic potential exists for additional terrestrial wind, public concerns may mean that the most viable option may be presented by customer and community-scale installations.” We suggest in the strongest manner possible that you strike this sentence in its entirety. We would instead recommend a statement that accurately characterizes the technological and economic potential, without misrepresenting viability based on public concerns. A more accurate balance might be “There is substantial technical and economic potential for additional terrestrial wind, although these projects must be properly sited to minimize public concerns. Customer and community-scale installations may also contribute to terrestrial wind deployment where they are technically and economically feasible.”

Finally, we believe that section 5.3.3 does not adequately explore the successful policies of other states.

- For utility scale energy projects, a Feed In Tarriff may produce results, but seems politically highly unlikely.

The primary barrier to renewable energy development on a commercial scale is obtaining a long term Power Purchase Agreement (PPA). Because renewable energy projects can guarantee a fixed price for up to 20 years, Massachussets and Connecticut have had dramatic success in furthering renewable energy deployment simply by having their load serving entitites enter into long term PPAs. Such products make financing renewable energy projects much more efficient, and indeed the most recent round of long term PPAs for Massachussets enabled the purchase of renewable energy that was CHEAPER than conventional electricity sources (See the September 23 Boston Globe article entitled “Wind power now competitive with conventional sources”). Clearly such mechanisms are a win for developers, utilities, and ratepayers.



- The owners of distribution systems should be required to allow generators to co-locate lines from renewable energy projects on existing poles. Obviously costs associated with maintenance and rebuilding should be allocated fairly. There should also be requirements for the owners of distribution systems to facilitate connection directly into these systems, to the maximum extent possible.
- Much of the existing infrastructure is aging, and is in need of replacement. There should be a study to determine low-cost upgrades that could be done concurrently with needed maintenance to facilitate greater renewable energy interconnection. One example would be that updated wires may come at a small marginal increase in conductor costs, but might enable substantially more generation to tie into existing lines.

Small Scale Renewable Energy

In order to foster small scale renewable energy, we would like to suggest the following strategies:

- Currently it is costly and logistically difficult for small scale producers to certify their REC production. This process should be simplified and streamlined (this is briefly mentioned, but not highlighted).
- It is difficult, perhaps functionally impossible, for small generators to sell RECs – the transaction costs are simply too high. We suggest that the state simplify the process of validating and selling RECs. For example, the load serving entities could have a standard offer sheet for their customers, so that small generators do not need to have a legal team review the contract, and marketers find a buyer.
- Interconnection to the distribution system is difficult for projects over 100 kW. The owners of these lines should set up policies that streamline integration
- During at least one of the meetings (April 21, I believe) we discussed the arbitrary reduction of sREC ACP and the resulting decimation of investor confidence in New Hampshire's energy policies. In addition to restoring sREC pricing, measures should be taken to signal that policies will not be retroactively changed for existing resources. The impact of such uncertainty cannot be overstated, but this event seems to be largely missing from the draft.

Biomass

The DES study referenced in section 4.4.1.2 is overly confusing and complicated. The draft Strategy appears to base most of its biomass conclusions on this study, notably drawing from the study's descriptions of limitations in supply from the forest to conclude there are minimal commercial/industrial thermal applications. We recommend you review 2012 study performed by INRS for NEFA, which is both more recent and a much clearer assessment of NH forests and their potential as a source of energy.

One set of statistics drawn from the NEFA report is that NH forests grow approximately 200 million cubic feet/yr, and are harvested at a rate of 139 million – approximately 30% of total NH forest growth is currently not being harvested. There are a total of 12,800 non-



recreation jobs in this sector - not to put too fine a point on it, but these are well paying blue collar jobs generally located in regions with the highest unemployment rates. While the room to expand industrial and commercial biomass thermal applications is not limitless, it appears to be substantially higher than is accounted for in the Strategy. We believe it would be useful to incorporate this data into the Strategy, and highlight that the state's forests could sustainably handle a fairly large increase in usage, while increasing jobs and retaining dollars in the New Hampshire economy.

In general, the draft Strategy references compressed natural gas (CNG) as a much more viable, almost preferable alternative to biomass as a source of thermal fuel in the commercial/industrial sectors. While we are not arguing that CNG has a role in NH's energy future, we believe that biomass should remain the preferred source of thermal fuel.

- Natural gas has experienced significant price volatility for almost as long as it has been a major fuel source. Biomass, by contrast, has been much more stable in price, supply, and deliverability.
- As you are keenly aware, much of the increase in natural gas supply has been based on new hydraulic fracturing technology. The controversy surrounding this technology has only grown over time, not diminishing as with other technologies. High profile decisions surrounding community rights (most recently in New York) raise questions about the ability of this technology to continue expansion of supply. These questions may be dwarfed by the uncertainty surrounding what regulations, if any, ultimately get applied by Federal regulators.
- Energy dollars spent on CNG leave NH, while dollars spent on biomass/wood stay in the state and promote local job creation
- The "Plan" references CNG being trucked to commercial/industrial applications in rural applications not near nat. gas pipelines. There is no reference to the relative cost of this fuel. While nat. gas is currently selling for \$4.50/MMBTU, (vs \$5-6/MMBTU for wood fuel in commercial/industrial applications). This is an apples to oranges comparison, as the natural gas pricing ignores the costs of compression, storage, transportation, and delivery.
- There were enormous spikes in natural gas prices this winter (and all expectations are for spikes for years to come). There is no guaranty that the NE Governors plan to build pipeline infrastructure will mitigate cost or supply issues within New Hampshire. It seems more likely that new generators will locate in MA and CT to reduce the possibility of transmission constraints. Indeed, any expanded capacity may be taken up by these new facilities and retrofits of facilities such as Salem Harbor, leaving little supply available to NH industries at a reasonable cost. Biomass supplies, by contrast, are local and more knowable.

Finally, in sections 3.3 and 5.4 you mention the benefit of keeping dollars in state – we think it would be helpful and appropriate to specifically call out the job creation inherent in this assumption. Because most of the biomass resource to be used is grown, harvested,



transported, processed, and marketed in New Hampshire, by New Hampshire employees, the economic and employment impacts of biomass resource does not seem to be adequately highlighted. It may be worth stressing that many jobs in this industry provide living wages, and would disproportionately provide employment to some of the poorest areas of the state.

Other comments

In Section 4.3.1 you discuss the report “Additional Opportunities for Energy Efficiency in New Hampshire” but do not discuss what our progress and experience is 5 years after the report was released. Are we meeting those opportunities, and if not, why not? It would seem that focusing on the lessons learned from the successes and failures of past policies would make for a much more useful report.

Although there is considerable attention paid to smart grid technologies in the report, our experience leads us to be pessimistic about fulfilling these objectives. Time and again we have heard that the state’s aging infrastructure is ill prepared to handle current demands – adding additional complexity without fixing the underlying infrastructure seems likely to lead to highly publicized and politicized failures. In addition, many of the technologies are dependent upon a communications infrastructure that simply does not exist in wide swaths of the state. We suggest instead a call for policies that simplify interconnection of generators, easing restrictions on co-location of power lines, and rebuilding aging infrastructure with uprated components better able to handle generation and communication in the renewable energy friendly remote parts of the state.

We at Wagner thank you for your consideration of our comments. We recognize that the tight budget and timelines associated with this project have made it difficult to fully explore the areas we would all agree are necessary for the final report. We hope that these comments are received in the spirit they are given, that additional data and information may lead to the strongest possible report, which hopefully will be the first step towards achieving the visionary dream you have offered.