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Wind Power, Public Power: Evaluating Public Participation in New England Land-based Wind Development

Gwen M. Miller
University of Massachusetts Amherst

WIND POWER, PUBLIC POWER: EVALUATING PUBLIC PARTICIPATION IN NEW ENGLAND LAND-BASED WIND DEVELOPMENT

A Thesis Presented

by

GWEN M. MILLER

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Approved as to style and content by:

_____
Elisabeth Hamin, Chair

_____
Erin Baker, Member

_____
Mark Hamin, Member

_____
Elisabeth Hamin, Department Head
Department of Landscape Architecture and Regional Planning

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ABSTRACT

WIND POWER, PUBLIC POWER: EVALUATING PUBLIC PARTICIPATION IN NEW ENGLAND LAND-BASED WIND DEVELOPMENT

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GWEN M. MILLER, B.S., UNIVERSITY OF VERMONT

M.R.P., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by Professor Elisabeth Hamin

Wind energy is a means of energy production without carbon emissions, facilitating regional and national energy security. While there are currently no offshore wind farms in the United States, there has been growing success in building land-based wind capacity. Within the wind industry, there is a call for a streamlined permitting process, as well as an objective evaluation of current stakeholder processes. Within city and regional planning, the stakeholder process and public participation in general have long been subject to research and discourse, as scholars and practitioners alike seek to identify and typify what exactly makes public participation robust or rigorous. In Europe, researchers have found that a stakeholder process characterized by early inclusion and local decision-making increases community acceptance of large-scale wind projects, and that a 'soft-path', decentralized approach to infrastructure development, as seen in Germany, leads to greater community acceptance as well, versus the 'hard-path', centralized approach to infrastructure development as typified in early Dutch wind development. While the public process should not supplant the formal permitting process, or detract from technical expertise, a better understanding of what type of siting and decision-making process are construed by participants as positive or negative could help to formulate stakeholder involvement more effectively in future projects. It could also help to decrease the length of permitting times by promoting consensus-building rather than inadvertently creating an adversarial decision-making climate.

This thesis uses a case study methodology to compare three land-based wind farms in Massachusetts and Vermont. It also compares the wind development policies between the two states. From each site, stakeholders are identified and interviewed concerning their experiences and perspectives of the stakeholder or public process. Interviews are analyzed using a matrix composed of success criteria pulled from the fields of regional planning and public participation theory, collaborative planning, and adaptive resource management. Findings include evidence as to what degree there was a stakeholder process, and to what degree participants found it positive or negative. The research found that the characteristics and practices of ore robust or rigorous stakeholder engagement are largely lacking in New England land-based wind development. These characteristics or practices included third-party data collection and reporting; early and broad stakeholder inclusion; collaborative ground rule setting; and no third-party mediation or facilitation. Stakeholder process perspectives are easily divided by wind-energy attitudes: anti-wind stakeholders reported greater antipathy toward the process, whereas proponents of both specific projects and the technology in general reported greater favorability toward the process and outcome. Vermont and Massachusetts have distinct wind development processes and distinct mechanisms for public participation and stakeholder engagement in a renewable energy technology context. In many ways, the siting of renewable infrastructure still follows the 'decide, announce, defend' character of conventional infrastructure and facility siting.

Wind proponents, and proponents of other renewable energy technologies and sustainability measures in general, should pause and consider how to craft meaningful, robust and rigorous stakeholder processes prior to site selection and development. This will lend legitimacy to both the process and technology, lending political and social sustainability to a technology that is well needed for social, economic and environmental well-being. Continued avoidance of early and robust stakeholder engagement may contribute to ongoing conflict and confusion regarding renewable energy siting, permitting and development. Stakeholder experiences and perspectives also demonstrated that there are many factors contributing to public and social perceptions of wind technology and specific projects, including the financial gain or reward to communities and stakeholders; the size of individual turbines; project ownership and

management; and project scale. There is opportunity for enhancing the public process and allowing rigorous and robust stakeholder process in wind energy development.

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CHAPTER 1

INTRODUCTION

The Industrial Revolution spawned a political economy and culture heavily reliant on resource intensive energy production. Communities and enterprises have been planned and designed to run on cheap, abundant fuel sources. Burgeoning concern over energy security, climate change, and dwindling cheap fossil fuel supplies, referred to as 'Peak Oil', has catalyzed energy discourse at the state and regional policy level, as well in popular culture. Alternative, clean sources of energy have experienced more and more consideration as a new fuel for our lifestyles, communities and economies (Fridley, 2010; Aitken, 2009; Kimmel, et al 2010; Andrews 2008; Pascqualetti 2011).

According to industry interest groups, the global demand for energy and the power it provides is only expected to increase (NREL, 2008). It is thus important to develop a means to spur energy production that is good for the environment, for reducing global carbon emissions, for public health, and for economic as well as social well-being. Renewable energy technologies meet these criteria, and wind is appealing to many because it is not as resource-intensive as alternatives such as solar energy, which requires rare earth mineral extraction for the fabrication of solar voltaic panels.

Renewable energy technologies (RETs) are viewed by many to be an environmental and economic panacea, whether the technology harvests solar, wind, or biogas emissions and converting it into useable energy. Renewable energy heightens the ability of communities to increase their sustainability and resilience. The shouldering of sustainability as an objective of contemporary planning and economic development strategies (Campbell, 1996) puts great hope in renewable technologies. These energies present the option of being community-managed and community-owned (Andrews 2008). Spatial and political proximity also provides another

important benefit in that it connects energy users directly to the source of their energy, increasing awareness and consciousness of externalities associated with energy consumption and dependence (Pascqualetti 2000).

Widespread acceptance and installation of renewable energy technologies promises to reduce the greenhouse gases released with the transmission and distribution of conventional energy sources. The mitigation potential of renewable energy is exciting, especially in the light of the most recent IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation: emission trends are far worse than the IPCC worst-case emissions scenario (IPCC SREN 2011). Today, the United States hosts only land-based wind energy. A Western wind boom in the 1980s developed a large share of existing wind resources. Though coastal wind resources are greater than those on land, offshore wind is still a nascent industry in the U.S. (Musial 2009). Inland regions offer opportunity for renewable energies, including wind, solar and on-farm biofuel energy opportunities. Discerning which technology works best in which region will help to diversify the national energy portfolio: they are likely to be as diverse as the American landscape, composed of innovative technologies, indigenous resources and decreasing amounts of existing non-renewable energy production methods. Wind energy is likely to be a narrow slice of a diverse energy portfolio, though a highly visible slice.

An important proponent of expanded wind energy deployment has (unsurprisingly) been the wind industry. In a 2010 repot, '20% Wind by 2030', the National Laboratory for Renewable Energy quantifies benefits and impacts of an expanded wind profile in the American energy landscape. These impacts and benefits include dramatic reductions in water use, land use, and carbon emissions. With 20% of national energy resources generated from wind, the energy industry would see a reduction of water use by 8%, or 4 trillion gallons. Other impacts include reduced land use—wind farms have a more minimal footprint than conventional means of energy extraction and production such as coal. The extensive area, and intensity of coal, has powerful landscape and environmental implications. The extraction and combustion of coal, for example, ravages the landscape, contaminates water supplies, and emits dangerous air-borne

particulates. Unlike standard energy resources, the footprint of a wind farm does not change or expand over time. Through engineering, design and planning, site-specific impacts of a wind array can be minimized. A further, powerful quantification of benefits is the potential of a diversified energy portfolio to reduce national carbon emissions from the electricity sector. The National Renewable Energy Laboratory estimates that a 20% share of wind energy would result in the curbing of 825 million metric tons of carbon equivalent from the electricity sector (NREL 2010). Stationary energy use is one of the largest emitting sectors in terms of greenhouse gas emissions.

Much of the momentum driving research and investment in renewable energy development comes from states and regions. Massachusetts, for example, has an ambitious goal: 2,000 megawatts (wind) across the state by 2020. While the externalities associated with conventional energy are widely recognized, the development of renewable energy is far from easy. What makes the development of renewable energy technology often so contentious is also what makes it a suitable subject to be addressed through urban and regional planning. Identifying and understanding barriers to a widespread acceptance of renewable energy technologies is essential to creating truly sustainable and resilient regions.

Throughout this thesis, I contend that the development and implementation of RETs at the state and regional level are appropriate venues for the planning professional. The unique nature of RETs and the objections and concerns they elicit from public stakeholders call for the involvement of professionals skilled at mediation and creating meaningful public engagement opportunities. Best practice in adaptive management, an approach recommended for use in further wind deployment by NREL (2010), suggests that complex, place-based policy processes are best managed by a third-party, neutral facilitator (Susskind, et al, 2010). Susskind suggests desired traits in such a facilitator: communicative; a collector of relevant information and data; networker; presenter; motivator; meeting manager; consensus builder; dispute resolver; and perhaps most important to new energy contexts, and thus to this thesis, an innovator (see also Frenchman, 2002).

Another helpful lens through which to further unpack the complexities of social and community acceptance of wind energy is the realm of traditional facility and infrastructure siting. Residents often identify as 'green' or 'sustainable', proponents of the public good, but are adverse to large infrastructure projects or large facilities immediately in their community. Existing literature in wind energy delves into this social gap and literature from conventional siting, particularly in an environmental management context, suggests that public participation plays a crucial role in enhancing understanding and augmenting support for controversial projects.

Merely hosting public participation is not enough. The field of planning, adaptive management and natural resource policy all identify best practices in the public process: engaging stakeholders early; tailoring the public process to the stakeholders and to the desired goals and outcomes; providing the necessary resources and information so that stakeholders and public participants may make informed decisions and fully participate. These practices, and more, are addressed in further detail in the literature review.

Since renewable energy policy has largely been stalled at the federal level since the 1980s (Musial 2009), policy development is more a topic at the state and regional levels. It is also heavily influenced by state and local decision-making processes. For example: Texas, the state with the largest and most numerous wind energy sites, also has the simplest permitting process. In Massachusetts, a state with great wind energy potential and a complex standard permitting process, projects can take up to a decade to approve, resulting in sluggish progress towards energy goals, and resulting in a clamor for policy reform.

It would be untrue to say that sluggish wind development stems merely from policy. Justification for wind promotion or opposition given by individuals range from complex and multi-fold to simple and singular. Often, industry representatives as well as planners cite the NIMBY (not in my backyard) phenomena as the main reason of objection. Devine-Wright (2011) an expert in

wind energy planning, makes the point that the NIMBY characterization is over-simplified. Previous studies show that place attachment, economic conditions, political conditions, and engagement strategies do affect how people associate with and feel about wind projects in their communities. To further explore this, I divide the concerns expressed by communities into common planning categories: land use, public health, economic development, public policy and natural resources. Planners, too, can deepen their understanding of community objections by recognizing the complex relationships people have with both place and technology. I broach this in a category of public perception.

Important to understanding public perception and challenges to rapid wind deployment is the uneasy relationship between public experiences and highly technical, scientific knowledge. Deliberative and collaborative planning seeks a balance between the technical or professional expert and the lay or locally knowledgeable resident (Innes and Booher, 2007). The engineering behind the wind turbines themselves, the engineering behind site selection, and the configuration of the array itself, do not necessarily lend themselves to broad interpretation or public debate. This delicate balance between scientific knowledge and local knowledge, and the way one may be valued more than the other, is an important part of how people publically participate, and how they evaluate their experience. The city and regional planning framework for public participation and stakeholder engagement works well in terms of the land-use component of wind deployment; the relationship between science and local knowledge surrounding wind deployment lends itself to a discourse borrowed from environmental management, and resource management policy and planning.

Increasing embrace of sustainability and resilience are also key drivers in the proposal and implementation of renewable energy infrastructure. Whether the rationale is broad sustainability, justified with references to energy security, peak oil or the socio-ecological costs of conventional energy resources and systems, renewable energy is but one concern taken up by planners, policy makers, and interest groups –whether proponents or opponents—who seek to reduce carbon footprints, bolster the local economy, increase equity and protect the

environment. Borrowed largely from the fields of ecology and landscape ecology, the term 'resilience' is used by those in the planning and policy profession to describe a state of conditions that are able to maintain their basic structure and function in response to acute crises or chronic duress (Walker and Salt, 2006). A shift to decentralized and renewable energy technologies would enhance regional and community resilience in terms of power and energy capacity, but also in economic and social terms as well. Opponents, however, express views that the footprints of these large-scale renewable energy installations come with their own ecological impacts, and in fact threaten ecological integrity and resilience. In interviews, some stakeholders suggested detrimental impacts to local social integrity, describing rifts in their small community's relationship network.

1.1 Research Questions

Following an interpretative model of qualitative research combined with case studies, I hope to answer the following five research questions:

i. What are current practices in wind energy development stakeholder engagement?
ii. What are current professional attitudes within wind energy planning relevant to public participation?
iii. Is there opportunity for refinement and enhancement of public participation strategies within wind energy planning?
iv. What are current successes and failures in decision-making processes and stakeholder engagement processes regarding wind energy projects?
v. What are recommendations for developers, planning agencies, departments, regions and localities to consider or adapt when planning for renewable energy?

1.2 Research Goals and Objectives

The principal goal of this thesis is to clearly identify the community and project conditions that significantly influence public attitudes towards wind energy, and to evaluate the efficacy of public participation methods in current planning practice for addressing those attitudes.

There are identified barriers to widespread acceptance and implementation of renewable energy technologies. They include siting challenges, financial cost, lacking or low capacity grid connections and ancillary infrastructure, aesthetic and ecological integrity, among others. The lack of federal or state standardization in the policy and permitting realm is often identified as a substantial hindrance. Another barrier, discussed to some degree by Wolsink and Pasqualetti, could be the way the public and stakeholders are involved in siting and development decisions, or rather, the ways in which they are not involved in siting and development decisions—the ways in which the public and stakeholders participate. In planning, professionals evaluate public participation as successful if the final product bears the influence of the public and their input (Arnstein, 1969; Innes, 2007; Susskind, et al. 2010). Through exploring public participation in wind energy planning, I hope to identify whether the public participation built into the permitting process is effective or ineffective—that is, what is the ultimate influence the public has on the final product, as well as on the process itself. If public input results in a product bearing the marks of public comment and input, such as changes to a project proposal or plan, and these changes are reflected in the final design and project, then the component of public process can be considered well-conducted. Just because a wind farm, for instance, is built does not mean it was a successful example of decision-making or public process. Nor does it imply that a wind farm not being sited in a specific community means a weak or absent process — rather, successful decision-making and successful public process result in an expression of community values, concerns, and visions, and consider all opinions and perceptions fairly and equally.

Research literature from the fields of planning and environmental management describe the influence that 'good' public process has on project and policy outcomes. The value of quality stakeholder process and public involvement has been recognized in the wind industry, with both NREL and the Conservation Law Foundation publishing statements describing a need for thoughtful process formulation and third-party evaluation of these processes (NREL, 2010 and CLF Ventures, 2011). This thesis goes beyond just the fact of quality or robust, rigorous public participation, but instead seeks to find what ***components*** and ***types*** of public participation are

actually used in wind siting and development. That is: what are common forms or types of public participation or stakeholder engagement used in wind development. These could include public hearings, public meetings, forums, open houses, and participatory mapping, among many other opportunities that are used as platforms for public input in the field of city and regional planning. There are many types and methods public participation, and some methods are largely thought to offer greater opportunity than others. A very common form of public participation in wind energy siting and development is that of the public hearing. New forms of Internet technology, and 'smart media' technology, coupled with thoughtful design, offer innovative, interactive forms of participation that go far beyond the traditional 'decide-announce-defend' path of most facility or infrastructure siting projects, and instead seek a more deliberative and collaborative siting and vetting process. The most common forums for public process noted in this thesis include public meetings, public hearings, quasi-judicial hearings, site visits, and meet-and-greets or open house style forums, town meetings and town elections.

This thesis seeks to unpack the concerns and objections of communities dealing with renewable energy technologies, and explore the important role of public participation in planning, and its influence on renewable energy development. The act of implementing renewable energy in itself does not make something sustainable—the equity and transparency of the process is essential to furthering the social components of sustainability.

It also aims to identify to what extent land-based wind development in the New England states of Vermont and Massachusetts utilize best practices of stakeholder engagement as a component of their public participation process. Public participation is required by many state and federal policies and agency requirements when evaluating the socio-ecological impacts of large-scale projects. The methods used to involve the project often are those methods considered to be the most minimal or least effective from a theoretical perspective, meaning that members of the public and stakeholders may not have opportunities to engage in a robust or rigorous process. A lack of such opportunity can greatly influence the perception of the process and project, influencing future participation and attitudes towards project quality and

process legitimacy. It could also result in generic projects largely lacking community values or insensitive to specific community and place contexts.

CHAPTER 2

LITERATURE REVIEW

Since its public emergence, wind energy had been well studied in a range of disciplines. Some of these studies have focused on tangible, physical consequences of wind energy facilities; others have sought to focus on less tangible issues and to determine how feelings, attitudes, perceptions and beliefs influence the way an individual or community receives a proposed or constructed wind project. The field of planning and geography, for example, has largely focused on such ecological and sociocultural subject areas, as well as the economic drivers, at both the market level and the community level, in shaping public opinion. Engineering has played a crucial role in furthering the field and also documenting opportunities and challenges for technologic innovations, impact mitigation and design standards. For the purpose of this literature review, existing literature and relevant findings have been organized by category, specifically into the categories of land use, public health, public perception, economic development, natural resource management, public policy, and public participation/stakeholder engagement, particularly from the planning and resource management policy perspective.

There are several types of research and literature available pertaining to public process in the environmental planning field: evaluation methods, and why we evaluate process; the history and theory of public process and participation; and the design and implementation of 'good' or 'right' public process. This literature review examines the history and theory of public process; identifies calls for evaluation; identifies how evaluation occurs; and also identifies recognized best practices designing and implementing 'good' public participation processes in environmental planning projects.

2.1: Land Use

At its most basic level, the development of renewable energy is an issue of land use. Unlike other land-uses, which can be alternatively sited, renewable energy relies on the abundance and availability of natural resources, in places accessible to power transmission, grid connection and equipment maintenance. It is highly site-specific. A wind turbine tends to be sited in a location with the most wind and best access to the grid; a solar array tends to be sited in a location where it will receive the most sun and allow for easy transmission and maintenance access (Rynne, et al, 2011). Competing land-use, alternative land-use, surrounding land-use, future land-use, past land-use, current land use…become powerful tokens in the planning process. Sites are selected because of resource abundance and proximity to existing infrastructure—facilitating construction and maintenance and transmission capacity: a site is more suitable if there are efficient interconnections to the grid. Grid connections are costly, and can add challenges to the planning process. Substations themselves can be undesirable objects to property owners. This site specificity makes the development process difficult, and it also is in part what makes the public role different from other planning endeavors. Developers select sites based on the aforementioned criteria, on data, and on scientific studies and reports. Upon public identification of potential sites, or the ultimate site, stakeholders identify as for or against sites based upon a slew of concerns, well documented in wind energy literature: stakeholders worry about viewsheds, how the aesthetic value of a place or region will be impacted by an array of wind turbines, and how this impact will affect economic drivers such as tourism or property values (Rynne, et al, 2011). Residents worry about public health impacts: visual flicker, noise, and vibrations. They worry about existing and surrounding land uses, how these will be affected or changed. User groups worry about habitat fragmentation and wildlife movement: fishermen and hunters worry about reduced breeding and availability. Local control of this land becomes another concern, as does local benefit. Projects are generally more accepted when economic benefit stays local; Wolsink writes that often communities are not against the technology of wind, but may be against the role of outside developers proposing the project.

2.2: Public Health

Some community concern for renewable energy technologies, particularly with wind energy, stem from public health concerns. Stakeholders express concerns related to audio and visual stimulations and subsequent symptoms of nausea, migraines, or disrupted sleeping patterns. Two reports, issued by the Oregon Department of Health, and the Massachusetts Department of Health, arrive at similar conclusions: that while there is some evidence suggesting potential public impacts, particularly regarding sleep disruption and annoyance caused by sound, there is not enough evidence to suggest that wind energy definitely causes negative health in those living nearby. Both call for further research, and both warn that the impacts depend on a number of variables, including turbine height and size, surrounding landscape, proximity of human residents, time of peak operation, and other factors (Joshi, et al. 2011; Ellenbogen, et al. 2012) regarding the potential for public health impacts from commercial-scale wind projects. Another characteristic which makes renewable energy seem more risky or controversial is that of Fridley's 'imperfect foresight' (2010). Imperfect foresight refers to the yet to be determined impacts of renewable energy facilities in terms of public health and long-term environmental impacts (Fridley, 2010). A major issue that makes renewable energy technology difficult to promote ties in directly to the public health concern. By imperfect foresight, Fridley means to highlight an issue that comes up again and again in the two public health reports cited above: that there are unknowns in terms of real or direct impacts from renewable energy technologies. Regardless of how long the technology in question has been in use in other communities, it is often new and unknown to recent host communities. Real or not, the perceived impacts of commercial wind farms on public health and quality of life need to be addressed if expanded deployment is to be realized, and both public health reports and the American Planning Association's report 'Planning for Wind Energy' (2011) offer best practices, which include education, awareness and better siting practices (Joshi, et all. 2011; Ellenbogen, et al. 2012, Rynne, et al. 2011).

2.3: Public Perception

There are three types of public perception that affect renewable energy development. One is the public perception of the project, which is affected by many different factors; the second is place perception, meaning how people view and feel about their environment or landscape; and the third is public perception of technology (Wolsink, 2007). It is a particularly distinctive interplay in New England. There is little original 'wilderness' left, and much of what we do deem as 'scenic', 'wild' or 'natural' really bears the marks of human interaction. Nassauer states that "some pristine ecosystems…tend not to look conventionally scenic. At the same time, many landscapes that are far from pristine look scenic" (Nassauer 1995, 68). These perceptions, or misperceptions, are strongly linked to an individual sense of place, and to place attachment.

Place attachment is a powerful, emotional experience. Porteous describes the results of a 1963 study of forcibly relocated West Enders in Boston, in which almost 75 percent of respondents expressed feeling grief at having to leave their place; the grief they described manifested itself physically: "vomiting, intestinal disorders, crying spells, nausea, general sadness, and depression" (Porteous, 1977). In a study looking at place attachment and stewardship in urban parks, Ryan found that that participants expected "a very real sense of personal loss should changes occur that they felt would harm their natural area" (Ryan, 2000). A study in the United Kingdom found that the greater sense of place attachment, the more individuals expressed objection towards wind installations in their own community (Devine-Wright, 2011). It is also important to note that conflict definitely can arise from place attachment, particularly when lay or expert opinions differ in terms of management strategies (Ryan 2000). The powerful emotions elicited through place attachment, and via impacts or changes to the landscape of place, must be considered in both planning and design.

Stakeholders may be afraid of technology, or untrusting of it. It is interesting to look back at historical relationships between people, landscape and technology. The nineteenth and twentieth centuries were a time of dramatic changes in both the national and New England landscape. Resource extraction, large-scale hydro-power projects, projects to preserve drinking

water resources for rapidly growing urban populations, electric transmission and intensive landscape use all drastically changed the landscape. While we see today a patchwork landscape, the landscape of 19th and 20th century New England was remarkably different. Much of the forest had been cleared, and fields were heavily worked for crops and grazed by sheep and cows (Albers 2000). Industry, too, made its own mark on the landscape, particularly in terms of water quality, as much of the regional industry was located on local waterways, both for ready power and easy waste disposal. The existing landscape that is held so dear by so many, that 'mosaic of patches', defined more by heterogeneity than uniformity, is largely the way it is due to the heavy use of timber for fuel up until the 19th century, when communities largely switched to coal, and then to petroleum based-products. The burning of wood and coal for power also sent invisible and visible contaminants into the air. In all New England states, the environmental condition was noticeably degraded during that period. This fact became the catalyst for the environmental movement of the 20th century—which in turn resulted in placing some of the most favorite, natural places under conservation and preservation, designation of well recognized and highly valued landscapes, as well as policies regulating industrial processes and practices (Foster 2009). Whether community members like it or not, the landscape has been altered, and in many cases, remediated. The perceived separation between nature and people also helps to perpetuate the idea that the landscape and environment should be protected, rather than used or managed (Nassauer, 1995; Pascqualetti 2009). That belief or value system, however, completely ignores the fact that the landscape they seek to protect from development or technological encroachment is the very product of long-term resource use and human management. Vermont wind proponents, for example, are quick to point out that many current or proposed wind sites have long been managed for timber interests (Stakeholder Interviews, April 2012). Where does technology, and attitudes towards technology, fit in relative to this remediated, patchwork landscape?

Pascqualetti (2009) questions whether or not current support of wind energy in the Western United States is partially due to the region's historic relationship with the technology. For a certain period of history, that region was home to millions of residential-scale wind mills that

pumped water and provided electricity to the home. New England, to be sure, has a unique relationship with technology, and it also has a unique relationship with energy resources. Pascqualettei, Nye, Foster, Nausser and Albers connect landscape history with contemporary contexts. Pascqualetti and Nye explicitly mention renewable energy, wind energy and infrastructure. Foster and Albers come closest to connecting the New England landscape history and the current New England energy context.

Nye points out that our relationship with technology is ever evolving; our landscape, too, is in flux: “People continually put the land to new uses, and what appears to be natural to one generation is often the product of a struggle during a previous generation” (Nye 2006). What was once foreign and alien in the natural landscape, like the railroad, or electric lines, become less shocking over time. Innovations in how we interact with the landscape, and how we use technology within the landscape, points to both a contemporary and future “move beyond seeing technology and nature as irreconcilable opposites” (Nye 2006). What was the initial public response to the lines of transmission that wend their way through rural New England hills and valleys? Or the public response to the radio and cell phone towers? If public perception of renewable energy is to follow the arc of these other technologies, and grow in its acceptance and perception, developers and planners should understand what is described as technophobia and technophilia. We choose technology, and are deeply fascinated by it. Simultaneously, we are cautious of its unforeseen, or unknowable, impacts on our lives, health and favorite places. Nye describes this latter attitude as ‘technological pessimism’, citing works by the great British Romanticists such as William Blake and William Wordsworth, who expressed technology as a blight upon the landscape. Even the way we view technology and the natural world evokes a distinct sensation. The idea of the sublime, as explored by Nye, may point to why some people speak of wind turbines as objects of beauty; it may also help understand why people dislike them so much—they mar landscapes for others (Nye 1994). Technology, even with good intentions, can have negative consequences. Nye points to better highways, which pulls people away from public transportation; or computerization in businesses, which devalued specific skill sets (Nye 2006). Wind energy benefits the public but at a high cost to local communities.

Research and discourse from beyond the realm of planning and environmental studies also provides suggestion as to why stakeholder groups are slow to accept wind development. Thayer, in ***Gray World, Green Heart***, presents an explanation grounded in landscape theory, whereas Nye, in ***Technology Matters***, looks at the technology-society interplay. Leo Marx really catalyzed this line of research with his 1964 book ***Machine in the Garden***. Technology plays an immense role in transforming the industrial world, and in transforming our daily lives. Many conventional energy technologies, though harmful or complicated in their externalities, remain both out of sight and out of mind of the casual consumer. Pascqualetti, leaning on the works of Nye, Thayer, and Marx, and reflectively looking back at the 1980s California wind boom, cites this as an important characteristic in public attitudes towards wind energy. People are no longer simply flicking a switch to brighten or cool their homes with invisible energy; they are experiencing the production and harvest of energy visually, and as Thayer suggests, viscerally, if they experience a deep and intrinsic attachment to place and landscape. Pascqualetti also suggests that RETs have gained wider acceptance and support in the American West because there is a greater tradition of private, autonomous energy sourcing, such as the ubiquitous homestead windmill. The decentralized, distant composition of the fuel chain (as in petroleum or coal) cushions us from the real costs of our consumption; seeing and experiencing renewable energy installations brings these to our own yards and viewsheds: “As coal rose to prominence, there was a change from the rather uniform, distributed impacts of the ubiquitous use of wood to the nodal, intensified impacts of coal, the use of which was concentrated in relatively few places” (Pascqualetti, 2000). Urban dwellers “suffered nothing of the landscape devastation or the personal privations common in the mining lands of the northeast…neither place experienced the intensity of the other’s fate”. This was a change in a centuries-old pattern, a result of the transition from low-value, widely available resources such as wood to a spatially more concentrated resource such as coal. He also touches upon the real and perceived attitudes towards nuclear power: the ‘invisible and insidious risks’ of uranium aren’t a popular hot topic, but then again, ‘uranium supplies tend to be in areas of low population concentration’. Coal, also, possesses invisible externalities: air pollution, mercury deposition, and the spatially removed, though highly visible, practice of mountaintop removal. Meanwhile, wind, like the use of wood for fuel in pre-Industrial England is “apparent and local…in a spatial sense, we are resolutely turning back the clock” (Pascqualetti, 2000). In response to such objections,

Pascqualetti offers better design and better planning efforts as a solution to these objections. He also calls for better public outreach and education: the public must recognize why RETs are a more sustainable alternative than conventional energy resources. Perhaps the public could consider more than the case in front of it: real costs of energy; true 'harmfulness' of wind versus other energy sources not necessarily seen; and embrace the visibility of RETs as an asset rather than a liability. Wind energy, specifically, is thus a representation of the requisite paradigm shift necessary to achieving sustainability, and also a representation of a potential future landscape. A vivid example that comes to mind is the installation of solar panels at the Hancock Shaker Village, in the Berkshire region of Massachusetts, where a historic and cultural resource also becomes an energy landscape.

Even decision-making processes tend to play out differently where technology is involved. Nye points out that when technology is involved, the voice of the expert is sometimes over-valued to a point where 'cultural and political effects' are neglected. He recommends something similar to the Dutch and Danish model, which includes forums of representative ordinary citizens who interview 'experts' and then "formulate advice on technological policy…every society should give citizens such an opportunity to influence the construction of technological systems" (Nye 2006, 158). In our own country, political discourse surrounding technological systems is less transparent. Nye states that congressmen "do not sort out conflicting scientific testimony…one congressmen freely admitted, 'you use the scientists' testimony as ammunition. The idea that a guy starts with a clean slate and weighs the evidence is absurd'." (157). "They focus on winning, not on technical feasibility or scientific accuracy, and corporate lobbies are happy to help finding obliging witnesses" (Nye 2006). A final important note on the techno-society relationship: changing our infrastructure is only one facet of what must be a multi-faceted approach to sustainability. We must embed 'soft' changes into our culture, such as cars with better fuel efficiency, or homes built with energy efficient materials, as well as make renewable options such as solar and wind more affordable to attain true change (Nye 2006).

2.4: Economic Development

Recent research suggests that the economic condition of a community or area influences the social acceptance of development projects (Brannstrom, et al 2011). Proponents tout the 'green jobs' promise in renewable energy development, as well as increased economic activity in project communities. Potential impacts include not just job growth in wind-related activity, but potential increased activity in related industries. Increased expenditure power in community members could also filter through to other community businesses. Sometimes, material or skills required for the project can be sourced endogenously, further contributing to the local economy (Slattery, et al. 2011; Brown et al. 2012). An example of this might be concrete or gravel being sourced from a local producer. In the Lowell wind project, for example, they used crushed bedrock from blasting for the service road shoulders (Personal Communication, April 2012). Often, developers and utility companies offer host communities generous compensation packages, including payment in lieu of taxes (PILOT) arrangements and good neighbor funds. On the other hand, of course, anti-wind advocates speak about decreased tourism, decreased real estate activity and decreased property values. Those against renewable energy development often cite a decline in economic activity due to the improper siting of turbines or solar arrays. A study comparing wind projects across the country looked at the economic conditions in host communities, and found a strong relationship between communities challenged in terms of economic opportunity and the siting of commercial scale wind companies. Two studies attempt to quantify direct economic benefit to individual communities and counties hosting commercial wind projects. The first study, based on projects in Texas, demonstrates job creation, but cautions that this is more likely in communities closer to vibrant business centers, and that jobs created are primarily wind jobs. Still—their review of communities indicated economic benefit in each case (Slattery et al. 2011). The second study applied econometrics in a regression analysis to examine benefits to communities and their counties from wind energy development. They found increases in county employment and increases in personal income at the community and county level (Brown et al. 2012; Slattery, et al. 2011). To be sure, whether they bring jobs or steady economic activity or not, the promise of large sums of money from wind and utility companies offers tantalizing benefits to small and rural communities isolated from larger markets and greater economic opportunity.

2.5: Natural Resource Management

While developed in order to protect natural resources over the long run, the development of RETs may also prove dangerous to specific ecosystems and ecological services. Major concerns include: stormwater run-off, habitat fragmentation, increased traffic/activity in previously 'natural' areas, ground vibrations, and wildlife mortality, particularly birds and bats. There is bird and bat fatality, though different studies provide different statistics. Fatalities peak during migratory seasons, and one report states that bat fatalities are especially high on forested ridgeline installations such as New England wind projects (Rynnes, et al. 2011; Kunz, et al. 2007; Arnett, et al. 2008). One author compares fatality rates related to wind energy to bird and bad fatalities attributable to conventional energy sources such as fossil fuel and nuclear, finding that fatality rates are lower per unit of wind energy than for unit of energy produced via fossil fuel or nuclear resources (Sovacool, 2008). The potential for fatality is studied as part of the siting and permitting process, and many projects carry with them ongoing research requirements to track bird and bat fatalities.

At the same time, wind researchers currently work to understand better the viability of using wind turbine platforms as means for habitat creation and restoration. Climate change negatively impacts coral reefs; the foundations of offshore turbines could become artificial reefs (Inger, et al). A practice common in all case study sites is conservation via easements of hundreds of acres for wildlife corridors and habitat by the wind company or utility responsible for development. This mitigation effort is critiqued commonly by project opponents, who question whether the land now under easement is of the same integrity as the land disrupted for the wind project. An example can be seen in Sheffield, Vermont, where opponents note that the land now under easement is actually land under sustainable forest management and is thus not really being managed as habitat (Stakeholder Interview, April 2012).

2.6: The Planner's Role

Where does city and regional planning fit into all of these unique viewpoints, values and interests intersecting over wind farms? City and regional planners, in both theory and practice,

are largely concerned with the studying land use, and associated societal, cultural, economic and environmental implications, recognizing that there is often a 'highest and best land use' from a development market perspective. This thesis, while striving to evaluate the public process of large-scale wind developments in New England, also recognizes that the 'highest and best use' of land is not always objective, but is greatly formed by experience, personal histories, politics, and process. This requires a community-specific approach, and this has been recognized by the American Planning Association's guide to wind development, in which they describe how community character often influences community perception of a wind project. A community with little industrial experience, for example, might have a harder time accepting a large-scale wind project (Rynnes, et al. 2011). The days of rational top-down modernist planning are over, and theorists and practitioners embrace the post-modern model of collaborative planning—where the public helps to guide land-use decisions.

There are specific opportunities for planning to influence wind and renewable energy development. Rynne, et al. suggest opportunities for intervention not only in siting efforts but in visioning efforts and long range planning efforts as well (2011). Planners, whether working individually or collaboratively, for a single community or for a region, are equipped with a comprehensive set of skills that lend well to working on wind energy development. Often, they have access to comprehensive sets of local data that are beneficial in making land-use decisions and siting considerations. Those active in the field of planning often have experience serving as moderators or facilitators; they can serve in such roles, and they can also play an important role in crafting public processes which identify community goals, visions and needs in regards to energy. Zoning ordinances, which may facilitate or challenge wind development, offer another example of opportunity for planner involvement. Planners can also help guide policy discussions regarding creation of local incentives for wind development (Rynnes, et al. 2011). The planning professional also may find opportunity to play a role in outreach and education to the community as related to sustainability efforts and specific renewable energy technologies (Rynnes, et al. 2011).

2.7: Public Policy

The policy and decision-making process for renewable energy technologies is still in early stages. Some places have recognized that there are characteristics of renewable energy that make existing policies ineffectual in terms of successful permitting and development source. There has been little federal action in this realm, so states are responsible for drafting and passing these policies. Researchers have typified these policies: standard, streamlined, and simple (Bohn and Lant, 2009). The standard type is best exemplified by the current and cumbersome model of Massachusetts wind permitting; streamlined is perhaps best exemplified in Oregon and Washington; Texas, the state with the most wind energy in the United States, exemplifies the simple type, in which a project is approved when a landowner and developer make a private agreement (Bohn and Lahnt, 2009). The New England states use the standardized process; to date, the permitting process in Massachusetts can take up to nine or ten years. At the state level, policy-makers have recognized that conventional permitting processes takes too long, contributing to an adversarial decision-making atmosphere and high-risk financial environment for developers. Massachusetts' Wind Energy Siting Reform Act passed both houses in the spring of 2010; technicalities obstructed its implementation. This act did not pass in 2011 or 2012. Massachusetts does have the Green Communities Act, in which eligible communities gain access to grant revenue if they implement siting plans or zoning ordinance that are friendly to renewable energy development. There is also a federal tax credit which incentivizes wind development in all states, although its future is not completely certain as of December 2012. Oregon and Washington are two states that have adapted a streamlined permitting process for wind energy. Ultimately, this streamlined procedure reduces the time spent in permitting. It is also an improvement over the Texas model of renewable energy development, in which the developer makes a private arrangement with the landowner, and there is no public process. An intermediate solution is necessary to ensure responsible development, and the streamlined permitting process has been successful in states such as Oregon and Washington. It has been successful in that the permitting process takes only a year or two as compared to nearly a decade in Massachusetts, facilitating greater wind energy development in regions with great wind resources.

Bohn and Lant (2009) provide important background information on the standard permitting policy behind wind development. Conducting multi-variate regression analysis, they came up with the most important determinant in wind development: why permitting wind power has been smooth in some states, and challenging in others. They used states for their research, citing the lack of federal initiative in renewable energy policy making. They considered the following factors: wind energy potential; accessibility of transmission; price; restructuring; green power marketing; renewable portfolio standards; and siting procedures. They label each as negative or positive (the hypothesized direction). They labeled siting procedures as negative in states with higher rates of public process and input. Data was gathered from all 50 states and their respective permitting processes. Though lacking the data necessary to truly analyze power demand and access to transmission lines due to national security concerns, they used population density as a substitution. The two most important determinants to the siting of wind power were population (surrogate for transmission ease) and the political process, or procedural legitimacy. The state with the biggest and most numerous wind fields is Texas; Texas is also the state with the simplest and most straightforward proposal and implementation process. There, "wind farm developers hold meetings with landowner to establish lease agreements. Environmental, zoning or siting permits are not required and local county commissioners typically oversee the development process. The Texas Public Utilities Commission grants transmission approvals but has no jurisdiction on actual placement of wind turbines" (Bohn and Lant, 2009 94) Texas provides an example of what the authors label as the minimal permitting requirement; most other states fall into the categories of standard decision-making or simplified decision-making.

A good example of standard-decision making is that of Massachusetts: As explained in Kimmel, Blumkin, and Grahm's 2010 article, the standard model of decision making, with its numerous opportunities for public comment, dramatically stalls projects. Out of the three wind projects within the state, described in the article, two were derailed for almost a decade, including the well-known Cape Wind Project. The authors describe the efforts of a private developer to stop the Berkshire Wind Project at an old ski resort: 'Berkshire Wind, a 15 MW project…has been in the development process for over ten years…When an abutter spotted a technical defect in a

road access permit, brought a suit in court, and obtained an injunction on the construction of the project. The abutter is an out-of-state luxury condominiums real estate developer…[who] did not want the condominium owners to have a view of wind turbines at the top of the mountain' (Kimmel, et al 2010). This not only demonstrates some of the problems with the standard model; it also demonstrates the issue of competing land-use and site specificity in wind development. The authors are not wrongly skeptical of the abutters' tactics. Is there an essential nexus between a technical defect on a permit application and the actual tangible and intangible impacts on the condo owners' view? Legally, perhaps not. Due in part to the significant delays present in the standard decision making process, Massachusetts is one of several states seeking to transition to what Bohn and Lant (2009) label as the simplified, or streamlined, permitting process.

Already in use in Washington and Oregon, this style retains much decision-making power at the state level, and uses statewide standards. Developers may file proposals with a local board or through a one-stop permitting process managed by the state energy facility board. Above a certain size (350 MW as the minimal threshold), a proposed facility is required to undergo an 'Energy Facility Site Evaluation Review'. A project may be stopped at the regional or county level, but approved at the state level. These decisions made by the state are binding; and larger projects may even gain approval by the governor's office. The authors make no mention of components tailored towards public participation; though they specifically notice that in Oregon, a notice of intent [that provides] public information on the proposed project and an opportunity for public involvement through a mandatory public meeting is required" (94). These streamlined approaches differ greatly from the standard type of decision-making in energy facility siting. Move this into explanation of the standard form, not here in the streamlined Bohn and Lant (2009) provide a through explanation of these stages. There is opportunity for public participation in almost every level and phase of the standard decision-making process. Local, state and federal procedures require commenting and notification periods; in some cases, the developers themselves offer localities financial incentive to take part in mere feasibility studies. It is also clear that the standard facility siting process is thoroughly complicated.

2.8: Public participation/stakeholder engagement

A rigorous stakeholder engagement process has many benefits. Often, these benefits translate into greater public or community acceptance of a project or program. A project met with acceptance, rather than objection or rejection, is likely to be more rapidly implemented and less expensive to the developer or implementing agency. Because of the benefits associated with rigorous public process for both the public and for the implementing organization or individual, it is a component of the planning and development worth mutual investment and thought.

Within the context of wind energy, public process is beneficial because it helps to disseminate information about a relatively new and unknown technology to affected communities, and because it can assist the wind developer and corresponding agencies identify actual and potential conflicts of use and perception (Rynne, et al, 2011). A rigorous or robust public process also promotes ownership of the project, as well as community acceptance of the project. It creates a project reflective of unique place and unique community, through the identification of community values, interests, desires and concerns, and also identifies opportunity for buy-in or negotiation. Such rigorous progress builds consensus on what forms or non-forms of renewable energy is best for the community or place in question.

To identify 'successful' or 'good' public process, I use a combination of planning participation theory and adaptive resource management theory. Each field has recognized the importance of an inclusive, diverse and collaborative planning process for both policy formulation/implementation as well as program and project design/implementation. Laurian and Shaw (2008) note that to evaluate public participation, one needs to first recognize the goals of public participation. They divide the goals of public process into process-based goals, outcome-based goals and user-based goals. The first, process-based goals, include mutual learning, an increase in public awareness, and an increase in agency awareness of public views. The democracy of the process is also recognized to be important, and includes transparency, inclusiveness, fairness, and power-sharing. Outcome-based goals are more precise, and depend on the program and policy at hand. From the perspective of an agency, or organization,

'governance outcomes' of public process include increased legitimacy, increased procedural legitimacy, and increased acceptance of the solution or project in question. From a social perspective, public participation can have important outcomes as well: enhanced institutional or organizational capacity and resilience; increased trust in planning organizations; increased social capital; augmented social networks, and (ideally) an improvement in outcomes for the frequently marginalized. The user-based goals are perhaps the most easily stated and the most easily evaluated: participants should feel satisfied with their experience, and their defined goals met. That is, that the participants goals of participation were met by the process. If they were involved to learn more about a certain technology, then one measure of success would be that the process in which they participated enabled them to learn a great deal about the technology in question. If they participated in the hopes of prioritizing goals, policies, or strategies, there would be evidence that their feedback was used to rank or prioritize policy options and tools.

In summary, and drawing from Laurian and Shaw (2008), standard characteristics of successful public process from a city and regional planning perspective include the following:

- Participants (stakeholders and general public) are informed about the issue at hand, the involved stakes, and are aware of the decision-making process and pathway.
- The involved agency or organizations are aware of public concerns, objections, preferences and perceptions.
- The decision-making process is transparent and inclusively disseminated. Equal information about the issues at hand, and about the process, are easily available and accessible to participants.
- Broad attendance, and diverse representation: no stakeholder or view should be excluded or ignored. Nor should a stakeholder or view be made to feel belittled or discounted.
- 'Fair ground rules', and transparent, equitable decision-making, solutions and implementation.
- There should be 'no dominating group', and there should be 'shared decision-making power'
- Process meets statutory requirements.
- Negotiated, collaborative solutions are met.
- The decision-making process fairly balances expert knowledge or opinions with public input and local or lay knowledge/opinions.
- The sense of agency and procedural legitimacy should be expanded.

- Enhanced community capacity, and the ability and desire to participate in future planning processes or projects.
- Increased trust in agencies, government or officials.
- Augmented social networks and social capital.
- Stakeholder satisfaction in the process and with outcomes.
- Agency, organization or official seen as 'responsive to public input, committed and capable to implement decisions' (Laurian and Shaw, 2008).

From the field of resource policy and planning, the following characteristics are seen as definitive of successful or good public participation, and identified as best practice:

- The identification of appropriate stakeholder representatives: the earlier the better.
- The involvement of stakeholders in formulating a collaborative process.
- The use of professional, third-party neutrals to facilitate or mediate
- The encouragement of consensus building
- 'Joint fact-finding' to handle scientific uncertainty
- 'Collectively supported written agreements' as products
- A commitment to building long-term capabilities in the realm of management.

(Susskind et al, 2010).

Susskind goes on to note that successful public process is a public process that builds consensus; and that without consensus, there are less likely to be 'scientifically credible agreements' or 'creative long-term solutions' to issues of resource complexity. Fairness and effectiveness are not just products of procedure. Perceptions of fairness and effectiveness to stakeholders or the public are rated more favorability if the process itself results in an outcome favorable to their interests, but also fair and inclusive in itself (Shipley, 2012). The fairness of outcomes or outcome is a valid measure of measure. Fairness or effectiveness of the process can be evaluated with procedural issues; there are also outcome measures, such as evaluating how the process changed the likely outcome (Fainstein, 2010).

Not surprisingly, wind industry advocates have already recognized best practices in the stakeholder engagement process, and have sought to encapsulate them in a handbook published by the Conservation Law Fund Ventures and the Massachusetts Clean Energy Center. This publication seeks to clearly define issues related to wind energy development in a manner

that is objective and informative in purpose, and also seeks to guide communities and developers interested in promoting land-based wind projects in formulating effective public process for wind farm siting. The CLF paper emphasizes the importance of a 'fair and credible process', which seeks to 'engage and inform local stakeholders'. The evolving development of the wind permitting process, unique site contexts, and the complex issues associated with energy development and siting, call for opportunities to share information, 'dialogue and careful-decision making'.

The CLF Ventures publication, in conjunction with the consulting firm Raab Associates, identifies recommendations to consensus building in wind energy, and common pitfalls that impede consensus building in wind development. Their recommendations include:

- Involve stakeholders as early as possible.
- Set realistic, firm timetables.
- Include diverse inclusion of 'legitimate' stakeholder groups
- Use professional neutrals 'to facilitate collaborative decision-making'
- Do not shy away from contentious issues; identify ways to address negative aspects (such as compensation or contingency agreements)
- Consider the incorporation of alternative siting processes
- Stakeholder involvement should 'supplement but not supplant' formal processes; formal processes can be tailored to 'better accommodate consensus-building opportunities'.
  (CLF Ventures, Inc., 2011)

There is much parallel between these recommendations and the best practices expressed by Susskind; there is also much parallel between these recommendations and the criteria aggregated by Laurian and Shaw. Raab Associates identify the following common pitfalls and challenges of the public process in wind-energy development:

- Often, processes do not effectively identify or engage stakeholders and general public citizens.
- Current processes do not effectively address or 'surface' stakeholders' interests.
- Varying perceptions of 'aesthetics and noise' are challenging to mediate or solve.

- Sometimes, processes use facts that are not actually credible, particularly in terms of analyses frameworks and data.
- Stakeholders often disagree on the actual role wind power plays in our collective energy future.
- Goals and policies are different in different levels of government, which proves challenging in jurisdictional issues.
- Project timelines are long—parties change or shift, as do issues and politics.
- The links of transmission between wind and the electric grid are more complex than with the current system.

(CLF Ventures, Inc. 2011)

In 2010, the American Planning Association administered a survey to planning officials across the country. Planners responded to questions, which asked about local policies, strategies, and actions steps that had been successful or helpful in wind energy development. Successfully, or effective, approaches can be divided into technical tools or strategies, or procedural approaches. A technical approach, for example, includes formulating and implementing friendly zoning codes to encourage and welcome wind energy; identifying the economic benefits likely to fall on the community who hosts a commercial wind project, and taking community residents on field trips to experience ongoing wind projects first-hand (CLF Ventures, 2011). Another technical tool is that of visual simulation and overlay tools, which help community members to see what different distances, sizes, settings, and configurations will mean for the project aesthetic. The technique of overlay is useful in selecting suitable sites "by mapping items of interest on top of each other, such as wind speeds by location, sensitive and protected habitat, and accessibility to transmission line and roads" (CLF Ventures, Inc. 2011). This overlay technique could also be useful in eliciting responses from user groups, and keeping certain sites off the table from interested developers, and prevent developers and government from falling into the traditional 'decide-announce-defend' model of infrastructure or facility siting processes. Procedural approaches include promoting ongoing and continual public involvement; cultivating cooperative relationships amongst residents, local government and wind developers; and promoting opportunity for the sharing of 'accurate, meaningful, information' (CLF Ventures, 2011). Additional process-based recommendations include Drawing partly on Susskind's important work, ***The Consensus Building Handbook: A Comprehensive Guide to Reaching***

Agreement (1999) and their own research, the CLF Handbook identifies six tools and techniques used to enhance citizen understanding of wind development; and also to adequately seek and collect 'meaningful' feedback. The six include: 1) conflict/situation assessments, involving a stakeholder analysis completed by a neutral, third-party performs a stakeholder analysis; 2) Participatory activities such as keypad (also known as deliberative) polling or charrettes, or other visioning processes; 3) joint fact finding; and 4) negotiated rule making. The final tool described is that of facilitation or mediation, in which a third-party facilitator or mediator is brought in to run non-partisan public processes.

The handbook continues to identify two examples of successful public process and subsequent wind development, both in Massachusetts: the two Hull turbines and the turbine on Jiminy Peak, in Hancock, Massachusetts. The evaluation offered by the CLF handbook is so focused on process that it does not recognize that these projects could have also been successful due to their small size—there is a world of difference in proposing one or two turbines, which directly benefit their respective communities, versus a proposal of ten or fifteen turbines, with uncertain or undetermined benefits or impacts.

Many of these technical and procedural recommendations towards planning for wind energy development are recent. In planning and urban theory, there is a long history of discourse regarding public process and its opportunities and challenges for meaningful, fair and diverse citizen opportunity. Arnstein's ladder of participation is one of these seminal works. Published in 1969, Arnstein's paper addresses current urban policies, which required public participation as a caveat for funding. Citizen participation, Arnstein argues, means citizen power, or so it should. Different styles of participation then, can either empower citizens, or disenfranchise them through empty rituals. Frustrating experiences may ultimately dissuade community members from future participation. Arnstein's ladder creates a hierarchy of participatory types, clearly indicating which help to promote citizen empowerment and which are void of true, empowering dialogue. Her eight 'rungs', ascending in order, form a gradient: the first, 'Manipulation', is a form of non-participation. 'Therapy', the next rung, is followed by Informing, Consultation,

Placation, Partnership, Delegated Power and Citizen Control. Arnstein claims that participation manipulating or serving as a form of catharsis for community members is actually a mere substitution for true participation. These forms, rather than empowering participants in planning processes, seek to 'cure' or 'educate' instead. The rung of Information/Consultation is labeled as the Tokenism level, since citizens may be heard, and can certainly listen, but have no way to ensure that their voice is ultimately heeded, resulting in change or action.

This is something recognized through research looking specifically at public participation and wind energy in the United Kingdom: the process of catharsis, as described by Arnstein, is not by itself beneficial for stakeholders or developers. Ellis found that as community members increased their protest, developers and utilities decreased their empathy or understanding (Ellis, 2009). The rung, then, of 'Informing/Consultation' truncates the ability of stakeholders to transform the status quo. The rung of Placation, deemed to be a higher level of Tokenism by Arnstein, allows community stakeholders to advise in the planning process—but without real decision-making power. At Partnership, stakeholders possess the ability to negotiate, trade favors, and exchange idea with power holders. The power of decision-making remains in the power holders' hands. The final two rungs, Delegated Power and Citizen Control, are where stakeholders may have dialogue, and power resides in their hands. Arnstein concludes that there are instances in which community participation will not work, as it can further separatism; it can balkanize public services; it can be more costly and less efficient; and it can put power in the hands of equally immoral 'hustlers' just as opportunistic as conventional power holders; it can lack professionalism, and in many cases, as these communities have few resources, lack organizational capacity; also, these types of communities can become an outlet of placation for socially liberal minds. Arnstein's description and classification of participation levels helps to understand challenges to achieving effective, meaningful participation, and will aid in evaluating the types of public participation commonly used in wind energy development, and to make recommendations for public participation in wind development in the New England region. Rowe and Frewer (2005) suggest a simplified typology of public processes: public communication, public consultation, and public participation. The latter, public participation entails public involvement in decision-making and agenda-setting; public consultation entails the

public providing information to the policy sponsors; and public communication is the relay of information to the public (Rower and Frewer, 2005). To call all public engagement public participation is not an honest or reflective analysis of what really happens, or how the process itself plays out.

Glicken (2000) divides historic participatory styles in the United States in broader categories, paternalistic and confrontational. Neither of these styles or models is conducive to 'good' public participation, nor do they strive to build complete consensus. The paternalistic model relies on representative participants interacting with experts and policy-makers. The confrontational form is distinguished by litigation. These are reactive, exclusive forms of participation. Glicken also points out that political and public call for increased public participation serves a useful purpose: it incorporates all types of knowledge, and involves all 'affected' groups.

Innes and Booher call for a reformulation of public participation, particularly in those instances when it is required in project or planning developments. They critique of such instances, most often "public hearings, written public comments on proposed projects [such as] environmental review, and the use of citizen-based commissions" as being "formalistic, one-way communications from members of the public to the agency or elected officials." Participants generally chose to intercede in subjects of which they possess great knowledge and from which they are likely to experience the most effect. As alluded to in wind energy literature, these participation opportunities are 'used after plans or decisions have been proposed, often in some detail. The citizens role is to react" (Innes and Booher, 2004).

They note that in public hearings, the style of one-way dialogue forces community stakeholders to engage in a rhetoric fueled by anger or fear. "The distribution of power is evident in the physical layout and rules for speaking." At a recent policy hearing in Hyannis, participants who wished to speak had to sign up ahead of time and be called to a desk in the front of an auditorium. They read or made statements to a commission made up of state and regional

decision-makers, who sat above everybody on the auditorium stage. Of comment and review procedures, Innes and Booher describe a process that is challenging to learn about, and not completely accessible to the every-day, average citizen, where those commenting "do not have an opportunity to discuss or resolve issues among themselves" (Innes and Booher, 2004). Arnstein cites disenfranchisement and disempowerment as the consequences of these types of public participation; Innes and Booher cite stakeholder polarization, stalemate and even legal or political 'wars at the ballot box' as consequences.

Tuler and Webler (2010) find that agencies generally provide broad, general guidance for public participation, but do not provide guidance or insight into process design. In their study, the authors investigate public processes in natural resources management issues. They found that "public participation processes should be approached as a problem of adaptive management requiring diagnosis." There is no panacea in public participation; rather, its development is a craft in itself. Such thinking could improve public participation efficacy in renewable energy development.

Rowe and Frewer, in a 2000 paper, identify a set of criteria that can be used to evaluate the effectiveness of public participation, particularly in science and technology policy. They identified these criteria by surveying the various forms of participation observed in contemporary science and technology processes. They suggest that in order to evaluate public process styles, evaluators should look at levels of representativeness, independence, early involvement, influence, and transparency, meaning that the a wide, diverse range of stakeholders should be represented in the participatory activity; the process should be void of bias; the public should be involved as early as possible; and the processes' output should have real influence on policy; and the process should be transparent so that stakeholders know what is happening and how the decisions are being made. Participatory processes themselves can be evaluated with their own set of criteria: task definition, resource accessibility, structured decision making, and cost-effectiveness. The processes themselves must give stakeholder access to information resources and necessary tools; the 'nature and scope' of the participation activity

must be clear; the activity should enable 'structuring and displaying the decision-making process'; and the criteria of cost-effectiveness is self-explanatory.

Glicken also points to the need for the professional facilitator to thoughtfully organize the public process: "Those managing a public participation activity will need to draw from a general suite of methodologies and tools that can be combined and then applied in a situation-specific manner" (Glicken 2000). Glicken explicitly states guidelines to inform effective planning of public participation activities and programs, and they coalesce greatly with best practices mentioned in resource planning and policy literature. According to Glicken, it is important to make clear and transparent the purpose of stakeholder and public input; to identify and include all appropriate stakeholders; to ensure that the tools used to collect information match the type of information being collected; to ensure that the tools meet a status of rigorous application; to use appropriate data analysis methods, and to document every component of the process, from the methodology to actual meetings or other activities. This final component is critical to building trust and continuity in the program and in future programs (Glicken, 2000).

The work of Glicken is also useful in this literature review because it highlights challenges to effective public participation, and the effects of poor or bad public processes. "Participatory processes often suffer from a lack of planning and forethought" (Glicken, 308) she writes, and continues to note that thoughtful public process forums and activities are particularly important in situations dealing with extreme degrees of technical knowledge and extreme degrees of local or experiential knowledge, noting challenges "in engaging non-technical and technical communities in dialogue with each other." This dialogue and engagement must be designed in such a way as to "[elicit] useful information from the correct people and in getting all necessary parties to agree to the outcome" (Glicken, 308). Consequences of poorly-planned or poorly-designed public processes are noted, as is a critical component to ensuring that there is no failure in expert-lay communication, that of the "accomplished and trusted [translator] between scientific and lay communities," to help the lay person understand the highly technical information brought forth by the scientists, and to help the scientists retain the intent of their

information but in a language and format palatable and accessibly by the lay, public participant. This is also important in keeping the process, and information generated throughout the process, transparent.

What happens if the planners, or policy makers, or developers, or local government, get the process of participation wrong? Glicken offers guidance towards this concern, as well. 'Exceptionally long and laborious permitting processes', along with stakeholders who feel 'discounted and/or alienated' (Glicken, 308) can undermine effective participation. Such feelings are not likely to result in successful or productive future instances of public participation, nor are they likely to build institutional or stakeholder capacity.

2.9: Public Participation in the Context of Renewable Energy Technology

Renewable energy technology, in its various manifestations, possesses unique characteristics that make it inherently challenging in terms of catalyzing rapid deployment and widespread development. David Fridley, an expert in the field of RETs, presents nine challenges to a societal transition from fossil fuels to renewables: scalability and timing, commercialization, substitutability, material input requirements, intermittency, energy density, water use, the 'law of receding horizons' and energy returns on investment. From these nine challenges, he goes into further depth: there are four that are most important in planning for renewable energy. These are energy density, scalability and timing, as well as substitutability. Energy density refers to the fact that a wind farm or a solar array takes up more space than conventional energy sources, such as a coal plant. Scalability and timing address issues like intermittency and clean energy availability versus energy demand; substitutability refers to the fact that renewable energy technologies require infrastructural changes for transmission and distribution. These four fit neatly into the sector of land-use concerns, in regards to wind energy and public perception. The Fridley essay is helpful in unpacking reasons why renewable energy can be contentious to stakeholders and communities. While Fridley summarizes his ideas neatly, Clinton Andrews (2008) delves deeper into how these issues are unique to renewable energy

planning. Andrews also touches on an obvious challenge to widespread, enthusiastic acceptance of RETs: imperfect foresight, which alludes to the dearth of knowledge concerning impacts and consequences to human and environmental health in renewable energy development. Imperfect foresight also comes up in the American Planning Association's wind energy survey, a survey given to APA planners currently working on wind development projects. It is important to note that imperfect foresight is one characteristic of renewable energy that is highly malleable by the group using it as a reason for or against renewables. The technologies themselves are still evolving, and still undergoing research, and this creates a knowledge gap recognized by academics and practitioners. Fridley and Andrews agree that scale, density and immediacy are characteristics inherent to renewable energy technologies: they take up more room on the landscape, and closer to the point of consumption, than standard energy technologies. Standard energy technologies are decentralized, and sprawling: it is difficult to identify and trace the route of our power. This localization is both a boon and a burden, as communities can now better see where their energy comes from; and even exercise control over how it is procured, managed and distributed. Fridley points out that a coal plant usually takes up one square mile, while renewable arrays such as solar or wind may take up many more square miles.

Research honing in on common opposition themes is ongoing; Pascqualetti, in a 2011 article, also attempts to typify wind opposition discourse. Using a standard case study method, he compared five different communities with a high presence of resistance to wind. In these five communities, which include Palm Springs, Cape Cod, Isle of Lewis (Scotland), and Oaxaca, he found five common sources of objection. The first relates to site specificity: the immobility of these installations, or immutability; solidarity, in which communities collectively oppose projects; imposition, in which communities feel as though the wind projects are being forced on them; and place identity/loss of security, in which communities express fear or displeasure related to the planned change to their community and landscape similar to place attachment (Pascqualetti, 2011). Human-land relationships and the style of development and project management are important considerations in this framework.

Local control and local benefits are crucial elements in determining positive perception; in a U.K. research study, Walker, et al. (2010) interviewed developers, planners and other wind energy professionals involved in the siting of commercial wind farms. Communities being offered larger sums of money in exchange for wind rights reported a higher positive outlook. Positive perception was also influenced by size, with communities being more receptive to smaller projects than to larger projects. Residents participating in a visioning workshop in a small Central Massachusetts town in the winter of 2011 expressed interest and even enthusiasm for residentially scaled wind or solar installations, while expressing virulent objection to commercial-scale installations. Their concern stemmed from an outside company expressing interest in siting their wind field there, and also feeling threatened by the proposed Massachusetts Wind Energy Site Reform Act (Town of Brimfield Visioning Workshop, February 2011). Another factor which changes public attitudes is the stakeholder's role in the planning process itself: residents were more accepting if able to participate beyond the project's implementation phase. A similar research study, also from the United Kingdom, suggests that peoples' opinions often change for the better in the years following turbine installation. This could indicate that their original objections were grounded in fear of change (Eltham, 2008). A recent paper from Texas A&M's Geography department explored the social perspective of wind development in West Texas. In their Q-Method study, the authors found that "stakeholder experiences with tax policies, housing, and economic decline, rather than proximity or landscape aesthetics, structured social perspectives" (Brannstrom, et al 2011). This paper serves as a useful guide for exploring similar issues in Vermont and Massachusetts: the research model is fairly similar.

The relationship between wind energy development and planning is well documented, as mentioned before, largely in British and European research. Martin Wolsink looks directly at public participation and wind power. Three important points are made: the acceptance rate of wind projects in England are consistently lower than other major development projects, and become lower when processed through the standard town or county planning procedures. Second: it is the unique physicality of wind power that makes specific site proposals lightning rods for discourse and objection. Those sites with the best resources are usually landscapes

most valued by society for cultural, ecological and wilderness attributes. Attitudes regarding issues like rurality and energy come into play, and planners and designers may need to adjust their own skills to reflect attitude adjustments of stakeholders and the broader public (Wolsink, et al, 2009). Third: much of the discussion surrounding development is often rooted in vocal opponents and does not promote a balanced discussion of costs and benefits, and thus calls for important review of the "rhetoric of participation in planning, the meaning of procedural efficiency and what is seen as the ultimate function of the planning process." The authors additionally note that such a review will raise further questions concerning accountability, the framing of problems, and the types of knowledge. All of this influences the means through which special interest groups, local participants, politicians and developers 'engage in the regulatory and policy process'. Wolsink is alluding to the difficulty of striking an appropriate balance between engaging the public and implementing responsible wind development.

Several articles explore the dichotomous relationship between 'lay' and 'expert' views present in current wind energy debate and discourse. This train of thought is transferable to other RETs, as well. Procedural legitimacy is gaining through public participation, and many theorists cite a 'hegemony of scientific knowledge', that can displace citizen democracy. Simultaneously, technological innovation requires a scientific expertise presence—and in the case of RETs, a presence of engineering and mechanical expertise is also necessary. Mhairi Aitken (2009) addresses this in her work; Martin Wolsink (2009) also addressed this, along with perceived power and presence of 'NIMBYists' in the renewable energy process.

The need for public participation in successful RET development is aptly described by Wolsink (2009): stakeholder engagement lends credibility to the project and increases stakeholder acceptance of the project. Through a moral lens, community members should be engaged in projects that will affect their lives and places. From a planning perspective, public participation serves as useful device through which to collect local knowledge, which can better inform planning efforts such as renewable energy development, climate mitigation and adaptation efforts. Wolsink (2007), like Nye, compares processes between countries. He suggests that a

new energy technology and infrastructure, calls for a new decision-making process: one that is decentralized and community-oriented. He attributes the greater wind development in Germany versus the Netherlands to the democratized public process. He also emphasizes the importance of using a collaborative planning approach, with multiple means and methods of participation and stakeholder involvement decision making, versus a hierarchal, top-down approach (Wolsink, 2007, 1205). In regards to the typical Decide-Announce-Defend model of facility siting, he describes the style of site planning in the Netherlands: "Decision making on renewable power facilities does not usually include the most important discussion point for public stakeholders, which in the case of wind farms is the choice of location. Theoretically, several different sites should be developed before a choice is made, but this almost never happens. A location is selected beforehand, and top-down planning is started. Consultation after a plan has become announced is more of a trigger for opposition than an incenstive for the proper design of acceptable projects. The public hostility that sometimes emerges is mostsly triggered by those top-down processes" (Wolsink, 2007, 1204-1205). Rather, Wolsink continues, a collaborative planning approach would involve stakeholders earlier, help build institutional capacity, educate the public, identify and address local concerns related to proposed wind projects.

Regional planning offers rich opportunities through which to address project proposals and siting concerns. At its essence is the concept of land use, and assigning uses to landscapes that are of the 'highest and best' use for the general public interest rather than for the private market developer. Current planning discourse has shifted into an interpretation of the planner's role as something different from a neutral analyst of data and information. The post-modern planner, as Innes puts it, mixes up the order and the parts of the rational planning model, and in doing so, has allowed planners to serve in roles "instrumental in organizing, innovative, stakeholder-based consensus-building efforts to address complex and controversial problems" (Innes 1998). This collective experience in the field of practice has placed an emphasis on communication, and how the "form and content matter because it changes the participants." Post-modern planning is not focused only on a final product or end goal, but on the decision steps and packages of "actions that participants agree will improve on the situation" (Innes

1998). Innes describes a discipline and practice not based on rigidity and formal regimes, but rather focused on "[influencing' the direction of change and preparing to meet uncertainty." She goes on: "…Such collaborative processes engage the emotions and imagination of the stakeholders whose actions produce and reproduce…regions." In a society in which trust in the government has dwindled and a dearth of social and civic capital has been noted, these processes are valuable. As Innes concludes, "Processes matter…citizens have real knowledge that is central to successful planning…citizens and all players who make up a…region are part of the complex system that constitutes the [region], and all therefore must be part of the solution" (Innes 1998).

Susskind compares the roles of planners and engineers, and points out that perhaps planners are more interested in promoting the sustainability of projects or policies, whereas engineers are more risk management oriented, and also that planners are often 'more comfortable dealing with the politics of environmental decision making and helping groups deal with their disagreements when trade-offs have to be made' (Susskind, 2002). An emphasis on resource management is frequent in wind development processes. In Vermont, for example, a lead agency involved in all wind project proposals. There is a need for both the environmental planner and the environmental engineer, as there is also a need for the wind engineer. This brings one to the idea in planning theory and practice that planners must be knowledgeable in many realms and equipped to work with many, diverse disciplines (Innes 1998). These impacts can be mitigated, and many of the lessons learned from the forestry industry, for land-based wind, and from the oil industry, for off-shore wind, can be applied to impact assessment and mitigation when developing wind projects.

Along with the theoretical and practical reasons for this shift in planning theory and practice, there are also federal and state regulatory requirements that mandate public processes as those described by Innes, Arnstein, Rosener, Susskind and Bohn and Lant. A good segue is also offered here: Innes, et al. describes the city and region as the action realm and background. In resource planning, such a system is referred to as the socio-ecological system, or SES. This thesis does not

involve an urban context, and the term SES refers to both the regions in which the wind developments are happening as well as the smaller sub-regions or communities directly affected and involved in wind development.

Aside from impact assessment and problem-solving, which Susskind suggests are jobs of the contemporary environmental planner, the planner's role can also assist in two other crucial components of a public process: communication and the design or crafting of a rigorous and meaningful public process itself. Susskind recognizes this, pointing out that public participation was historically confined to public hearings or advisory committees—but it now is "characterized by multi-stakeholder dialogue, consensus building, and what is usually called 'mediation' or conflict resolution." He notes a parallel growth in this realm of process and the increasing ability and inclination of the public to obtain legal standing and sue, and as a result the ability of 'even a single politically powerless group' to substantially delay or block decisions and projects. Because of this, Susskind calls on the planning practitioner to know the legal developments, and to know the procedural requirements, and should know how to design processes which build consensus, and how to mediate conflict, and have the ability to "negotiate their way through risk controversies of all kinds" (Susskind). Susskind also concludes with a comment on environmental planning and sustainability—and that because sustainability addresses the entire socio-ecologic system, it encourages dialogue instead of confrontation, and that this in itself is a call for environmental planners, especially, to be well-versed in the theory and practice of sustainability if we are to expect sustainable cities and sustainable regions (Susskind).

Rybcyzynski describes a profession that has largely lost its bold, innovative vision, and has become too focused on micro-scale process, which require the planner to 'mediate, animate, negotiate, resolve conflicts, and find the middle ground' (Rybcyznksi 2002). The vision of a sustainable city and a sustainable region will not likely come from just the post-modern planner, but will be the combined vision of the 'neo-traditional' planner and other entities occupied in the land-use business. Frenchman reminds that planners are important in helping to form or

influence environments, built and natural, that are “culturally based, environmentally sensitive, and responsive to their communities” (Frenchman 2002).

Markusen identifies several other traits of the planning craft, which relate to the consideration of renewable energy technologies in both an urban and rural context. Planners must ‘actively envision the future’, and recognizing ‘equity as a normative criterion’, in which planners “often put in place processes of participation and representation that help ensure greater equity.” Last and certainly not least is the occupation with the quality of life, and how development in its different forms may impact the efforts made towards a ‘good life’, whether in dimensions aesthetic or integrative, and this can partially met with the ‘highest and best’ use of land (Markusen 2002).

Forester focuses on how planners sometimes must play both the role of mediator and negotiator when faced with local land use conflicts and disparities of power. This is particularly relevant to renewable energy development, and specifically to wind development. One strategy Forester recommends is the planner as regulator or rule maker, and as the information gatherer, citing the disparity sometimes present in the information and resources available to the developer versus those of the community or neighborhood members. Planners can be valuable intermediaries between developers and communities, but this can be a difficult position if they are to play a mediating-negotiator.

Along with land-use planning theory, and the role of the planner in that sense, the growing emphasis on sustainability, and sustainability planning, has added to both the theory and practice of city and regional planning. Planners are no longer responsible for assessing the immediate and local impacts of land use decisions—but of the global and long-term impacts of socio-ecological decisions. The 1987 Brundtland Commission specifically sites the issue of energy use: “Many of us live beyond the world’s ecological means, for instance in our patterns of energy use” (Brundtland 1987). While limits to growth and use will manifest in different ways,

an aggregation of “knowledge and the development to technology can enhance the carrying capacity of the resource base,” and that technologically oriented solutions should be ‘reoriented’ to relieve resource pressures. “Sustainable development requires that adverse impacts on the quality of air, water, and other natural elements are minimized so as to sustain the ecosystem’s over all integrity.” The Brundtland Commission was groundbreaking because it did not prioritize ecologic resilience or integrity over two other essential components of the global socio-ecologic system. Rather, it ranked ‘the satisfaction of human needs and aspirations’ as equal to the importance of sound economic practice and investments, those that caused no harm and instead diffused opportunity. Development is sustainable when “the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations” (Brundtland 1987). Participation and public involvement in planning, in both policy and in concrete project or program implementation, can enhance equity, and equity can enhance opportunity, which in empowers people to satisfy their needs and their aspirations.

In summary, the material covered in this literature review identifies the various factors which influence community perception of wind projects; the unique characteristics of renewable energy and wind energy which add challenge to deployment and acceptance; best practices in public participation and stakeholder processes; planning theory and application to renewable energy planning; and the role of both planning and public process in infrastructure development. What comes through in this literature review is that the permitting process is readily identified as a major barrier to further wind development, and while the public process, or the way the public is engaged in decision-making and siting considerations, is recognized to have some bearing on acceptance and support, especially in Europe and the United Kingdom, it has not been isolated or evaluated in depth in a New England context.

An important result of the literature review was an evaluation framework. The framework is composed of 45 unique criteria from seven sources of planning and resource management

theory and best practices. These criteria helped to inform interview questions, and were used to analyze interview transcripts. After each interview was transcribed, the presence of positive criteria or the absence of positive criteria was checked with a simple Yes or No.

Table 1: Criteria and Analysis Framework

Criteria	Analysis	Source
Process transparency	Was the direction of the process clear? Did stakeholders understand the process?	Laurian and Shaw
Decision-making transparency	Was the decision-making process clear to stakeholders?	Laurian and Shaw
Clear objectives and goals	Did stakeholders understand the ultimate outcomes of their participation?	Laurian and Shaw
Clear ground rules	Were clear rules discussed and implemented at the beginning of the process?	Laurian and Shaw
Equal stakeholder consideration	Were all stakeholders given equal opportunity to participate?	Laurian and Shaw
Collaborative, negotiated solutions		Laurian and Shaw
Met statutory requirements	Did the opportunities for public process meet federal or state requirements?	Laurian and Shaw
Enhanced management capacity: community	Did the public process opportunities promote community capacity?	Laurian and Shaw
Enhanced institutional/organizational trust	Did the public process built trust of the head organization?	Laurian and Shaw
Broad representativeness (number of groups/individuals involved or represented)	How many stakeholders represented various interests?	Laurian and Shaw, Laird
Enhanced desire to participate in future public processes	Did stakeholders feel encouraged to participate in future public processes?	Laurian and Shaw
Clear and accessible relay of information	Was the information provided during the process easy to understand and apply to the discussed project or plan?	Laurian and Shaw
Cost effectiveness	Were the opportunities for stakeholder engagement financially realistic and within budget?	Rowe and Frewer
Clear task definition	Did stakeholders clearly understand goal of their participation?	Rowe and Frewer
Access to required/necessary resources	Did stakeholders have ready access to the appropriate resources (what they needed to participate fully)?	Rowe and Frewer
Structured decision-making process	Was it easy to understand the schedule and structure of the decision-making process?	Rowe and Frewer
Access to officials	Did stakeholders have access to involved officials?	Innes
Means of coercion	Did stakeholders have capacity to persuade or coerce?	Innes

Table 1 continues onto next page

		Table 1 continued
Opportunity for learning (stakeholder and institutional)	Did the stakeholder process allow stakeholders or engaged institutions to learn or build capacity?	Innes
Adaptive	Was the stakeholder process adaptive (did it change as time went on)?	Innes and Booher
Innovative	Did the stakeholder process incorporate new technologies or non-traditional public participation methods?	Innes and Booher
Solution forming	Did the stakeholder process lead to solutions?	Innes and Booher
Citizen control	Did stakeholders have true power or influence on the outcome?	Arnstein
Delegated power	Were only subsets of stakeholders or representatives given power or influence?	Arnstein
Partnership	Were participants given a significant role in collaboration?	Arnstein
Placation	Was the public or stakeholder process designed to make the public feel engaged, although they had no true influence in final outcome?	Arnstein
Consultation	Were stakeholders or public members used to provide feedback or information?	Arnstein
Informing	Was the public or stakeholder process used as vehicle to provide information to people?	Arnstein
Therapy	Was the stakeholder process used to make community members feel better?	Arnstein
Manipulation	Did the stakeholder process manipulate participants?	Arnstein
Consideration of alternative sites	Were alternative sites presented, discussed during the stakeholder process?	Conservation Law Foundation
Stakeholder process as supplemental to formal process	Did the stakeholder process help to enhance or accompany a formal process?	Conservation Law Foundation
Realistic time table	Was the timeline feasible?	Conservation Law Foundation
Early stakeholder identification and inclusion	Were stakeholders thoroughly identified and included early in the process?	Conservation Law Foundation
Stakeholder input in process formulation	Did stakeholders get to help create the process and ground rules?	Susskind, et al.
Third party 'neutrals' as facilitators	Were there third party or neutral facilitators?	Susskind, et al.

Table 1 continues onto next page

Consensus-building encouraged and promoted	Was consensus-building a goal of the stakeholder process?	Susskind, et al.
Joint fact finding	Was there a joint fact finding process, or did each stakeholder or interest group have to collect their own data?	Susskind, et al.
Collectively supported written agreements	Were final agreements jointly supported?	Susskind, et al.
Commitment to building long-term management	Did the stakeholder process promote long-term capacity and management of resources?	Susskind, et al.

CHAPTER 3

METHODS

In order to ascertain whether or not those individuals or organizations involved in New England land-based wind development felt positive or negative about the stakeholder or public process, and how stakeholders are involved and to what effect, the research method of this thesis relies primarily on archival research and interviews from stakeholders. Best practices and evaluation criteria gleaned from the literature review inform interview questions. The criteria framework is summarized on p. 46 at the end of Chapter 2, and the questions themselves are included in the detailed description of interviews later in Chapter 3. Mixed methods coding was also used. The interview method provided responses rich in anecdotal data as well as vividly described perspectives and experiences related to the public component of wind development, wind energy in general and place attachment. The research methods of this thesis are primarily qualitative, relying on a combination of literature review, archival research and the first-person interviews with stakeholders, thus falling into a category of research as described by Locke, Silveran and Spirduso (1998) and heavily guided by Robert K. Yin's ***Case Study Research: Design and Methods*** (2009, 4th ed.), which provides clear and thorough guidance on best practices in qualitative, interpretive research . For a practical example of qualitative, interpretive methodology within a planning framework, Elisabeth M. Hamin's ***Mojave Lands: Interpretive Planning and the National Reserve*** (2003) provides a clear and comprehensive guide of best practices, both in terms of why an interpretive framework may be useful when conducting an evaluation and analysis of stakeholder expectations and perspectives. This work, like Yin, provides excellent examples of good data collection, management and analysis.

The case study methodology, which Yin describes as an empirical inquiry investigating a contemporary phenomenon, both in depth and within real-life contexts (e.g., a public process in wind energy development, in which wind farms have already been built), is utilized. Much of the research is grounded in exploring how participants, both expert and lay, felt about the public process in wind farm siting, and relies on their stories of involvement and perspectives. Hamin

(2003) suggests that the stories people tell matter—both in research and ultimately in planning. The methodology of the first-person interview is valuable, as it allows stakeholders to recount not only their involvement in wind siting or implementation, but to also discuss their general attitudes and personal beliefs regarding place and energy development. Archival research included looking at newspaper articles from the beginning of the development process through construction, in order to establish a temporal order of the process, as well as helping to identify major actors. This mixed-methodology enhances validity. The archival research was also helpful in identifying stakeholders, and obtaining their assistance in identifying and contacting other stakeholders.

3.1: Case Study Sites

Four commercial wind energy sites in Western Massachusetts and in the Northeast Kingdom of Vermont were selected. Case studies were primarily selected due to their regional co-location, as well as site similarities. Literature recognizes that the site, landscape, scale, finances, and other factors can be factors in public perception sources; the visual impacts are also noted to be distinctly different depending in the landscape context sources. It was important when selecting case study sites that they be set in similar geographic locations and landscape and in similar, regional communities. The varying factor among the selected case studies included the time it took from initial site selection and proposal to the construction and connection of the wind farms themselves to the grid. In the case study selection process, there were no sites that did not ultimately achieve approval and construction.

In total, seven sites were evaluated as possible case studies. Four were selected, two in Vermont and two in Massachusetts. The sites in Massachusetts proved to be the most difficult in terms of contacting stakeholders and obtaining relevant information, largely because the permitting process itself is very long and decentralized, and because the projects themselves have been ongoing for so long. In Vermont, on the other hand, all permit materials are available via the Public Service Board. The two largest projects are in Lowell, Vermont and the Hoosac project in Massachusetts. The Hoosac project is the only wind farm involving town or public land. In order

to better determine similarities among sites, the following characteristics were compared: the community background, including the economic condition or trajectory of area; the local governance structure; whether it was rural or suburban, and whether or not it had historic relationships or experiences with other large-scale infrastructural projects. Also compared were the number of turbines and size of turbines, and overall project visibility.

3.2: Stakeholders

Thirty-four stakeholders were contacted, and sixteen were interviewed. Of the 16 stakeholders interviewed, 12 expressed favorable perspectives toward wind energy, and 4 expressed strong dislike of wind energy technology. The stakeholders identified and interviewed represented 18 different interests or perspectives. In this thesis, the term stakeholder defines as an individual or organization with a vested interest in the community or resources affected by the proposed wind project. Stakeholders involved in each case study site were identified through the study of public hearing and public meeting records, as well as through careful study of the reports issued by the Public Service Board. As these stakeholders were contacted and interviewed, they were asked if they felt there were other stakeholders or involved parties with whom it would be insightful or beneficial to interview, thus using the 'snowball technique'. In some cases, more than one stakeholder would recommend the same person or organization—even from different case study sites. This happened particularly with individuals and groups taking an opposition stance, which suggests that they have created a regional network of opposition. A conscious effort was made to contact a wide spectrum of proponents, opponents, state agencies, non-government organization, utility companies, wind developers, public liaisons, abutters, representatives from neighboring towns, town officials and members of regional or local planning commissions and agencies in order to have a balanced, diverse representation of stakeholder interests, perspectives and experiences. Of course, as a public relations employee from a wind company reminded me, it was really up to the individual to decide whether or not they wanted to be interviewed at all. An interesting reason given in Vermont was that active court trials or lawsuits encouraged confidentiality.

The table below indicates how many stakeholders were contacted and how many were interviewed. It also notes the breakdown of stakeholders who were for or against wind energy, as this ultimately was an important indicator in their perception of the public process. Stakeholder representativeness captures the variety and number of stakeholders from each site. Sites with a greater variety of stakeholders have a higher value of stakeholder representativeness. 'Other' describes stakeholders and individuals active in the policy or development realm in Vermont and Massachusetts but not associated with a specific site. One such example is a representative from the Vermont Public Service Board, who was able to speak in depth about the public process (or lack of the public process) prior to formal permitting in Vermont wind development.

Table 2: Case Study Sites and Stakeholders

Case Study Site	**Stakeholders Contacted**	**Stakeholders Interviewed**	**Pro-Wind/Anti-Wind**	**Stakeholder Representative** **(the number of different interests or perspectives represented by the various stakeholders)**
First Wind Sheffield	10	4	2-2	4
Kingdom Community Wind	10	6	4-2	5
Searsburg Wind Project	5	2	2-0	2
Berkshire Wind Project	5	2	2-0	2
Hoosac Wind Project	4	2	2-0	2
Other				3
Total	**34**	**16**	**12-4**	**18**

The table below captures the representativeness of stakeholders interviewed. A best practice in stakeholder engagement is to identify and include a broad representation of stakeholders; this

table seeks to demonstrate that there was an effort made to include a diverse representation of stakeholder experiences and perceptions in a wind energy development context. Ultimately, the stakeholders identified and interviewed did offer a broad sampling of experiences and perspectives, including abutting property owners, state agencies, non-governmental organizations, utility representatives and representatives of decision-making bodies. This representation could have been enhanced with the inclusion of user or stakeholder groups representing forestry and wildlife interests as well as tourism and economy interests. A continuation or extension of this research would actively seek and include additional stakeholder interests and perspectives.

Of the sixteen stakeholders interviewed, only one expressed an attitude that could be taken as neutral. These strong opinions clearly colored responses, and they also strongly colored process perceptions.

Table 3: Stakeholder Representativeness

	Vermont		**Massachusetts**	
First Wind Sheffield	*Lowell Community Wind*	*Searsburg*	*Berkshire Wind*	*Hoosac Wind*
Town official	Lowell resident	Utility representative	Land Owner	Town official
State agency	Property abutters (2)	Wind energy consultant	Original developer	State renewable energy interest group
Property abutter	Town official		Current management	
Opponent	Non-government organization (NGO)			
Wind company staff	Utility representative			
	Representative from the Vermont Public Safety Board			
Regional planning staff	Regional planning staff		Regional planning staff	Regional planning staff

There were fewer stakeholders interviewed for both Massachusetts sites. These sites represented the longest duration in terms of process and project development, meaning there was high turnover in terms of staff and other involved parties. Given that some of the project

had initially begun a decade ago, and that developers and agencies had all experienced staff turnover, stakeholders were challenged to remember specific aspects of the process clearly or easily. Identifying and contacting Vermont stakeholders was easier, partially because the projects were more recent. It is likely that they were more eager to discuss the projects, especially stakeholders who expressed animosity toward the projects and process. Vermont stakeholders were more likely to ask the purpose of this research and to ask the interviewer their own personal opinion of wind energy. In some cases, stakeholders seemed concerned that their experiences or opinions would be used to advocate for or against wind energy and other types of renewable energy. The Searsburg site was ultimately deemed too old to be used as a comparable case study. Even in these older case studies, conversations with consultants and other involved parties proved to be valuable, as they had long been involved in wind energy siting and development in Vermont and Massachusetts, and were well familiar with various projects and the various strategies used in public participation and stakeholder engagement. The Kingdom Community Wind Project in Lowell, Vermont, was both the largest project, in terms of proposed size in terms of megawatts, but also the largest in terms of the number of stakeholders and diversity in terms of representation, or the unique interests of the stakeholders contacted and interviewed.

3.3: Interviews

Interviews were conducted over two months. Stakeholders were identified and then initially e-mailed. Introductory e-mails provided a project overview to stakeholders. A first phone call was then made to schedule a date and time for the interview. Interviews were recorded using a special iPhone application. Interviewees were told that they were being recorded, and they would be sent copies of the final thesis. Interviews were transcribed upon completion. The first person interviews involve a standardized list of ten to fifteen questions using language common to participation evaluation discourse, and also incorporated stakeholder or site-specific questions as issues of note or particular interest surfaced. Interviews lasted between twenty minutes to nearly two hours. The following questions were included in each interview:

Table 4: Interview Guide

Stakeholder: Affiliation: Comments:

1. At what point did the developer contact you and begin involving the community in the project? (Or begin informing relevant communities and community members about the project?)
2. Had the site been pre-determined, or was there some flexibility to final site selection and subsequent siting considerations?
3. For the public process, did you think there were clear groundrules (in terms of notice, meetings, requirements)?
4. Did you find the goals of the public process to be clear?
5. Did you think that the reason for public involvement was clear to community members?
6. Did you think there was equal consideration of all participant view points within the public process?
7. Did you think there was equal opportunity for all stakeholders or community members to participate or be involved?
8. Did you think that the information provided during the stakeholder or public process was clear and accessible (easy to understand, easy to obtain)?
9. Did you think the information provided was presented in an objective manner, or did you find it to be biased or oriented toward a specific finding?
10. Did you learn anything about stakeholder engagement or public participation through your experience with the wind project?
11. Would you participate in such a stakeholder or public process again?
12. What is your overall opinion or perspective regarding the type of process you were involved in?
13. Are you optimistic or pessimistic about the process' ability to promote and reach consensus?
14. Are you satisfied or dissatisfied with the reached consensus?

3.4: Coding and Criteria Matrix

Transcriptions were saved as Microsoft Word documents, and the interviews themselves were digitally saved as MP3 files. After transcription, a web-based coding system called Dedoose was used to flag recurring issues or themes. Phrases connoting positive or negative experiences, perceptions of fairness, perceptions of power sharing or actual decision-making abilities, and perceptions of capacity in terms of the local decision-making framework in comparison to the external expert or professional decision-making framework were coded in each transcript.

Table 5: Dedoose Coding Framework: Characteristics of Stakeholder/Public Process

Transparency
Third Party Data Collection
Trust
Public Outreach
Negotiation
Sufficient/Adequate Information
Spun or Biased Information
Stakeholder Input in Process Formulation
Clear Rules
Consensus-Building
Clear Goals
Early Involvement
Equal Opportunity for Involvement
Equal Stakeholder Consideration
Inclined to Participate Again
Predetermined Site
Siting Flexibility
1 Way Information Communication
2 Way Information Sharing
Access to Officials
Accessible Information
Challenges (Emotional Investment, Financial Commitment, Organizational or Agency Capacity, Sense of Predetermined Outcomes, Timetable, Time Commitment)
Clear Decision-Making Process
Clear Information
Clear Rules
Clear Process Structure

The transcribed interviews were also analyzed using a matrix composed of best practices in stakeholder engagement and public participation. The analysis matrix was informed by best practices in stakeholder engagement and public participation in community planning, regional

planning, land-use planning and natural resource management. Two classes and an advanced seminar helped to identify and further refine criteria. Ultimately, each interview had forty-four criteria applied to it. Positive affiliations received a Y, for Yes, and an absence or lack of criteria received an N, for No. The criteria matrix was a helpful tool in comparing sites to each other.

Table 6: Criteria Matrix

Criteria	Site A: Stakeholder x, y, z… *Criteria Present:*	Site B: Stakeholder x, y, z… *Criteria Present:*	Site C: Stakeholder x, y, z… *Criteria Present:*
Transparency • Process • Decision-Making	Y or N	Y or N	Y or N
Clarity • Objectives and Goals • Ground Rules • Task definition	Y or N	Y or N	Y or N
Equity • Stakeholder consideration • Broad and diverse representation	Y or N	Y or N	Y or N
Access • To required or necessary resources • To officials • To clear and comprehensible information	Y or N	Y or N	Y or N
Early stakeholder identification and inclusion	Y or N	Y or N	Y or N
Stakeholder input in process formulation	Y or N	Y or N	Y or N
Third-party, neutral facilitators or mediators	Y or N	Y or N	Y or N
Consensus building promoted	Y or N	Y or N	Y or N
Joint fact finding	Y or N	Y or N	Y or N
Commitment to building long-term management capacity	Y or N	Y or N	Y or N
Delegation of authority	Y or N	Y or N	Y or N
Improved understanding	Y or N	Y or N	Y or N
Cost-effectiveness	Y or N	Y or N	Y or N

Table 6 continues on next page

Structured decision making process	Y or N	Y or N	Y or N
Adaptive process	Y or N	Y or N	Y or N
Innovative tools, techniques and methods	Y or N	Y or N	Y or N
Solution-forming	Y or N	Y or N	Y or N
Opportunities for learning	Y or N	Y or N	Y or N
Enhanced desire to participate in future public processes	Y or N	Y or N	Y or N
Enhanced institutional/organizational trust	Y or N	Y or N	Y or N
Enhanced management capacity	Y or N	Y or N	Y or N
Met statutory requirements	Y or N	Y or N	Y or N
Arnstein's Ladder of Public Participation • Citizen Control • Delegated power • Partnership • Placation • Consultation • Informing • Therapy • Manipulation	Y or N	Y or N	Y or N
Consideration of alternative sites	Y or N	Y or N	Y or N
Early stakeholder inclusion	Y or N	Y or N	Y or N
Stakeholder process as supplemental to formal process	Y or N	Y or N	Y or N
Realistic timetable	Y or N	Y or N	Y or N

Coding with Dedoose offered a standardized method to identify issues and themes in the sixteen transcriptions. Though the option existed to weight criteria and issues, the system was ultimately used to quantify issues, themes and perspectives. That is, how frequently distrust in the process was expressed, or how many times belief in a predetermined outcome was expressed. The matrix and the coding program allowed for a methodical and standardized processing of each interview. It allowed the analysis to be conducted objectively, rather than approaching each interview sentimentally or personally.

CHAPTER 4

CASE STUDY INTRODUCTION

This thesis section introduces four research sites in Vermont and Massachusetts, and also introduces the different energy and policy contexts of each state, which can be influential in facilitating or obstructing renewable energy development. The resulting comparison between the two states is summarized in section 4.1c, and is a tangible result of this research, useful to researchers and policymakers who wish to further investigate the influence of state, regional and local policy formulation on energy landscapes.

The table below provides a summary of the four case study sites, and displays the size of each project, the process timetable, the ownership and management of each project, the community benefits, and whether or not the project took place on public or private land. The final field describes the current project status. As of February 2013, all projects have been completed and are in operation.

Table 7: Case Study Site Characteristics

Case Study Site	*Project Size*	*Project Ownership/Management*	*Process Timetable*	*Community Benefits*	*Private or Public Land*	*Project Status*
First Wind Sheffield (Sheffield, Vermont)	16 Turbines 2.5 MW	Commercial Developer	2005-2011	Tax payments	Private Land	Completed
Kingdom Community Wind (Lowell, Vermont)	20 or 21 Turbines 3.0 MW 459 ft. tall	State Utility	Proposed in 2010, construction began in 2011, turbines estimated to be in by end of 2012.	Tax payments	Private Land	Completed

Table 7 continues on next page.

Berkshire Wind Project (Hancock, Massachusetts)	10 Turbine 1.5 MW 390 ft. tall	Municipal Energy Cooperative	10 + years, turbines installed and online fall of 2011.	Payment in Lieu of Taxes to town; lease revenue to property owner.	Private Land	Completed
Hoosac Wind Project (Monroe and Florida, Massachusetts)	20 Turbines 1.5 MW	Commercial Developer and State Utility	10 + years, turbine estimate to be in by the end of 2012.	Payment in Lieu of Taxes; percentage of electricity sales to towns.	Public Land	Completed

4.1: State Energy and Policy Contexts

This section compares the energy and policy contexts of Vermont and Massachusetts, suggesting possible relationships or conditions which have comparatively accelerated wind development in Vermont compared to wind development in Massachusetts. State energy policies can influence the growth of renewable energy portfolios, through streamlining siting processes and providing financial incentives to energy companies.

4.1.1: The Vermont Energy Context

Vermont is an interesting state in which to study renewable energy: they currently source most of their energy from Hydro-Quebec (water) and Vermont Yankee (nuclear). The Hydro-Quebec deal is contentious due to its displacement of the indigenous Cree; Vermont Yankee is nearing the end of its lifespan and is disliked for its poor and non-transparent management, and residents and energy stakeholders are looking to expand and diversity energy options. Vermont Governor Peter Shumlin has recognized that the state must transition to energy sources that are environmentally, economically sustainable as well as socially equitable. The Vermont Comprehensive Energy Plan calls for 90% of its energy to be from renewable resources by 2050. This renewable portfolio would include hydropower, biomass, solar, nuclear power, and natural gas. Of wind energy, the report cites potential production at 9.2% of the state's electric portfolio, based on 2009 figures. That capacity includes existing Vermont wind facilities, in-progress Vermont facilities, community-scaled projects and out-of-state power contracts from New Hampshire. Currently, about 1% of state energy resources come from wind energy. Almost

half of Vermont's energy comes from out-of-state. A large portion is hydropower from Hydro-Quebec. A third of power endogenous to Vermont comes from the Vermont Yankee Nuclear Power Plant. As mentioned above, these contracts are due to expire this year, in 2012.

Resource policymakers recognized early on that an effective transition would require an understanding of state concerns, values and interests related to renewable energy in order to better frame and address issues. Raab Associates, a consulting firm from Boston, was hired to conduct a deliberative polling exercise. The firm, in partnership with the Consensus Building Institute, and authorized by the Vermont Legislature, held a series of workshops around the state, providing citizens with up-to-date, factual information and opportunities to ask experts questions, from a variety of energy and utility stakeholders. Citizens were polled on their opinions and perspectives regarding Vermont energy issues. Responses are interesting to see, especially when compared to interviews from this research. For example: in the 2007 polling of Vermont citizens, the top three goals of electric resource planning were minimizing air pollution, decreasing greenhouse gas emissions, and obtaining electricity from renewable resources, whereas the least three important goals included retaining stable electric rates (Vermonters at that point paid the lowest rates in the country), retaining low electric rates, and avoiding facilities with harmful aesthetic impacts. Yet, when more than 140 Vermonters were polled, utility rates and aesthetics were ranked issues of least concern. Aesthetics also scored the lowest on a Likert scale of environmental and scenic concerns. Energy facilities thought to present the greatest aesthetic challenge to the landscape and viewer were coal plants—Vermont has none. Of least concern were both utility scale and residential scale wind farms. When polled about what energy resources should be the state's top resource priorities, energy efficiency, wind and hydro came out on top. Interestingly, this reflects Vermont's relative achievements in energy efficiency programs. Despite the responses that cast a favorable light on wind, a large majority of citizens polled thought that the state should reduce energy needs as much as possible through conservation and efficiency, rather than generating or purchasing more energy. 72% of those polled said they would strongly support a wind farm visible from their home. Another interesting result was the majority opinion that state power should be generated and transmitted from more, smaller, decentralized plants rather than just a few

monolithic plants. While the results from that study could be biased for a number of reasons, it helps to frame the Vermont energy context, and also provides a snapshot of state opinion and preference regarding energy. It is difficult to ascertain how representative of the rest of the state participants in fact were—but all recent wind developments in Vermont are the product of a very pure form of democracy, and an indicator of consensus and preference: the town meeting and town vote.

At the level of state policy, programs are in place seeking to promote ongoing renewable energy implementation, including wind energy. Vermont does not have a current renewable portfolio standard, but the SPEED (Sustainably Priced Energy Development Program) is the closest to such a program. It seeks to capture and retain the economic benefits of renewable energy and to stabilize consumer rates through long-term contracts. The Sheffield, Lowell and Deerfield projects are all SPEED projects. These projects are eligible for any federal incentives, and also qualify for state specific benefits: they can compete for loans from the Vermont Clean Energy Development Fund, and are eligible for low interest loans as facilities from the Vermont Economic Development Authority. A 1975 legislative act gave towns the option to waive property taxes on properties installing renewable energy, including wind energy. Renewable Portfolio Standards are under discussion in Vermont, with the Public Service Board conducting studies and hearings on the costs and benefits of RPS programs to ratepayers (Stakeholder Interview, April 2012; Vermont Public Service Board). The economics and finances of renewable energy are important issues when discussing wind development with Vermont stakeholders, no matter how the projects are in fact funded.

Vermont topography hosts ample wind resources, and the most 'excellent' wind resources range from NREL wind class 5 through NREL wind class. These wind resources can be found on the ridge-lines and peaks which so epitomize the Vermont landscape, and which draw tourists from all over the world for activities like hunting, fishing, hiking, camping, boating and fishing. Threats to economic benefits accrued from these attractions, the sometimes fragile and rare ecosystems found at these high elevations, wildlife and habitat concerns, and aesthetic impacts

are among the most common concerns cited by anti-wind advocates in the state source. Vermont can claim the world's first megawatt-scale wind turbine: the Smith-Putnam turbine, built and used in 1941.The Vermont landscape is treasured by residents and visitors alike—it is one of the only states to ban roadside billboards in an effort to retain aesthetic integrity in the landscape. This attachment and idealization of the landscape heightens adversarial opinions towards wind development in the state, as do subsequent economic concerns like those of property values decreasing.

In terms of siting and permitting, Vermont follows a process that Bohn and Lant (2009) would describe as standard. Energy facilities do not have to meet the strict criteria of Act 250, a rigorous review process for new development, but are instead reviewed under Section 248 of Act 30. This means that project proposals, or petitions, are reviewed by the Vermont Department of Public Service and the Public Service Board (PSB). The PSB is a three-member, quasi-judicial board. Members are appointed every six years by the governor. The developer, or utility, submits a petition and all supporting documentation to the board, which then convenes public hearings. At these public hearings, experts from the petitioning party testify, as do experts and lawyers hired by interveners, who are usually opposition parties. State agencies participate as statutory parties, presenting their conclusions on potential impacts. During this hearing period, the PSB also receives written comments. In some cases, they also conduct site visits, fielding questions or comments from the public at that time, usually in a local forum setting. A benefit of the PSB framework is that each proposal must adhere to the same outline and criteria, and follows a similar timeline: developers and utilities appreciate this clear process. Vermont does not require a stakeholder process as part of a plan or project formulation. Rather, a project proposal goes straight to the Public Service Board.

One representative from a state agency explicitly said that it is often very hard to follow the PSB final decisions—that it is an unpredictable and unreliable decision-making model. Others referred to it as opaque—that the actual decision-making structure is not very clear, nor is the way in which the Board considers and evaluates the different lines of information prior to

arriving at their ultimate decision. Proponents argue that the PSB does consider all sides and all sets of information—a recent Certificate of Public Good, for instance, which permitted the project, included forty-five conditions for approval. This structure also benefits the developer, who has as much time as they need or want to collect information and prepare testimony—whereas agencies or interveners have a finite amount of time to gather and submit data and testimony.

The gubernatorial appointment of Board members creates potential for bias or political agendas in what ideally would be an objective and measured process—although, as one stakeholder pointed out, the PSB was created specifically to permit and develop utilities to provide Vermonters with reliable, affordable energy rates. It was intentionally created to avoid the lengthy and detailed process required by Act 250, which oversees all other developments in the state. Although the PSB itself does not require a formal, early stakeholder process, both private developers and state utilities host informational meetings, site visits and other events to allow the community to get to know them and to get to know the plan. In the Kingdom Community Wind Project in Lowell, developed by state utility Green Mountain Power, the developer took the line 'we don't want to be here if you don't want us to be here'. After approaching the town board, they were advised to let the town vote on it. 75% of the vote supported the project—and it was the highest voter turnout in town history. A similar town vote took place in Sheffield. Even by the time the site plan makes it to town meetings, it has undergone several years (sometimes more) of study by the developers, consultants and involved land-owners. It may have undergone additional consultation with other interested parties, such as the town officials or directly affected parties. Rarely are the community or stakeholder groups invited to participate in site selection or lay-out editing.

The PSB, in a way, favors parties with existing capacity. Two central criteria are considered: whether the project will impact the orderly development of the region, and whether it will impact existing character of the surrounding area. Un-orderly development is addressed in regional plans—not all of which address wind energy in a detailed or explicit manner. Un-orderly

development and the existing character issue are often addressed via town zoning codes. Very few of the smaller, more rural towns actually have these. In the Sheffield case study, the developer's site plan called for several turbines just over the line in the town of Sutton. Sutton's zoning by-laws address and limit ridge-line development, and they were able to influence the siting in that sense—First Wind was not able to build turbines in Sutton. Carolyn Taux relates a similar issue in her article on the 1990s energy boom in the Mid-West. Small and rural towns in the Dakotas lacked the level of capacity and resources to really consider project proposals with the same depth and expertise of the energy companies. Even state agencies may not have the same time, staff or financial resources available to private companies, as one stakeholder noted when describing involvement in the PSB process.

Just as this resource inequity could hamper fair public processes or permitting processes, it can help to build capacity, or help in social and organizational learning: The Vermont Division for Historic Preservation, for example, was able to identify new historic buildings and gather additional information regarding the history of the Crystal Lake area after working with the historical preservation consultant hired by First Wind. Wind is carbon-free energy, and can help states reach their renewable portfolio standards and help curb harmful greenhouse gas emissions. Yet, commercial scale wind farms are not without impacts, and they are, if nothing else, huge infrastructural projects, involving not just turbine components but excavation and blasting, road construction, forest clearing, and other permanent impacts on the landscape.

The Lowell and Sheffield sites are both ridgeline turbine installations in rural communities in the Northeast Kingdom, or Northeastern Highlands, region of Vermont. The Northeast Kingdom is a region characterized largely by its forests and farms, and gets its name from a rugged topography formed between 200 and 400 million years ago—while the spine of the ancient Green Mountains goes through the region, it is also characterized by the younger uplands. It is this topography that has left the region sparsely populated—Jane Albers, writing in 2000, identifies a density in some areas of 'less than one person per square mile' (Albers 2000, 316) -- and iconic of both the Vermont landscape and Vermont culture. This topography provides rich

wind resources. Albers describes the region as both physically and psychologically remote, 'wild enough that some remote hills here are still unnamed' (Albers 2000, 33). Driving north into 'the Kingdom', one notes a marked and distinct change in land form and flora composition. The plants, trees and animals which flourish in these uplands are those of a Boreal community. Written records indicate an indigenous human presence into the mid-nineteenth century (Albers 2000). A popular image of the Northeast Kingdom, especially to tourists and potential visitors, is of a lake embraced by thick stands of conifer trees, sometimes populated with moose, sometimes populated with loon. This does not explain the full landscape history of the region: it has long been farmed, sometimes intensively, logged, and mined for natural resources. The introduction of the railroad in the late nineteenth century, and then highways, created more convenient access for visitors. Two different eras (the first in the late 19th and early 20th centuries; the latter in the 1960s and 1970s) of a 'Back to the Land' movement resulted in increased farming interests in the region. The physical remoteness and the rugged topography created a lag in economic development in the region. The area is also home to unique geological and biotic features, as well as unique historic and cultural resources. For example, the Bailey Hazen Road was a military road used during the Revolutionary War. Farming and timber management are the two largest land uses and economic interests. There is a dearth of economic opportunities beyond those related to natural resources and the land; it is not considered to be an easy place to make a living (Albers, 2000). Recreational interests include hunting, fishing, snowmobiling, skiing, and hiking. In certain areas, the Northeast Kingdom embodies the tension between the vision of Vermont as a conserved and protected landscape, recreational landscape, and Vermont as a working, productive landscape, and this tension presents strongly in Vermont wind energy discourse.

4.1.2: The Massachusetts Energy Context

Massachusetts, too, is an interesting state in which to research wind energy. At the state level, there has been intense political support for wind energy. Deval Patrick has set a target of 2000 Megawatts by 2020 as part of the state renewable standards portfolio, with 15% of all state energy needs met by renewable technologies. The presence of renewable standard portfolios creates significant drivers in wind energy development: it exerts pressure on utilities to purchase power generated from renewable technologies, and also garners political interest and

support source. The two regions of Massachusetts with the most wind capacity are Berkshire in the far west and Barnstable County on Cape Cod. Both are not only home to rich wind resources, but also to wealthy land interests and highly scenic, favored landscapes for seasonal tourism. Home to the standard form of wind permitting, Massachusetts is also a home-rule state. Thus, planning efforts do not happen at the county level—they happen at the regional level, and at the city or town level. Towns have the ultimate say on what projects or policies they ultimately implement. As in Vermont, a town could vote down a project. Whereas in Vermont the developer or utility submits everything to the Public Service Board, many departments screen Massachusetts's wind developers; any board or agency that might manage affected resources. A wind developer then may need to submit building permit applications in the town, continuing to provide necessary paperwork and research to local and state agencies. This creates unique, localized decision- making styles and techniques. Massachusetts case studies enable an in-depth look at regional wind planning experiences and strategies.

There is ongoing work in Massachusetts concerning stakeholder engagement strategies. The Conservation Law Fund recently published a guide to facilitate land-based wind development in Massachusetts, and they dedicate a longer portion to best strategies in public engagement, recognizing the important role of community stakeholders in wind energy development. It is recognized that Massachusetts's policy does not mesh with its renewable energy objectives. In a report published by the Executive Office of Energy and Environmental Affairs (EOEEA) in 2008, developers describe the atmosphere for wind development in the state to be largely adversarial and unpredictable. Adequate wind resources are in only a few places, and the scale of most real estate and patterns of land use make siting very difficult. The report compares the permitting structures from state to state, and dedicates short mention to public process. In Massachusetts, as in Vermont, there is no requirement or recommendation for what could be considered a robust or rigorous and early stakeholder process. Various steps in the permitting process require informational meetings, comment periods and public hearings, but there is no inclusion of stakeholders in process formulation or site selection/consideration. This EOEEA report has a clear and explicit objective: to highlight positive examples of other state policies that, if implemented within Massachusetts, could speed up wind energy development. It does not,

however, address what other aspects of current development practice add to the adversarial, high-risk atmosphere cited by developers.

A proposed legislative bill, the Wind Energy Site Reform Act, had the potential to create state-wide siting standards. California is one state that has implemented similar legislation. These standards set clear guidelines to wind developers and to communities in high-wind resource areas, in terms of turbine height, setbacks, mitigation requirements, and other issues. The act aimed to create clearer standards and restrictions for where and how wind facilities can be sited, reducing land use and community conflicts. It was hoped that this legislation, by setting clear standards and restrictions, would reduce the time spent in permitting, greatly facilitating wind growth in Massachusetts, and helping the state meet its ambitious renewable energy goals. This bill was recently defeated, with opponents expressing concern for loss or limitation of local control in deciding whether or not wind is right for their communities.

4.1.3: Conclusion

In Massachusetts, as in Vermont, the financial pressure on the developer creates an environment not always conducive to negotiation or discussion and more conducive to lobbying and persuasion. An earlier and broader inclusion of stakeholders in preliminary site consideration and project proposals, with clear phases or stages of mediation and negotiation, could reduce the number of opposition groups or individuals trying various delay or stall tactics. Siting standards and a centralized decision-making system will not solve all issues. There will still be individuals wholeheartedly against wind technology; uncomfortable with outside interests; afraid of drastic changes to their landscape or place; or concerned for their property values. It could, however, provide venues for expression and conversation, reducing the needs and incentives that project opponents may have in continuing to stall projects. It could promote a collaborative process. Even the formal venues for participation within the standardized process as seen in both Massachusetts and Vermont are noted in literature and in practice to be inefficient types of public participation, such as the public hearing or large-scale public meeting with top-down information dissemination.

4.2: Specific Case Study Sites

Four case studies are the research focus of this thesis. They are located in Vermont and Massachusetts, and share the following characteristics: they are all on mountains, in rural regions, and include at least 10 turbines. In siting and surrounding land use, the sites are almost identical. The type of development or management is distinctive to each of the sites.

4.2.1: First Wind Sheffield: Sheffield, Vermont

The First Wind Sheffield Project is a 40 Megawatt (MW), 16 2.5 MW Clipper Liberty turbine wind installation in Sheffield, Vermont. It is located on Granby Mountain and Libby Hill, surrounded by the towns of Sutton, Barton and Sheffield, in Vermont's Northeast Kingdom. Located nearby the popular Crystal Lake State Park, the Sheffield turbines are minimally visible from Interstate 91. Sheffield is just forty minutes from the Quebec/Vermont border. The turbines themselves are off-white, to blend in better with the surrounding landscape. Each turbine stands 420 feet tall, and the blades themselves are about 45 feet long. The height of the turbines requires them to have aircraft warning lights, per the Federal Aviation Administration. The developer is the company First Wind, based out of Maine. They have a long history of developing similar projects in similar communities in Maine, Hawaii, New York, Washington, Oregon and Utah. The company leases land from private property owners, and pays the town property taxes for the project. The town of Sheffield receives $520,000 annually from First Wind. The annual town budget is $500,000). First Wind sells the power to Vermont utility companies. The wind site itself is located above the town of Barton, off of a rural access road.

The most obvious view of the wind turbines in Sheffield can be seen at Crystal Lake State Park in Barton. The lake once was used for transporting granite from a quarry at the south end to the north end, where it could then be transported via rail to outside markets. Prior to being leased to a wind company, much of the land was managed and harvested by a sustainable forestry interest. Neighbors to the project include farming and recreational interests, as well as strictly residential interests. On a site visit in January, it was evident that many of the residents on the main access road were seasonal and were identified to be hunting camps. In Barton, Crystal

Lake State Park has a direct view of the turbines from its beach and bathhouse, which is included on the National Register of Historic Places. Crystal Lake itself is a glacial lake, with a long history as a destination for in-state and out-of-state visitors. From the Crystal Lake beach and bathhouse, both located within the state park, nearly 12,000 visitors per year enjoy a direct view of the lake surrounded by steep mountains, oriented toward a focal, rugged ridge line (Stakeholder Interview, April 2012). When describing the site in a 2006 Public Service Board hearing, the representative from the Vermont Division of Historic Preservation likened the landscape and viewshed to that of a Hudson River School painting from the 19th century (Stakeholder Interview, April 2012). Also surrounding the lake area are historic cottages used by visitors for years, even before the construction of the formal beach and bathhouse area. Crystal Lake Park, because of its bathhouse built by the Civilian Conservation Corps in the 1930s out of local granite, is on the state register of historic places, and was being nominated for entry to the national register of historic places at the time of the wind project proposal (Sheffield Stakeholder II, April 2012). The wind installation itself sits on 20 acres of ridgeline, sharing space with forest, wetland and stream habitat. There is a documented presence of deer, bear and moose around the site.

First Wind will retain project management, and has created three full-time positions in Sheffield for operational and environmental monitoring, as well as community outreach and engagement. Turbine performance is monitored both by the on (or near) site staff and by remote offices via software technology. The turbines are sited in such a way that they are not highly visible: views are limited to main highways and roads. The most direct view, as mentioned previously, is that from Crystal Lake State Park. Sheffield and neighboring towns voted on the project, since turbines situated along the ridge line would be in Sheffield, Sutton and the town of Barton. Because Sutton has a strict zoning code explicitly restricting wind turbines, the turbines had to concentrated in Sheffield. As the original site proposal was changed to installing turbines only in Sheffield, Sheffield and the town of Barton became the only two towns still considering hosting the turbines. The main access road, and the main means of transporting turbine components up to the top of Granby Mountain and Libby Hill, is located in the town of Barton. As of February 2013, the Sheffield Wind project has been in operation since November 2012. In the 2013 Town

Meeting, community residents voted to reduce their municipal tax rate in half due to the revenue collected from First Wind.

4.2.2: Kingdom Community Wind: Lowell, Vermont

The Kingdom Community Wind project, owned and managed by Green Mountain Power, is on Lowell Mountain, in Lowell. While Sheffield is in the eastern section of the Northeast Kingdom, Lowell is in the western section. The two towns are 28 miles apart. Lowell is most easily accessed via State Route 100. The Lowell site is the largest wind energy facility out of the four case study sites, with twenty-one Vesta turbines, operating at 63 megawatts in total. The string of turbines inhabits three miles of ridgeline, running parallel to Routes 14 and 100. The turbines are visible from the village of Albany and Craftsbury. From Craftsbury, travelers can actually see both the Lowell and Sheffield turbines. Per agreement, Green Mountain Power pays the Town of Lowell $535,000 a year. In 2012, Lowell had accumulated $447,000 of bills, making the annual payment a generous and very enticing sum of revenue.

Lowell, much like Sheffield, is a richly scenic, rural community whose economy has remained largely based in agriculture since the 18th century. The topography in Lowell is different, however, and Lowell Mountain is a far more prominently visible ridgeline than that of the Sheffield Ridgeline. Near Lowell, in the town of Eden, there is an abandoned asbestos mining operation, a recognized blight on the landscape of the region. Lowell and the surrounding environs are popular for hunting and wildlife viewing. Snowmobiling and Nordic skiing are also popular activities for residents and visitors. The ski resort Jay Peak, with its year-round water park and seasonal golf course, is a half-hour north from the town. The settlement pattern, density and demographic composition of the community are characteristic of other Northeast Kingdom towns, including Sheffield. Rural and aging, Lowell is a quiet and beautiful representation of the Vermont pastoral ideal.

Developers approached private landowners in Lowell long before Green Mountain Power took ownership of the project. Towers to observe wind speeds had been in place on Lowell Mountain

for years prior to Green Mountain Power approaching the small community, and several private landowners had begun negotiating lease or sale agreements for the purpose of erecting commercial wind turbines on their ridgeline properties (Interview, March and April 2012). Green Mountain Power began to address the community with wind project proposals in 2008 (Green Mountain Power Interview, April 2012).

In 2010, Lowell held a town vote to decide whether or not they wanted to host the Green Mountain Power (GMP) wind facility. Green Mountain Power is the largest power utility in Vermont, but GMP is actually owned by the Canadian Gaz Metro gas company. Most of their rate payers are in the middle or southern regions of the state, and they do not service residents of the Northeast Kingdom. Green Mountain Power is currently in merger discussions with other state utility companies, and is likely to serve an even greater number of rate payers in the future, expanding their service area beyond the Burlington beltway area.

In the 1970s, the GMP vice president, Ray DeForge became very interested in promoting and accessing endogenous, renewable energy resources, and was instrumental in installing two test turbines in Manchester, Vermont, on Mt. Equinox, and in beginning the push to get both funding and support for the states' first wind project in Searsburg (Green Mountain Power Interview, March 2012). GMP and their local partner, Vermont Electric Co-Op (VEC), have proposed to install twenty-one turbines with a total of 63 MW capacities along three miles of the Lowell Mountain range. Lowell is largely a farming community, and the land leased to GMP and VEC has long been used for timber and logging resources. Community members have also historically used the land for hunting and recreation. The turbines stand at 459 feet from the ground to the blade's highest tip, pointing up. They will also have aircraft warning lights, though the use of OCAS (Obstacle Collision Avoidance System) technology is being considered, pending FAA (Federal Aviation Approval). The turbines will also have tube towers, and will be entirely off-white or white to reduce visibility impacts. The turbines are located so centrally along the ridge line and are very visible to surrounding towns, and to travelers along Route 14 and Route 100.

The landscape of the Lowell range is very unique. It is home to a rare geological feature, called serpentine outcrop. The mineral composition of serpentine outcrop, remnants of the most recent glacial movements, creates prime conditions for very specific plant features, including several species of endangered fern. Due to logging the area hosts a mixed deciduous forest, and is habitat for bear, moose and deer. Stream habitat has been an important consideration in construction plans, and the project was halted after Tropical Storm Irene for precautionary storm water measures. The land leased for the project is not owned by just one land owner—parcels on the mountain are owned by various community members, and this has become an issue. Surveys done for the utility companies and leasers differ from historic surveys, and have created uncertainty in terms of property titles. A vocal minority has lead a robust opposition movement, bolstered by state and regional interest groups. Blasting the bedrock with dynamite was required to create pads for the turbines. This is a practice common to turbine installations, whether ridgeline or off-shore installations. Prior to blasting, protestors occupied part of the site in an attempt to impede construction progress. In response to what was deemed trespassing, GMP has posted the property they are leasing, restricting traditional patterns of access. Previous efforts to develop wind energy on the Lowell range met with negative perception, but on the 2010 Town Meeting Day, 75% of Lowell residents voted for the GMP/VEC project. The proposal was also vetted by surrounding towns. Both the Selectboards of Craftsbury and Albany expressed disapproval of the wind project. However, in a community vote, the town of Albany decided to participate as intervenors in the Public Service Board process but not in opposition. As of February 2013, the Lowell site was complete and in operation. Legal battles continue between property owners and Green Mountain Power, and formal complaints regarding the noise of the turbines have been filed. At the February 2013 Town Meeting, Lowell voted to get rid of municipal taxes in light of the substantial revenue collected from Green Mountain Power.

4.2.3: Sheffield and Lowell Comparison

Both Lowell and Sheffield are rural communities, with populations under 1,000. Each has a select board. Decision-making lies in the hands of residents through the town meeting and town vote system. One notable difference is that Lowell has a zoning code which addresses ridge line

development, whereas Sheffield does not have any type of zoning framework, though it did complete a town plan in 2008 with the assistance of the Northeast Vermont Development Association (NVDA). Written in 2008, and adopted in 2010, the only references to energy in the Sheffield Town Plan are a reference to the contract signed with First Wind, and promotion of conservation and efficiency programs. Their town plan also makes special reference to abutting communities, and how projected trends in those communities could impact housing and growth opportunities in Sheffield. The Lowell Zoning By-Law does not make specific reference to utility scale renewable energy, and was also drafted with the assistance of the Northeast Vermont Development Association, who has made no substantive expression relating to wind power. When preparing their 2011 Plan, NVDA held hearings for an energy section stating that wind turbines should be seen as good for the region, and that "as a statement of policy, NVDA supports the construction of wind towers…. we do not believe wind towers should be imposed on communities that don't want them within their borders." This effectively allowed towns with anti-wind bylaws to remain in adherence to the regional plan. The majority of attendees at the hearing were against this stance and language, and two important issues were identified: representational fairness at the local, community decision-making level, and the impacts on communities abutting such large scale projects as those in Lowell and Sheffield source. In a personal communication with NVDA staff, it was mentioned that stakeholders have expressed a sense of wind development fatigue, questioning why so much wind development appears to be happening in the Northeast Kingdom as opposed to other Vermont and New England regions.

In terms of past experiences with technology in the landscape or other landscape alterations, both communities have experienced substantial infrastructural improvements in the last two centuries. Roads, highways, electrical lines, railways, radio and cell phone towers have all made their mark. The town of Barton/Sheffield once had a granite quarry near the south end of Crystal Lake, and a town very close to Lowell, the town of Eden, hosts an old asbestos mine. Logging is a common activity in the Northeast Kingdom, and intensive farming practices of the 19th and 20th centuries left all regions of Vermont largely de-forested. Unlike some of these other landscape alterations, or technological insertions, wind farms can be highly visible and can require

permanent alterations to topographical features, as in Lowell, where significant blasting has been required for turbine installation.

The public processes in the two communities were relatively similar. In both cases, a private landowner became interested in siting wind infrastructure on their property. In Lowell, the landowner directly approached interested developers, including Green Mountain Power. In Sheffield, the company approached the landowner. Preliminary conversations and negotiations ensued. Ultimately the company publicized their intent to explore wind development in the towns of Sheffield, Sutton and Barton; after public outreach and informational meetings each community voted on whether or not they would approve of the wind project. In Lowell, the utility first spoke with the relevant land owner and the town board, and then publicized their project. After a year of informational outreach the town voted on it. After both projects received a majority of favorable results, the project developers took their project proposal to the Vermont Department of Public Service's Public Service Board (PSB). In Lowell, GMP hired a public liaison to specifically serve as an intermediary between the company and the community. Both companies offered to take residents on bus trips to see actual projects in action—in Lowell, residents took field trips to the New Hampshire community of Lempster to see the wind farm located there. In each situation, the community was told that if they preferred not to host a wind farm, the company would leave and site the project elsewhere. Much of the information provided during the preliminary public outreach stage was information gathered by the wind company, and reported by the wind company. It was not until the PSB process that there was a wider array of information collected and reported by formal interveners.

4.2.4: Berkshire Wind

The Berkshire and Hoosac wind projects are both in the Northern region of Berkshire County. Berkshire Wind is on private property on the top of a mountain whose views parallel nearby Mount Greylock, the highest peak in the state. The turbines, online since November 2011, are most visible from Route 43, shuttling drivers between western Massachusetts and eastern New York. The majority of the land on which the project was constructed is owned by one family, and they were approached late in the 1990s by a Colorado wind developer, interested in the

high wind resources available on the mountain. The developer and the landowner began conversations, and then negotiations, and settled on a lease contract for a wind farm. After the contract was signed and vetted by lawyers, the project was presented to the town of Hancock. It was at this point that the project began to meet with considerable push-back, from residents in Hancock and beyond. Another issue is similar to something that happened in Lowell: property surveys done in preparation for road construction and turbine pad installation revealed discrepancies in the traditional ownership assumptions. As a deed and title search commenced, the town offices in Hancock lost building permits. Further delays happened in other permitting processes, including at the state level. As changes happened to project configuration and project time lines, the town of Hancock repeatedly voted down anti-wind zoning language that would have made the project impossible. An anti-wind zoning bylaw was adopted in the town of New Ashford, requiring that all the turbines be sited in the Hancock. In total, the Town of Hancock held three special town meetings at which an anti-wind zoning bylaw was proposed for adoption. In each instance, the town voted to not adopt the bylaw (Berkshire Wind Stakeholder II, March 2012). While local communities sorted out their feelings about the wind project, the developer continued to pursue the project—even constructing an access road between questioned parcels. The principal land owner showed me that initial access road on a site visit—it resembled more of a ski trail than a road capable of supporting enormous turbine components. This push-pull between project supporters and project opponents continued as the project made its way to requisite permitting steps. The town continued to vote in favor of it; and substantial progress had been made when a Houston-based condominium company purchased property on top of the mountain with the intent of building luxury ski condos. At the point they purchased the property, the wind project had been underway for a few years, and it seems odd that the condo company did not consider surrounding and future land-uses before purchasing the property. They sued the wind company, citing the damages that the project would have on the views and alpine experience of their future clientele. During this time, the original developer, emotionally and financially exhausted, sold the project. The condo company and the new wind company ultimately settled—interestingly enough, this condo company has dissolved, along with plans to build condos on top of Sheep Back Mountain. Throughout this whole time, property issues were still playing a large role—with one or two parcel owners still fighting the project. It was not until the project was purchased by the Massachusetts Municipal

Wholesale Electric Company that the turbines could be installed. This state directed non-profit had eminent domain authority, which finally gave the project access to contested right of ways and parcels. When I interviewed the original developer and the land owner in the Hancock project, the landowner cited the newness of the technology as a principal cause of uncertainty and struggle in the development process. They also implied that perhaps jealousy factored into continued efforts to stop and stall the project, and the Massachusetts state permitting process. While they thought a better stakeholder process might have been beneficial, they were not sure it could have helped with the property ownership issues that came to light with different land surveys. The developer sited a vocal minority who had multiple opportunities to appeal, stall and delay project progress. An observer of both the Berkshire and Hoosac project cited the inexperience of the initial developer; the landowner also intimated that the developer was really more used to project development in the American West, in which projects generally are simple agreements between land-owner/company. The density of New England settlement; the patchy pattern of parcel division, is unique and can be challenging for all sorts of development efforts, let alone highly visual installations with uncertain health and land value impacts.

4.2.5: Hoosac Wind

The Hoosac Project, completed in December 2012, consists of nineteen turbines strung along a ridge line close to Route 2, also known as the Mohawk Trail, which is a federally designated Scenic Byway. The turbines generate 28.5 megawatts. It is the biggest wind site in the state of Massachusetts, and took nearly as long as it took the Berkshire Wind Project in nearby Hancock to become an actuality—nine years. The wind developer is Iberdrola Renewables. Community officials expect nearly 6.8 million dollars in revenue and 3 million dollars in lease payments from the company. Like some of the other sites, some of the turbines will be located on lands owned by the towns of Florida and Monroe. This did not make the permitting process go any faster—although the towns voted in favor of the project, individuals from surrounding towns gathered financial resources to fight against the project, specifically challenging a wetlands permit sought by Iberdrola. The influence of well-financed and highly vocal opposition groups was cited in both the Berkshire and Hoosac interviews as obstacles in both individual project development and in wind development at the state level as well. For example, the Wind Energy Site Reform Act

(WESRA) would have helped provide a standardized permitting process and implement site standards.

Also of note: in Massachusetts, the small towns vote on any big project change, giving residents multiple opportunities to interface with the project and project progress. It keeps them abreast of changes and involved in the project's evolution. The town planning board usually decides upon smaller changes. Stakeholders from both the Berkshire and Hoosac project cited changes made to the original project proposal and design to accommodate community feedback and input. The multiple stages of the Massachusetts model does allow for a lot of citizen input and engagement; however it takes a lot of time and a lot of money. The delay in approval ultimately delays the transmission of benefits. The town of Monroe, for example, won't see any tax or profit shares until after the project goes online; the property owner from Hancock never saw financial gain for the entire decade they fought to continue project permitting.

CHAPTER 5

GENERAL FINDINGS AND RESULTS

5.1: Introduction

The public process is an integral component to city and regional planning. Without the public process, or the stakeholder process, plans, and the visions and goals encompassed in plans, can reflect generic or impractical goals, policies and strategies. Robust public participation and stakeholder engagement help to identify plan components that hold meaning and priority to community members and stakeholders—it personalizes the planning process and the planning product, helping to ensure that there is buy-in and ownership in the product. It also helps to promote the active use and iterative modification of plans. Members of the public and stakeholders often report higher satisfaction with the final product if they also report satisfaction with the process. This is an important component and relationship to recognize and promote in the advancement of renewable energy products as well as other controversial land use projects that are likely to become more prevalent, such climate change mitigation or adaptation projects. Public participation and stakeholder engagement are also important factors in ensuring that the goals and visions espoused in planning documents are recognized and integrated in policy formulation and implementation. This is true in all realms of planning: from the regional sustainability plan to specific elements dealing with historic preservation or economic development; to a specific community plan dealing with long range visions and goals—the initial community process, and an ongoing community process, are what form and implement the goals action items. It makes sense that this would hold true with renewable energy development, as they are forms of development likely to change the landscape or character of place in a community. This results chapter, in its most basic sense, offers a S.W.O.T. analysis of current public participation and stakeholder engagement processes in New England land-based wind energy development.

This results chapter explores how the public process and stakeholder engagement are approached and implemented in wind energy planning and development, especially in New England. It is broken into six different subsections. The first section introduces general results from the research, and the subsequent section looks at a tangible research outcome, a comparison between Vermont and Massachusetts state renewable energy siting and permitting processes. The second subsection looks at the specific case study sites: the representation of stakeholders and key findings of perceptions from these stakeholders. The third section identifies seven key findings from the research. The final section revisits the actual research questions themselves, and answers them with a straightforward analysis of the existing public participation and stakeholder engagement model, looking at the strengths, weaknesses, opportunities and threats in land-based wind siting and development in New England

5.2: General Results

There was a clear divide between stakeholder perspectives and stakeholder positions for or against. That is, stakeholders in favor of wind projects tended to approve of the process and the way in which stakeholders were engaged. For example: a wind project proponent, in describing the caliber of data and the way in which information was presented to the public, stated that the wind company "never hid anything from us, they were very open, and we worked to share our information with the public. I do not feel like they ever misled us in anyway. I've lived here all my life, I plan on continuing to live here and I would not have worked for them had they not been upfront and I'm positive they are" (Lowell Stakeholder Interview I, April 2012). Two opponents of wind energy development in Vermont expressed very different opinions, one concerning the integrity of company experts: "a company can hire experts…and these experts come in and the experts give them exactly what they want and those experts, as far as I'm concerned, are paid whores…they go from one company to the next and they can give them whatever they want to hear because…they pretend that everything is hunky dory" (Lowell Stakeholder II, April 2012). Another wind energy opponent, with professional experience in the United States Forestry Service, described the information collection and sharing in this light: "Basically they're [prostitutes]—they are not there to objectively evaluate what is going to happen…I've seen it time and time again in my career, the experts that the developers ask what would you like two plus two to equal?' (Sheffield Stakeholder I Interview, April 2012). One

proponent tried to frame both proponents and opponents as being responsible for the extreme representations of information, stating that both sides went too far, and beyond objectivity in their analyses and presentation of data and information (Lowell Stakeholder III, April 2012).

At least two opposition individuals had continued to oppose projects beyond the projects proposed or built in their communities—putting considerable time and money into fighting other proposed projects. This reiterates a reason why a thoughtful public process is so important, particularly in infrastructural scale projects: a negative experience, or process perceived as a negative experience, may not only result in people unwilling to participate in future similar processes, as literature suggests, but may also result in stakeholders and members of the broader public trying to delay or prolong similar processes as they seek to bring more attention to perceived inequities or negative issues associated with commercial-scale wind projects.

In both Northeast Kingdom sites, the opponent stakeholders were highly suspicious of how the projects were being funded, how such projects would impact utility rates, and the financial motives behind the companies choosing to build large-scale wind projects in Vermont. This suspicion extended beyond funding, and seemed to color perceptions of the decision-making process, and the broader decision making process in the scale of New England and even the larger country. The dearth of wind power on the New England coast and the seeming boom in wind interest in the rural communities of Vermont, New Hampshire and New York states came up in stakeholder interviews and in conversations with residents throughout the course of the research. The gist of these conversations referred to the idea that the wealthy, beach property owners on the coast, with their political and social influence, had a capacity and power absent in the smaller, rural communities in places like the Northeast Kingdom or even parts of Western Massachusetts.

Opponent stakeholders never cited just one reason for disliking a wind project; proponent stakeholders never cited just one reason for liking a wind project. Rather, stakeholders cited multiple reasons for approving or disapproving of a project. Proponents cited the positive climate mitigation effects of expanded wind capacity in the Northeast, the financial benefits offered to their communities, the moral or social significance of sourcing energy endogenously, and the efforts of the developer to engage with the broader community. Opponents cited the negative environmental impacts of large-scale, ridgeline wind development, including runoff, erosion and habitat destruction; the deep-pocketed oil interests funding the wind projects; the opaque structure of the decision making process; and the perceived bias of expert testimonials. Proponents and fairly neutral stakeholders pointed out other issues: the disparity in capacity between involved interests. For example: the wind companies had years to collect data and develop site proposals; the state agencies had to work on tight timelines to present at hearings where it was unclear as to how their information was evaluated and weighted in the decision-making process. This was the case in Vermont, where the employee of a state agency stated that a big concern in all large scale development projects is that the state agencies have "really limited resources to go to bat for arguing a case like this...the developer has more financial resources and time is on their side. Because they can spend years doing all their studies, getting everything lined up and getting all their experts lined up and then they file their proposal…between that filing time and the start of the hearing, everybody else is scrambling to review all that material…time is certainly on the developer's side…we just don't have the capacity to be that deeply involved and to meet the deadlines, the timelines…the state has really limited resources to go to bat for arguing a case like this" (Sheffield Stakeholder II, April 2012).

The seemingly opaque decision-making process and the perceived tokenism of the stakeholder and public process came up again and again in neutral and opponent stakeholder interviews. As one state agency stakeholder indicated, it felt as if they had "spent days pulling files and then [the PSB] never even looked at them" (Sheffield Stakeholder II, April 2012). Another opponent stakeholder, a private property owner abutting one of the projects, described the difficulty in identifying how the deciding entity used thousands of dollars' worth of expert testimony, stating

that “it was not clear how they were going to use our information, and it was clear that they did not use our information” (Sheffield Stakeholder I, April 2012). Another stakeholder described the process as being skewed by “marching orders from the Governor’s office” (Lowell Stakeholder III, April 2012). In these cases, the stakeholders blamed the opaqueness of the decision-making process on pressure from the state to further renewable energy interests, describing a group “under a lot of pressure...to put a project through” (Sheffield Stakeholder I, April 2012).

5.3: Key Findings: Vermont and Massachusetts Policy Differences

The following table distills the main characteristics and key differences between the permitting process in both Vermont and Massachusetts. Vermont is categorized as a standard, centralized process—meaning that its siting process is not streamlined, but the ultimate decision-making power is confined to one state agency, the Public Service Board. All wind projects, just like any utility project, in Vermont, must be vetted by the Public Service Board. Massachusetts is categorized as standardized but de-centralized because it lacks a central and consolidated decision-making entity. The Energy Facility Siting Board only comes into the process for a certain size project. An example of a non-standard process typology can be seen in Texas, Oregon and Washington. Texas avoids any formal siting process, whereas Oregon and Washington have implemented siting standards in areas with high wind resources, and have created a specific state agency to deal with wind facility siting. The governor in Oregon can overturn agency decisions to veto or promote a project. These non-standard typologies operate in condensed timeframes and rely on state-appointed experts to vet projects.

Table 8: State Policy Differences in Wind Energy Development

	Vermont	*Massachusetts*
Process Type	Standard: Centralized	Standard: De-Centralized
Local	Town Vote Zoning By-Laws	Town vote Zoning Bylaws Various community boards (conservation commission, Selectboard, building inspector)
Regional	Recommendations or advisement from RPA or RPC ISO New England Compatible with 'orderly' development review by RPAs	Recommendations or advisement from RPA or RPC ISO New England
State Reviewing Bodies	ISO New England Department of Public Service Public Service Board Section 248 (rather than Act 250) Agency of Natural Resources Division of Historic Preservation Other state agencies/organizations as necessary	Energy Facility Siting Board (if above a certain MW threshold) Department of Environmental Protection Historical Commission Department of Highways Endangered Species Program
Federal	FAA (federal aviation administration), ACOE (army corps of engineer), USFW (united states fish and wildlife), USFS (united states forest service)	FAA (federal aviation administration), ACOE (army corps of engineer), USFW (united states fish and wildlife), USFS (united states forest service)

5.4: Key Findings: Strengths, Opportunities, Weaknesses and Threats

This results section presents findings in a basic analytical framework frequently used in city and regional planning, that of the S.W.O.T. analysis, or Strengths, Weaknesses, Opportunities and Threats. Essentially these are identified in answering the original research questions. Strengths identify positive characteristics in the process, as described by stakeholders during interviews and as identified to be best practice by literature and practitioners. Weaknesses represent the ineffective or negatively described characteristics of the process, also sourced from stakeholder interviews and literature. Opportunities identify aspects of the process that could likely improve the stakeholder experiences and the development process of renewable energy technologies. Threats identify ongoing aspects of process that are likely to exacerbate or continue the negative perceptions of stakeholders or the challenges identified in interviews and in literature. The original research questions of this thesis provide a basic framework for this S.W.O.T. analysis, looking at the strengths, weaknesses, opportunities and threats of existing wind development models and public/stakeholder process and engagement strategies. The following table displays these key findings:

Table 9: Strengths, Opportunities, Weaknesses and Threats

Strengths (of existing process models)	Equal opportunity Equal consideration Clear rules Clear process structure
Opportunities (to enhance or change existing process models)	
Enhance	Broader inclusion Participatory methods other than public meetings or hearings
Change	Earlier inclusion Joint or third-party fact finding/data collection & reporting Neutral moderation or facilitation

Table 9 continues on next page.

Weaknesses (challenges of existing process models)	Time commitment Non-objective sources of information Limited capacity in communities and state agencies Financial commitment Sense of pre-determined outcome
Threats (realities that may impede future process)	Cumulative impacts Project changes Sense of tokenism Regional and national grassroots anti-wind networks Lack of early and broad opportunity for engagement and participation

Interviews with wind energy consultants and staff of the Public Service Board provided insight in regards to the opportunities and challenges present in the current planning process for wind energy in Vermont. In April 2012, I was able to speak with a long-time associate of the Public Service Board, who had served as the board's Public Advocate for almost twenty years. In terms of strengths in the process, she highlighted the efforts of the Public Service Board to try and incorporate a wide range of stakeholders throughout the hearing process, stating that the board works with Pro Se interveners to make sure they have enough time to gather necessary information materials, and also that the board 'sets the bar low' in terms of what type of pre-filed testimony and discovery they accept from interveners, in an attempt to encourage broad, diverse representation. When asked if such a formalized public process slows infrastructure and facility development and hinders consensus building, she agreed, and sited several examples in which utility and transmission companies voluntarily chose to plan and implement rigorous stakeholder processes. One project mentioned is an ongoing natural gas pipeline expansion, which would extent a pipeline from Burlington to Middlebury. The company hired a moderator, who in turn identified stakeholders to participate in siting suitable routes. Through this process, the pool of twelve suitable routes was narrowed down to two suitable or possible routes, one of which the company will choose when submitting their petition to the Public Service Board. Even in this stakeholder process, however, the company requested that the moderator exclude stakeholders who would be 'against the project no matter what'. The former public advocate from the PSB noted that excluded stakeholders would most likely file as interveners once

Vermont Gas Systems files their petition; and that they had encouraged the company to invite all stakeholders to actively participate. To other transmission projects were mentioned, one in which the company conducted very little outreach and public engagement, and one in which the company did conduct outreach and participatory events. It was noted that the in the latter example, the transmission company was able to build consensus and persuade people to 'settle' on the project. Also mentioned was the important of enhancing resident understanding of projects—in an attempt to help them accept the project and its potential impacts or changes. In terms of wind development, it was suggested that there is recognition that the companies should be responsible for a formal and rigorous stakeholder process prior to filing proposals with the Public Service Board. Noted was the Sheffield project, whose original petition is markedly different from the final petition the Board approved. The number and siting of turbines changed due to community concerns and desires. Concern with the thoughtfulness of the outreach and public process conducted by the utility involved with the Lowell project was brought up for a second time. In the last legislative session, a bill was introduced which would provide funding for interveners, since the financial burden of hiring experts and legal representation can be so great for lay interveners. Written into the most recent Vermont comprehensive energy plan is a recommendation that the Department of Public Service adapt a mediation and mitigation component for large-scale renewable energy development, which would make developers and utilities work with stakeholders to mitigate impacts or to adjust micro-siting issues. When the interviewee was asked about lessons learned from almost twenty years of working in the realm of public process within a facility siting, she identified these: (1) the importance of facilitating the streamlining of the existing regulatory framework (meaning siting standards and decision making processes); and (2) the importance of learning from negative processes and figuring out how to avoid similar results and conditions, in terms of when stakeholders are included in the process, and how stakeholders are involved in the process, as well as the importance of helping stakeholders and public members truly understand the costs and benefits of projects, even if they do not ultimately agree with the decisions.

Those lessons learned could be applied in both the Vermont and Massachusetts renewable energy development models. Mandatory mediation programs could be helpful in resolving

disputes and helpful in that it is solution driven and aims to avoid litigation. A mediation program or scripted mediation process might be helpful in that it would give motive to interveners to participate in a way other than litigation. Presently, in both Vermont and Massachusetts, interveners who disagree with 'final' decisions can continue to appeal in different courts. A thoughtful mediation geared towards collaborative planning could save all parties time and money.

5.5: Key Findings: Site and Stakeholder Specific

The First Wind Sheffield project reflects the greatest changes from the original project proposal to the current wind farm, and also offered valuable perspective from a state agency. The proposed site sits atop a ridgeline that is a focal viewshed in a state park in Barton, a neighboring town. This poses a challenge: the difficulty in measuring tangible and quantifiable impacts or effects of large-scale renewable energy projects on historic or cultural resources. The Sheffield First Wind project also demonstrated a challenge for smaller state agencies and smaller community governments: private wind companies have extensive financial and professional resources, which is hugely beneficial in navigating permit pathways, as well as in presenting and promoting projects to the public and stakeholder groups.

Lowell clearly had the most diverse representation, and also the largest representation, followed by the Sheffield First Wind project. The Lowell representation is considered most diverse because it included the higher number of interests represented in the different stakeholders. Unlike the Sheffield First Wind project, the Lowell project did not change substantially between its preliminary proposal and the final product. The way in which the company engaged the broader public seemed aimed at persuading or lobbying community members to like and accept the project.

An issue that came up in all four case study sites, but especially in the Lowell and Sheffield sites, had to do with the economic vulnerability of smaller communities and rural stakeholders, some of whom expressed the opinion that their communities, and their opinions, mattered little in the

larger social and political context of the greater New England region, especially in terms of energy. This highlights another issue in terms of capacity. Smaller, rural communities may lack the capacity to deal with or engage with large-scale projects and companies in such a way that might allow them further participation or engagement. Chronic economic development challenges and a lack of economic opportunity may pressure communities. This also leads to a potential outcome of enhanced renewable energy development that will need to be carefully monitored: the aesthetic and social congestion of rural landscapes. In Vermont, two of the largest wind projects are within twenty miles of each other, and there is similar proximity of the two larger Massachusetts sites.

The Massachusetts sites, in all the process length and turnover, presented two findings of note: One, that developers find it challenging to navigate the Massachusetts permitting process, especially if they are not used to the style of small-town governance and decision making, and two, that this, coupled with high financial risk, creates a pressurized decision-making atmosphere.

The following three tables demonstrate stakeholder perceptions of respective public processes as analyzed using the theory and practice based matrix described in the Methods chapter. A full interpretation is offered below each table. Y indicates a positive presence of process characteristics in the experience described by stakeholders; N indicates an absence of these characteristics. The criteria total described the overall consensus depending on the specific criteria. The final total describes the most common or prevalent perception. In the Sheffield site, for example, the most common perception was that the public and stakeholder processes were lacking positive characteristics.

Table 10: Sheffield Wind Project Criteria Analysis Results

SITE A (Sheffield Wind Project): Community Official, Abutter, Neighboring Town, State Agency (1 proponent, 2 opponents, 1 neutral)					
Criteria Stakeholders	I	II	III	IV	Total
Planning	Y	Y	N	N	-/+
Rowe & Frewer	Y	N/Y	Y	N/Y	-/+
Laird	Y	Y	N/Y	Y	+
Innes & Booher	N	N	N	N	-
Arnstein	N	N	N	N	-
CLF Wind	Y	Y	N	N	-/+
Susskind, et al.	N	N	N	N	-
Total	**Y**	**N**	**N**	**N**	**-**

Out of the four stakeholders interviewed, three felt that the public process in the siting and approval of the wind project was lacking in characteristics that are thought to make a robust and rigorous public process. Of these four stakeholders, two were vehemently against large-scale wind development in general, but especially in their home community. An interesting perspective was provided by a representative of the Vermont Division of Historical Preservation, who described the rushed timeframe in which expert parties are required to conduct their research and report their findings, often with limited financial resources. This is a setting much different from that of wind developer, who has often been conducting site specific research for several years prior to the formal permitting process, and has significantly more financial resources. In this site, it became clear that the rigid and centralized permitting process in Vermont allows little flexibility in how public citizens can engage or participate in the permitting process, or even in the siting process.

Another challenge identified in interviews with stakeholders is that of capacity, both for small, rural towns and for state agencies with limited staff hours or financial resources. This challenge was identified through the research, but also expressed in interviews with stakeholders. As one stakeholder in the Sheffield project explained, the wind company has seemingly unlimited resources and expertise, along with an invaluable resource: time. The company often has a significant time advantage over public agencies and other stakeholder, which creates a rushed

and financially limited atmosphere in data collection and reporting. One of the key opponents to the project had extensive experience in natural resource management and best practices in stakeholder engagement. Stakeholders in this project frequently referred to the public and stakeholder process as opaque, and very difficult to participate in without substantial financial resources. The general negative finding for Sheffield is surprising, since the final project reflected the most input and change from the public. The final project was smaller, with a different turbine configuration, than the original proposal. One of the communities was also able to prevent the siting of turbines within their boundaries due to a zoning bylaw. Stakeholders who were the most dissatisfied with the process felt that the process was a token, and that their information and opinions were not fully integrated into the decision-making. As in the Lowell site, stakeholders expressed the sentiment that the Public Service Board operates under pre-determined orders.

Table 11:Lowell Wind Project Criteria Analysis Results

SITE B (Lowell Wind Project): Community Official, Abutter, Town Official, Resident (Public Liaison), Neighboring Town, NGO (Conservation Law Foundation)							
4 Proponents, 2 Opponents							
Criteria	Stakeholder	I	II	III	IV	V	VI	Total
Planning		N	N	Y	Y	N	N	-
Rowe & Frewer		N	N	Y	Y	N	N	-
Laird		N	N	Y	Y	N	Y	-/+
Innes & Booher		N	N	Y	N	N	N	-
Arnstein		N	Y	N	Y	Y	Y	+
CLF Wind		N	Y	Y	Y	N	N	-/+
Susskind, et al.		N	Y	Y	Y	N	N	-/+
Total		N	Y	Y	Y	N	Y	+

Out of the six stakeholders interviewed, four expressed positive perceptions of the public process. Only two individuals expressed a negative, albeit robustly negative perception. Of the four expressing positive perspectives, one worked for the utility responsible for the wind project, and another was involved as a representative for an NGO committed to finding energy alternatives to coal and to combating climate change. These perspectives benefited from formal and well-moneyed involvement in the process—meaning that they faced no significant challenge or barrier to becoming a recognized party or to affording legal representation or

expert witnesses. The representative from the NGO also had a high degree of educational attainment, and has considerable professional experience in similar processes and projects. Much like Site A, there was a significant difference in perspective from stakeholders in support of wind energy and stakeholders not in favor of wind energy. The Lowell site stood out in that the stakeholders most against wind energy were the stakeholders who had become vocal in the press and media, and very involved in regional anti-wind networking. One of the most vocally anti-wind stakeholders also lived closest to the then-proposed and now operating wind project, and frequently brought up the inadequate presence of standardized setback distances between large-scale wind projects and residential properties.

The intense sensation of place-attachment seemed most vivid in the Lowell perceptions—that visceral feeling of love and loyalty to the land and landscape, and all its features, both scenic and biotic. This was expressed by project proponents and project opponents, with a well-known project proponent describing the need for Vermonters to truly know the costs of their energy, and to be truly energy independent, describing the pain of families living in coal country or in the region of Quebec flooded by hydro-energy dams, and the fairness of Vermonters giving something up for their energy consumption. On the other hand, those opposed to the wind project expressed deep attachments to the land. One stakeholder described an emotional kinship to Geronimo. He felt the dealings of the wind developer and utility dishonest, and felt his own forced exclusion from properties traditionally left open to an exclusion and separation similar to that of Native American tribes. More recently, two of the key stakeholders in Lowell have left their home—blaming the loud noises created by the twenty-one turbines.

In Lowell too there was the most obvious example of public participation and stakeholder engagement as being intensely oriented toward persuading and convincing the public to accept a wind project with little room (spatially and financially) to really change the project or its progress.

Table 12: Berkshire and Hoosac Wind Project Criteria Analysis Results

SITES C & D: Land Owner, Developer, Town Official, Interest Group (MCCE)					
Criteria Stakeholder	I	II	III	IV	Total
Planning	Y	Y	Y	Y	+
Rowe & Frewer	Y/N	Y/N	Y	Y	+
Laird	Y	Y	Y	N	+
Innes & Booher	N	N	N	N	-
Arnstein	N/Y	N	N	N	-
CLF Wind	N	N	N	N	-
Susskind, et al.	N	N	N	N	-
Total	N	N	N/Y	N	-

Massachusetts sites were the most difficult to identify and contact stakeholders, due to the number of years the processes took, and also due to the high rate of turnover in utilities and development companies during the years of siting and approval. Of the four stakeholders interviewed, three expressed general dissatisfaction with the public process, whereas only one stakeholder seemed to express a perspective neither mostly negative nor mostly positive. Complaints mostly related to the length of the process, and the lack of clear standards for the developers and utilities to follow; and for the lack of clear standards for meaningful public participation. Two of the parties involved have continued to be vocal proponents of streamlining the permitting and development process in the state of Massachusetts.

In sum, the sites reviewed in this thesis largely were found to be lacking key characteristics present in robust, rigorous public and stakeholder processes. None involved third-party fact finding or data collection, and there were never third-party moderators or mediators involved. The stakeholders who most commonly found the process clear and transparent were professionals with experience in decision making and permitting processes for similar projects. The process model in Vermont makes it very challenging for stakeholders to participate without financial or professional resources, whereas the process in Massachusetts lacks significant structure for stakeholders to be prepared for the temporal and financial resources necessary. With little opportunity to participate in early processes, stakeholders enter a pressurized

decision-making arena prone to polarization, with little common or middle ground for consensus-building.

5.6: Key Findings: Public and Stakeholder Process

1. ***There is an obvious divide between those in favor of commercial-scale wind installations and those against commercial-scale wind installations.*** Stakeholders stating they were against a project always reported negative perceptions and experiences in regards to the planning and development process, whereas stakeholders who supported the project almost always reported positive perceptions and experiences of the planning and development process. As noted by a stakeholder in the Northeast Kingdom, 'those that are opposed to it, even those that are supporting it, I think things can be carried either way a little too far.' (Lowell Stakeholder I, April 2012).

2. ***Strategies and efforts described as best practices in public participation and stakeholder engagement in the field of planning by academics and practitioners are not currently commonly used in New England land-based wind energy development.*** This could be partially due to the economic climate: wind companies are forced to shoulder heavy financial risk to even propose wind projects to communities and regions, although there are few design, siting and operation standards to serve as guidance. There is a prevalent perception from professionals that the addition of an early, broad, and rigorous stakeholder process would further lengthen and complicate an already long and complex process. Traditionally, there is not a broad stakeholder inclusion in energy infrastructure or facility siting—the 'decide, announce, defend' model prevails, even though in Europe two varying models have resulted in two different wind energy contexts and outcomes.

3. ***Planning professionals are not actively involved in the formulation and implementation of stakeholder engagement opportunities.*** They may collect data and report on potential environmental impacts, but they do not assist in community outreach or engagement. Given the tools and techniques possessed by most city and regional planners, they could play a more

active and integrated role in the planning and development of wind energy projects, as well as other renewable energy within New England. Some agencies offer assistance in the formulation of wind or solar bylaws. This can be challenging, however—in Massachusetts, stakeholders expressed the perception that local wind turbine bylaws were specifically crafted to limit or exclude their projects. The crafting of a rigorous stakeholder process is an activity well-suited to the role and skills of planners, and their ability to use ArcGIS and other programs could enhance participation and the final product. In Massachusetts and Vermont, regional planning agencies offer comprehensive collections of data and inventories of natural, cultural, economic and other resources, at the regional and local scale. This in itself would be a tremendous resource in early siting discussions.

4. ***A broad representation of stakeholders is not included in preliminary siting decisions. Community stakeholders, historic and cultural resource stakeholders, regional planning and special interest stakeholders are included in the planning process well after wind developers, property owners and local political officials have agreed upon preliminary proposals and made preliminary decisions.*** Reasons given to justify or explain this include both temporal and financial intensity. Those in favor of expanding wind capacity in the New England region indicated that although preferable to the current system, a robust stakeholder engagement process would add more time and more cost to an already expensive, timely process and would result in definitive improvements in the length of process, or the cost of process, although it might be beneficial in identifying 'red flags' or 'show stoppers' and refining site selection and micro-site considerations. These preliminary decisions and negotiations result in feelings of distrust and a lack of choices when other stakeholder and user groups are later included in the decision-making process. This late inclusion also inhibits early screening or identification of 'red flags' or 'show stoppers', which would benefit developers, ultimately saving time and money with a shorter process and potentially less legal intervention. Several stakeholders expressed the opinion that the outcome was pre-determined; the decision making process itself opaque, and the process itself a mere formality. The Public Service Board received 'marching-orders' from the governor and decided in favor of the wind project.

5. ***The perceived credibility of data and information provided by consultants hired by either the wind developer or project opponents is very low*****.** Both proponents and opponents noted that the information provided during the decision-making process was often interpreted or expressed in a way that clearly furthered the opinion and objective of the group presenting the information or issue. One stakeholder, in describing early testimonials from scientists hired by the wind company, stated that "if you pay enough money, two plus two can be whatever you want it to be." Another stated the importance of knowing who was paying the expert witnesses testifying when judging the information. This was a characteristic indicated in all case study sites. Stakeholders both in favor of and against specific projects or wind energy in general cited dissatisfaction with data sources, data quality and data reporting or presentation. Often complex in nature, it was collected and reported by experts paid for by the presenting parties. It was often unclear as to how the decision-making bodies evaluated or used the information, and if they themselves vetted it for validity and accuracy. It is challenging to promote consensus or form a collaborative process and outcome if parties cannot even form consensus on facts.

6. A final finding of note is that ***the public process by itself does not guarantee a successful or unsuccessful product for stakeholders.*** Rather, a variety of characteristics inform perceptions and opinions surrounding specific wind projects and wind energy in general. These include scale, project ownership, utility ownership, project management, siting considerations, and monetary implications.

5.7: Research Questions, Answered

The following, and final section of the Results Chapter, offers a direct response to the research questions themselves.

What are professional attitudes within wind planning relevant to public participation?

Professionals interviewed often expressed impatience with the current model of public process in wind energy development. They viewed it as elongating an already long process. Those that recognized the importance of a robust and rigorous process recognized that it would add substantial time to the official process and could also influence the viability of projects in

communities, but thought the processes could end up being shorter and less expensive if red flags or 'show stoppers' were identified earlier via a rigorous stakeholder engagement process. It was recognized that the current process facilitated a 'yes' answer, while projects with rigorous stakeholder processes made a 'no' answer more possible. Without a formally required stakeholder engagement component early on in the planning and development process, the plan presented to communities is the plan—the site and configuration has largely been thought through and decided upon. This is in part what antagonizes participants, especially those who dislike the project or wind energy in general. Discontented participants, who feel as though they have not been meaningfully included or feel that they have been willfully excluded, further antagonize the wind developers and consultants. It is a cycle exactly as such described by Glicken (2001) in regards to natural resource management—a vicious cycle unlikely to change without the implementation of an early and broad component of stakeholder engagement.

Is there opportunity for refinement and enhancement of public participation strategies within wind planning?

There is ample opportunity for the refinement or enhancement of public participation and stakeholder engagement strategies within wind planning, and this has already been well recognized by state agencies, wind energy proponents and researchers from both Europe and the United States. This opportunity ranges from modifying basic structures of meetings and community events to promoting and possibly even requiring early and broadly inclusive stakeholder processes prior to site announcements and broader public outreach. Another issue is the lack of third party fact-finding—any party in both states can hire somebody to collect and present data. The formal engagement of stakeholders—when they are given an equal platform from which to participate—is itself challenging in both states, but especially that of Vermont. To participate in the Public Service Board hearing requires substantial capital and substantial expertise, or enough capital to hire a lawyer comfortable with the process and material. Other states, and other jurisdictions in Vermont itself, have adapted a refined version of process, which begins with a rigorous stakeholder engagement process. A clear and rigorous stakeholder process, held early and continued often, along with a streamlined permitting process and clearly defined siting standards would greatly enhance and refine not only public and stakeholder

processes in wind siting, but the entire process—from site studies and real estate negotiation to initial community outreach and final turbine construction and operation.

What are current successes and failures in decision-making processes and stakeholder engagement processes?

In Vermont, the majority of stakeholders noted that they knew what to expect in the process, and recognized the challenges of cost (both in terms of time and finances), expertise and legal savvy. The fact that many of the anti-wind stakeholders expressed the perspective that the state agencies were adhering to 'marching orders' is precipitated by the fact that the wind companies do have an advantage in terms of time (they largely dictate the time table and have a head start) and finances, and well-equipped teams of legal experts, wind-related science experts and outreach and publicity specialists.

A major challenge stemming from dissatisfaction in the stakeholder and public process is the ongoing anti-wind publicity and rhetoric. Stakeholders have not stopped fighting wind projects, even when they failed to achieve their desired outcomes. Rather, they have coalesced and formed a statewide network in Vermont. This will prove to be a challenge, as it could increase the politicization of science and data. A final major failure in the Vermont model is the disparities in organizational and institutional capacities—these create an uneven playing field in terms of data collection and presentation during the formal public process, as evidenced in interviews with stakeholders representing both private interests and state interests. The network of interest groups, lobbyists, and consultants who have organized around delaying or halting further wind development in the State of Vermont consider themselves the underdogs, fighting against deep-pocketed utility companies and political interests to even the playing field in terms of data collection and presentation.

In Massachusetts, a major issue is that only projects of a certain size are eligible for review by the energy facilities siting board. This leaves the smaller (and more frequently occurring) projects to a greater variety of review processes. As in Vermont, a streamlining of the process,

and clarification and presentation of siting standards would help to strengthen and refine the overall process. It would also be greatly beneficial to require a rigorous, robust and formal stakeholder process before unveiling project proposals or plans to the general public.

What are recommendations for developers, planning agencies, departments, regions and localities to consider or adapt when planning for renewable energy?

The table below breaks out general recommendations and state specific recommendations. They are explored in further detail in the recommendations section of Chapter Six.

Table 13: Recommendations

Recommendations		
General	*Vermont*	*Massachusetts*
Promote collaborative or neutral research agendas	Identify and implement publically accepted siting standards. Involve stakeholders in formulation.	Enforce centralized and stream-lined decision making pathways
Promote early and broad stakeholder inclusion	Conduct regional and state-wide stakeholder process.	Minimize threshold for Energy Facility Siting Board
Promote alternative participatory activities, such as scenario planning , participatory mapping or charrettes	Invite all stakeholders into process as early as possible.	Create regional research boards and stakeholder processes: create a zoning map for suitable areas (areas with high wind resources should be the areas involved in informing siting standards and permitting processes).
Plan for citizen and stakeholder advisory boards	Promote 2-way information sharing (integrate local information with expert data)	
Actively involve regional or local planning agencies or commissions	Identify opportunities for negotiation or mediation earlier rather later in the process.	
Engage citizens in ongoing decision-making and operational activities	Further clarify how the Public Service Board considers and makes its final decision (consider a scoring matrix or flowchart)	
Promote opportunities for further engagement, reporting and reflection		
Promote third-party or neutral process moderation or facilitation		

CHAPTER 6

CONCLUSION

The way in which stakeholders participate in wind development influences how they evaluate their experience, and in how they consider the extent to which consensus was sought or reached. It influences how they perceive the legitimacy and fairness of the project, and how they perceive both the specific project and the broader technology. The findings from my research indicate that, while negative or positive attitudes toward wind energy influence stakeholder perspective on the public process, there are practices which stakeholders generally agreed could be improved upon. An example of such a flawed practice is the hiring of consultants and experts by each stakeholder group rather than having a joint-fact finding effort, which is generally considered best practice in stakeholder engagement (Susskind, et al. 2010). The top-down or hierarchal planning approach encourages reaction to specificities early on, and reduces the chance for collaboration and consensus-building. This leads to feelings of unfairness and accusations of procedural illegtimacy and non-transparency. Sustainability seeks to promote social equity, and encouraging practices that build transparency, procedural legitimacy and accountability help to build social equity. Robust and ongoing public participation or stakeholder engagement helps to sustain social equity. It ensures that stakeholders and the public will feel included, and will be more likely to continue participating and informing major projects. To say that renewable energy, in its various manifestations, is sustainable, requires it to be sustainable in the political and social realm, and that requires fair, inclusive, intensive public involvement.

Wind energy, much like other renewable energy technologies, offers a new and changed power landscape, and offers solutions to important problems, such as energy security and fossil fuel reduction. With further efforts towards robust and rigorous stakeholder processes, renewable energy may offer even greater sustainability and will enhance and help form greater environmental, social and political resilience, reducing vulnerability. Increased stakeholder engagement, and increased public participation, could result in a decision-making process

longer than that experienced now, or longer than would be financially feasible for developers: increased rigor of the public process could thus hinder wind development. While making the process socially and politically equitable, increased stakeholder engagement or public process could in effect reduce the environmental sustainability of the technology if the enhanced rigor of the process results in smaller or fewer projects. To address this, rather than public process after a site has been proposed, a robust and rigorous stakeholder process with opportunity for broad public input early on in the process, used to identify a handful of sites rather than defend a single site, could be a valuable effort in achieving balance between environmental sustainability, social and political equity. Keeping the process itself adaptive and flexible will also be important in achieving this balance—evaluating the experiences and perceptions of stakeholders involved, and tinkering with the means and methods of stakeholder engagement, public participation and decision making to best capture opportunities for renewable energy, for stakeholder input and advisement, for expert input and advisement, consensus-building and community-planning efforts.

In sum, stakeholders involved with all four sites were in favor of renewable energy, wind power, and the local and regional scale benefits of commercial wind projects. Although the perspectives and experiences recounted largely painted a positive portrait of the public process, issues of note did come up, and those are issues that could be addressed at the regional, state and industry level. Of particular concern is the lack of joint fact-finding and third-party facilitation or moderation in both states, although the Vermont Public Service Board meets that requirement. Rather than assuming that all stakeholders against the project are 'NIMBYs' or 'emotional', developers and policymakers should try and recognize the deep, visceral attachments and feelings people develop for place, and seek to address these when proposing projects which ultimately have large scale and sometimes permanent impacts on the landscape and environment stakeholders know well and call home. As wind energy becomes more widely accepted, policymakers should also be careful to avoid overdevelopment, that is, oversaturating the landscape and certain regions with more wind turbines than other regions. Other factors developers and decision-makers should consider is the flexibility of siting considerations, whether or not communities can have greater influence on projects; the scale of projects, and

how both the public process and the information provided during the process can most effectively supplement the formal decision-making structure without compromising the integrity or efficiency of a project, recognizing the need for renewable energy; but also respecting and valuing the local knowledge brought forth via project permitting.

Rigorous and robust public processes, in which stakeholders are meaningfully, actively engaged in decision-making, provide a number of benefits to planning, policies and projects. Enhanced ownership, augmented acceptance, trust in relevant institutions and agencies, diverse representation of uses, values and interests, fairness, social and political equity…all are benefits of a positive public process. This is recognized already in the realms of planning and resource management: formulating and implementing such a process leads to decisions and products reflecting the interests and values of community residents, resource users, experts and policy-makers. The identification of trade-offs, and the efforts towards negotiation, helps to address the real costs of projects, as well as benefits, and crafting solutions that enhance benefits or mitigate costs for involved groups and individuals. This type of process informs thoughtful decision-making, decision-making made with current scientific and factual information, and includes stakeholders early on in the process, facilitating transparency. It allows for an equal consideration of local knowledge along with the expertise presented by scientists and engineers. If moderated thoughtfully and fairly, it considers stakeholder groups equally, enforcing relationships of trust and mutual respect—horizontal relationships—amongst stakeholders and between stakeholders and the involved agencies and organizations. What happens when this sort of process is not implemented is also well recognized: plans and projects that have little public or community buy-in; that are deemed corrupt or viewed with suspicion; processes and project phases that are drawn-out as long as possible through litigation and other stall tactics. Robert F. Kennedy, Jr., in an April 2012 speech at UMass-Amherst, repeatedly stated that the way in which a nation treats its environment, or treats its common pool resources, is a powerful indicator of democracy. How people participate, and how they are treated during the process, is also an indicator of democracy, and can result in a more sensitive and diversified view of the environment, be it landscape or another resource at question. Just like strictly top-down, centralized decision-making can be viewed as undesirable and threatening in issues such as

community development or urban design, such decision-making and planning can be equally as threatening when planning for renewable energy or other benchmarks of sustainability. In recent history, American citizens have largely been left out of energy planning. The idea of decentralized and localized energy infrastructure as power is appealing not just because it is environmentally a better option than existing alternatives such as coal or petroleum products; it is also appealing because, at the local scale, community members can play a role in its planning, implementation, management and ownership.

Both Vermont and Massachusetts boast significant wind resources, and both have state-level directives and voter-level support for renewable energy. Each wind site studied in this thesis has met considerable opposition; opposition that has stalled and prolonged the permitting process at a variety of levels. In some specific cases, the opposition does stem from dissatisfaction with siting decisions. But such concern or dissatisfaction with the site quickly evolves into contempt for the process, contempt for policies and politicians, and contempt for the technology.

Without question, the United States needs to begin sourcing its energy differently. The environmental, the social, the political, the infrastructural, and the economic costs of our current energy system are untenable. The current system roars on, fueled largely by deep-pocketed corporate interests and subsequent fiscal as well as 'externality' subsidies, with little mind to the real costs borne by stakeholders and community members far from the nation's capital. Renewable energy technology offers not only an energy systems fix, but also a further opportunity to bolster democracy at the community and regional level, and enhance social and political equity in decision-making. In Vermont and Massachusetts, the decision making process used in wind energy siting is the same decision-making processed used in the siting of other large-scale projects. It favors utilities and experts, and presents few early opportunities for broad inclusion of stakeholder, or collaborative planning. In conclusion, the wind industry, and the rural communities in which the majority of large-scale projects are being installed, could benefit greatly from an early, interactive and collaborative stakeholder process in which several scenarios can be evaluated and tested. Such a process would also benefit from third-party

funding and third-party or joint fact-collecting, since such practice would reduce or minimize conflicts of interest and the presence of bias. This could be implemented at the state level or regional level. Relevant planning agencies could be ideal intermediariess for planning and conducting the different phases of public participation, as facilitators or moderators, and could also serve useful roles in terms of data collection and data reporting. State or regional funding streams for siting studies, siting considerations and public processes could reduce the pressure felt by all parties.

Standardized siting regulations, contested in Massachusetts but implemented in states such as California and Oregon, assist developers in siting projects that are economically as well as environmentally viable and conflict less with existing or surrounding land-uses. Vermont, for example, has no minimum setback—in both Sheffield and Lowell, the nearest residential properties fall within less than a mile from the closest turbine. Siting parameters contribute to consistent siting practices and considerations. Both developers and stakeholders know what to expect and how proposals are evaluated and how site or project components are considered and judged.

State or regional siting or wind zoning efforts could also prove beneficial in New England. Wind siting is not as flexible on land as it is offshore. Wind resources are 'highest and best' at high elevations, and most viable in areas with existing, ancillary infrastructure. A state or regional scaled, comprehensive mapping exercise could clearly map out the best wind resources and identify which areas are most viable and acceptable as well as which sites to exclude from consideration. Such efforts would require early and rigorous stakeholder engagement, and could also incorporate some innovative engagement tools in the process, such as scenario planning or interactive GIS mapping. Such an early and interactive siting process could serve as an effective vehicle for local and expert knowledge, and consider a variety of perspectives, values and interests presented in land-use decisions considering renewable energy technologies, especially that of wind energy.

6.1: Recommendations

In terms of recommendations, they can be divided into practitioner or actor group. Developers, in general, could involve stakeholders in siting considerations earlier in the process, and provide better information prior to community-level decision-making. Planning agencies could take on a more active role. Rather than making zoning recommendations, they could work in conjunction with state agencies in mapping current and potential land uses, so developers and communities have a better idea of where projects are most suitable and most likely to be proposed, and also most likely to meet community acceptance or community opposition. Planning agencies could also serve a useful role in formulating, hosting and facilitating the public process prior to the formal decision-making phase. Planning theory and literature suggests that the contemporary planner is well imbued with a skill-set well-suited to such a role. The state could also create some type of fund to help regional and local communities in data collection and resource or asset mapping. This has somewhat been addressed in Vermont—a recent bill included an amendment for some type of 'intervener' fund; to help bear the cost of continued participation once the proposal hits the Public Service Board stage; another amendment seeks to incorporate a mediation stage and fund into Section 248.

6.2: Opportunities for Future Research

The field of renewable energy offers many avenues for future research. Continued and ongoing research will facilitate societal acceptance of these technologies, and may enhance identification and comprehension of the ecological and public health impacts of these technologies. Ongoing research will also enhance how renewable energy is planned for and implemented, leading to greater sustainability and resilience. In the course of this research, further opportunities for research were identified.

1. ***A similar, future study would compare a greater number of sites with a greater number of outcomes, using the public process and the stakeholder process as a common factor for comparison.*** This would provide stronger collection of data and allow for a stronger and more thorough analysis, better indicating the influence of both the public and the stakeholder process. This future research would use similar qualitative research techniques, but group sample not by outcome but by process type. An interesting twist to the research might be to keep it blind—that is not informing the principal investigator of the ultimate site outcomes until they had completed the study and analysis of the stakeholder process itself. This would also free, at least partially, the researcher of potential bias they might have toward the project or its related process. Such a study would more definitively indicate whether or not public or stakeholder process influences outcomes in renewable energy planning and implementation.

2. All of the case study sites are located on ridgelines visibly prominent from attractive tourist destinations. ***Sites such as these, like Crystal Lake State Park, associated with the First Wind Sheffield Project, would lend themselves well to a post-occupancy visual impact and preference evaluation.*** Through stakeholder interviews, it became clear that only faint emphasis had been placed on post-occupancy studies focused on impacts to tourism, cultural or historic resources and aesthetic resources. This also became clear during a visit to another future wind site off Block Island, Rhode Island: a public liaison from the company expressed great uncertainty into how such impacts would be measured and evaluated, although these were issues expressed by property owners and community members to be of great concern. Such a study would add to the existing and limited body of research exploring the tangible impacts of renewable energy projects on heritage landscapes, historic and cultural resources, and tourism.

3. ***A final and interesting further avenue of research would conduct an economic cost-benefit analysis of renewable projects using best stakeholder engagement practices versus renewable energy projects not using best stakeholder engagement practices.*** This would seek to identify the actual costs incurred in planning and development and see which practices actually resulted in a fiscally efficient allocation of community, utility, stakeholder and developer resources. This

could be a powerful tool in further promoting rigorous and robust stakeholder processes in renewable energy projects, but also in other areas of development.

6.3: Parting Thoughts

Wind energy is not a technological panacea: on its own, it will not significantly curb or stall climate change, nor will it by itself significantly lessen energy consumption and our reliance on fossil fuels. It will instead be a wedge of energy production in an energy patchwork perhaps as heterogeneous as the American landscape. How the public and specific user groups, or stakeholders, are engaged in the decision-making process concerning wind energy, and the outcomes and perceptions of this engagement, could provide great insight in how to engage the public and a variety of stakeholder groups when discussing, planning and implementing renewable energy in general. It could also provide direction or guidance to the implementation of other sustainability measures. Lessons learned in renewable energy and wind planning could identify additional best practices that useful in some of the more complicated issues of our time, specifically climate change: an issue which, like wind, targets peoples' emotions—irrational, internal landscapes of the heart and mind that can be difficult to navigate and express, in the face of smaller changes or events, such as planned retreat or adaptation techniques—and become even more challenging when external interests and the needs of the greater good require individual or localized change or sacrifice.

Careful consideration of the strengths and weaknesses of existing policy models in the realm of wind energy siting and development will only enrich the policy and public process landscape, as it will bolster the true meaning of sustainability, which strives to not only capture the well-being of our environment, nature and economy, but also the equity and representativeness of our society. Renewable energy offers a richly complex answer to the demands that a sustainable landscape and society place. Refining the public process, and creating robust engagement opportunities for a diverse range of stakeholder representation, will only strengthen the sustainability of sustainable solutions such as wind energy, as it will empower communities and individuals to continue being involved in a worthwhile and necessary transformation.

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