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ABSTRACT

THE WINDS OF CHANGE: THE POLITICAL ECOLOGY OF RENEWABLE ENERGY TRANSITION IN VERMONT

**by
Jill McNulty Clegg**

This research presents a case study of renewable energy transition (RET) in Vermont, illustrated by a recently completed commercial wind project in the Lowell Mountains. Preliminary analysis maps out the current political landscape of Vermont's RET – its stakeholders, political climate, and important policy advances. Subsequent analysis focuses on the relationship between RET and the unique aspects of Vermont's institutions, culture, and communities. Important elements of this analysis include the ways that community groups form a vital link between citizens and the State, the unique opportunities and challenges presented by Vermont's pastoral land perception and activist heritage, and the way that community support is contingent on broadly defined, transparent, democratically structured community participation. This research concludes by arguing that future RET efforts would benefit from considering similar institutional, cultural and community concerns; from developing more collaborative community models (including community ownership); and from fostering a sense of collective responsibility and participation in both local and regional initiatives.

**THE WINDS OF CHANGE: THE POLITICAL ECOLOGY OF RENEWABLE
ENERGY TRANSITION IN VERMONT**

**by
Jill McNulty Clegg**

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Submitted to the Faculty of
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Master of Science in Environmental and Sustainability Policy**

Department of Chemistry and Environmental Science

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APPROVAL PAGE

**THE WINDS OF CHANGE: THE POLITICAL ECOLOGY OF RENEWABLE
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DEDICATION

I've learned that it takes a village to write a thesis.

I dedicate this thesis to my many friends who spent hours playing with, and taking great care of, my little one so that I could research and write – and first and foremost to my dear and extremely generous friends Louise and Cara. Also Heidi, Julie, Natalie, Michelle, Rebekah, Grace, Ruth, Cyndi, Marie, Marta and Tyra. I quite literally could not have accomplished this work without your kind help.

I dedicate this thesis to my loving and supportive extended family – my grandparents, father, and brother, my parent and sibling-in-laws, and most especially my mother and my two wonderful sisters – for their constant encouragement and emotional support throughout my work.

Most importantly, I dedicate this thesis to my husband Josh and my baby daughter Afton – all of this work is for you, for us, for our little family. Thank you for your sacrifices (which were many) to ensure I accomplished this work. It is our work.

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CHAPTER 1

INTRODUCTION

There is an increasingly public dialogue surrounding the importance of moving from a fossil-fuel economy to a renewable energy economy.¹ This renewable energy transition (RET) includes taking account of current and future projections of the damaging influences of climate change, the ultimate viability of remaining fossil-fuel supplies, and the equity implications of continued reliance on coal and oil. The need to convert from an economy of highly polluting fossil fuels to a more sustainable, low carbon (or zero-carbon) society is becoming an urgent societal undertaking (Heinberg, 2007; Foxon et al., 2010).

Among theorists who discuss the challenges of fostering an RET, it is possible to identify two general schools of thought. The first can be characterized as the so-called “small is beautiful” approach to renewable energy, originally articulated by E. F. Schumacher (1973) in his book of the same title. This term has a long history in environmental and ecological thinking and also in grassroots efforts dating back to the energy crisis of the early 1970s. This vision of “human-scale” or “community-scale” energy systems is predicated on the re-localization of energy production and consumption. Some of the benefits of such arrangements may include an increase in local independence and sustainability, a heightened sense of communal affiliation and collaboration, and an enhanced potential for a greater awareness of consumption patterns. Drawbacks, however, might include a lack of resource availability, an inability to scale

¹ A fossil-fuel economy is one that includes the processing of coal, hydrofracturing natural gas, wood burning, and the drilling and burning of oil in its many forms.

up energy-project production, or a limited contribution to the reduction of this nation's fossil fuel dependence (Heinberg, 2007).

An alternative vision to RET is one of seeking energy stability and efficiency through the maximization of resource use and production (Marsh, 2005; Winters, 2005). This future is predicated on “utility-scale” or “commercial-scale” energy generation. Under this vision, established energy companies have the monetary and intellectual capital to design, organize, and achieve the optimal efficiency and increased scalability of projects with the latest technological advances. The ability to scale up renewable energy efforts can be seen as a positive attribute in many ways, particularly when there are steep carbon-reduction targets to meet or renewable energy goals to attain. Another advantage of commercial-scale energy production is the potential for an infusion of money into a community. Part of this revenue stream may come as a result of energy firms being able to sell some of the electricity produced through renewable projects to companies, communities, and grids, not just in local areas, but in distant counties, or even other states or countries (often places with larger populations and electricity needs).

While electricity sales to distant areas certainly adds economic advantage for the energy firms, and even perhaps for the recipient communities, this very point is an area of contestation for some critics of commercial-scale energy production. These opponents contend that production and consumption should be (re)localized. Another criticism of this utility-scale vision is that there is neither a guarantee that potential funds will reach people affected by the inconveniences and degradations of larger-scale energy-production processes, nor will those dollars necessarily compensate adequately for those inconveniences. Other critical appraisals include arguments that more sizeable projects

produce larger negative impacts on the landscape and local biodiversity, and lastly, that with scaled-up projects, operating companies may solicit less feedback and engagement with affected communities.

As will be demonstrated in the chapters that follow, these additional factors involved in commercial-scale energy production can often produce serious clashes in local communities. This thesis explores some of these conflicts and challenges in the context of a commercial-scale wind project in Vermont and the developments that have unfolded from it. Chapter 2 will review current literature that addresses some of the complex aspects of renewable energy or sustainability transitions and key questions surrounding commercial-scale wind development. Then an overview narrative of the research case study of a Vermont RET will be provided. Chapter 3 is a discussion of the research methodology. The analysis begins in Chapter 4 with an introduction of Vermont's political landscape and structure and continues with an in-depth treatment of three general areas of consideration, namely the roles of institutions, culture, and community, which are vital to an RET. The thesis concludes in Chapter 5 with policy and procedure recommendations for future RET efforts.

CHAPTER 2

LITERATURE REVIEW AND CASE-STUDY BACKGROUND

2.1 Literature Review

As outlined above, modern-day problems associated with climate change, fossil fuel extraction, and continued use of coal, gas, and oil make necessary and expedient the transitioning to more sustainable modes of energy production and consumption. The term renewable energy transition (RET) encapsulates current efforts to steer communities, states, and countries away from fossil-fuel reliance and toward renewable energy production and use. Fronk et al. (2010) argue that such a transition is necessary because, as the rest of the world catches up with the United States in energy-consumption rates, the U.S. becomes increasingly unsustainable on a global scale. Small localized efforts to reduce fossil-fuel dependence can engage and educate communities on important energy issues, but as Heinberg (2007) points out, these efforts are likely to be insufficient to manage such a large-scale global energy problem. Heinberg goes on to suggest that government intervention is imperative, but adds that governments are often slow to respond to, or participate in, such transitions because of temporary economic sacrifices and the possibility of incorrect peak projections. However, in looking to the future, when fossil-fuel supplies have become depleted or have become otherwise unobtainable, and an increase in both global population and rising standards of living have exponentially increased energy consumption on a worldwide basis, the importance of transitioning away from fossil fuels and toward renewable energy sources such as wind, solar, biomass, geothermal, and hydro becomes clear. Along with these energy technologies,

both Heinberg (2007) and Fronk et al. (2010) emphasize the need for additional focus on energy conservation (or reduction in consumption), as well as efficiency improvements as an integral part of any RET process.

There is an extensive body of research on the topic of transitioning to a low-carbon society and to sustainable energy practices that feature renewable energy production and use at their core. Most of this work is built around theories of socio-technical transitions and strategic niche management that have been developed by authors in the UK and the Netherlands. While researchers have not widely deployed the term “renewable energy transition,” they do discuss the need for transitions of this kind (to renewable energy production, to “low carbon economies,” to reduction in consumption, and to “sustainable transitions”).

The work of Sakellariou and Mulvanvey (2013), for example, speaks specifically to engineers and is a call to join in the effort to transition to renewable energy. Their call is for engineers to engage in and become trained in the social and environmental dimensions of new and renewable energy technologies in order to “bring together better understanding between engineering and policy efforts.” The authors pose numerous questions for engineers to ask themselves, such as, “Who benefits and who suffers from the project?” “Who is held accountable?” “What are the [engineering project’s] unintended consequences?” and so forth. Such questioning solicits a consciousness of, and an accountability for, transitioning toward renewable energy development that is relevant for all stakeholders and participants involved in RET efforts.

In their 2010 article, Foxon et al. (2010) discuss transition at a more general level. Specifically, they are seeking to develop transition pathways for a low-carbon electricity

system in the U.K. They discuss transition management and their efforts to “design and evaluate . . . alternative plausible governance patterns” and to consider how these affect current socio-technical energy systems and infrastructure. They create and assess these transition-pathway systems and infrastructures with a focus on low-carbon alternatives, and pay close attention to the roles and influence of all actors or stakeholders (e.g., “multinational energy supply and distribution companies, national governments, major investors, households, innovators and entrepreneurs”).

Another important contribution to this body of literature on transitions is the recently published edited volume *Innovations in Sustainable Consumption: New Economics, Socio-technical Transitions, and Social Practices* (2013). Within this volume, multiple authors examine numerous topics relevant to sustainability transitions. For example, Rene Kemp and Harro van Lente address the very real challenges of orchestrating within sustainability transitions not only “a *change of systems of provision* (e.g., transportation, agriculture, energy), but also *a change in criteria* that actors use to judge the appropriateness of products, services, and systems.” David Hess (2013) discusses failures of sustainability transitions due to the slow pace of change and introduces, instead, an adaptation approach. This approach seeks to create resiliency in socio-technical systems and infrastructure by (among other things) addressing energy consumption through energy conservation efforts and increased access to energy created from renewable sources. Sabine Hielscher and her colleagues (2013) explain the differences between, and problems of, governments that have “an instrumental interest in community energy, to help facilitate additional, larger-scale sustainable energy transitions” and “community-energy participants [which are] often broader in scope,

covering community-development objectives, as well as perceiving that community-based projects deliver energy savings and behavior changes that top-down policy instruments cannot achieve.” These authors highlight the complexity of fostering sustainability and renewable energy transitions, particularly in light of the need to address “deeply ingrained social practices of normal energy consumption and everyday life.”

Because of the complexities involved in seeking to accomplish successful transitions, there are a myriad of pragmatic issues that must be considered in order to better understand the political landscape of renewable energy development, and more specifically, utility-scale wind production in Vermont. A review of the literature on RET suggests that these factors include not only issues of varying public perceptions, but also matters pertaining to local cultural values that inform those perceptions and, in turn, influence wind-project development. Other factors center on the siting of renewable energy projects. Also of importance is the need for community engagement and full collaboration in RETs. Lastly, this literature suggests that it is valuable to have a clear understanding of the barriers and facilitators in existing political structures around wind projects (and renewable energy projects in general).

Perceptions of landscape and culture

Research has indicated that general public perceptions (both supportive and oppositional) of wind development cluster around a varied set of themes. One such theme includes issues that arise around aesthetics (Heagle et al. 2011; Walt, 2013; Warren & Birnie, 2009; Warren et al. 2005). For example, Phadke (2011) discusses elite politics in which those who “own” the land are those that determine how it “should” look. Because some people see wind turbines as majestic and others as blight, Phadke (2010)

also places emphasis on the need for policy to take into account these competing aesthetics. Economics (Walt, 2013) also plays a key role in perceptions of wind power. Slattery et al. (2012), for example, suggest that individuals are more likely to support a wind project when it is believed that such development will reverse economic decline.

Politics also play a varied and complex role in the perception of landscape and culture (Bell et al., 2013; Jolivet & Heiskanen, 2010; Phadke, 2010, 2011; Pralle & Boscarino, 2011; Warren & Birnie, 2009; Wolsink, 2012). One salient political issue concerns community engagement. Hindmarsh (2010), for example, encourages developers to employ an “inform-consult-involve” policy strategy with a community rather than to just “inform.” Discussing politics more generally, Fischlein et al. (2010) contend that as each state has unique factors that contribute to their socio-political motivations for wind energy creation, policy measures should address those motivations on a state-by-state basis. Other literature that addresses public perceptions focuses on landscape and wildlife impacts, anticipated visual or aural disruptions from wind turbines, and health and safety factors (Warren & Birnie, 2009; Warren et al. 2005). Such considerations can be highly influential given that, as Slattery et al. (2012) argue, though there may, in general, be strong public and political support for a wind project, perceptions of negative impacts can be powerful enough for local opposition to prevent development. Heagle et al. (2011) also point out that locations with high wind potential are often the same areas as those with high scenic value, which may contribute to local resistance. A final political concern that appears in RET literature addresses significant concerns over issues of fairness (benefit and burden), or social justice in wind-development projects (Warren & Birnie, 2009; Bell et al. 2013; Heagle et al. 2011). One

such argument, presented by Bell et al. (2013), claims that resourceful, affluent communities are likely better able to block unwanted development than poorer areas.

Because all of these above- mentioned factors stem from personal and cultural values (Phadke, 2011; Slattery et al. 2012; Warren & Birnie, 2009), it is important to understand what roles these values play in wind development and to review the social construction of personal and public attitudes surrounding such projects (Warren & Birnie, 2009; Wolsink, 2012). These social and personal considerations will facilitate better strategic processes with respect to siting and community collaboration.

Siting of renewable energy projects

It is not clearly understood what forms of strategic locational guidance systems for siting wind projects currently exist, how comprehensive they are, or how widely they are used, but it is evident that siting issues can be among the most contentious for local communities involved in wind projects (Warren & Birnie, 2009; Slattery et al. 2012). In her 2011 article, Phadke explains that part of the reason for such contention might be because “while wind developers and federal agencies have proposed thousands of new megawatts of installed projects, local government officials and residents are still coming to terms with the regional transformations these projects will engender). Additional challenges that emerge with respect to siting include problems of conflicting values and also that of benefit and burden distribution (Warren & Birnie, 2009).

Because of these conflicts, and as a matter of environmental and social justice, it is important to reassess the rights (moral perhaps even more than legal) of local residents in the siting process. Determining the proper mechanisms for identifying the most socially, economically and technically viable locations to erect wind farms would help to

ensure effective renewable energy transitions as well as to reduce community pushback (Hindmarsh, 2010). Both Warren and Birnie (2009) and Hindmarsh (2010) discuss in depth the idea that a key element of limiting opposition and conflict is to engage community collaboration both early on in the siting process and continually throughout a project.

Community collaboration model

Recent literature by Hindmarsh (2010) suggests that much of the local opposition which resists wind development may be directly or indirectly attributed to weak or “passive” consultative practices (town hall meetings, surveys, information sessions, and other “one-way” communication practices). He goes on to encourage new collaborative practices which include “early and ‘active’ involvement, full information, transparency, inclusiveness, deliberation, participant diversity, partnership in agenda, setting and decisional influence” (Hindmarsh, 2010).

Additional efforts to incorporate elements of a collaborative approach to wind-farm development - including social mapping of a community’s requirements, preferences and concessions and technical mapping of wind capacities - would elicit ownership in the development process and might reduce opposition (Breukers & Wolsink, 2007; Warren & Birnie, 2009). Breukers and Wolsink (2007) call on policy makers and wind developers alike to “[institutionalize] participation in project planning.” Multiple authors have suggested that determining the right amount and types of community participation may be an important step in moving toward a local cooperative wind-development model and renewable energy transitions in general (Jolivet & Heiskanen, 2010; Phadke, 2011; Seyfang & Haxeltine, 2012; Verbong & Geels, 2010).

Political and institutional structures

Although not applicable in Vermont, in one current wind-development model for some states in the U.S., the Bureau of Land Management is responsible for issuing permits. As Phadke (2011) claims that this federal agency operates on what she describes as an old model of “extractive energy development,” perhaps this may be one place to instigate new protocols for mandatory public engagement in wind (and other renewable) energy development. Such collaborative approaches may help begin to make the use of wind-power a familiar and routine aspect of everyday life (Breukers & Wolsink, 2007).

In general, deeper national and local discourses exploring what kind of renewable energy future the U.S. wants to purposefully implement (rather than have it “happen” passively) may help assuage some of the surprising “green on green” (opposing pro-environmental positions) complications in wind-energy production and engage the general citizenry as well (Warren & Birnie, 2009; Warren et al. 2005). As each state brings a unique array of socio-political factors to the wind-energy discussion, it is of utmost importance to approach future wind projects with a well-developed set of locally specific socio-political frames (aesthetic and cultural, economic, environmental, health and safety, political, and technical) to aid in the development and deployment of wind technology (Fischlein et al. 2010).

RET in the global context

Additional work that is relevant to RET embraces transitioning to low-carbon societies and sustainable energy practices in ways that inherently include movement toward aggregate reduction in energy and material throughputs. This body of work highlights a wide range of themes such as community involvement and leadership in the

implementation of innovative sustainability systems, describes how such change happens according to socio-technical transition and niche theories, and how current projects and models can be looked to for future development and potential growth (Kemp & van Lente, 2013; Verbong & Geels, 2010). The primarily European authors represented in this body of literature suggest that these complex sustainability transitions, though difficult, may begin to be achieved through low-carbon energy-policy initiatives (Hielscher et al. 2013), various social movements (Hess, 2007), and grassroots innovation and community-led initiatives (Seyfang, 2010; Seyfang & Haxeltine, 2012).

One success story involving such a local renewable energy transition in Europe is the community on the island of Samso, Demark which engaged successfully in a ten-year transition to energy self-sufficiency beginning in 1997.² Projects such as Samso provide evidence that such endeavors might be both possible and feasible. Whether this remains true in the U.S. is another matter, due to additional policy and cultural limitations (namely, a lack of federal support for such energy transitions and persistent cultural biases toward renewable energy, among others).

Although these limitations may appear to have significantly slowed renewable energy transition efforts here in the U.S. (compared to Europe perhaps), in the past few decades, solar and wind farms - in a range of sizes and scales - have been built across many states, including California, Vermont, Texas and throughout the mid-west (Slattery et al., 2012; Phadke, 2010, 2011). Additionally, the community of Greensburg, Kansas, decided to take the opportunity of a natural disaster to rebuild their town more

² See <http://www.scientificamerican.com/article.cfm?id=samso-attempts-100-percent-renewable-power> (accessed on 12.2.13).

sustainably.³ These kinds of examples indicate that it may be possible to execute a transition of large-scale sociotechnical systems in the U.S. as well.

Summary

The main arguments described in this literature review represent the complexity of issues surrounding transitions away from fossil-fuel usage and toward renewable energy creation. These complexities reflect concerns around cultural and landscape perceptions, such as aesthetics, economics, a large array of perceived impacts (animal, human health, etc.), and problems of social justice or fairness in the distribution of benefits and burdens. The literature also speaks to difficulties around siting for renewable energy projects and, relatedly, to the varying approaches and levels of community engagement in development. This body of literature also provides numerous theories and empirical findings that might help in accessing and shaping the political and institutional structures that influence current and future energy transitions. More generally, this literature describes a complex texture of political, cultural, and technical relations, graded across varying scales of RET efforts. Implicit in this collection of work is the importance of a holistic understanding of that texture – that is, an understanding, within a particular, integrated context, of how the various elements in this web of meanings connect and depend on each other across different developmental scales, and such an understanding is the goal of the present research.

2.2 Overview Narrative of Case Study

To shed light on these basic processes related to commercial-scale wind development, and to energy transition efforts in general, the chosen case study for this thesis is the state

³ See <http://www.greensburggreentown.org/> (accessed on 12.2.13).

of Vermont. This small northeastern state is an instructive location to explore different visions of the transition to renewable energy as it has exhibited both a history of resistance to big infrastructure as well as robust citizen activism that dates back to the pre-revolutionary era. Such activism has often focused on environmental concerns. In the 1960s, for example, plans to build an interstate highway called the Burlington Beltline were met with fierce opposition and the project was ultimately defeated. Similarly, the Vermont Yankee nuclear power plant has elicited opposition from its inception and now, with the prospect of closure, has not ceased being a target for mobilization by community-action groups. Current conflict in Vermont over renewable energy production, then, is linked to a much longer history of resistance to large-scale development projects and citizen activism in the state.

On the whole, Vermonters have shown interest in and commitment to carbon-emissions reduction through their voting power and the many projects (both grassroots and commercial-scale) that have been created to pave the way to a low-carbon future. One of the (now highly contested) ways of achieving carbon-reduction targets is through renewable, and specifically wind, energy production. The state has been the site of four commercial wind projects during the past sixteen years (see Appendices A.1 and A.2 for more detailed information regarding these four projects), beginning with a small eleven turbine (0.5MW each) 6MW project in Searsburg, Vermont. This project was implemented with extensive community input and support. In 2012, the 10MW four turbine (2.5MW each) Georgia Mountain wind farm also came online. These initiatives, by and large, fit into the human-scale category outlined above, as the energy produced

has tended to meet local needs, and the projects themselves are considered by the state's residents and legislators to have been successful.⁴

During the past five years, however, there have been a few significant shifts in the approach to renewable wind production in Vermont. Specifically, there has been an uptick in larger, commercial-scale projects, rather than smaller, local wind-energy developments. Sheffield Wind came online in 2011 with sixteen (2.5MW each) turbines totaling 40MW generation capacity. Toward the end of 2012, the recently completed twenty-one turbine (3MW each), 64.5MW project, nicknamed Lowell Mountain for its location along the ridgeline of the Lowell Mountains, became the largest commercial wind project in the state to date. While these commercial ventures have received support from many local and statewide voices, as these larger projects have focused on an increase in the size and number of wind turbines being erected, they have attracted more extensive and vigorous public resistance. Some of this resistance may be partially due to planning and production processes that have neglected adequate feedback from and collaboration with proximate communities. Data collected in this research also suggests that some of the opposition may be due to the completion of multiple development projects in a relatively short period of time. Finally, with the larger wind farms, companies have seen opportunities to transmit the energy produced by these facilities to out-of-state users for additional profit instead of keeping both production and consumption local, which is of concern to a number of Vermonters.

The case study under consideration here focuses particularly on the recent controversy over the Kingdom Community Wind Farm (hereafter referred to as the

⁴ See <http://news.greenmountainpower.com/press-releases/GMP-Searsburg-Wind-Plant-Has-Banner-Year-0731148> (accessed on 12.2.13).

Lowell Mountain project) being constructed along the ridgeline of the Lowell Mountains near the Vermont town of Lowell. In 2009, Green Mountain Power (GMP) (a commercial wind company and sponsor of the first commercial wind farm in Vermont [Searsburg in 1997]), announced its intentions to pursue a wind-farm project in the Lowell Mountains, located in the northern part of the state. This proposal differed in a number of ways from GMP's previous venture in that this particular project plan included many more and larger turbines than had previously been erected in the state (21 in total, at 3MW each). Also highly contested was the location of these large turbines along the ridgeline.



Figure 2.1 Kingdom Community Wind farm aerial photo of the Lowell Mountain ridgeline (2013).

Source: Burlington Free Press

Activist groups that were (and continue to be) aligned against the project argue that the destructive processes of putting up the turbines along ridgelines is akin to mountain-top removal (a notorious technique used in coal mining) and that construction would have detrimental effects in terms of water supplies, biodiversity, and land erosion.

These intrusions, opponents charged, were too significant to justify the relatively small amount of wind power that would be produced. Finally, many activists took issue with the fact that some of the energy created by these wind turbines would feed into transmission grids that supply electricity not only to Vermont, but also to areas in New Hampshire and Massachusetts.

Some Vermont residents believe that the GMP business model flies in the face of Vermonters interested in “community-scale” renewable energy as a means to enable sustainable living. GMP, however, claimed that current out-of-state energy distribution would only be a temporary arrangement intended to offset the cost of the expensive installations (up to \$156 million) (Gram, 2011). This reasoning was regarded as unsatisfactory to some local residents who contended that they would bear the brunt of the problems and inconveniences from turbines sited in close proximity (Heagle et al. 2011; Slattery et al. 2012) but have no guarantee of reaping any benefits from the energy or revenue produced by them. Despite these objections, as of the spring of 2013, all 21 turbines of the Kingdom Community Wind Farm are up and running.

Despite such public disagreements, for the most part, there tends to be broad agreement among both citizens and elected officials in Vermont that renewable energy is a desirable strategy. At the same time, commercial wind producers and state and local legislators alike are looking to undertake additional projects in this vein—projects that will increase the scale and efficiency of energy produced and help to meet the state’s carbon-reduction targets in a way that would be difficult or impossible on the basis of smaller scale, grassroots approaches to renewable wind. However, with the increased focus on bigger wind projects, growing numbers of Vermonters are pushing back. Of

these dissenting voices, some advocate for small, local (human-scale) production and consumption of renewable energy sources and reject the commercial- or utility-scale projects such as Lowell Mountain. Other opponents contend that solar rather than wind is the way to meet carbon-reduction targets, and still others are focusing on efficiency measures and overall reductions in energy consumption.

The Lowell Mountain project, then, is a useful example to help better understand this dynamic between human-scale and utility-scale viewpoints and to illustrate some of the main challenges of large renewable energy developments. This research sought to address the following questions in the investigation of Vermont's renewable energy transition and, in particular, the Lowell Mountain project:

Perceptions: How are aesthetic, economic, and political perceptions surrounding wind projects now being socially constructed in Vermont? And how do people come to see their values (e.g., fairness, impacts on wildlife) and interests (e.g., health and safety concerns, anticipated visual or aural disruptions from wind turbines) as being threatened by commercial wind projects?

Siting: In what ways have the negotiations between technical, economic, and social siting considerations influenced the degree of community support for the Lowell Mountain wind project?

Collaboration: To what degree were the communities in proximity to the Lowell Mountain site engaged in the development process? What strategies, if any, were employed to build community engagement in this project? Which, if any, of these strategies were effective and which were not? What, if any, barriers were there to

community collaboration? What, if any, suggestions do community members have for improving community collaboration in the development process?

Political structures: What were the political facilitators and barriers for getting this venture up and running? What were the enabling and constraining factors for stopping this initiative? What were the existing political and bureaucratic (procedural) structures in Vermont (and the Lowell Mountain area) pertaining to renewable energy and specifically wind production at the inception of this project? How were they negotiated, transformed and challenged through successive stages of the initiative?

CHAPTER 3

METHODOLOGY

3.1 Methodology Overview

This research employed the case-study method, an approach common to research on complex socio-political topics such as renewable wind energy (Brady and Monani, 2012; Genc et al., 2012; Mount et al., 2012; Shanahan et al., 2013; Warren et al., 2005). Data collection procedures typical of the case-study method were employed, including interviews, analysis of archival information, and personal observation. First, several key political players in renewable energy in Vermont were identified and the different political interests engaged in trying to give shape to a renewable energy transition (RET) in the state were determined. Second, there was an attempt to reach out to individuals affiliated with wind development in the state - electricity corporations, energy-efficiency projects from non-profit organizations, as well as local citizen and activist groups, local journalists and scientists, educators, and legislators. Third twelve of these individuals were interviewed to gain insight from different sides of the debate. The interviews were semi-structured, followed a general interview guide, and covered questions regarding issues of siting, perceptions, collaboration techniques, and various political structures. Fourth, archival methods were employed as the many aspects of an RET in Vermont have been extensively documented. Through these different approaches to data collection, a political mapping was created of the various organizations, companies, government offices, coalitions, alliances, and interest groups involved in and around the Lowell Mountain project and RETs in Vermont more generally. Finally, an analysis of the

potential trajectory of renewable energy (particularly wind) in the state was created and then evaluated to determine how this experience might inform further understanding of developments in other parts of the country.

3.2 Research Interview Participants

In determining key individuals to interview, it was paramount to attain a broad sampling of the various perspectives on renewable energy in Vermont, and particularly, differing viewpoints on the Lowell Mountain wind project. Therefore, respondents representing electricity corporations, non-profit organizations, leaders of energy-efficiency projects and activist groups, local journalists, an educator, and several legislators were recruited. Many of these key figures were identified through local (mainly online) periodicals, commentaries, and websites. A purposive sampling method was employed to allow conversations with initial respondents to help identify additional potential interviewees. Each potential respondent was contacted by email (or in a few cases, by telephone), explained the nature of the study, and asked if he or she would be willing to participate. For those who agreed to participate, an interview appointment was set to take place either by phone or in person, depending upon the mutual availability of the interviewer and interviewee.

Legislators: Respondent #6 is a member of Vermont's legislature and a leader in statewide debates pertaining to energy policy. Respondent #4 is an employee at a key government agency in Vermont involved in various aspects of the vetting of renewable energy projects in the state.

Non-profit organizations: Non-profit organizations in Vermont play an important role in the formulation of energy policy for the state. They provide critical public information on projects and procedures, catalyze community-energy initiatives and support, push for progressive energy policy, and organize and engage citizens in activism. Their voices are integral to local/state energy projects. First, Respondents #2 and #3 are CEOs from two of the most influential non-partisan, non-profit organizations working on energy policy in the state. Second, Respondent #1 is a leader in the local energy-efficiency movement and heads an organization that is seeking to “reduce the economic and environmental costs of energy consumption” in the state. Finally, Respondents #5 and #8 are CEOs of two partisan activist organizations that are decidedly anti-wind (and pro-solar), that are specifically opposed to the Lowell Mountain project, and that focus their efforts on conservation and public health issues related to renewable energy development.

Electricity Corporation: Respondent #9 is affiliated with Green Mountain Power, the utility company that proposed, built, and now operates the 21-turbine Lowell Mountain wind project.

Journalists: Respondent #7 is a journalist for an online periodical who very recently wrote an important article on Vermont wind power. Respondent #11 is an author and energy activist who has written numerous books, articles, and commentaries on sustainable living and on renewable energy issues. Respondent #12 is an author and professional facilitator of community sustainability and citizen participation.

Educator: Respondent #10 is an educator focusing on environmental issues at the University of Vermont.

3.3 Research Procedure

During July 2013, travel to Montpelier, Burlington, and Rutland, Vermont over a three-day period allowed for meetings and interviews with key figures (as described above) regarding Vermont's renewable energy transition. Additional interviews were conducted at SolarFest—an annual three-day sustainability conference and renewable energy festival in Tinmouth, Vermont. Several other respondents, who were unable to meet in person, were interviewed over the telephone at a later date. Each interview began with a brief introduction of the interviewer's academic and professional history, followed by an explanation of the nature of the study, and a promise of confidentiality. Respondents were then asked for permission to record the interview for later transcription and analysis, and all agreed to participate under these conditions. All interviews—in person and by telephone—were recorded on a handheld Olympus digital voice recording device and later downloaded and partially transcribed. Interview sessions followed a semi-structured format steered by a general interview guide created specifically for this research (see Appendix B). (This set of questions was only a guide, and was loosely adhered to as appropriate for each interview). Written notes were also taken during each of the interviews, and each interview ended with a “thank you for participating” before a cordial termination of the interview. There was some follow up communication—all over email, mainly for the sharing of documents and website links discussed within a specific interview. To control the setting, all interviews took place in private offices or conference rooms (if the interview was conducted in person) and over private telephone lines (not on speaker) if conducted over the telephone. Additional interviews at SolarFest were carried

out privately on fold-out chairs in an open meadow. All interviews lasted approximately one hour.



Figure 3.1 SolarFest 2013 in Tinmouth, Vermont (cell phone charging station).

A thematic analysis of the interviews was conducted, at which point the archival and observational data that had been collected were integrated into the analysis. Archival data included pertinent websites, as well as extensive research locating policy documents, records, reports and communications from different committees, organizations and agencies. Each interview was analyzed to identify salient topics, which were then compared across respondents to discover the most significant themes for this research. The aim of this work was to document both common patterns and points of divergence relevant to Vermont's current political contestations and the process of an RET in the state.

CHAPTER 4

ANALYSIS

This chapter provides an in-depth discussion of why institutions, culture, and communities matter in renewable energy transitions (RETs). This analysis focuses on a case study of Vermont’s current renewable energy landscape, using examples from the recently completed Lowell Mountain commercial wind project. Core arguments in this analysis include, first, the important role of institutions in RET efforts, with an overview of the political landscape in Vermont, including legislative and regulatory bodies, utilities, community groups and media. A second argument concerns the significant role that culture can play in an RET, and specifically, how it influences an RET in the state of Vermont. A final argument is that communities matter greatly in transitioning toward Vermont’s renewable energy future, as illustrated by events from the development of the Lowell Mountain wind farm.

4.1 Institutions Matter

In this section, explanations are provided for some of the key aspects of the larger social and political structures relevant to an RET in Vermont. Identifying these social structures, as well as Vermont’s unique structural conditions, is necessary to better understand the unfolding RET in the state. Some of these influential institutions include the legislature and other regulatory bodies, electric utility companies and energy corporations, a myriad of community groups and businesses comprising both partisan and non-partisan non-profit organizations, energy cooperatives, activist and conservation

groups, local energy businesses, and the media. This section begins with a Civics 101 outline of state systems, figures, policies and procedures relevant to RET. Following this brief overview is a discussion of the political landscape in Vermont, including a review of the legislative and regulatory bodies involved in RET efforts in the state. Some current issues pertaining to “home rule” in Vermont and relevant state-planning issues are then presented. This section then continues with an explanation about the role of electric utility companies in Vermont and how they fit within the Independent System Operators (ISO) New England grid system. The end of this section offers some preliminary conclusions after highlighting the important role that community groups and media play in the RET process in the state.

4.1.1 The Political Landscape in Vermont: Civics 101

Vermont Demographics

As of 2013, Vermont had an estimated population of 626,000 which makes it the second least populated state in the United States behind Wyoming. The population density is approximately 67.7 people per square mile. The population of the ten largest cities and towns (by 2010 estimates) does not include in its ranks the capital of Montpelier which has a population of around 8,000; the top ten are as follows: Burlington, 42,417; Essex, 19,587; South Burlington, 17,993; Colchester 17,067; Rutland, 16,495; Bennington 15,764, Brattleboro 12,046; Milton, 10,352; Hartford, 9,952; Springfield, 9,078; and Barre, 9,052.⁵ These (and a few additional) of the state’s most populated cities and towns

⁵ See <http://www.infoplease.com/us-states/vermont.html> (accessed on 12.2.13).

combined reach just around 200,000 citizens, or roughly 32% of Vermont's population, leaving the remaining 68% living in more rural areas.

According to 2010 census information, the statewide median age is 41.5 years old, and the gender breakdown is fairly evenly split with a slight majority for the female population at 50.7% compared to the male population of 49.3%. Interestingly, approximately 95% of the population identifies as "white" (which category includes Hispanic or Latino). However, out of that 95%, about 2% do identify specifically as Hispanic or Latino, which leaves 93% of the population identifying as Caucasian. Also in 2010, the median household income of Vermont residents was \$51,841, with 11.1% of Vermont residents living in poverty.⁶ The state of Vermont is roughly 160 miles long and 80 miles wide, reporting a square area of approximately 9,615 square miles. It is the 45th largest state in the country; or, in other words, only five other states are smaller.⁷ Comparatively speaking, Vermont is small, extremely white/Caucasian, with a relatively modest population and annual income.

Governor of Vermont

Vermont is a "strong governor" state which means that the governor has executive powers to appoint his commissioners and heads of state departments. He can grant pardons (except in the case of treason), call a special General Assembly, and draw from the Treasury.⁸ In the states of Vermont and New Hampshire, gubernatorial terms are two

⁶ See <http://www.vermont-demographics.com/> (accessed on 12.2.13).

⁷ See <http://www.worldpopulationstatistics.com/vermont-population-2013/> (accessed on 12.2.13).

⁸ For a full list of gubernatorial powers, see http://en.wikipedia.org/wiki/Governor_of_Vermont (accessed on 12.2.13).

years, while for the rest of the country it is a four-year term. In Vermont, however, there is no limit to the number of consecutive terms a governor can serve.

Vermont's current governor is Peter Shumlin. Shumlin was first elected Governor of Vermont in 2010 after a five-way Democratic primary that put him in the lead with less than 200 votes; however, he was re-elected in 2012 by a wide margin. Prior to his governorship, Shumlin had been a representative in the Vermont House from 1990 to 1993 and in the Vermont Senate from 1993 to 2003. Key initiatives championed by the current governor include becoming the first state to ban fracking⁹ (although this is a symbolic ban since there is no gas or oil in Vermont), and his pet project - state healthcare: "Vermont became the first state to lay the groundwork for single-payer health care . . . when [Governor Shumlin] signed an ambitious bill aimed at establishing universal insurance coverage for all residents."¹⁰ In addition to healthcare, high on Governor Shumlin's agenda are reforms in education, civil rights (specifically same-sex marriage), and energy. Shumlin is a Democrat, but is also a fiscal conservative which is not unproblematic for a state that identifies strongly as Democratic. Shumlin's tenure has also been consumed with issues of storm recovery (Irene and Sandy) and rebuilding. The current Lieutenant Governor of Vermont is Republican Phil Scott.

Vermont Legislature

The Vermont Legislature is divided into a House and a Senate, modeled after the federal government. The legislature meets at the Vermont State House in the capital of

⁹ Gerken, James (May 17, 2012). ["VT Becomes First State To Ban Fracking"](#). *Huffington Post*.

¹⁰ Wing, Nicholas (May 26, 2011). ["Vermont Single-Payer Health Care Law Signed By Governor"](#). *Huffington Post*.

Montpelier, Tuesday through Friday during the legislative session, which runs from January to late April. They are in session usually for approximately sixteen or seventeen weeks in total.¹¹ For both the House and the Senate, there is a requirement of having lived in the legislative district where elected for a minimum of two years.

The Vermont House of Representatives is the lower house of the Vermont General Assembly, and is comprised of one hundred and fifty Representatives from approximately one hundred and eight (single or two-member, depending on the size) districts. There are sixty-six single-member and forty-two two-member districts. Representatives are elected for a two-year term without term limits. The current Speaker is Democrat Shap Smith of the Lamoille-Washington-1 District. The Majority Leader is Willem Jewett of the Caledonia-2 District. The Minority Leader is Republican Donald H. Turner of the Chittenden-9 District.¹²

House Representative Democrat Tony Klein of the Washington-5 District was first elected in 2002, and is currently the Chair of the House Natural Resources & Energy Committee, as well as the Chair of the Joint House & Senate Energy Oversight Committee. Representative Klein is one of the strongest voices and most active proponents for renewable energy projects in the state.¹³

The Vermont Senate is the upper house of the Vermont General Assembly, and is comprised of thirty members representing thirteen single or multi-member districts (three single-member districts, six two-member districts, three three-member districts, and one

¹¹ See <http://www.leg.state.vt.us/> (accessed on 12.2.13).

¹² See http://en.wikipedia.org/wiki/Vermont_House_of_Representatives (accessed on 12.2.13).

¹³ See <http://tonyklein.com/> (accessed on 12.2.13).

six-member district). Senators are also elected for a two-year term without term limits. The Senate is charged with the special functions of confirming or rejecting gubernatorial appointments and electing members to the Vermont Supreme Court. The President *Pro Tempore* is Democrat John F. Campbell of the Windsor District. The Senate Majority Leader is Democrat Philip Baruth of the Chittendon District, and the Minority Leader is Republican William T. Doyle of the Washington District.¹⁴

The Senate has many senior members from both parties who have taken a stand against wind development in the state, including Republican Joe Benning of the Caledonia District, Democrat Peter Galbraith of the Windham District, and Democrat Bob Hartwell of the Bennington District (who is also the Chair of the Senate Natural Resources Committee).

On a national level, Vermont is represented by strong voices in favor of alternative energy sources in both the U.S. House and Senate, including Senators Patrick Leahy (D) and Bernie Sanders (I), and House member Peter Welch (D).

Key Acts of Legislation Pertinent to RET in Vermont

A discussion of key legislation follows. For a more comprehensive list of RET-related legislation, see Appendix C.

Act 248 (1969) - officially called “Section 248, title 30,” this Act specifically covers development for energy generation in the state. It was not until 2004, however, that former Governor Jim Douglas’s Commission on Wind Energy issued its final report specifying that Section 248 (over Section 250) was the appropriate vehicle for siting and

¹⁴ See http://en.wikipedia.org/wiki/Vermont_Senate (accessed on 12.2.13).

permitting proposed electric transmission and generation projects (including commercial wind-generation).¹⁵ Section 248 is commonly referred to as “The Certificate of Public Good” permit, and it states that projects proposed must be what is best for the entire state and not just one particular area.

Act 250 (1970) - this Act covers all development except for energy generation and telecommunications. Entitled the Land Use and Development Law and created in 1970, this law was the first of its kind in the nation. It created nine governor-appointed District Environmental Commissions consisting of private citizens charged with approving (or denying) land development and subdivision plans that have significant impacts both on the state’s environment and on many small communities.¹⁶

Comprehensive Energy Plan or CEP (2011) – this plan recommends that Vermont be using 90% renewable energy sources by 2050. It does not include suggestions of how Vermont might go about achieving that goal.

Act 61, Sustainably Priced Energy Enterprise Development, or SPEED (2005) - this program was created by the Vermont legislature in lieu of a more thoroughgoing renewable portfolio standard (RPS) that allows the state to require utilities to meet and uphold certain standards (e.g., – a certain amount of SPEED generation projects by 2017). This legislation also allows utilities to sell renewable energy credits/certificates (RECs) out of state, which helps to significantly mitigate the cost to ratepayers (up to 50%) for the building of new projects such as Lowell Mountain. “The goal of the SPEED program is to promote the development of in-state energy sources which use renewable

¹⁵ See http://publicservice.vermont.gov/sites/psd/files/Topics/Renewable_Energy/Resources/Wind/WindCommissionFinalReport-12-15-04.pdf (accessed on 12.2.13).

¹⁶ See <http://en.wikipedia.org/wiki/Vermont> (accessed on 12.2.13).

fuels (SPEED resources) to ensure that to the greatest extent possible the economic benefits of these new energy sources flow to the Vermont economy in general and to the rate paying citizens of the state in particular.”¹⁷

Senate Bill 30¹⁸ (2013) – this bill was a reaction to three wind farms coming online within three years. The bill “S30” was originally designed to place a three-year moratorium on large-scale wind developments in the state. The House pared it down to legislation that would have required large energy generation projects to conform to Act 250 land-use criteria. When the bill finally passed later that same year, it had been stripped down to \$75,000 worth of further study for future consideration.¹⁹

Vermont Regulatory System

Vermont’s regulatory bodies consist of two main agencies—the Public Service Board (PSB) and the Agency of Natural Resources (ANR). For clarification purposes, PSB is not a part of the Public Services Department (PSD) but is a separate entity with its own charge, though they were combined into one agency prior to 1981.²⁰ In 1981, however, PSB was split from the administrative arm of PSD. The PSD, housed within the executive branch of Vermont state government, is an administrative agency with the charge of representing the public interest in matters regarding wastewater, telecommunications, and energy.²¹

¹⁷See <http://vermontspeed.com> (accessed on 12.2.13).

¹⁸ See <http://openstates.org/vt/bills/2013-2014/S30/> (accessed on 12.2.13).

¹⁹ See <http://vtdigger.org/2013/04/19/house-panel-reduces-large-scale-wind-study-to-review-of-siting-policy-commission-report/#sthash.gERpR0Rm.dpuf> (accessed on 12.2.13).

²⁰ See the report on the structure of the Vermont Public Service Board from 2004 available at http://www.narucpartnerships.org/Documents/Janson_Structure_PSB_eng.pdf (accessed on 12.2.13).

²¹See http://publicservice.vermont.gov/about_us (accessed on 12.2.13).

The PSB board, however, has a different charge. When PSB became an independent entity, it was modeled on a court system, and commissioned to serve a “quasi-judicial” role as the state’s official regulatory body that grants or denies renewable energy-project permits (Act 248 - “certificate of public good”). This entity alone (PSB), is authorized to make such determinations for the state of Vermont. A complete list of PSB responsibilities can be found on their official website:

The Public Service Board is a three member, quasi-judicial board that supervises the rates, quality of service, and overall financial management of Vermont's public utilities: electric, gas, telecommunications and private water companies. The board also supervises cable television companies, although federal law preempts most authority to regulate cable rates or programming. The board also reviews the environmental and economic impacts of proposals to purchase energy supply or build new energy facilities; monitors the safety of hydroelectric dams; evaluates the financial aspects of nuclear plant decommissioning and radioactive waste storage; reviews rates paid to independent power producers; and oversees the statewide Energy Efficiency Utility.²²

This three-member Board consists of a Chairman and two Members nominated by the Vermont Judicial Nominating Board, appointed by the Governor of Vermont and confirmed by the Vermont Senate. The Chairman and Members serve for staggered six-year terms.²³

²² See <http://psb.vermont.gov/aboutthepsb> (accessed on 12.2.13).

²³ See http://en.wikipedia.org/wiki/Vermont_Public_Service_Board (accessed on 12.2.13).

Currently, the Chairman of the PSB is James Volz, who was recently reappointed. His term is now set to expire in 2017. The two current Members on the board include John D. Burke, whose term expires in 2015 and newly appointed Member Margaret Cheney (September 2013) who was a Vermont House Representative working on the energy committee.²⁴ Her term expires in 2019, unless reappointed.

While PSB makes the final decision about whether or not to grant a “certificate of public good” on a given project, the Board works closely with, and relies on, ANR. The ANR is an official branch of the governor’s office, and it is has the responsibility of representing the state’s resources (land and habitats) in potential development projects. This agency is an interesting and important institutional innovation in that it quite literally provides a political voice for “the resources” of the state. There is much discussion in both national and global sustainability circles of the need for an ombudsmen, or representative voice (of sorts) for the earth’s resources and for future generations. It should not remain unaddressed how unique it is that Vermont has an agency filling this very role; in short, in this state, someone really does “speak for the trees.” For the purposes of this research, however, the focus is on the day-to-day efforts through which ANR plays a vital advisory role to PSB in the regulatory permitting process. The ANR also, independently of PSB, grants or denies other permits pertaining to water quality, wetlands, endangered species, and the like. Also appointed by the governor is the Secretary (head of the agency) of ANR – currently, Deb Markowitz (appointed by Governor Shumlin in 2011).²⁵

²⁴ See <http://vtdigger.org/2013/09/16/rep-margaret-cheney-named-to-public-service-board> (accessed on 12.2.13).

²⁵ See <http://www.anr.state.vt.us/> (accessed on 12.2.13).

4.1.2 Politics in the Legislature

The Vermont House and Senate, as Interviewee #7 pointed out, are comprised of true “citizen lawmakers,” or regular citizens who have a vested interest in the health and well-being of the state. The Vermont legislature is only in session for four months out of the year, members have no legislative staff (except for a few top leaders), and are paid only a small stipend on the order of \$9,000 per year. The idea of such a legislature fits well into the Vermont image and ethos, and this body of citizen lawmakers has achieved significant progress in the last two decades creating policy that has allowed the state to become an RET leader. They have accomplished this namely through the establishment of feed-in tariffs, group net metering, and also working to gain self-reliance through renewable energy-generation projects. However, according to respondents there are currently serious problems with obstructionism and moribundity within the legislature regarding the state’s renewable energy future, and specifically with wind energy production:

The Vermont Senate is kind of an odd place. It has a lot of, like the U.S. Senate, has a lot of people with a lot of seniority and has a very high regard for its own processes and traditions . . . much more so than the Vermont House which tends to be younger and [to have] more turnover. The Senate has quite a few people in it who are against wind-power development, including people in positions of power at the top of the Senate . . . but the house is much more pro-renewable (Interviewee #7).

These general dividing lines are brought into relief further by the dynamics of individual leadership within these two governing bodies:

What's challenging is that within the legislature there is an interesting dynamic in that the Chair of the House Natural Resources and Energy Committee is a very strong proponent of renewable generation and I think is pretty adverse to anything that will impede or slow [these types of projects]. Then on the Senate side, the current Chair, and the kind of ranking Republican member were authors of S30, and come from regions of the state that have been targeted for large wind and have a very different take on at least that technology. [And they are] representing communities that are underprivileged, and don't have resources, and don't generate any electric load, and it's almost like a social justice issue. (Interviewee #4).

Because of these conflicting views on the topic of renewable energy, and more specifically commercial wind production, the intensity of the discourse from various pro- and anti-wind (or renewable energy) voices in the legislature has only increased in the aftermath of the Lowell Mountain project. Additionally, the complexity of these issues has recently slowed progress in the legislature. For example, this year much time and effort was spent on the S30 bill but, ultimately, this attempt at imposing a three-year moratorium on all large wind-production projects failed.

These contrasting views extend beyond party lines within the legislature, and at times have created frustration and disagreement between the legislature and the public, even while there may be some agreement within the legislature. One example of such frustration is the Sustainably Priced Energy Enterprise Development (SPEED) program.

Although numerous citizens have expressed a desire for the state legislature to design and implement an official REP, Vermont legislators have chosen rather to continue the SPEED program:

[In 2011, the Vermont legislature] made the conscious decision to not change the program, not end the program, and not go to a renewable portfolio standard, but to wait till 2017 . . . to address the future, and to let it play out [because] financially, it is working beautifully. The only ones screaming bloody murder are the purists, and the Public Service Board. (Interviewee #6).

This is not the only instance where a lack of clarity regarding the public's influence over the legislature and energy administration has caused contention.

4.1.3 Home Rule and State Planning

The divisions of power and responsibility between municipalities and the state, specifically with regard to an RET, are not always clear to the general public. For example, the recent turbulence over the Lowell Mountain project created a statewide ripple effect that left many towns full of concerned and engaged citizens clamoring to revise their “town plan.” At the behest of the citizens, many local jurisdictions altered the wording of their local planning documents to make them unambiguous in their rejection of wind projects in their immediate areas. Aside from the fact that this type of behavior is part of what generates so much not-in-my-backyard (NIMBY) -related name calling (an accusation Vermonters often level at each other), such behavior also reveals a general lack of familiarity with the state's power structures. Three separate interviewees

discussed the general misconception among citizens who believe that Vermont is a Home Rule state:²⁶ “Vermonters are always stunned when they hear we are not a Home Rule state . . . So that is really frustrating for people to hear because it is not consistent with what they believe our culture and history are. It actually creates a lot of the public tension and angst” (Interviewee #2). Vermont citizens may misperceive their state to be a Home Rule state simply because there is so much citizen activism and opportunity for community engagement in local politics. However, strictly speaking Vermont is not a Home Rule state, and therefore, these town plans are not in any way legally binding. As Interviewee #1 indicated, “All powers of the municipality are given by the legislature, and if you want to have a new power, you have to go to the legislature and get it from them.”

Rather than municipalities, it is the governor-appointed, quasi-judicial body of the Public Service Board (PSB), and this body only, which is the ultimate and final word on wind and other renewable energy development projects in Vermont. It is important to mention, however, that if a “no commercial wind project statute” is written into a town plan, the PSB will take into account the respective town’s request when considering the permitting of a project. However, PSB does and will ultimately make the permitting decision, regardless of such statutes in a town plan, particularly if a project is deemed a “greater good” (Act 248). In general, “county government is almost non-existent here . . . 264 municipalities you have to deal with and except for sheriffs and county courts and a couple of other things, almost no effective county government” (Interviewee #1).

²⁶ A Home Rule state is one in which local governments are given various degrees of legislative authority to pass laws for the purpose of governing themselves as they see fit, as long as they operate within the bounds of the state and federal constitutions.

This somewhat misunderstood legal and political landscape and the lack of county government appear to be solid evidence of a much larger issue that was repeatedly discussed in this research—namely, the lack of state planning. Several interviewees stated that Vermont is extremely ineffective at holistic or integrated regional planning at the state level. There is no state-planning office in Vermont, and previous encouragement—from legislators and citizens alike—to create such a function has been fruitless thus far. A number of respondents claimed that if Vermont had an official state-planning office then this would help clear up some of the confusion, and help to guide citizens (and all stakeholders), involved in RETs.

Vermont doesn't believe in planning . . . We have lots of plans, but we don't take any of it very seriously in this state . . . We have this comprehensive energy plan, but there has been no analytics [of how to do it] . . . There is really no thoughtful planning that the public can see and be part of. (Interviewee #2).

Without a state-planning office or any state-planning procedures, many people are concerned about how Vermont's Comprehensive Energy Plan (CEP), which requires 90% renewable energy use by 2015, is to be achieved. Nevertheless, this challenging goal is being taken seriously by Vermont's citizens, and many feel that precious time and energy are being wasted due to the lack of statewide institutional capacity to plan for this goal. "It's a great goal, but it's not very specific how to get there. So that has been a challenge in the state as well...The specifics behind the plan have never been laid out" (Interviewee #10).

So, while Vermont has been forward thinking on a number of renewable energy issues (such as being the first state to integrate group net metering and feed-in tariffs),

one area where the state has struggled is in overall state planning. There is some concern that without a state-planning office, RET efforts will continue to be pursued in a piecemeal fashion.

4.1.4 Vermont Utilities and the ISO Grid

Electricity in the United States is delivered to various regions of the country through a number of energy-grid systems. There are nine Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) in the country and these ISOs and RTOs serve two-thirds of electricity consumers.

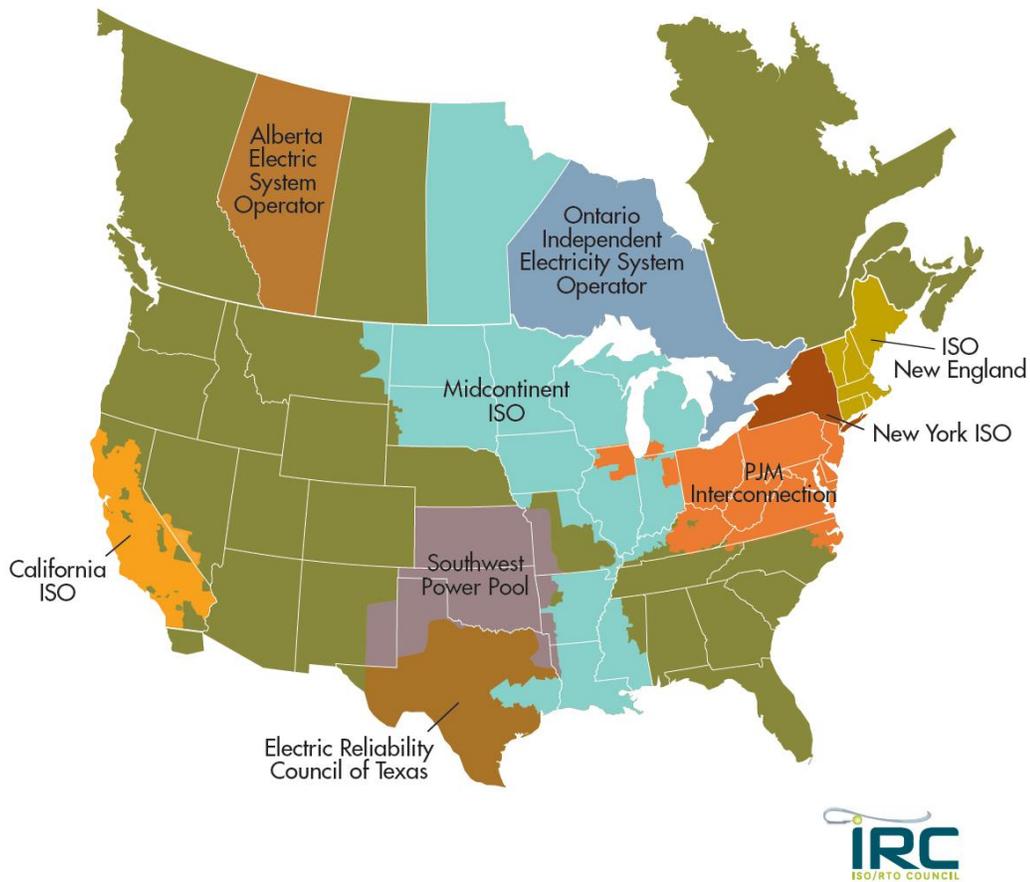


Figure 4.1 ISO RTO North America grid map from IRC council.

Source: <http://www.isorto.org/site/c.jhKOIZPBtmE/b.2603295/k.BEAD/Home.htm> (accessed on 12.2.13).

Vermont is a part of the ISO-NE grid system (the grid system that services all of New England including Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont), and being connected to a larger grid can sometimes create difficulties related to energy autonomy. Some of these problems are technical, including the fact that the grid is “maxed out” due to old or insufficient transmission lines throughout the state (a problem for not only Vermont, but most of the country). This deficiency in power capacity creates intermittent energy production from new renewable projects (such as the Lowell Mountain wind project) that bolster the claims of opponents of such projects—people who are concerned about “expensive renewables that produce just a little of variable, intermittent energy” (Interviewee #5). Nevertheless, ISO-NE is responsible for Vermont’s load requirements, and both legislative and utility entities have expressed frustration with this organization. Respondent #9, for example, mentioned the fact that ISO-NE required individual companies to purchase a multi-million dollar piece of equipment to prevent the system from voltage collapse. Similarly, Interviewee #6 described frustrations with being beholden to ISO-NE:

[ISO is] supposed to be an agnostic operator of the grid, and solve any problem that is put forward to them—that’s what they say they do, but that is not what they do. Their life is easiest if they have a minimal amount of huge base load generators that they can control...rather than multiple hundreds of smaller generation [sources]. But that’s what we’re evolving to . . . and it creates problems for ISO — that are not unsolvable! But they have to solve them...We need to force ISO into the 21st century!

From the standpoint of ISO-NE, consolidation has its benefits. And despite Vermont's desire for control over its energy future, a large portion of the state's energy-provisioning system is owned and operated by a Canadian utility company, Gaz Metro, which has purchased and consolidated a number of Vermont utilities in recent years. An example of one such purchase and consolidation is described below.

The Lowell Mountain project was initially conceived in early 2008. Green Mountain Power (GMP), at that time, was a fairly small utility (as can be seen in Figure 4.2). The Lowell project, in fact, was a risk for the utility, and could have easily bankrupted the company if the wind project had failed. The largest energy distributor at the time was Central Vermont Public Service Corporation (CVPS), covering a majority of the state (see Figure 4.2). In 2012, Gaz Metro, the Canadian utility (based in Montreal) that already owned GMP, also acquired CVPS.

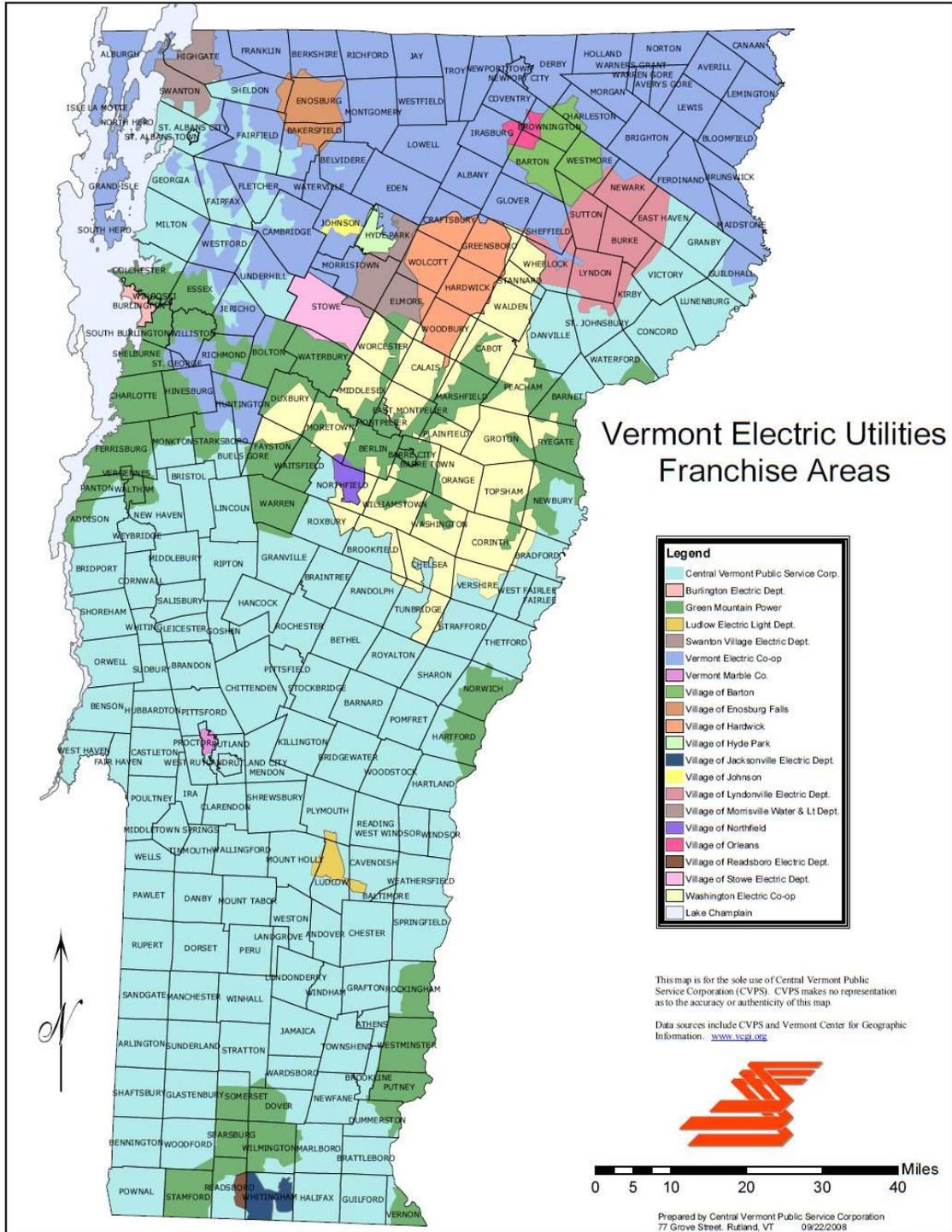


Figure 4.2 Vermont Electric Utility Franchise Area map 2008 from Central Vermont Public Service Corporation (CVPS).

Source: <http://www.vermontelectric.coop/pdf/service-territory/FranchiseMap.pdf> (accessed on 12.2.13).

Figure 4.2 represents the utility franchise of Vermont as it existed in 2008, prior to the 2012 acquisition. An updated version of the map would currently show all of the

light blue and dark green as belonging to Green Mountain Power which is now owned by Northern New England Energy Corporation NNEEC which, in turn, is owned by Gaz Metro (see Figure 4.3 for a visualization of this corporate structure).

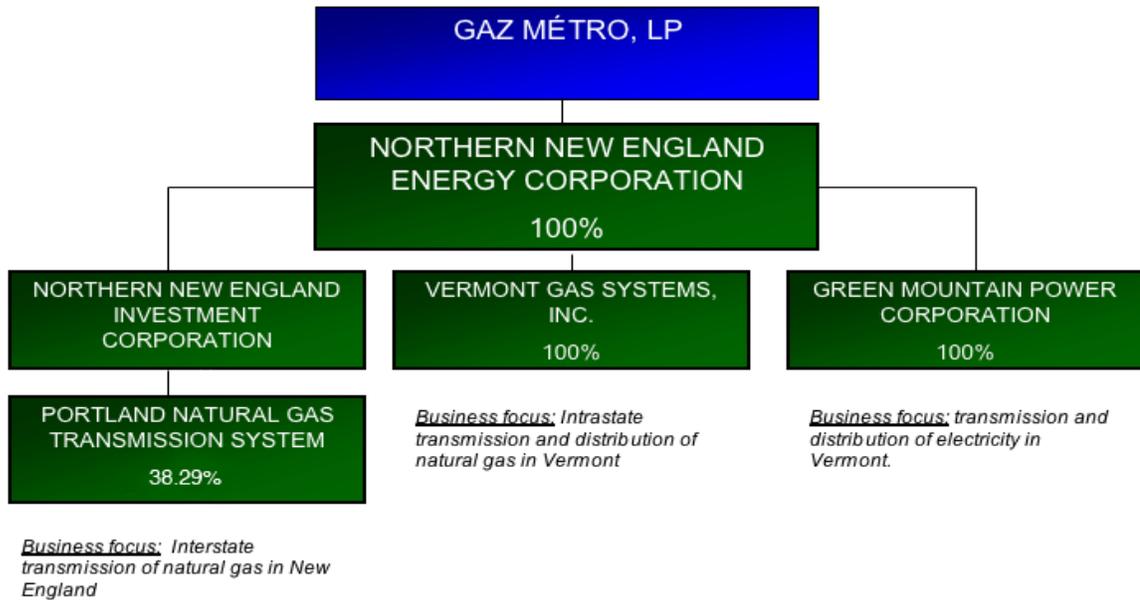


Figure 4.3 Northern New England Energy Corporation corporate structure flow chart. Source: Diagram from the NNEEC website - <http://www.nneec.com/corp.html> (accessed on 12.2.13).

These maps and diagrams show some of the complexity of Vermont’s utility operations. Ultimately, the majority of the state’s energy utility is directed from outside of the state. This current system is one that can cause potential friction for a state that wants to have more control over its energy future and to remain unfettered from what may feel like extraneous outside influences.

4.1.5 Community Groups

With Vermont’s wide range of political views, and large number of organizations participating in debates on the state’s renewable energy future, it is no wonder that it boasts of such robust citizen activism and forward thinking energy initiatives. The

profound influence of Vermont's community organizations in molding and shaping an RET cannot be overstated - many of these organizations have contributed greatly to the public discussion of Vermont's renewable energy future. The non-profit stakeholder grid in Figure 4.4 displays some of these groups, organized according to two identifiers: from partisan to non-partisan on the X axis, and from social to technical on the Y axis. Beginning in the top, right quadrant, the non-partisan, social organizations include the Vermont Public Interest Research Group (VPIRG), the Vermont Natural Resources Council (VNRC), and the Vermont Energy Partnership (VTEP), which groups lobby for policy change, engage in community organization, put on public forums, issue briefs, and canvas the state.

On the line dividing the social and technical boundaries of the non-partisan axis, are the Vermont Energy Investment Corporation (VEIC) and Renewable Energy Vermont (REV), organizations that engage in many of the same efforts as the previously discussed social groups (lobbying, primarily), but who also assist energy-related businesses and organizations in a consultancy capacity. VEIC is an environmental consultancy and REV an energy trade organization. All of the groups in this quadrant have worked very hard to become trusted sources of accurate, non-partisan public information and education surrounding an RET in the state.

Moving clockwise to the right, lower quadrant the non-partisan, technical organizations include three public utilities, two of which are energy cooperatives - Vermont Electric Cooperative (VEC) and the Washington Electric Cooperative (WEC), and both co-ops have played key roles in developing the state's energy future. The third

utility is Efficiency Vermont, a unique entity housed within VEIC, and that runs all official state efficiency programs.

There were no significant partisan, technical groups in the third quadrant, but the fourth quadrant (upper, left) houses a few strong partisan, social voices in the state. The Energy Action Network (EAN) focuses mainly on anti-nuclear efforts and specifically on the closing of the Vermont Yankee nuclear plant. The remaining three organizations represented in this quadrant of the grid are the main groups that, in the recent Lowell Mountain project debates, were opposed to the development of that commercial wind farm - including Energize Vermont, Vermonters for a Clean Environment (VCE), and Ridgeprotectors.

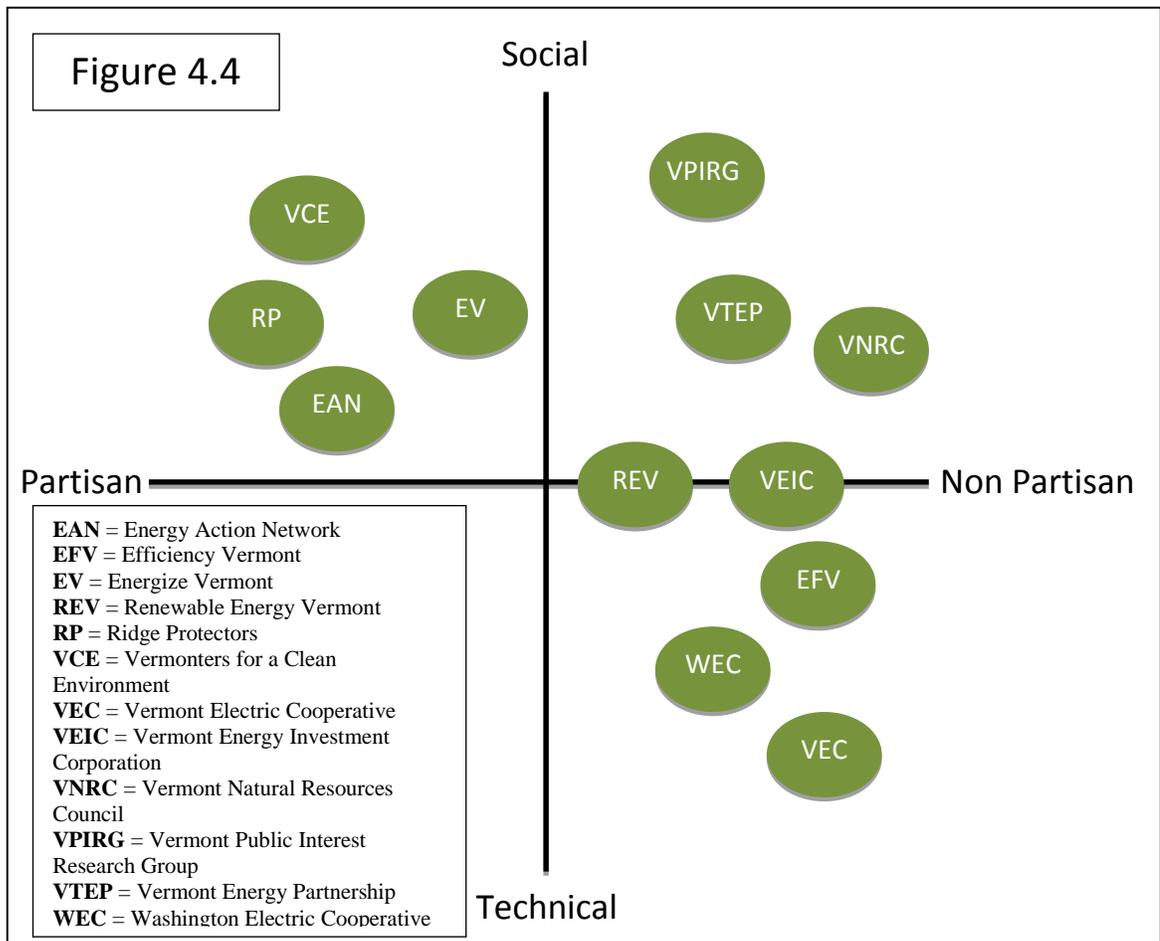


Figure 4.4 Vermont Non-Profit Renewable Energy Stakeholder grid.

These three partisan, social groups have been highly organized and connected to the media while playing a key role in supporting and assisting people who have found themselves directly affected by some of the more serious drawbacks of renewable energy. Although multiple respondents reported that these organizations did not reflect the opinion of the majority of Vermonters, this vocal minority cannot—and should not—be ignored or dismissed. Much of what they are fighting against should, in fact, be carefully considered. The author personally found some of the leaders of these groups to be very conscientious people who are concerned for the Vermont landscape and its residents. However, their main focus is decidedly on conservation and public health and while these areas are both extremely important, for these groups, they often take full precedence over

any compromise; compromise that may be necessary for an RET that many energy leaders in Vermont consider imperative for the state's future energy needs. A few interviewees shared similar sentiments to the one reported below:

I actually have a lot of respect for the folks who have been working to oppose these projects. I think that they are investing a lot of time and energy and really believe in the work they are doing. But part of the problem is that there are activities that are legal and are permissible in the state that they just don't think are appropriate. And they harp on things which are not illegal. You know, they might not like them, but there's a certain level of resource impacts that our legislature has deemed appropriate in support of development. In reality, you can't build things without having any impact. And you might argue where that line is drawn, but in some cases, from some of the things I've seen from the most vocal anti-wind folks complain about are things that developers are within their rights to do. And you may not like it, but it's not something that is illegal or against the rules or regulations . . . Certainly you can be opposed to something, but it doesn't mean that it's not OK. (Interviewee #4).

Regardless of whether these partisan groups make a compelling case against a particular project, through their resistance to RET (in the form, for example, of the Lowell Mountain wind farm), they help keep in check those in power who might like to move rapidly on commercial projects without proper or continued vetting. They help encourage all involved to tread thoughtfully and carefully as these types of projects move forward.

Whether partisan or non-partisan, technical or social, for profit or non-profit, Vermont has a wealth of community organizations that are important resources for socially and politically active citizens who want to learn about or weigh in on Vermont's RET.

4.1.6 Media Coverage and Public Opinion

Vermont is a small state, and is not in itself a part of a major media market, but remarkably, it supports several news media sources—the major daily newspapers are *The Bennington Banner*, *The Burlington Free Press*, *The Rutland Herald*, and *The Times Argus*, and Vermont produces a dozen other papers.²⁷ In addition to national and local television broadcast stations, as well as numerous local radio broadcast stations, Vermont also has a number of well-read online news media sources. A few of these popular online journals include VTDigger,²⁸ Green Mountain Daily,²⁹ and Seven Days.³⁰ While some of these media outlets specifically regard themselves as, and align themselves with, a pro- or anti-wind (or renewable energy, in general) perspective, all of these outlets play an important role in the perpetuation of the Vermont ethos (as will be discussed in Section 4.2.1).

Interviews in the current research revealed the strong opinion that media coverage in Vermont is often seen as misrepresenting or skewing the full story of an RET and related projects, and even possibly negatively influencing public opinion toward an

²⁷ See http://en.wikipedia.org/wiki/Vermont#Newspapers_of_record (accessed on 12.2.13).

²⁸ See <http://vtdigger.org> (accessed on 12.2.13).

²⁹ See <http://www.greenmountaindaily.com> (accessed on 12.2.13).

³⁰ See <http://www.7dvt.com> (accessed on 12.2.13).

energy transition in the state. Specifically, some respondents argued that, in general, the media was unbalanced in its reporting and focused mainly on negative and dramatic stories:

The media likes things that bleed . . . The number of articles that I have sent to the media about . . . water quality results . . . sound results . . . bat results . . . results from all of these tests — and they don't get picked up. It's not interesting. [But] it's good news! What is interesting is . . . all sorts of problems. That's interesting. That bleeds. For some reason the good news of how we are going to have a sustainable life on our planet, for some reason, that isn't worthwhile. (Interviewee #3).

While television, radio, and online-news stories revealing potentially negative aspects of renewable energy projects are important and often should be told, some interviewees claimed that there is unequal representation in the reporting of these initiatives to the general public. These respondents argued that there are many wonderful, positive, hopeful, and encouraging stories about renewable energy in Vermont that do not get picked up or are not given wide circulation because they are considered boring, or are not seen by media outlets as being spectacular enough. Examples of these types of stories might include statistical research on below average bird and bat kill reports or families that have had a significant reduction in their energy bills due to nearby renewable energy production. Many interviewees also stated something to the effect that those who are in opposition to wind—or other renewable energy projects—happen to be a very outspoken, very organized minority. In reality, most Vermonters seem very enthusiastic and supportive about transitioning their state to one with more sustainable

and local energy sources, as reflected in numerous polls. Tables 4.1 and 4.2 show the results of one recent poll from the Castleton Polling Institute around Vermont wind energy production:

Table 4.1 Castleton Polling Institute - February 2013 Public Opinion Results Regarding the Building of Wind Turbines along Vermont Ridgelines

Castleton Polling Institute - February 2013						
<i>Do you support or oppose building wind energy turbines along the state's ridgelines?</i>						
		Support it	Oppose it	Not Sure/It Depends	Refused	Count
Total		66%	19%	14%	1%	617
Gender	Male	67%	21%	12%	0%	266
	Female	65%	17%	16%	1%	347
Political Party Affiliation	Republican	63%	23%	13%	1%	93
	Independent	66%	20%	14%	0%	228
	Democrat	69%	16%	15%	1%	196
College Degree	No college degree	69%	18%	13%	0%	268
	College degree +	63%	20%	16%	1%	341
Household Income	< \$20K	65%	6%	28%	2%	42
	\$20K to \$40K	65%	19%	16%	0%	106
	\$40K to \$60K	67%	21%	11%	1%	113
	\$60K to \$80K	71%	15%	15%	0%	95
	\$80K to \$100K	64%	23%	13%	0%	71
	\$100K +	67%	22%	10%	1%	83

Source: http://www.castleton.edu/polling/feb26_2013/pollresults.htm (accessed 12.2.13).

Table 4.2 Castleton Polling Institute - February 2013 Public Opinion Results Regarding the Development of Wind Farms in Vermont Communities

Castleton Polling Institute - February 2013						
<i>Would you favor or oppose the development of a wind farm in your community?</i>						
		Favor	Oppose	Not sure/It Depends	Refused	Count
Total		69%	19%	12%	1%	617
Gender	Male	70%	18%	11%	0%	266
	Female	67%	19%	13%	1%	347
Political Party Affiliation	Republican	70%	22%	7%	1%	93
	Independent	67%	20%	13%	0%	228
	Democrat	73%	14%	12%	0%	196
College Degree	No college degree	71%	18%	11%	0%	268
	College degree +	67%	19%	13%	1%	341
Household Income	< \$20K	70%	9%	21%	0%	42
	\$20K to \$40K	66%	15%	19%	0%	106
	\$40K to \$60K	66%	25%	7%	2%	113
	\$60K to \$80K	70%	17%	13%	0%	95
	\$80K to \$100K	66%	27%	7%	0%	71
	\$100K +	73%	17%	9%	0%	83

Source: http://www.castleton.edu/polling/feb26_2013/pollresults.htm (accessed 12.2.13).

These polls show that Vermonters of all political parties, genders, education levels and income brackets, generally support the idea of building wind projects in the state. The percentage spread ranged from a low of 63 percent to a high of 71 percent. Meanwhile, the same polls indicated that actual opposition to wind averaged at around only 19 percent.³¹

While the polls clearly point to significant support for wind and an RET in Vermont, the media often seem, according to respondents, to portray a different picture. Overall, it was argued by some of the interviewees that media outlets in the state are not reliable because they are skewed, and that may negatively contribute (and some say

³¹ VPIRG.org polling article for February 26, 2013 - <http://www.vpirg.org/news/new-poll-shows-massive-public-support-for-wind-power-in-vermont-support-goes-up-when-its-in-the-neighborhood/> (accessed 12.2.13).

unfairly) to shaping public opinions of RETs. Such skewed portrayals of a renewable energy future may powerfully influence the average citizen—or people in other states—which may lead them to make incorrect assumptions or develop misconceptions about RETs. (For example, the author originally anticipated that the Lowell Mountain project would be fraught with significant social justice issues, based mainly on the media heard and read a few states away. Upon engaging with the research, however, the author found the situation to be quite different). When asked about this unbalance in the media, one interviewee shared the following observation:

From my viewpoint, the media in Vermont tends to be a little more friendly toward the opposition than maybe it should be . . . but more than that, there is a tendency in Vermont to sort of honor and put on a pedestal the Traditional Way of life. When something looks like the Vermont Way, then it tends to get a sympathetic ear. So when you have a group of people in flannel and fleece who are protesting on a mountain road, that is much more picturesque and seems much more news worthy. . . . In a way it kind of feeds into our image of ourselves as sort of this unique, different and special place — which is partly true and partly, you know . . . (Interviewee #7).

To conclude, this analysis has shown that institutions matter in RET efforts. This point has been illustrated by an overview of the political landscape in Vermont, including a review of the relevant legislative and regulatory bodies. Briefly discussed were the current issues around Home Rule state misconceptions as well as the lack of adequate state-planning systems. Lastly, a description of the relationship between Vermont utilities and the ISO-NE grid system was provided and this section ended by highlighting the

important roles that community groups and media play in the state with respect to renewable energy.

4.2 Culture Matters

A second major theme encountered in this research is the importance of culture in influencing an RET. Perceptions, rhetoric, and decisions concerning an RET in Vermont are profoundly influenced by a generally acknowledged image of the state as inherently pastoral, and of its citizens as environmental stewards. This cultural land perception – that is, how people see the land and their relationship to it – is an important part of Vermont’s ethos (Kaufman & Kaliner, 2011).

This section begins by outlining an article by sociologists Kaufman and Kaliner (2011) regarding the self-image, general stereotypes, and culture of Vermont and its residents, and an explanation is given of how these sensibilities play an important role in how a putative RET is unfolding in the state. Next is a consideration of some of the local objections to new energy projects which touches upon the distinct voice of the vocal minority. This section then discusses the idea of “green on green” discord between different environmental agendas as described by Warren et al. (2005), and explains how such dynamics factor into energy projects in Vermont. Finally, the (not unproblematic) strategy of efficiency is highlighted as an area where Vermonters are much more united, and evidence is presented demonstrating that a holistic energy plan is the path that is needed in the state’s energy future.

4.2.1 Manufacturing the Vermont Aesthetic

Some of the images conjured by outsiders, or by Vermonters themselves, when musing over the culture of the state might include one or more of the following: pastoral, pristine, green, environmentally progressive, natural, resistant to change, politically left/Democratic, hippy-ish, agricultural, ski haven, artistic, bohemian, outdoorsy, intellectual, or activist. As is generally the case in such matters, these stereotypes are both true and untrue, as some are dilapidated fragments of past eras and some have been carefully crafted for over a century. Indeed, one may think that these images came mainly from activities of the 1960s and 1970s, but in many cases they have been evolving for a much longer period of time, according to Kaufman and Kaliner (2011).³²

Vermont already had a small tourist industry in the late nineteenth century, but these activities did not begin to burgeon until the 1930s when state publicists (specifically Dorothy Canfield Fisher,³³ among others) actively began to market the state to major metropolises such as New York and Boston as a “bohemian” and “earthy” paradise:

Vermont’s mountains were referred to in tourist literature as the “Green Hills” and its verdant fields and healthful air were extolled. Vermont farmers were also discouraged from boasting to tourists of the “modernization” of their farms. The Vermont Board of Agriculture went so far as to instruct local farmers about the kinds of food that summer

³² I will cite heavily from the Kaufman and Kaliner (2011) article on Vermont image and culture in this section.

³³ Dorothy Canfield Fisher was a social activist, education reformer (credited with bringing the Montessori Method of education to the United States), and an American author who was a friend and contemporary of Willa Cather. Canfield actively promoted and advertised Vermont’s bucolic attributes to the upper middle class of writers, academics and artists of the time, and greatly influenced early migrations to Vermont.

boarders expected; not the starchy, fatty meals farmers actually ate but fresh produce, dairy, and baked goods like the tourists imagined they ate. (Kaufman & Kaliner, 2011).

In contrast to this verdant scene, Vermont in the 1930s was simultaneously rife with “heavy industry—textile mills, sawmills, factories, and the negative externalities that came with such activities: noise, air, and water pollution” (Kaufman & Kaliner, 2011). It was also at this time, when a carefully designed and advertised pastoral image was being promoted, that a couple from New York City, Helen and Scott Nearing, moved to Vermont, and “after 20 years experimenting with self-sustaining, quasi-organic agriculture in Vermont, published what would become the “Bible” of the back-to-the-land movement: *Living The Good Life* (1954)” (Kaufman & Kaliner, 2011). This movement would become a “national cultural revolution,” but not until the 1960s.

During the 1930s, however, Vermont was attracting artists, radicals, writers, intellectuals, and both students and professors to “a number of small ‘experimental’ colleges—Goddard (established 1938), Bennington (established 1931), Marlboro (established 1946), and Windham (1951-1978), in addition to Vermont’s older and more established institutions—Middlebury (established 1800), Green Mountain [founded originally as Troy Conference Academy]³⁴ (1834), and the University of Vermont (established in 1791).” Beginning during the 1930s and extending through the 1950s, Vermont began to “build its reputation as a hospitable place for independent thought and leftist political activism,” which set the scene in the early 1950s for a political shift from

³⁴ Green Mountain College history: <http://www.greenmtn.edu/about/history/timeline.aspx> (accessed on 12.2.13).

what was primarily a Republican/Libertarian citizenry to a Democratic one. “By the mid-1960s, when the Democrats firmly took control of the state legislature, Vermont already had a national reputation as a tiny counter-cultural enclave.”

Events in the 1960s and 1970s only solidified this reputation when Vermont experienced rapid population growth as the popularity of the Nearing’s book brought an influx of “back-to-the-landers,” and helped spur a commune movement in the state. These newly arrived Vermonters were not well received initially, and many of the movements and counter-cultures died out over time, but what remained were “new local institutions: food co-ops, vegetarian restaurants, organic markets, coffee shops, and the like” (Sherman, 2000).

This era was a key turning point for the state and its cultural development, not only due to the “back to the land” movement and to an influx of educational institutions, but also because of infrastructure and industrial growth during this time. Vermonters traditionally had a long history of rejecting federal government assistance for building infrastructure. This began to change, though with resistance, in 1927 when serious storm flooding occurred in the state and federal assistance was offered—the result being that “highway building quickly became a controversial issue dividing pro- and anti-development factions” (Kaufman & Kaliner, 2011). But it was not until even later, during the post-World War II years, that Vermont finally “took an active part in federal transportation, forestry, and relief programs.” Even at this time, “as late as the 1950s, Vermont was a very rural state peopled largely by struggling farmers, loggers, and craftsmen” (Judd, 1979). However, “by the 1960s and 1970s, after new highways were built making Vermont more accessible to weekend travelers,” (Kaufman & Kaliner,

2011) the state began to dominate the growing ski industry in the northeastern United States.

Many of these historical components continue to make up Vermont's external or projected image, as well as its self-image, as an environmentally "green," conservation-focused, still Democratic-leaning, pastoral wonderland comprised of vacation homes, rural farm areas, college towns, ski resorts, and conscientious citizens. These self-images are complex, and as Kaufman and Kaliner observe, these images are also often contradictory:

Contrary to Vermont's "leftist," hippie image, however, the two states [Vermont and New Hampshire] have the same number of Smith & Wesson gun dealerships per capita. Hunting is very popular in Vermont, and its gun laws are extremely lenient, including no ban on carrying concealed, loaded weapons in public. This is exactly why we stress the image versus the reality of place reputations—stereotypes about Vermont are just that, though, through idio-cultural migration, they have tended to become self-perpetuating over time.

Whether the myths are true or not, these perceptions play an important role in how an RET will play out (or not) in the state. The perception itself serves as a "resource" that can (and is) put to political purposes, by both opponents and proponents of various renewable energy plans. This image of Vermont is one of deep connection to the land, a mind for sustainability, and a legislature that has worked extensively on policy to facilitate an RET that will propel Vermont in to an alternative energy future. This image of Vermont also invokes the conservation of land and habitats, peace and solitude, and may therefore foment objections against larger-scale renewable energy projects.

4.2.2 Cultural Politics of Renewable Energy

Many of the cultural objections to wind initiatives such as Lowell Mountain, but also increasingly to new solar initiatives as well, include disinterest (or distrust) of commercial/corporate proposals, non-locally owned (or rather, foreign owned) ventures, large-scale projects (a subjective term), or development that may significantly change the landscape. Many Vermonters, and particularly activist organizations created to fight against the development of these aforementioned types of projects, are uncomfortable with significant alterations of the landscape and focus their arguments on issues of land conservation (and claims of public health). Respondent #5 emphasized that the interest of many opponents of wind-energy development is not to defeat these projects per se, but rather to promote and defend “Vermont values” and to find renewable energy solutions that are in harmony with conservation ideals in the state. One of these Vermont values is related to scale and to the idea of not overburdening a small state with a relatively small energy demand with oversized, or an overabundance of, wind and other renewable energy projects. The term “Vermont-scale solutions,” used by more than one respondent, reflects this sentiment.

[There is a need for] “Vermont-scale solutions.” It is not like we’re a New York City. We can look at our relatively—compared to the rest of New England and the rest of the country—small load and decide what solutions are a better fit for Vermont. Profit-making is setting the ad-hoc agenda rather than any sort of planning process that [determines] what solutions are best for the state. (Interviewee #5).

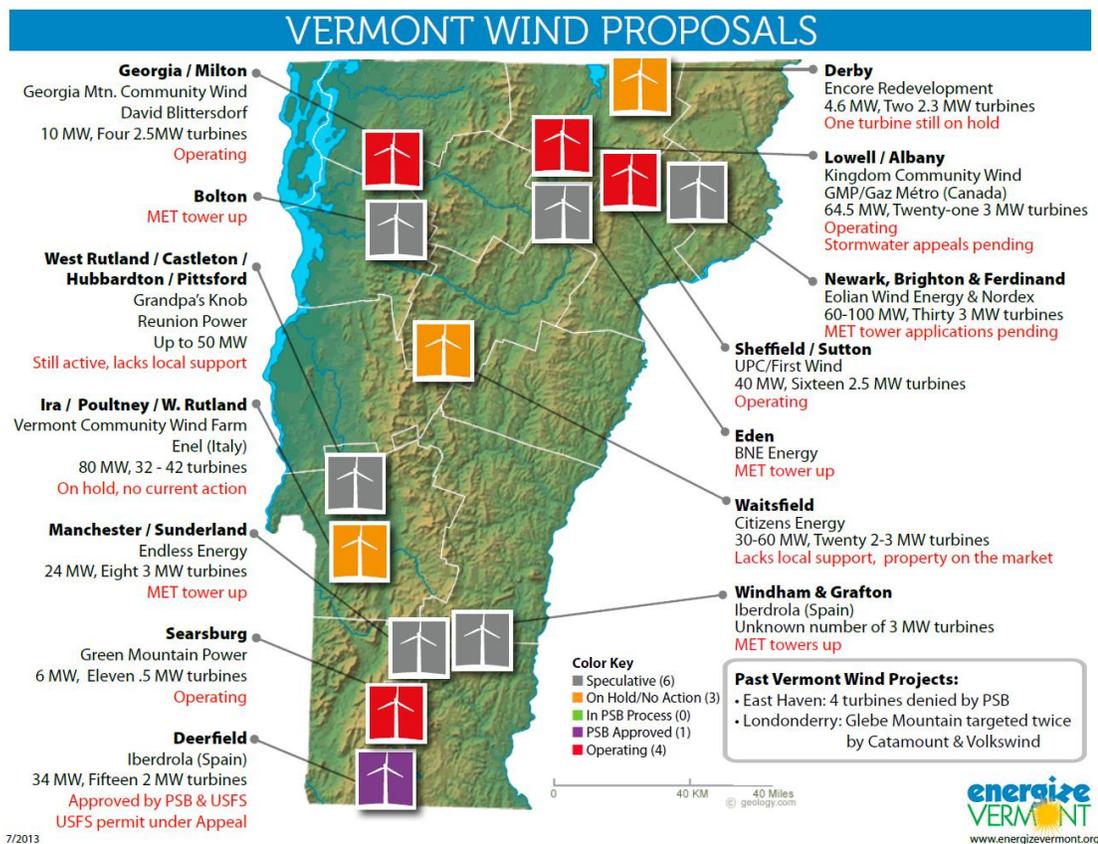


Figure 4.5 Energize Vermont 2013 map of wind farm proposals in the state, including recent data regarding process and development for individual proposals.

Source: www.energizevermont.org (accessed on 12.2.13).

The map in (Figure 4.5) shows current wind proposals in Vermont and their various stages of development. According to this map, Vermont appears to be inundated with established and potential wind projects. However, while the large icons make it look like wind farms are virtually covering the state, only four projects (icons in RED) have thus far been built and are in operation. The rest are proposals in various phases of vetting. Although some residents may become alarmed (or excited) when a meteorological tower (known as a “met tower”) is erected in their area, this incursion does not necessarily signify that a wind farm will be built. This is simply the first step in a long review process to determine feasibility for a project, and in fact, most are determined not to be feasible. In reference to the wind map in (Figure 4.5), it is more

likely that most, if not all, of these sites save one (in Purple), will eventually be deemed unsuitable for development by ANR and PSB. Some of the main issues that influence this determination include lack of transmission infrastructure and other grid constraints, or problems of ecologically unsuitable terrain. For example, a development proposal might be determined unsuitable if the projected site encompasses critical wildlife habitats (e.g., endangered species, rare or unique “communities,” wetlands, etc.) which are not conducive to such projects. Vermont’s regulatory review process, explained in detail in previous sections, while not infallible, is designed to be thorough and deliberate and determines the suitability and the final outcome of such projects. What seems clear is that no one in Vermont, even those who are enthusiastic about new energy projects, is interested in compromising too much of Vermont’s beloved land or its habitats. “Nobody is talking about more than a handful of wind farms, only what is feasible, and that is not many” (Interviewee #7). Respondent #4 expounded on this sentiment by stating:

When you put something up, like Lowell, that’s basically in the middle of nowhere and very little of that power is being used locally, then you run into huge transmission issues and transmission upgrade costs and people question if that’s really the scale of generation that’s appropriate here and, you know, obviously we’re still not producing all of our power through renewables – we are going to need some big projects like that, but to the extent that we can rely on more medium-size distributed ones, I think that is just going to be better for the state in general. (Interviewee #4).

Interestingly, this map (Figure 4.5) also clearly exhibits another concern for (many, not all) Vermonters – namely, the fact that many of the various investors for each

project are companies from other countries such as Spain, Italy, Germany, and elsewhere. A few of these companies are turbine manufacturers, in addition to being project developers. Regardless, for a state that is seeking to increase local development that supports its values, the idea of foreign investors becomes contentious:

You have this sort of gold rush mentality of outsiders coming in on Vermont, and I am a pro-business [person], but I think there is [sic] no checks and balances, you know—just whoever has the money can come take a piece of Vermont, and I think that is in direct contrast to the way that we've sort of governed Vermont in the past. (Interviewee #5).

This sentiment is echoed by Respondent #4 who indicated that with recent efforts (for example, the governor-appointed siting commission recommendations), the state is beginning to shift to a more pre-emptive, planned implementation of larger generation projects “from a kind of reactive, opportunistic environment . . . where developers look at a wind map, look where they can get cheap land, and take it from there.”

This particular objection is neither about Vermont having a general anti-development disposition nor is it about an anti-foreigner sentiment, but rather, any resistance toward foreign-owned development is mainly expressed as a concern that companies and individuals involved in such projects are not familiar with or connected to the land and the cultural values of the state. If these developers are not emotionally linked to the land or the local culture, how can they possibly make decisions about what is best for Vermont and its citizens?

Historically and culturally, Vermonters have shown, and continue to show, that they have definite collective and personal opinions about what is best for the state and its

citizens. The difficulty arises when these opinions differ widely within the citizenry about which key values take precedence.

4.2.3 Protecting Ridges

As previously discussed, research data and various state polls suggest that most Vermonters support wind energy production for the state. Those who do not support this tactic as part of Vermont's transition to a renewable energy future tend to focus on important issues of land degradation, habitat disruption, and public health concerns that can accompany wind-farm development: "This is a technology [wind] that doesn't belong where people live" (Interviewee #8). Other respondents who took a more neutral or a pro-wind stance acknowledged that these issues surrounding conservation and health were vital to the discussion of an RET but that they must be considered within the larger context of future energy needs. These same respondents also mentioned that while they can appreciate such strong advocacy efforts for conservation and public health, they often disagreed with some of the approaches the anti-wind or anti-development groups have taken in the past. Generally, ideological conflicts seem to arise over key issues such as land and habitat preservation and the future of renewable energy generation.

Despite legal processes which determine specific outcomes in an individual RET or project, the greater conflict here seems to be one of clashing ideologies. Whereas participation in environmental movements may have been naively understood by the general public as mobilizing under the banner of a single entity, there is increasing evidence that there are different factions within the movement. Specifically, this "green on green" conflict often plays out as one of land and habitat conservation versus

emission-reduction and renewable energy. Warren et al. (2005) describe this particular conflict succinctly:

Conflicts between development and conservation usually revolve around the balance between socio-economic benefits (e.g., employment, investment) and environmental costs (e.g., on landscapes, habitats and biota), with the ‘green’ lobby typically positioned unambiguously on one side of the argument. However, in the case of wind power there are strong ‘green’ arguments on both sides of the debate. Some environmentalists advocate wind farms because of their ‘clean energy’ credentials, while others oppose them because of their landscape impacts. Still others are caught awkwardly in the middle, supporting renewable energy in principle but opposing specific wind farm proposals. Just as, in military parlance, occurrences of friendly fire are described as ‘blue on blue’ incidents, so the wind power controversy can be characterized as a ‘green on green’ debate, setting environmentalists against each other.

One respondent (#10) acknowledged this green-on-green phenomenon in Vermont and suggested the need to consider the larger context of current and future energy needs: “We have to make the transition from non-renewables to renewables, whether we like it or not—one way or another.” Respondent #10 further argued that Vermonters need to:

. . . come to terms with the amount of energy that we consume, because if the plan is to move to renewables and stay on the growing energy path that we’ve been on over the last century or more, it’s just simply biophysically not possible. Oil. Was. Magic. The kind of energy returns that we get from oil that put one unit in (in the

early history of oil exploration) to get a hundred out—you are never going to achieve that with wind, with solar, with solar thermal, with biofuels—not even close . . . And so obviously you get into a conversation then about making some tradeoffs. And here in Vermont, wind is one of those. And it's unfortunate, but it has really pitted environmental interests in the state that have always been very much in alignment with one another—around conservation, around energy conservation, around climate change—just pitted them against one another. (Interviewee #10).

The question then becomes: What are Vermonters willing to compromise for their collective energy future? “Because landscapes are often an important part of people’s sense of place, identity and heritage” (Warren and Birnie, 2009), it is critical to keep local cultures in mind when making decisions about projects and policy that will affect energy futures. Nevertheless, it appears that all citizens of Vermont (and everywhere) must make necessary compromises—those who oppose transitioning to new renewable energy projects and those who do not:

Big wind, these days, has a very vocal, well-organized, small minority of people who are opposed to these things but are very good at getting publicity. They are passionate, I even tend to agree with some of their points, because there are legitimate points that they raise; but again, it’s a question of a balancing act. You have to add up all of the pros and all of the cons, and [ask if] the positives for this project outweigh the negatives? If they do, then what sorts of compromises can we at this level make that are acceptable to the community or to the individuals

involved. And that willingness to take that bigger view and to make those compromises just isn't there in many cases. (Interviewee #11).

These arguments about balance and scale are echoed by Pasqualetti et al. (2002) when they succinctly state that “It is a question of how to best balance the nature we want with the energy we need . . . [These debates reflect] the ongoing conflict between convenience and cost, livelihood and landscape, nature and need.” Finding such balance can be a long and difficult process, to be sure, but one area of RET with which Vermonters are culturally comfortable, and where they collectively come together, is in their efforts to promote energy efficiency.

4.2.4 Emphasis on Efficiency and Multi-Modal Planning

The emphasis on efficiency as a direct focus for the state began in the late 1980s and early 1990s when the Vermont legislature integrated efficiency as a key piece of energy policy and planning with the intention that they would “treat efficiency like a supply option” (Interviewee #1). Respondent #6 further expounded on this point, explaining that when the legislature began creating new energy policy eighteen years ago, it started by looking at how the state could use less energy. This focus demanded a closer look at the electric utility system in the state, which at the time was a franchise monopoly system.³⁵ The legislature focused on questions such as: How can we use less? and How can we use what we have more efficiently? The first piece of legislation created in this wave of new energy legislation was “Efficiency Vermont”: the official state-appointed legal efficiency

³⁵ Franchise monopoly system definition: Under this system, a utility has the right to be the sole or principal supplier of electric power at a retail level in a specific region or area known as the franchise service territory. <http://www.iepa.com/Glossary.asp> (accessed on 12.2.13).

“utility.” The creation of a state efficiency utility at this time was possible due to this early emphasis on putting “efficiency on an equal footing with other supply options” and early implementation of “a least cost energy policy that includes life cycle cost analysis.” (Interviewee #1).

At the start of this efficiency mandate, each utility created its own efficiency programs (which was, at times, confusing for the citizens of Vermont), and struggled to meet the required efficiency standards while continuing their regular services. It was later proposed that an outside entity could run the efficiency efforts on behalf of all of the utilities and fulfill their efficiency obligations; however, this proposal required that the utilities fully give up control of efficiency efforts. Efficiency Vermont won the contractor bid to be this proposed entity, and efficiency programs proceeded under its control for the next four to five years. It soon became clear, however, that there were serious limitations in having these programs run by an entity that operated on a contractual basis, including an inability to do long-term planning, build relationships, or give input on policy. The state, therefore, finally decided to create Efficiency Vermont as an official, chartered entity—a state-regulated body. Efficiency Vermont became the state’s official energy efficiency utility in 1999, and is currently operated by a private nonprofit organization, the Vermont Energy Investment Corporation (VEIC), under appointment of the Vermont Public Service Board.

As the state’s official efficiency utility, Efficiency Vermont runs a myriad of efficiency programs that are state funded and community promoted, and in which many Vermonters participate. Some of the programs Efficiency Vermont is fostering include savings and rebate information to home and business owners on efficiency measures,

informational workshops, and town or business or university energy-efficiency challenges. The organization is also currently partnering with Vermont Energy & Climate Action Network (VECAN) to promote the Home Energy Challenge—a community competition for comprehensive home energy-efficiency improvements (weatherization) during this one year period of 2013. Because Efficiency Vermont has been around for a while now, and has been well branded across the state as the face of Vermont efficiency through its many partnerships and initiatives, it is considered by residents of the state to be a trusted source and an energy advocate. This status as a trusted source is mainly due to this organization’s readily available, non-partisan information on all things efficiency and because it is a consumer-focused entity. Because of statewide policies for efficiency, and their unique positioning as an official utility, Efficiency Vermont has been a key piece of the strategic (which has become a cultural) shift towards efficiency practices in Vermont. They “have the resources to directly relate to customers, can mobilize community, and are now investing” (Interviewee #1).

Today, Vermont is “a leader in energy efficiency. We reached peak consumption in 2004, and have reduced our usage from there” (Interviewee #10). Culturally, Vermonters see themselves as promoters of efficiency, although as Respondent #1 points out, whether that is due to environmental interests or to the overall monetary benefits, it is unclear. What is evident is that efficiency is thought to play an important role in Vermont’s energy future.

While efficiency is a big part of Vermont’s energy culture, a few respondents did elaborate slightly on the idea that efficiency is necessary but not sufficient on its own or without overall consumption reduction. An integrated energy future would include all of

these components: consumption reduction, efficiency measures, and all manner and scale of renewable energy production, as appropriate. As Respondent #11 emphasizes, “any shift from fossil fuels to renewable makes sense, although individual projects may or may not make sense depending on a wide array of local issues.” Interviewee #7 concludes that Vermont should seek to explore “wind energy as a strategy to reduce impact,” but this strategy should be implemented thoughtfully and appropriately. These and other respondents emphasized that all avenues to energy production have financial and ecological costs, but they expressed the need to accept and address both state and global energy needs in a more diversified and proactive way, which would include purposeful planning for an energy future.

Nearly all of the individuals interviewed for this study engaged in a discussion of the need for a holistic or multi-modal plan for Vermont’s energy (specifically a renewable energy) future. Those whose lives center around the energy sector, and many citizens as well, understand that it is necessary and vital to think comprehensively, and they seek to promote the idea that an integrated approach is key to successfully transitioning to a sustainable renewable energy future. This energy future would include plenty of wind, solar, and geothermal projects, as well as hydro, “cow power,”³⁶ and efficiency programs which are already a part of the unique energy culture of Vermont. In reference to this holistic approach to energy in Vermont, Respondent #3 stated that “we must do it, do all of it, and do it to the maximum,” if the state is to achieve its CEP goal of 90% renewables by 2050. Respondent #3 further elaborated on the need for a

³⁶ “Cow Power” is a program launched by (formerly) Central Vermont Public Service Corp (CVPS) which “promotes development of and reliance on renewable energy in Vermont” (Peltier, 2007), by using cow manure in anaerobic digesters to create energy. This program helps Vermont dairy farms develop and use biogas-fueled generators. For more information on “Cow Power” in Vermont, see Bodin (2013); Wang et al (2011), Van Hoesen & Letendre (2010), and Tucker (2008).

diversified portfolio—not only of different types of projects, but also of varying scale (“small stuff and big stuff”) in their energy future, as well as the need for continued efficiency measures. “Most of our engineering calculations show we need 33% efficiency across the board. Efficiency has to be a part of it.”

This section began with a discussion of an article by sociologists Kaufman and Kaliner (2011) regarding the self-image, general stereotypes, and culture of Vermont and its residents. An explanation was then provided for how these sensibilities currently play an important role in how RET is unfolding in the state. Some of the local objections to new energy projects were then considered along with the idea of “green on green” (Warren et al., 2005) discord between different environmental agendas, with a specific focus on how these dynamics factor into energy projects in Vermont. Finally, the state’s strategy of efficiency as an area where citizens are much more united was highlighted; and evidence was presented that a multi-modal energy plan is the path that is needed for the state’s energy future.

4.3 Communities Matter

A final important element of RET in Vermont is community support. In this research on an RET in Vermont, it has become clear that community support is contingent on broadly defined, transparent, democratically structured community participation. Transparency and community engagement when thoughtfully addressed can help the public understand energy issues, which can in turn create trust between stakeholders. Conversely, lack of transparency and lack of opportunity for true participation in development can often create strong community dissent due to distrust and misunderstanding. One author

suggests the “continuing failure of scientific and policy institutions to place their own science-policy institutional culture into the frame of dialogue, as [a] possible contributory cause of the public mistrust problem” (Wynne, 2006). This section will commence with a discussion of key issues related to transparency and community engagement, namely public understanding, education, and the concept of trusted sources. These themes will be further discussed in the context of Vermont as a case study in renewable energy transitioning, and illustrate them by events around the Lowell Mountain wind project.

4.3.1 Transparency and Community Engagement

The themes of “transparency” and “community engagement” are key and complimentary components of successful RET efforts. Transparency, at its core, is really a discussion about two important points—public understanding and trust. As public understanding, presumably, is a prerequisite for meaningful participation, “transparency” is required for “community engagement” to be effectively employed. Public understanding of energy is more than just a matter of teaching people engineering. It is not, in fact, a question of knowledge at all, but rather one of trust. When the public does not have the necessary knowledge base, trust becomes a large issue.

In the interviews with Vermont energy specialists, a common theme concerned the general public’s lack of basic understanding about energy. Interviewees suggested that the average citizen would not have answers to basic energy questions like: What happens when you flip the light switch? How much energy are we actually using as individuals or as a household (many public libraries now have energy monitoring devices for card holders to check out and use to determine their household’s energy load, but it is

unknown how many people know about and are using this resource)? How much energy load can various sizes and types of renewable energy projects provide to an area? How do transmission lines work, and what are grid and load capabilities? What are the true realities of fossil-fuel pollution, peak issues, and the underlying effects of national subsidies?

People don't know enough about energy or energy use...People are just truly naïve about where their electricity comes from, how much of it they use, what it really costs, what the negative external impacts are of a project — people just don't get that. (Interviewee #5).

Although in Vermont there are numerous nonprofit groups and informational programs that seek to inform the public about these basic energy facts and to make energy logistics less confusing, some respondents indicated that a large portion of the public still does not grasp the basics of energy production and use. A few reasons for why this might be the case include the problem of too many contradictory voices making discussions of RET unclear or overwhelming, a lack of time or interest among citizens, or lastly, a general lack of trusted sources of information. An even more likely explanation for this general misunderstanding of energy is not really ignorance or lack of interest, but rather the esoteric nature of the subject and the complex circumstances of people's lives that limit their capacities to remain informed:

I think one of the challenging pieces is [that] there is so much information out there, how do you know who to believe? When you talk about GBAs and infrasound, or turbidity in the water . . . How does the average lay person know who to believe when they are working two jobs, they have three kids, they can

barely pay their heating bill, and all they are doing is watching 10 to 10:15 news and what bleeds. (Interviewee #3).

Another dimension of the transparency challenge is a general (and perhaps sometimes misplaced) mistrust of developers and legislators. This idea was a common theme throughout the research interviews. It was suggested that a general lack of confidence stemming from complex, multiple, contradictory positions could begin to be addressed with public information and education provided in the right ways and from “trusted sources” (whether they be legislators, utilities, or nonprofit community advocacy groups). Such efforts could help defray some of the mistrust that sabotages energy transition efforts today.

Currently in Vermont, there are few of these broadly acknowledged “trusted sources,” and those that do exist often are non-partisan parties, meaning that their focus is on public education or assistance and that they thus often go to great lengths to avoid the politics of individual projects. These parties do nonetheless provide important resources for the general public. Some interviewees argued that there is a strong need for responsibility, honesty, and support from legislators and utilities as well — that trust, the interviewees argued, could be garnered in efforts that put people first, or show economics in a framework consistent with people’s needs rather than in terms of profit prioritized at any cost. Also expressed by some respondents was the importance of consistency and transparency. If the citizenry can turn to trusted sources, then they may agree or disagree with a certain point or project or piece of legislation, but at least they will be adequately informed and will feel connected to the larger process. Interviewee #6 expressed this point of view when discussing reactions to the PSB permitting process: “I support the

process and I support the regulatory oversight, but I don't always agree with what they do. But when I don't agree with them, I don't call for total reformation of the process" (Interviewee #6). Respondents generally agreed that as people are better informed they are more likely to feel capable of participating in local discussions and decisions surrounding development.

4.3.2 The Case Study of Vermont and Lowell Mountain

In the case of Vermont, much of the backlash from the recent Lowell Mountain wind project, as well as from other proposed wind, solar, and hydro projects, may stem from misinformation about benefit and burden distributions of renewable projects. Other factors include a general distrust of legislators and developers (sometimes for good reason), and a lack of information about, or understanding of, the processes involved in implementing such projects. One reason for confusion may be that Vermont's regulatory system for permitting renewable energy projects is a lengthy and robust one. Some interviewees argued that this system is sufficient to the state's needs; others remarked that the system is excellent but with room for improvement, and still others observed that the system is terribly unclear and laborious. Such disparate perspectives naturally occur as individuals experience this regulatory process in different ways. Some respondents have been through the regulatory process themselves or have worked with others who have; some have actually helped to fashion the regulatory process in its current form, and still others have formed an outsider's opinion of this process without having experienced it themselves.

One thing that can be agreed upon is that the Vermont RET regulatory process is not quick. The Public Service Board (PSB) permitting system under Act 248 (see Civic 101 section above) requires developers to fulfill a number of pre-development site surveys over landscape and habitat health, which take, at minimum, one year to complete. While these surveys are not required to be fully finished prior to submittal of an official project proposal, the PSB will not move forward with the permitting process until they are complete. Upon the conclusion of these surveys, the regulatory system may continue with a series of “public hearings, evidentiary hearings, and other forms of inquiry and investigation to ensure that high-quality service is provided by the utilities at rates that are just and reasonable for both the customer and the utility” (Interviewee #2). This process can potentially take several years, and include costly attorney fees for developers, towns, or activist groups.

Likewise, Vermont’s legislative progression in renewable energy policy over the course of the last eighteen years has been carefully prepared for renewable energy transitions today and for the future. For example, Interviewee #6 explained that during the 1990s, due to regional blackouts and storm damage, Vermont had strong financial and resilience-minded reasons for wanting to generate energy locally. So, in the early 2000s, the state legislature implemented policies that allowed the first net metering program in the country. In 2005, Vermont was also the first state in the nation to adopt a feed-in tariff. These interventions, as well as a number of other legislative acts and policy measures, directly affected the future possibility of projects such as Lowell Mountain and other renewable energy projects today. (Refer to Appendix C for a more comprehensive list of acts and policy measures).

Several interviewees suggested that one of the reasons for the pushback on the Lowell Mountain project (and other currently proposed wind and solar initiatives) was that for approximately fifteen of the eighteen abovementioned years, Vermont legislators and community organizations have labored mainly in the policy-design phase, and now, in the past few years, have begun to transition into an active development phase. The shift from planning to development can be a jarring one even at a slow and steady pace. This situation can be particularly acute for communities and individuals that do not clearly understand, or who have not adequately been provided information about, the processes of renewable energy project development. The case of Lowell Mountain arguably included a careful, detailed development process, but in general, the public sees only the development and not the process leading up to it, so some may experience it as sudden or unknown. It was reported in one interview that even legislators who voted certain RET policies into place were suddenly unsure when they experienced some of the realities of development (Interviewee #6). Multiple interviewees brought up some version of the theme that “change is hard” in regard to RETs but most insisted that nothing has happened in a rash or thoughtless manner; that Vermont has indeed followed a “long, careful path to renewable energy.”³⁷ It is exactly because change is hard (and sometimes unknown) that it is particularly vital for renewable energy projects to facilitate an open dialogue long before development begins. In this way, all stakeholders can, together as a community, adequately address the realities (both positive and negative) of an RET.

³⁷ Link to Green Mountain daily articles on Long Careful Path: <http://www.greenmountaindaily.com/diary/9768/vermonts-long-careful-path-to-renewable-energy-pt-1-the-legislative-record> (accessed on 12.2.13) and, <http://www.greenmountaindaily.com/diary/9771/vermonts-long-careful-path-to-renewable-energy-pt-2-the-regulatory-record> (accessed on 12.2.13).

In general, then, Vermont's transition to renewable energy suggests that progress depends on transparency and structured public dialogue among state legislators, town councils, utility companies and the local public. This transparent dialogue should include ideas about, and potential opportunities for, renewable energy development prior to any tangible movement toward project implementation. Green Mountain Power (GMP) did this reasonably well in the Lowell Mountain case. GMP was approached by a property owner who offered to sell to GMP a piece of land within the boundaries of Lowell Township, with the expectation that GMP develop a commercial wind farm. Fairly early on, GMP held numerous local meetings with the residents of Lowell to discuss the possibility of this large commercial wind project, and to hear what they had to say about it. GMP insists that the decision to build the wind farm was the town of Lowell's to make and that if the town members had voted against it, the 21-turbine project would not have happened. Many town meetings and forums were held over an approximately two-year period. These meetings were open to the public and were held to allow developers and the citizens of Lowell to share information, ask questions, and air concerns.

As it turns out, in the spring of 2010, the citizens of the town of Lowell voted overwhelmingly for the wind project, with a 70% affirmative vote, and so construction went forward. What is important about this example is that the community was engaged heavily and from fairly early on, and that the town was given control over the decision making and over the final outcome of the project. It is interesting to note that as a regulated utility, GMP is required to pass along to their customers any added monetary increase which lowers both the cost of development and customer pay rates (unlike

private utilities that are able to make profit from the sale of tax credits).³⁸ So, not only does GMP not have an interest in, or the means for, making an excessive profit off of their customers, but they are actively seeking ways to reduce costs for those customers (such as selling tax credits, sometimes out of state). This type of accountability to customers played a key role in the transparency involved in this project. Undoubtedly, the GMP example may be a somewhat unique situation due to its status as a regulated utility, which status creates a kind of forced accountability to its customers and perhaps allows a greater level of transparency than is common in energy development in Vermont and in the United States as a whole. But this example clearly demonstrates that transparent dialogue and engaged community participation can have far reaching effects on an RET and development by way of community support.

Of course, there are some areas where it has been suggested that GMP could have improved their community engagement processes. For example, Respondent #8 mentioned that prior to any public town meetings, GMP had engaged a few Lowell citizens in private meetings in which they created a “behind the scenes PR campaign,” and that GMP paid these certain local residents to have private living room meetings about the potential wind farm. Whether these meetings actually took place or not, these sorts of stories sowed some seeds of mistrust throughout the community and surrounding area, as well as provided fodder for groups that were beginning to organize against the project.

I’ll be honest with you, there’s nothing that I have found in that whole process that any state person or any select board person did that is illicit, wrong, even

³⁸ See http://www.greenmountainpower.com/upload/photos/236KCW_QA_Feb_2013_FINAL.pdf (accessed on 12.2.13).

challenging, but from the public's view they go wait a minute, our elected and appointed officials are having secret meetings with the developer without any knowledge from us. There is no planning; there is no early public engagement. (Interviewee #2).

Although GMP was reasonably transparent in its approach to the residents of the town of Lowell, the company was not so open in communicating with the citizens in surrounding towns — some of whom, due to their proximity to the turbine sites, were much more affected by the Lowell Mountain project than were some of the people living in Lowell itself. The interests of the surrounding towns such as Albany, Craftsbury, Eden, Irasburg, and Westfield, were clearly an afterthought for GMP, as after enough public discontent from these towns was expressed, GMP created the “Good Neighbors Fund.” This fund provides some monetary compensation for the five towns within a five-mile radius of the project (\$187,000 divided proportionally in five ways determined by percentage of land mass). At best, this fund can be seen as a form of community compensation on a more regional, rather than a town by town, basis. More likely, however, as this fund was hastily put together late in the process, it was a means to calm the fervor of unhappy neighbors whose voices were not included in the development process.

While these towns may have been appeased somewhat by this arrangement, there are numerous problems that arise with a model of community placation through monetary compensation along the way (and then after the fact). One interviewee concluded that paying off the town of the project site along with surrounding towns might set a precedent that would ultimately hurt wind development in Vermont and elsewhere

(Interviewee #9). While the economic components are vital to any renewable energy project, what can look like “paying out” a town or towns raises a myriad of potential problems. The monetary compensation approach, for example, makes ambiguous the acceptable benefit and burden expectations. This strategy can also make the siting of projects look suspect if development is slated for low socioeconomic areas, as is often the case. No amount of the rebuttal, “But this is where the wind is!” can fully remove the question mark about potential social justice issues. Lastly, the focus on financial compensation ignores the larger social context involved in RETs as it gives a utility, developer, or particular town a determining influence over environmental repercussions that are more global in scope.

This section has reviewed the importance of transparency and community engagement to achieve public understanding and trust relationships between all stakeholders of an RET. Then ensued an in-depth discussion of these themes within the context of Vermont, using the example of the recently completed Lowell Mountain wind project to illustrate these points.

CHAPTER 5

CONCLUSION

The main arguments described in the analysis represent the complexity of issues surrounding transitions away from fossil-fuel usage and toward renewable energy (RET) creation in Vermont. Some of these complexities revolve around Vermont's strong cultural and landscape perceptions, such as aesthetic concerns over scenic view sheds and the perception of negative impacts on habitat and human health resulting from commercial-scale wind development. Additional cultural perceptions affecting the RET in the state include concerns over social justice or fairness in the distribution of benefits and burdens, particularly in lower socio-economic areas. Although not expressly problematic in the example of Lowell Mountain, the analysis clearly addresses some of the difficulties around processes of siting for renewable energy projects, and relatedly, to the importance of purposeful and transparent engagement with the community for the full duration of a development project. Furthermore, the analysis brings to light the institutional and political dynamics involved in achieving RET in Vermont - including a thorough investigation of the roles and influence that key stakeholders claim in the state's energy future. Upon consideration of the complex relations among communities, political institutions, and larger cultural issues in Vermont as well as variations among these relations across differing developmental scales, some useful conclusions about future RET work emerge.

First, as one thoughtful interviewee pointed out, "energy is a regional issue" (Interviewee #12). Although it may not be seen or treated as such in Vermont, or in the United States currently, this research shows that an adoption of this regional energy

perspective – through both policy and practice – would likely eradicate some of the discord evident in the proposal of energy initiatives, and would strengthen future RET development. For example, this work suggests that while GMP excelled in some aspects of community engagement during the Lowell Mountain project, one area where they were short-sighted was in not pre-emptively addressing impacts to surrounding towns. This oversight caused community resistance and poor publicity for the project. Had GMP’s preliminary introduction of the proposed wind farm included engagement of the communities immediately around the site perimeters, instead of just the town of Lowell where the turbines were officially sited, they would have been better able to address benefit and burden distribution.

The present analysis of RET in Vermont, then, suggests that a reconsideration of expectations for and approaches to future renewable energy development—not on a town or property basis, but with broader, regional definitions to guide decision making—can ensure better distribution of benefit/burden problems and provide more long term energy and conservation solutions for generations to come. Recommendations on how to achieve this regionalization might include incorporating regionalist wording in new policy drafts or in policy debate to incite a cultural shift in thinking. Utilities and developers could also solicit feedback from, or better yet, give some decision-making power to, all communities who receive electricity from a given project.

A related conclusion that follows from this research is the need for extensive, ongoing, and structured community participation in an RET. Comparatively speaking, Vermont performs quite well in fostering community participation. This research provides insight into how imperative public understanding, transparency, and trust are in

the success of RET efforts, and it is clear that Vermonters, by and large, do participate in such matters, with both their voices and their votes. Vermont's many non-profit stakeholders support their communities with both information and opportunity to participate in the state's energy future, and this type of guidance is crucial to the public. This support is particularly important in times of political and cultural shifts, such as the shift that recently occurred in Vermont following the completion of the Lowell Mountain project. Recent activity such as the governor's creation of a special siting committee, town plans being altered to express a strong disinclination for wind development, and repeated calls for formal state planning to strategically address the CEP goals show that a cultural and political shift over its RET has occurred in the state:

I think there has been a shift. To acknowledge that the process hasn't really worked as well as it maybe should or could. That it is reactive. And that there may be opportunities for more statewide and regional planning around where generation should be sited, especially these larger projects. And more direction given to the development community about where the appropriate sites are so that it's not quite as opportunistic and contentious. (Interviewee #4).

Vermont has performed comparatively well in informing its citizens but could still improve upon its efforts by addressing these current energy shifts with clarity and transparent dialogue, and by allowing community participation in the process. This participation might take the form of formal initiatives, or community challenges (as has already been done successfully), or perhaps by instituting modes of feedback sharing through more engaging public forums. Efforts such as these are essential to helping community participation become a fully integrated element of Vermont's RET.

This research, then, highlights the continuing challenge of addressing public perception and suggests the importance of exploring more collaborative approaches to RET. One such approach, common in Europe but also beginning to attract interest in Vermont, is the collaborative community model (also called community ownership or community partnership model) for future renewable energy production. Such a model has not as yet taken hold in the U.S. but this research suggests that a majority of Vermonter's greatest concerns over renewable energy project proposals (social-justice and overburden issues, non-local investors, siting impacts, not receiving a fair economic compensation, etc.) might be allayed if they themselves are directly involved in development:

I think that if you had changed the situation in a lot of these large scale projects whether they be solar or wind or whatever, and made them projects that really directly serve the community both in profit and power, I think the attitude would change substantially because then people are in it together, they get the direct benefits while they get the direct impacts. (Interviewee #5).

This idea is further supported by Warren and Birnie (2009), who argue that “many local communities affected by wind farm developments or proposals for wind farm developments feel aggrieved, believing that they are being asked to bear most of the costs whilst gaining very few of the benefits. A very different outcome can transpire when the community becomes the developer.”

A collaborative community energy model might include such directives as partial citizen ownership of a project or the energy produced, with all parties of the collaborative structure determining (whether through expertise, planning, or consent) the details of the

project. This type of model varies from current practices in that developers would have only partial ownership over a project and would likely operate in a service provider role only, while other partners might contribute financial capital, land use, outside expertise, and so forth. Variations of this model have been explored for some time in parts of Europe (such as the Samsø, Denmark example discussed earlier), but this is also a model that Vermonters are talking about and beginning to explore.

One example of the collaborative energy model found in Vermont (the only one of which the author is aware) is a community solar project in the town of Middlebury called Acorn Energy Solar One. This renewable energy community collaboration project is a solar group net metering project with a three-way partnership between Co-operative Insurance Companies, Acorn Renewable Energy Co-op, and the Town of Middlebury, VT. At not quite two-years old, this fairly new project can serve as an experiment and hopefully also as an instructive example of what Vermont may be capable of transitioning to in the near future.

A final conclusion stemming from this research, and one that is closely related to those already discussed, is the need for broad public acknowledgement that RETs mean compromise for all. One interviewee expressed the need for societies to quickly reach a point of expectation and acceptance that “everyone needs to give something” (Interviewee #7) when it comes to a collective energy future. Such an expectation would certainly help to level the benefit/burden playing field, and would, in effect, largely dismiss current NIMBY (“not in my back yard”) issues so prevalent in Vermont. Respondents repeatedly referred to NIMBY concerns during the interviews. In these interviews, the overuse of this term served as an accusation against “others” who appear

to divest themselves of any personal responsibility for what is and will be a truly collective endeavor – a long and difficult series of transitions to wean the public from current patterns of energy consumption, and replace these with sustainable ones fed by renewable energy production.

This research, then, suggests that to divert individual focus away from one's own backyard and instead toward community well-being and progressive sustainability can only be encouraged with a true shift in accountability for, and ownership of, regional renewable energy projects. Moreover, a view of energy as inherently regional, an integrated culture of community participation and true collaboration between stakeholders to develop renewable energy projects will all be required to achieve a successful future RET.

APPENDIX A
COMMERCIAL WIND POWER IN VERMONT

APPENDIX A.1

This table shows detailed information regarding the four commercial wind farms currently in operation in Vermont.

WIND POWER: VERMONT PROJECTS									
Vermont Commercial Wind Projects	Power Purchase Agreements (SPEED Resources)	Average Vermont Households Served	Jobs: Workers, Services & Businesses	Expected Annual Contribution to Vermont Education Fund	Annual Payments to Host Communities	Funds to neighboring, non-host towns	Decommission Funds		
Sheffield Wind Project Operating 10/ 2011 40 MW Capacity	BED, VEC, WEC	15,000 ≈ 16,000	60 businesses	\$230,000/yr – 345,000/yr Based on output	\$520,000/yr	N/A	\$1,390,000		
Kingdom Community Wind Operating 11/2012 63 MW Capacity	GMP, VEC	24,000	100+ businesses	\$558,000+/yr - per year. Based on output	\$535,000/yr. Increases by \$32,000 every 5 years.	Yes. \$1/MWH of generation for first 10 years.	\$6,100,000		
Georgia Mountain Community Wind Operating 12/2012 10 MW Capacity	BED	4,200	100+ local workers	\$82,000/yr Based on output	\$180,000/yr	N/A	\$600,000		
Searsburg Wind Farm Operating 1997 6 MW Capacity	GMP	2,000	n/a	\$93,243/yr (2012) Based on output	\$26,353/yr (2012)	N/A	N/A		
Deerfield Wind Project Permitted 2009 30 MW Capacity	GMP	13,000	\$2 million paid to local workers to date	\$270,000/yr Based on output	\$394,000/yr				
TOTAL (Installed Projects)	119 MW Capacity	≈46,200 Households powered by wind	260+ local businesses & workers engaged	\$963,243 ANNUALLY contributions to Vermont Education Fund	\$1,261,353+ ANNUALLY contributions to host communities	\$1/ MWH Funds to neighboring non-host towns	\$8,090,000 Decommission Funds		



To REV's knowledge, while there have been several other projects proposed or initially researched, no other projects are currently moving forward.

Two other projects are **UNDER CONSIDERATION**:

- Meadowsend has an approved PSB MET-tower permit in Grafton/Windham.
- Seneca Mountain Wind is applying for a PSB MET-tower permit in Ferdinand/Brighton/Newark.
- A "MET-tower" is a temporary structure that supports meteorological data sensors at a height above ground to gather wind resource data which is used to evaluate whether the wind resource is strong and persistent enough to consider an evaluation of economically viable, wind powered electric generation.

Figure A.1 Renewable Energy Vermont - Wind Power: Vermont Projects, Part I
Source: www.revermont.org (accessed 12.2.13).

APPENDIX A.2

This table shows additional detailed information regarding the four commercial wind farms currently in operation in Vermont.

Wind Power: Vermont Projects			
Land Use	Permits & Requirements	ANR Mitigation and PSB Compliance Requirements	
Sheffield Wind Operating since 10/2011 7 Years to complete	ISO-NE System Impact Study PSB Certificate of Public Good (Sec. 248) ANR Stormwater Construction Permit ANR Stormwater Operational Permit ANR Water Quality Permit FAA Lighting Determinations AOT Transportation Permits Local Transportation Permits Army Corps General Permit	Reduced number of wind turbines & project design footprint Interpretive signs for Crystal Lake State Park Decommissioning plan Underground electrical lines Dust control & blasting plan Transportation Plan Land Conservation and habitat mitigation Operational curtailment for bat protection 2 year bird and bat mortality monitoring & curtailment study Bi-annual stormwater inspections Annual reporting of bird or bat fatalities Sound limits & monitoring during first year- all seasons. Long-term, stably-priced Power Purchase Agreements with VT Utilities	
Kingdom Community Wind Operating since 11/2011 4 years to complete	ISO-NE Impact Study PSB Certificate of Public Good (Sec. 248) ANR Stormwater Construction Permit ANR Stormwater Operational Permit ANR Stormwater Construction for Transmission & Substations ANR Individual Wetland Permit ANR Individual Water Quality Permit Army Corps/ANR Individual Permit FAA Lighting Determinations AOT Road and Oversized Load Permits	Land conserved for bear habitat, wetland mitigation and fragmentation impacts Decommissioning plan Dust control & blasting plan 5 year operational stormwater monitoring Sound limits and 2 year sound monitoring- all seasons 3 year bird fatality monitoring 1 year bat fatality monitoring 5 year water quality monitoring (off-site streams) 5 year non-native invasive species monitoring	
Georgia Mountain Community Wind Operating since 12/31/2012 6 years to complete	ISO-NE System Impact Study PSB Certificate of Public Good (Sec. 248) ANR Stormwater Construction Permit ANR Stormwater Operational Permit FAA Lighting Determinations AOT Transportation Permits Town Excess Weight Permits	Decommissioning plan Dust control & blasting plan Sound limits and 1 year sound monitoring- all seasons 3 year bat fatality monitoring 2 year bird fatality monitoring 10 year non-native invasive species monitoring	
Searsburg Wind Operating since 1997 7 years to complete	ISO-NE System Impact Study PSB Certificate of Public Good AOT Transportation Permits	Restricted access to minimize bear impacts Annual reporting of site visitors DOE Energy reporting for 10 years and on-going outreach requirements	
Deerfield Wind Project concept began in 2004 Permitted in 2009 Yet to be constructed	US Forest Service EIS USFS Special Use Permit ISO-NE System Impact Study PSB Certificate of Public Good (Sec. 248) ANR Stormwater Construction Permit ANR Stormwater Operational Permit FAA Lighting Determinations AOT Road and Oversize Load Permits Town Oversized Load Permits	Limited breeding birds limited construction period Decommissioning plan 2 year bat & avian monitoring Sound limits and 1 year sound monitoring- all seasons Long-term stably-priced Power Purchase Agreement with VT utilities. Bear impact minimization proposal; multi-year bear monitoring; Restricted personnel access and maintenance periods for Bear activity, Bear habitat mitigation	

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Figure A.2 Renewable Energy Vermont - Wind Power: Vermont Projects, Part II
 Source: www.revermont.org (accessed 12.2.13).

APPENDIX B

THESIS INTERVIEW GUIDE SAMPLE

This is a sample of the general interview guide used during all interviews for this thesis research.

THESIS INTERVIEW GUIDE SAMPLE

Intro: My name is Jill Clegg and I am finishing a graduate program in Environmental Sustainability Policy Studies in the Chemistry and Environmental Sciences department at the New Jersey Institute of Technology.

Short descriptive summary of my project: I am looking at renewable energy production and transitions (generally), but focusing on commercial wind production in Vermont – specifically the recently completed Lowell Mountain project. I am trying to gain better understanding of the factors, barriers, stakeholders, etc., towards the building of or the stopping of such projects.

This is part of the work for a master thesis, some of it may be published but in all public presentations all names will be changed and all identifying information will be removed. (Exempt status so no release forms).

Same(ish) questions (as written in the final thesis proposal):

In my research, I will address the following questions in my investigation of the Lowell Mountain project:

Perceptions: How are aesthetic, economic, and political perceptions surrounding wind projects socially constructed? And how do people come to see their values (e.g., fairness, impacts on wildlife) and interests (e.g., health and safety concerns, anticipated visual or aural disruptions from wind turbines) as being threatened by commercial wind projects?

Siting: In what ways have the negotiations between technical, economic and social siting considerations influenced the degree of community support for the Lowell Mountain wind project?

Collaboration: To what degree were the communities in proximity of the Lowell Mountain site engaged in the development process? What strategies, if any, were employed to build community engagement in this project? Which, if any, of these strategies were effective and which were not? What, if any, barriers were there to community collaboration? What, if any, suggestions do community members have for improving community collaboration in the development process?

Political structures: What were the political facilitators and barriers for getting this project up and running? What were the enabling and constraining factors for stopping this initiative? What were the existing political and bureaucratic (procedural) structures in Vermont and in the Lowell Mountain area pertaining to renewable energy and

specifically wind production at the inception of this Lowell Mountain project? How were they negotiated, transformed and challenged through successive stages of the project?

Additional potential questions/What else do I want to know?:

The recent past and now current political frameworks in Vermont around renewable (wind) energy projects.

The main differing opinions on how to meet emissions targets and live sustainably.

What has changed in this domain because of events and pressures from this Lowell Mtn. project.

How was community participation encouraged/blocked, and why? What did that look like?

What was done to address the multiple perspectives of commercial wind during this project? And what could have been done better?

What does it take to get a commercial wind project up and running in Vermont? Has that changed since the Lowell Mtn. project?

What happened before, during the project, after/present, and what anticipate now in the future?

What is likely to occur in the next 3-5 years?

Anyone envision changes in the rules of the game going forward?

More stringent requirements for community participations?

What are rules going to be for how these projects are contested going forward?

How much does the rural/ pastoral image/feel of Vermont play into these contestations?

(For anti-groups) Is there any circumstance where commercial wind would be appropriate and acceptable in the state of Vermont?

What about hypothetical scenarios toward community ownership – do you anticipate that would that change the way things play out? (Trying to figure out nature of ownership).

With all of the contestation, how did the Lowell Mtn. get through to completion when Ira and other such projects were successfully dropped?

What residual activity is still going on around the Lowell Mtn. project, or because of it?

APPENDIX C

VERMONT SITING COMMISSION FINAL REPORT 2013

This list is an excerpt from the governor-appointed Vermont Energy Generation Siting Policy Commission's Final Report on April 30, 2013.

A Timeline of Vermont Renewable Legislation (1998-2012), pgs. 77-78.

- 1998 Act 136**, established net metering, allowing Vermonters with small renewable power sources to sell excess electricity to the utility (Non-farm <15kw; farm <100kw)
- 2000 Act 157**, increased size of farm net metering
- Allowed farms to combine manure for electricity
- 2002 Act 145**, increased farm net metering to 150 kw; exempts off grid systems from sales tax
- 2003 Act 69**, created chapter on RE Programs
- Allowed electric consumers to invest in RE projects. Took the first step toward creation of a Renewable Portfolio Standard (RPS) mandating that every utility provide a minimum % of renewable power.
- Allowed purchase of RECs - Created an incentive program for small-scale RE systems in homes and businesses.
- 2005 Act 61**, first legislation to establish RE standards and the SPEED program to encourage *in-state* renewable electric generation (passed the House by a 94-35 margin)
- Allowed utilities to trade renewable energy credits (RECs) to other states in order to provide a market-based solution to jumpstart initial investment in RE.
- Required power providers to add enough RE sources to fulfill increased demand between 2005 and 2012
- Required PSD to hold hearings on new transmission proposals in each affected community, and to create a process for public involvement in development and siting of proposed wind energy facilities, and
- Required utilities to submit 10-yr transmission plans, favoring non-transmission alternatives (e.g., locally sourced power) where possible.
- 2006 Act 168**, set Greenhouse Gas (GHG) Reduction Goals (adopted without dissent)
- From within state & outside state boundaries caused by use of energy in state; 25% by 2012, 50% by 2028, 75% by 2050
- Required ANR to develop Climate Change Action Plan
- 2006 Act 208**, expanded net metering & amended SPEED (adopted without dissent)

- Required developing a process for engaging the public in power planning issues, focusing on supply choices facing VT post-2012, and helping communities develop local energy opportunities and climate change action plans
 - Expanded list of projects eligible for CEDF funding
- 2008 Act 92**, set the goal of producing 25% of total energy from *in-state* renewables by 2025; increased net metering
- set state goal of 20% of total statewide electric retail sales coming from SPEED (renewable) resources by 2017, when SPEED is due to expire
 - amended Act 250 to exempt farm-based energy projects from Act 250 process
 - cap on net metering raised to 250kw (farm) and 150kw (non-farm), allows use of group net metering
 - created education tax on wind
- 2009 Act 45**, The Vermont Energy Act of 2009; amended SPEED
- created Standard Offer to encourage development of RE by establishing default prices to allow RE developers to recover costs plus a decent rate of return on projects <2.2 MW.
 - allowed ‘appropriate’ siting of wind on state lands
 - barred local governments from adopting laws forbidding use of solar panels, clotheslines or other small RE projects
- 2010 Act 159**, RE amendments
- simplified permit review and interconnection procedures for all renewables <150Kw, and simplified application and interconnection for 150kw-2.2MW by rule or order
 - required PSB to write a report on the potential of an RPS program to replace or be added to SPEED.78 Vermont Energy Generation Siting Policy Commission (April 2013)
 - transfers appeals of RE permits from Environmental Court to PSB
- 2011 Act 47**, The Vermont Energy Act of 2011, expanded net metering and SPEED
- raises net metering from 250kw to 500kw capacity,
 - established one year expiration for non-use of CPG for net metering
 - established 20cents/kwh minus residential rate for solar for 10 years
 - makes Standard Offer available to existing hydroelectric plants <2.2MW
 - added Baseload Renewable Power portfolio
- 2012 Act 125**, increased solar net metering, requires DPS to recommend ways to expand net metering
- from 5kw to 10kw for individual cap for home solar registration process
- 2012 Act 170**, The Vermont Energy Act of 2012 amends SPEED and Standard Offer, enacts smart-metering
- 55% total renewables target by 2017; 75% total renewables target by 2032
 - Expanded Standard Offer from 50 MW ceiling to 127.5 MW over next 10 years

- PSB and DPS must submit a report on potential RPS, and DPS must report on progress toward Comprehensive Energy Plan goal of 90% of all energy consumed in Vermont to be RE by 2050.

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