

The Impact of Wind Farms on Tourism in New Hampshire

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Executive Summary

This study looks for evidence of the impact of wind farms on tourism in New Hampshire. The purpose of the study is to inform discussions over the appropriate siting of wind projects in the state. Most studies of wind farm impacts on tourism use visitor surveys to assess actual or potential impacts. Our study differs in that it takes advantage of a natural experiment – the introduction of a wind farm into the state approximately five years ago – that provides an opportunity to examine and compare economic trends in a region before and after the introduction of a wind farm. The study uses publicly available, objective data on spending for accommodations, food services, recreational activities, traffic volumes, and changes in employment to assess the impact on the tourism economy in region where a wind farm has located. The evidence of tourism impacts of existing New Hampshire wind projects is then used to estimate the potential impact on tourism from the siting of a new wind farm in the state.

The results and findings of this report provide quantitative, objective support to the many studies that used survey-based techniques and failed to find negative impacts on tourism from the presence of wind farms. The findings of this report, along with evidence from visitor surveys in Europe and the U.S., suggest that perceptions regarding the impact of wind farms on tourism are more a function of individual attitudes toward the aesthetics of wind farms, or attitudes toward renewable energy in general, than they are of an empirical analysis of how the behaviors and expenditures of visitors to a region are actually influenced by wind farms. With many important energy policy issues confronting the State of New Hampshire it will become increasingly important for policymakers to distinguish between arguments rooted in aesthetic values and those based on empirical evidence, as well as the validity of each.

Key findings of the report include:

- The introduction of the Lempster Wind project appears to have had little or no impact on meals and rooms sales in the region where the project is located.
- Since Lempster Wind began operating, growth in tourism-related employment in the project region has been as large, or larger, than it has been in a majority of regions in the state.
- State park revenues have grown more at the state parks closest to the Lempster Wind region than have aggregate state park revenues, with the largest increase at the park closest to Lempster Wind.
- Weekend traffic volume (an indication of visitor activity) in the Lempster Wind region suggests that the presence of the wind farm has not discouraged visits to the region.

- Based on our review of relevant national and international studies, as well as our analysis of the impacts of the Lempster Wind project, we estimate that the proposed Wild Meadows wind farm project could have a +/- 1.28% impact on tourism activity in the Wild Meadows region, and a +/- 0.24% impact on tourism activity in the larger Grafton County region. By way of comparison, a \$0.33 increase in gasoline prices could be expected to have an impact on tourism that is three to five time larger.

I. Introduction

Wind farm energy is increasingly being used to meet the electricity needs of countries around the world as well as many states across the U.S. Wind farm development in the United States is a relatively recent phenomenon, but in Europe wind farms have a longer history and account for a much larger portion of electricity production than they do in the United States. The United States has been slower than Europe in its adoption and use of renewable energy. Concerns over the potential impact of wind farms are, in part, a reflection of this lag. International studies show that positive attitudes toward wind farms increase significantly as individuals have more experience and contact with them (Ladenburg, 2009).

Wind farm development often occurs in rural locations characterized by open space, limited development, and in some cases in regions with a concentration of recreational and tourism industries. When wind farms are proposed in areas that are also used for recreation and tourism, concerns sometimes arise over the potential for wind farms to affect regional business and industries relying on tourism. These concerns suggest that wind farms may have visual, aesthetic or other impacts that make a region less desirable to visit, thus having the potential to negatively impact the tourism economy of a region.

Iberdrola Renewables, LLC has proposed the Wild Meadows Wind Farm—a 75.9 MW wind farm—to be located in the Towns of Alexandria (Grafton County) and Danbury (Merrimack County) New Hampshire. According to Iberdrola, Wild Meadows will include collector lines, access roads, a substation, a permanent meteorological tower, and an operations and maintenance building. The western portion of the Project includes Tinkham Hill and Braley Hill, the central portion of the Project includes the Pinnacle, and the eastern portion of the Project includes Forbes Mountain and Pine Hill.

Review of the proposed project will consider the potential environmental and economic impacts of the project. This report does not attempt to assess the aesthetic or visual impacts of wind farms in New Hampshire. We make no representations or estimates of the degree to which existing wind farms, or the proposed Wild Meadows project, affect the visual and aesthetic characteristics and qualities of the regions in which they are located. PolEcon has extensive experience completing local and regional economic analyses as well as analyses of impacts from different types of development (including energy facilities). Iberdrola Renewables, LLC commissioned PolEcon to review prior studies of wind farm impacts on tourism and to examine publicly available, objective, economic and other data for regions in New Hampshire where wind farms are currently operating, in order to determine

whether or not there is data and evidence that suggest tourism activity has been affected.

The impact of wind farms on tourism has been extensively studied in Europe. Over the past two decades the consensus of independent studies is that wind farms do not negatively impact regional tourism activity. The large body of research that shows a lack of negative impacts of wind farms on tourism relies primarily on visitor surveys that document how tourists indicate that their visits and spending would be affected by the presence or absence of wind farms in a region. Findings of no negative impacts by wind farms on tourism are reliably and consistently found in studies of tourism visitors (those that employ sound and accepted research practices and standards), among both visitors who have and who have not encountered wind farms on their visits. As a recent report submitted by the University of Edinburgh, to the Scottish Government's Inquiry into Renewables concludes the following:

*"In summary, drawing on related evidence from studies in similar rural locations...and from the conclusions drawn from Inspector's reports where tourism has been discussed in detail (Fullabrook in Devon and Middlemoor in Northumbria), and from the decision by Berwick-Upon-Tweed Borough Council not to contest the Wandylaw proposal on the grounds of tourism impact, it can be concluded that there is no evidence to support the assertion that the development of wind farms will have a detrimental economic impact on tourism in Scotland."*¹

Nevertheless, concerns about differences in the geography and comparability of wind farm developments in the United States and Europe lead some to question how reliably the results of tourism visitor surveys from outside the U.S. can be applied in this country. In the United States the few studies that examine the impact of wind farms on tourism also use visitor surveys. Similar to studies in Europe, they indicate little or no negative impacts on tourism from wind farms. Most, however, have been conducted to assess the impact of offshore wind farms.² The nature of stated preference surveys of visitors, specifically their dependence on appropriate sampling and questionnaire wording and design for valid results, as well as the potential for the actual behavior of individuals to differ from their stated preferences, opinions or intentions, all mean that visitor surveys are unlikely to yield conclusive evidence of the impact of wind farms on tourism.

This study takes a different approach to assessing the impact of wind farms on tourism. We take advantage of a natural experiment where economic data is examined, both before and after the introduction of a wind farm in New Hampshire, for evidence of impacts on the tourism economy. We use objective data on spending for accommodations, food services, recreational activities, traffic volumes, and employment in New Hampshire to assess the impact that wind farms have had on the tourism economy in a region where a wind farm has been operating for approximately five years. The evidence of tourism impacts of an

¹ Prof. Cara Aitchison, "Tourism Impact of Wind Farms," Submitted to the Scottish Government Inquiry on Renewables, University of Edinburgh, April, 2012.

² Lilley, M. et. al., "The Effect of Wind Farm Installations on Coastal Tourism," *Energies*, 2010 (3), 1-22.

existing New Hampshire wind farm project can then inform public discussion of the potential effects on tourism and the regional economy of the proposed Wild Meadows project.

This report provides an independent analysis, using publicly available data that will inform elected and appointed officials and members of the public who are interested in the potential impacts of the proposed Wild Meadows wind farm on regional tourism activity. Although commissioned by Iberdrola Renewables, LLC, this report was prepared independent of the company. Data and methodologies used and all analyses completed for this report were chosen by PolEcon independent of Iberdrola. Iberdrola Renewables was provided an opportunity to correct material errors in the description or details of the proposed Wild Meadows Project; however, the company had no role in determining the results of report's analyses.

The results and findings of this report provide quantitative and objective support to survey-based results that find the presence of a wind farm does not negatively impact tourism visits or expenditures in a region. Our findings, along with evidence from visitor surveys in Europe and the U.S., suggest that perceptions regarding the impact of wind farms on tourism are more a function of individual attitudes toward the aesthetics of wind farms, or attitudes toward renewable energy in general, than they are of an empirical analysis of how the behaviors and expenditures of visitors to a region are actually influenced by wind farms.

II. Prior Studies of Wind Farm Impacts

Studies of tourist attitudes toward and potential changes in behavior in response to wind farms have been conducted in both Europe and the United States. Most of these studies used surveys of the stated preferences of visitors to assess wind farm impacts. There are more studies that seek to evaluate the impacts of coastal and offshore wind farms than there are studies of inland wind farms. A survey in Germany, prior to the construction of any wind farms, found general acceptance by tourists and residents, provided that the wind farms were not sited too close to the coastline.³ Denmark's Horns Rev, one of the world's largest offshore wind farms, is situated in the North Sea off the coast of the Blavand Strand, a scenic, miles-long sweep of public beach. Before construction of Horns Rev, local authorities and businesses opposed it, fearing declines in tourism, a key sector of the local economy. However, researchers found neither a decrease in the community's tourism levels nor any reduction in the price of summerhouse rentals one year following construction.⁴

MORI, a respected research organization in Scotland, polled over 300 visitors in a tourism-dependent town for their opinions on local, land-based wind farms. Fifty-five percent of the sample reported a positive to completely positive impression, while only eight percent

³ Institut für Tourismus- und Bäderforschung in Nordeuropa (N.I.T.), "*Touristische Effekte von On- und Offshore- Windkraftanlagen in Schleswig-Holstein*,"; Kiel, Germany, 2000, 1-4.

⁴ Kuehn, S. "*Sociological Investigation of The Reception of Horns Rev and Nysted Offshore Wind Farms In the Local Communities*;" Annual Status Report 2003; Elsam Engineering: Fredericia, Denmark, 2005, 1-25.

reported a negative one. Moreover, 80 percent of those surveyed stated interest in visiting an educational center at a wind farm during their trip. A study conducted for the Scottish government by Glasgow Caledonian University researchers reviewed more than 40 studies on the tourism impacts of wind farms and drew the following conclusions:⁵

- There is often strong hostility to developments at the planning stage on the grounds of the scenic impact and the perceived impact on tourism.
- There is a loss of scenic value for some individuals but there are also some who believe that wind turbines enhance the scene. In particular, several studies note that younger visitors are much more inclined to view wind farms favorably. In addition, one study found that U.S. tourists were much more likely than were tourists from other countries to say that they would be more inclined to visit a region if it had a wind farm. To a degree, this may reflect the relative novelty of wind farms to U.S. tourists.
- An established wind farm can be a tourist attraction in the same way as a hydro-electric power station. Although this effect remains only as long as the visit remains a novel occurrence.
- In Denmark, a majority of tourists regard wind turbines as a positive feature of the landscape.
- Over time hostility to wind farms lessens and they become an accepted, even valued, part of the scenery.
- Overall there is no evidence to suggest a serious negative economic impact of wind farms on tourism.

A non-random convenience poll of New Jersey beachgoers, found that 14.6% would be more likely to visit a beach with an offshore wind farm, while only 9.2% would be less likely.⁶ Among tourists at onshore wind sites in England, Aitchison found little effect on tourism, with slightly higher numbers of visitors reporting they would be drawn to a wind farm (7.2%) than would deterred by one (6.1%).⁷ Lilley, et. al. (2010) surveyed visitors to Delaware beaches and found some reported avoidance of beaches for offshore wind farms located less than 10 km from shore, however, the reported avoidance was stronger for avoidance of fossil fuel plants located a similar distance inland from Delaware beaches.

⁵ “*The Economic Impacts of Wind Farms on Scottish Tourism.*” Glasgow Caledonian University and the Moffat Centre for Travel and Tourism Business Development, March 2008.

⁶ Lieberman Research Group; Mills, D.; Rosen, H. “*New Jersey Shore Opinions About Off-Shore Wind Turbines*”; Great Neck, NY, USA, 2006, 1-33.

⁷ Aitchison, 2012, op. cit

More importantly, Lilley found a countervailing effect, respondents' attraction to both offshore wind boat tours and to beaches themselves in order to see wind turbines is substantially greater than reported avoidance of beaches with visible wind turbines.⁸ Surveys that measure tourists' avoidance or attraction to beaches with views of off-shore wind farms, especially surveys such as those conducted in Delaware that use sound methodology and sampling techniques, are especially relevant for consideration of the proposed Wild Meadows project because of concerns raised about its possible impact on visits to Newfound Lake.

III. Characteristics of the Regional Economy

Regional economies are typically defined by the connectedness and inter-relationships between communities and industries as evidenced by the work and commuting patterns of residents. In the case of the proposed Wild Meadows project, communities in the immediate and extended vicinity are included in two different labor markets areas (LMAs); the Plymouth LMA which extends as far North as Lincoln and Woodstock and as far East as Sanbornton and the Newport LMA. Most of the communities in these two labor market areas are unlikely to experience any tourism related impacts, positive or negative, from the Wild Meadows project. For this report we defined towns in the immediate vicinity of Wild Meadows as towns where the project is located as well as all adjacent towns. We define the extended Wild Meadows region to include most towns bordering the towns directly adjacent to the Wild Meadows project. The majority of communities in the vicinity of the project are located within Grafton County, but several communities in the immediate or extended project region are located within Merrimack, Sullivan and even Hillsborough Counties. Towns in the project vicinity are split between two tourism regions (as defined by the State of New Hampshire Department of Travel and Tourism), the Dartmouth Lake Sunapee and Lakes Region, and are represented by three different regional planning commissions (Lakes Region and Upper Valley/Lake Sunapee regional commissions, as well as the North County Council). Again, most of the communities in these defined regions will have no direct connection to the Wild Meadows project.

The analysis of regional employment, meals and rentals tax, and recreational activities data in this report highlights several key aspects of the regional economy:

- Private sector employment is extremely limited (in any industries) in the towns immediately surrounding the proposed project, accounting for just over three percent of the private sector employment in Grafton County. Table 1 presents total private sector employment for each town in the immediate vicinity and extended Wild Meadows project region. With the exception of Bristol and Plymouth, private employment by industry is not available for towns in the Wild Meadows region because of the small number of employers in each town violates confidentially requirements for data reporting. In Table 1, "ND" indicates that there are too few private sector employers to comply with confidentially requirements and employment data for that town cannot be disclosed.

⁸ Lilley, et. al. 2010, op. cit.

**Table 1
Private Sector Employment in the Wild Meadows Region**

<u>Host and Adjacent Towns</u>	<u>Private Sector Emp. 2012</u>	<u>Towns in Extended Region</u>	<u>Private Sector Emp. 2012</u>
Alexandria	74	Canaan	385
Bridgewater	97	Dorchester	ND
Bristol	1,123	Enfield	524
Danbury	108	Grafton	31
Groton	ND	Hill	18
Hebron	ND	Plymouth	3,010
<u>Orange</u>	<u>ND</u>	Springfield	99
		<u>Wilmot</u>	<u>146</u>
Total	1,402	Total	4,213

ND = Data cannot be disclosed

Source: NH Dept. of Emp. Security

- Table 1 shows that Bristol, which is not a tourism-dependent local economy (nearly 40% of its private employment is in manufacturing), dominates the employment base of towns in the host and adjacent project towns, accounting for fully 80 percent of the region’s private sector employment in 2012, the most recent year for which town-level employment data is available.
- Extending the study area out further, to towns at least one town removed from the project, includes towns that collectively comprise about nine percent of all private sector employment in Grafton County. Again, one town that is not dependent on tourism (Plymouth) dominates the private sector employment base of the extended Wild Meadows region, accounting for 73 percent of with private sector employment in the extended region. Combined, the immediate and extended Wild Meadows region accounts for about 12 percent of Grafton County’s private sector employment, with three-quarters of that employment (or 9 percent of the total private employment in Grafton County) located in Bristol and Plymouth and just three percent of Grafton County’s private sector employment located in towns in the immediate and extended Wild Meadows region outside of Bristol and Plymouth.⁹
- There are few businesses in the immediate vicinity of the project that are subject to New Hampshire’s meals and rentals tax,¹⁰ Table 2 shows the number of

⁹ The study region includes some towns in Merrimack County (Danbury, Wilmot, Hill). Their inclusion in regional employment and regional meals and rooms entities results in the percentage of Grafton County’s employment and meals and rooms entities that is included in the Wild Meadows region being somewhat overstated (by about 1 percent).

¹⁰ The Meals and rentals tax is paid (collected) by businesses in the lodging and accommodation industry (including individuals who may rent their properties to visitors or seasonal residents), restaurants, grocery stores

businesses in the Wild Meadows project area that are subject to the state's meals and rentals tax. Meals and rooms sales are a key indicator of the tourism economy and the presence or absence of business subject to the meals and room tax is an indication of the level of tourism activity in a region.

**Table 2
Businesses Subject to NH's Meals and Rooms Tax**

<u>Host and Adjacent Towns</u>	<u>Meals & Rooms Operators</u>	<u>Towns in Extended Region</u>	<u>Meals & Rooms Operators</u>
Alexandria	3	Canaan	17
Bridgewater	20	Dorchester	1
Bristol	62	Enfield	19
Danbury	6	Grafton	2
Groton	2	Hill	2
Hebron	13	Plymouth	57
Orange	1	Springfield	2
		Wilmot	4
Total	107	Total	104
% Located in Bristol	57.9%	% Located in Plymouth	54.8%
# as a % of Grafton County	9.7%	# as a % of Grafton Cty.	9.4%
Grand Total	211		
As a % of Grafton County	19.1%		
% in Bristol & Plymouth	56.4%		

Source: NH Dept. of Revenue, PolEcon

- Outside of Bristol, the two host and four towns adjacent to it have just 45 entities subject to the meals and rentals tax, representing just four percent of all the operations in Grafton County subject to the meals and rentals tax.¹¹ The small number of entities subject to the tax is an indication that the Wild Meadows region, although rich with natural amenities, has relatively few tourist amenities that could be positively or negatively affected by the proposed wind farm. The extended Wild Meadows region includes another 104 entities subject to the rooms and meals tax, of which 57 are located in the town of Plymouth. The town of Bristol alone has 62 entities subject to the meals and rentals tax. Outside of Bristol and Plymouth, the Wild Meadows region (host towns and adjacent towns as well as towns in the extended area) includes only about eight percent (92 entities) of the entities in Grafton County subject to the meals and rentals tax.

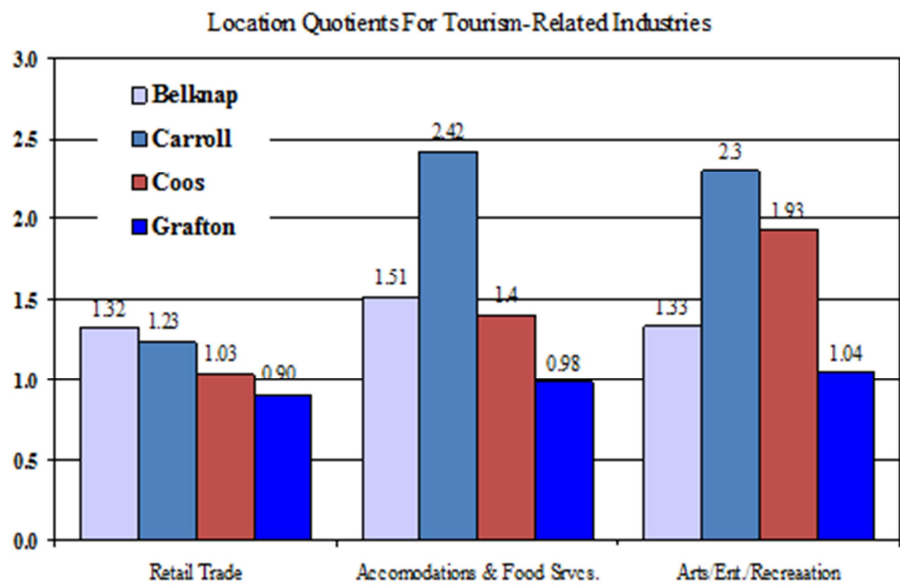
and any business that may sell prepared food such as an amusement or recreational business -such as a golf course, or natural attraction that have sales from concessions.

¹¹ NH Department of Revenue Administration Excel file, "Meals and Rentals Operators by Town," accessed via the Internet at http://www.revenue.nh.gov/business/meals_rentals/documents/active-mr-ops-by-town.xls.

Neither Bristol nor Plymouth has a tourism-dependent local economy. Combined, these data suggest that any impacts on tourism from the Wild Meadows project, positive or negative, will be miniscule. For example, if Wild Meadows had an impact on tourism in the region (outside of Bristol and Plymouth) equal to three percent of existing tourism spending (well in excess of estimates produced by studies using surveys of visitors), the overall impact on tourism spending in Grafton County would be just .0025, or less than three-tenths of one percent.¹² To provide some perspective, a 2009 analysis by PolEcon found that every 10 percent increase in gasoline prices in New Hampshire since 2000 (say from \$3.30 per gallon to \$3.63 per gallon) was associated with a real, inflation adjusted reduction in meals and rooms spending of between .006 and .012,¹³ or as much as \$35 million statewide in 2013 and \$3 million in Grafton County.

- Compared to other counties in Central and Northern New Hampshire, Grafton County is much less dependent on tourism, as measured by the concentration of tourism-related employment in the accommodation, food service, arts, entertainment, and recreation industries. The small amount of tourism-related employment in the region serves to limit the potential for positive or negative tourism impacts from the project.

Figure 1
Grafton County is the Least Tourism Dependent County in Central or Northern New Hampshire



¹² There are 92 entities in the project region (outside of Bristol and Plymouth) of a total of 1,105 in Grafton County. Thus $92/1,105 = .083 \times .03 = .0025$.

¹³ Gottlob, B., "The Impact of Gasoline Prices on NH Revenues," Presentation to the NH House Committee on Ways and Means, January, 2009.

- Accommodations and food services employment as a percentage of all private employment in Grafton County is significantly below the concentrations in Belknap, Carroll, and Coos Counties. The concentration of arts, entertainment and recreation employment in Grafton County is well below concentrations in Belknap, Carroll, and Coos Counties, as is retail employment. Figure 1 presents location quotients¹⁴ for tourism-related industries for Belknap, Carroll, Coos, and Grafton Counties. It shows that Grafton County is far and away the least tourism-dependent county among the state's northern and central counties.
- A mapping of recreational areas and activities in the vicinity of the Wild Meadows project using the NH GRANIT GIS clearinghouse system¹⁵ shows a relatively low concentration of such areas and activities in the immediate vicinity of the project. Appendix A contains a GRANIT GIS produced map of the Wild Meadows region with recreational and tourism assets identified. The GRANIT GIS data is consistent with our finding that a only small number of entities in the region are subject to the meals and rentals tax and it reinforces our belief that the Wild Meadows region has relatively little tourism-dependent employment.

IV. Tourism Visits and Activities in New Hampshire

Misconceptions regarding the nature and composition of tourism activities and visitor expenditures in a region can contribute to dramatic differences in estimates of the potential impact of wind farms on tourism. This is especially true in New Hampshire where tourism and visitor related activities and spending encompass a wide range of activities, only a portion of which might potentially be affected by the presence or absence of a wind farm.

The New Hampshire Division of Travel and Tourism Development surveys visitors to New Hampshire to develop demographic, activity, and expenditure profiles of visitors by season. These seasonal visitor surveys can be used to better understand the percentage of tourism activity in New Hampshire that could potentially be affected by the presence of a wind farm. Survey results from a 2009 survey (the most recent summer survey available) are presented below.¹⁶

Table 3 shows the primary reason survey respondents chose to visit New Hampshire. As the table indicates, vacationing and visiting friends and relatives are by far the largest reasons why visitors come to New Hampshire. Outdoor recreation is also an important reason why visitors choose New Hampshire. Visits to friends and relatives, for business, shopping, or personal reasons represent almost one-half of the reasons for visits to New

¹⁴ Location Quotients (LQs) are ratios that allow a region's distribution of employment by industry to be compared to a reference or base area's distribution. The reference area is usually the U.S. but in this report the reference region is the State of NH. If an LQ for an industry is equal to 1, it indicates that the region's share of employment in that industry is identical to the share of industry employment in the reference region. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case for the reference area.

¹⁵ Accessed via the Internet at: <http://www.granit.sr.unh.edu/>

¹⁶ Summer survey results are presented here because the summer tourism season maximizes the percentage of visitors reporting activities such as beach going, boating, camping, hiking etc.

Hampshire, and for some categories of visitors more than one-half. These are visits that are unlikely to be influenced by the presence or absence of wind farms in New Hampshire. Visits to New Hampshire occur for a variety of reasons, only a percentage of which are related to individual assessments of the aesthetics and natural amenities in the state.

Primary Purpose	New Engl. Overnight Visitors	New Engl. Day-Only Visitors	MidAtlant. Overnight Visitors	MidAtlant. Day-Only Visitors
Pleasure (vacation)	54.8	39.8	36.6	55.1
Visit friends/relatives	22.1	20.3	36.0	18.4
Outdoor recreation	8.6	9.4	5.6	2.0
Business	5.3	4.7	8.1	4.1
Event (fair/festival, sports/concert)	3.6	5.5	6.8	2.0
Personal (graduation/wedding/medical)	3.6	7.8	5.0	6.1
Other (Primarily Shopping)	<u>2.0</u>	<u>12.5</u>	<u>1.9</u>	<u>12.3</u>
Total	100.0	100.0	100.0	100.0

Source: NH Visitors Survey, Summer 2009, NH Division of Travel and Tourism Development and The Institute for NH Studies at Plymouth State University

The activities that visitors take part in while in New Hampshire provide additional information about the overall percentage of visitor and tourism-related expenditures that may be affected by the presence or absence of wind farms. Table 4 presents the results of a survey of activities by summer visitors to the state in 2009. The table highlights the importance of New Hampshire’s natural and outdoor recreational amenities to tourism in the state but it also suggests that a large portion of tourism activity in the state is unlikely to be affected negatively or positively by the presence of wind farms because it is not dependent on individual assessments of the aesthetics of New Hampshire’s natural environment.

The importance to New Hampshire of a high-quality natural environment and a desire to maintain it are evident, but in combination Tables 3 and 4 suggest that concerns about the potential for negative impacts on tourism visits and expenditures from wind farms in New Hampshire are overstated. Along with studies discussed earlier, data presented later in this report suggests that they are also not accurate. The reasons for visits to New Hampshire and the range of activities visitors enjoy while in the state has expanded. Hiking, leaf peeping, beach going, skiing and camping bring large numbers of visitors to the state each year, but so too do shopping, New Hampshire’s Motor Speedway, motorcycle week in Laconia, and downtown Portsmouth.

Table 4
Reported Activities of Visitors to New Hampshire

Activity	New Engl.	New Engl.	MidAtlant.	MidAtlant.
	Overnight (n=303)	Day-Only (n=128)	Overnight (n=161)	Day-Only (n=49)
Shopping	69	60.9	41.6	55.1
Sightseeing	57.8	45.3	63.4	55.1
Scenic Drives	50.8	44.5	54.7	40.8
Beaches (lake, ocean)	35.6	24.2	38.5	24.5
State Park/National Forest	32.3	15.6	36.6	22.4
Camping/hiking	24.4	10.2	23.6	4.1
Theme/amusement park	21.5	12.5	7.5	4.1
Historic sites/museums/galleries	16.2	6.3	19.9	16.3
Boating	13.5	3.1	13.7	-
Wildlife watching	12.5	4.7	10.6	8.2
Concerts/fairs/festivals	12.2	7	12.4	2
Other outdoor recreation	11.2	4.7	13	4.1
Golfing	7.9	0.8	6.2	-
Sporting event	5.3	3.9	5.6	-
Hunting/fishing	5	0.8	5	2
Business/convention/seminar	4.3	3.9	8.7	2
Other*	7.3	7.8	8.7	22.4

Note: Percentages add to more than 100% due to multiple mentions

Source: NH Visitors Survey, Summer 2009, NH Division of Travel and Tourism Development and The Institute for NH Studies at Plymouth State University

V. Evidence of the Impact of Wind Farms on Tourism in New Hampshire

To measure the impact of wind farm developments on tourism, this study uses accepted indicators of the performance of the tourism industry, including spending on meals and accommodations, employment in tourism-dependent industries and vehicle traffic counts. Each of these indicators is used by the State of New Hampshire's Division of Travel and Tourism Development and by the organization it contracts with to track tourism activity in the state (the Institute for NH Studies at Plymouth State University). In addition, this study uses data on revenues generated by NH state parks as an indicator of changes in the volume of visits and expenditures in areas of NH where wind farms are located.

Our analysis of evidence of wind farm impacts is limited to a single wind farm put into operation in November of 2008 in Lempster, Sullivan County, New Hampshire. The impact of two recent wind farm developments, Groton Wind in Groton, Grafton County, New Hampshire (commissioned in December of 2012) and Granite Reliable Power in Dixville, Coos County New Hampshire (commissioned in February of 2012) is not examined because there has been insufficient time since their commissioning to accumulate the necessary data to assess impacts.

Lempster Wind began operating in 2008 just as the housing market and financial crises were unfolding and the nation and New Hampshire were plunging into a deep recession. In addition, gasoline prices in the summer of 2008 reached over \$4.00 per gallon in New Hampshire, a level which would have produced a mild recession on its own (without the housing and financial crisis) had that prices been sustained for several months. Gasoline prices have a significant impact on visits to New Hampshire. Weekend traffic counts at roadways entering the state show a clear drop during periods of high gasoline prices. High gasoline prices reduce the disposable income of potential visitors to New Hampshire as well as NH residents and gasoline-induced increases in travel costs minimize the price advantages New Hampshire enjoys on retail and consumer goods that New Hampshire uses in marketing itself (i.e. no general sales tax, lower cigarette taxes, lower liquor prices). The current (December 2, 2013) average price of gasoline in New Hampshire is \$3.35 per gallon. Based on prior research on gasoline prices and meals and rooms expenditures and tax revenues, we estimate that a 10 percent (\$0.33 per gallon) increase gasoline prices would reduce real (inflation adjusted) meals and rooms expenditures in the state by about \$35 million.

The extraordinary economic conditions present during the first several years of Lempster Wind's operation require careful analysis and interpretation of the data used to assess impacts. Specifically, employment, visits, and spending were reduced everywhere during the recession and any assessment of the impact of Lempster Wind must compare the tourism metrics in the Lempster Wind region relative to the performance of other regions during the same time period, rather than examining a simple time series of economic data that begins as the nation, region, and state are entering recession.

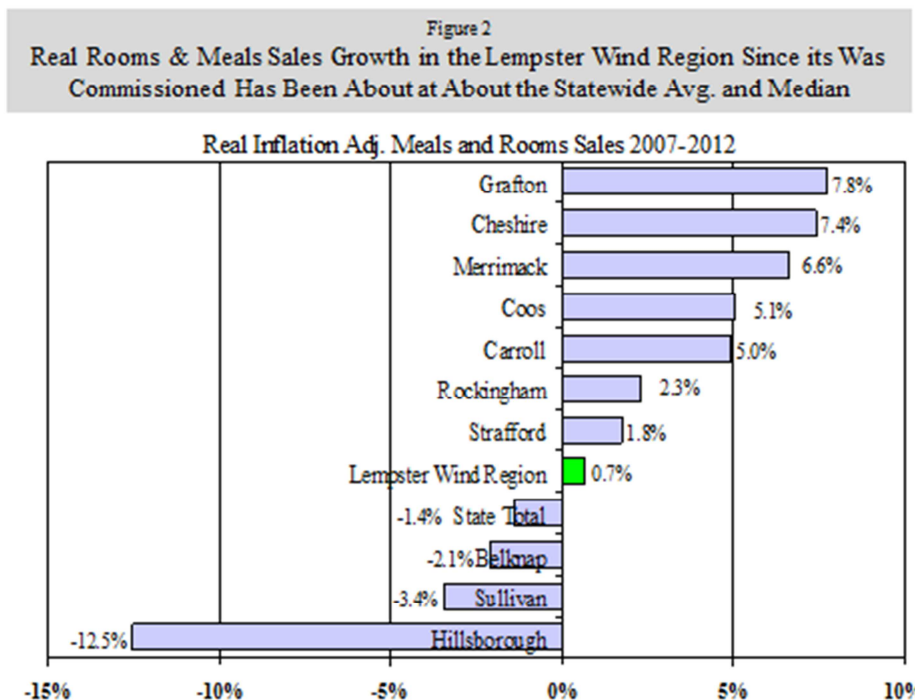
A. Meals and Rooms Sales Data

Meals and rooms sales (also referred to by the NH Department of Revenue as "meals and rentals") provide the primary measurement of the tourism sector in New Hampshire. Rooms and meals data are reported at the county but not the town level. Meals and rooms sales data represent the official count of sales as reported by the NH Department of Revenue Administration. According to the Institute for NH Studies, at Plymouth State University "Nearly all of lodging (rooms) and meals at hotels and resorts are paid by travelers, while only about half of the restaurant meals are estimated to be paid by travelers". Examining rooms and meals data for the Lempster Wind region is complicated by the fact that the host town and surrounding communities (both those adjacent to Lempster as well as those in the extended region – more than one town away) reside in four separate counties. Because meals and rooms sales data is not available at the town level, we cannot construct a unique "Lempster Wind region" for sales data as we can for regional employment data.

Only one-half of the towns in the Lempster Wind study region are located in Sullivan County and another 25 percent are located in Cheshire County. The remaining towns are in Merrimack and Hillsborough Counties. To produce a "blended" growth rate for the Lempster Wind region in the absence of town level meals and rentals data, we calculated the percentage of meals and rentals payers in the Lempster Wind region that are located in each of the four counties. We then multiplied that percentage by the corresponded county's growth rate in meals and rentals sales during the 2007 to 2012 time period and summed the calculations. Figure 2 shows the real, inflation adjusted percentage change in meals and

rentals sales by county between the second quarter of 2007 (just under a year before the recession began) and the second quarter of 2013 for each county and the state of New Hampshire total. In addition, the figure shows the results of our calculation of meals and rooms sales growth for the Lempster Wind Region. Grafton County’s stronger rooms and meals growth over the time period is a reflection of the stronger relative economic performance of the county during the recent recession, primarily as a result of a heavy concentration of health care and educational services employment in the region, two industries that did not suffer employment reductions during the recession.

Figure 2 shows that the Lempster Wind region had estimated real growth in meals and rooms spending of just under one percent between 2007 and 2012, about in the middle of all regions in the state and better than one (Belknap) with a high concentration of tourism-related employment.



It is important to note that the meals and rooms sales data in Figure 2 reflect changes in inflation adjusted dollars to strip away increases in sales volume due simply to price increases. The meals data was adjusted according to the consumer price index for meals away from home and the rentals data was adjusted using the CPI for accommodations. Although Figure 2 shows negative growth rates for some counties, in fact, every county and region experienced nominal (not inflation adjusted) growth in meals and rooms sales during the time period examined.

Discussion

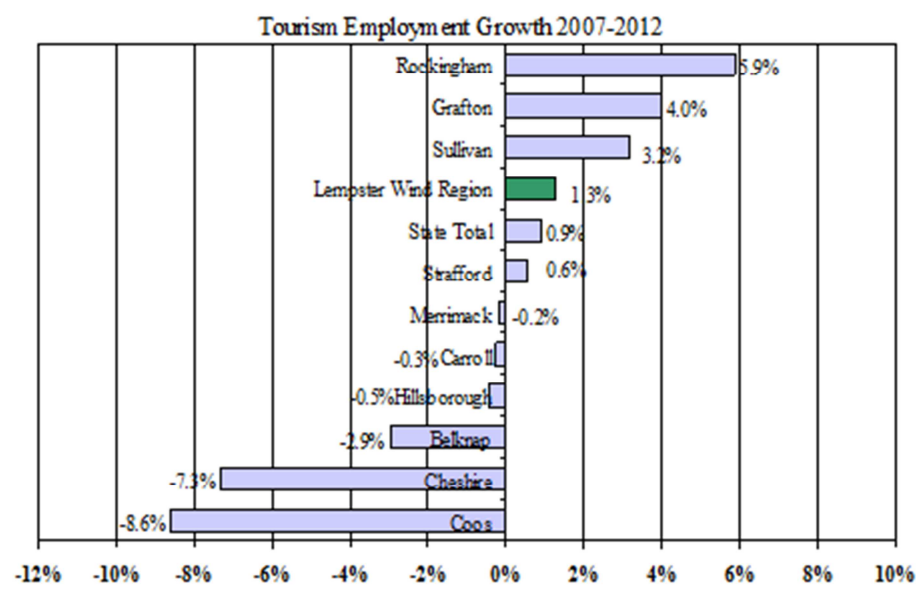
It is difficult to draw strong conclusions from the data presented in Figure 2. Growth in meals and rooms sales in the Lempster wind region was modest and in the middle of the pack among all NH regions. The Lempster Wind region includes towns in counties that

experienced significant growth in rooms and meals sales (Cheshire and Merrimack) but also towns in counties with slower meals and rooms sales growth (Sullivan and Hillsborough). Sullivan County, where one-half of the Lempster Wind region’s towns are located, has had among the weakest performing economies in the state over the past two decades. With the notable exception of Sunapee, Sullivan County has a very small concentration of employment in tourism-related industries. The absence of any significant difference in the rooms and meals growth rate in the Lempster Wind region compared to other regions, after the project was commissioned, supports the findings of most prior research on the impacts of wind farms on tourism and suggests that any impacts of the project have been so small as to not be visible in the data.

B. Employment in Tourism Industries

In addition to meals and rooms sales data, the numbers of jobs in tourism industries is an indication of trends the tourism industry. Employment in the accommodations and arts, entertainment and recreation industries are largely dependent on visitor spending, while only about one-half of restaurant meals are consumed by local residents of a region. Employment by industry data for towns in the Lempster Wind region cannot be disclosed because of the limited number of employers in each town. To assess the impacts on tourism-related employment in the Lempster Wind region we used the same procedure we used to construct a “blended” growth rate for regional rooms and meals sales growth. Comparing the growth rate in tourism-related employment in the Lempster Wind region with growth rates in other areas provides additional evidence of the project’s impact on tourism.

Figure 3
Tourism Related Employment Growth in the Region Has Been About at the State Average and Higher Than in More Than Half of the Counties in the State



As Figure 3 shows, tourism-related employment in the Lempster Wind region grew by a slightly greater margin than did tourism employment statewide. Cheshire County’s

decline is, in part, related to the closing of the Hinsdale dog racing track (a loss of 59 jobs but possibly with additional indirect job impacts) during the time period examined. Although this may not have affected towns in the Lempster Wind region, our “blended rate” procedure for calculating the growth rate for the Lempster Wind region means that a portion of the event is incorporated in the Lempster Wind region’s growth rate. Data for Coos County are distorted by the closing of the Balsams Resort during the time period.

Discussion

Tourism-related employment in Sullivan County is relatively small, but examining employment data before and after the introduction of Lempster Wind does not indicate that the wind farm has adversely affected tourism-related employment in the region. Both Sullivan County and the smaller, immediate Lempster Wind area performed better than a majority of other regions in growth in tourism-related employment between 2007 and 2012. As with our analysis of meals and rooms revenue data, we conclude that the absence of significant differences in tourism-related employment growth in the county and region, compared to other areas of the state, indicates that any tourism employment impacts that may have occurred as a result of Lempster Wind are too small to be evident in the data.

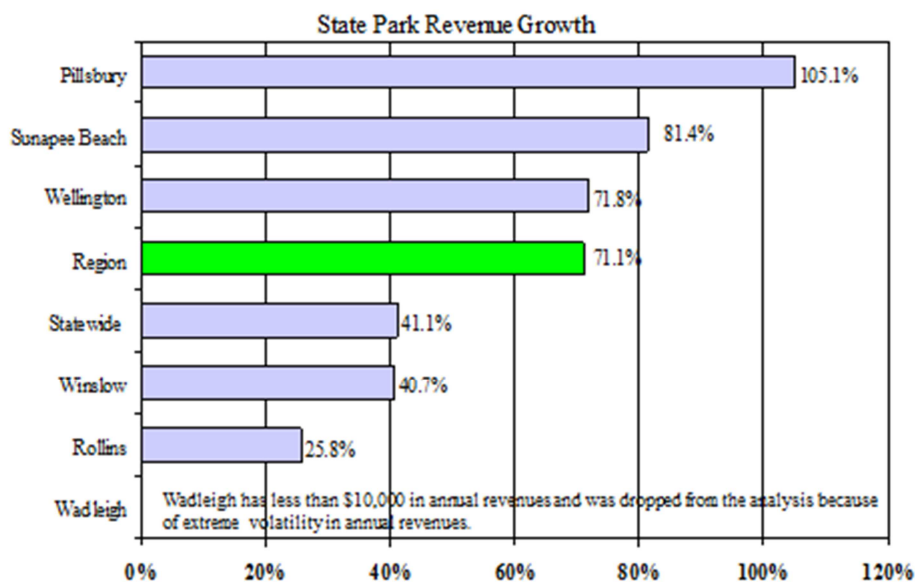
C. State Parks Data

To assess whether Lempster Wind may have affected visits to natural and recreational amenities in the region we sought data on the number of visits to state parks in an extend area that included some state parks in Grafton County. A consistent pre and post Lempster Wind time series on visits by state park was not available. As an alternative we were able to obtain a time series of revenue by state park. State park revenues primarily consist of entrance and camping fees, although small amounts of revenue from concessions is also included at some state parks. This data provides a useful proxy for visitation data. Trends at state parks close to the Lempster Wind project, such as Pillsbury State Park, can provide important insights into how visitors to the region value the natural and recreational amenities in the region both before and after Lempster Wind’s entrance into the region. Appendix B contains a map of New Hampshire state parks with the parks data included in this analysis circled. As a control, we examined the aggregate trend in revenues statewide for parks not included in our regional analysis.

Data were obtained from the annual financial reports of the State of New Hampshire’s Division of Parks and Recreation. Data is not available for the 2010 fiscal year. A change in the state’s financial reporting system resulted in annual financial reports by park not being produced for that year. Data are not adjusted for inflation. Once again we examined data from the year prior to Lempster Wind’s commissioning (FY2007), to the most recent data available (FY2012). Figure 4 shows that the two state parks closest to Lempster Wind, (Pillsbury and Sunapee Beach) had the largest increase in attendance and use revenues of all parks examined. Overall, revenue at parks in the region grew significantly more than did park revenues statewide. The photograph below was obtained from Iberdrola Renewables and presents a view of Lempster Wind’s turbines from a May Pond campsite inside Pillsbury State Park and just 1.6 miles from the closest turbines.



Figure 4
 Visitor Revenue at the State Parks Closest to Lempster Wind Have Had the
 Greatest Growth Since 2007



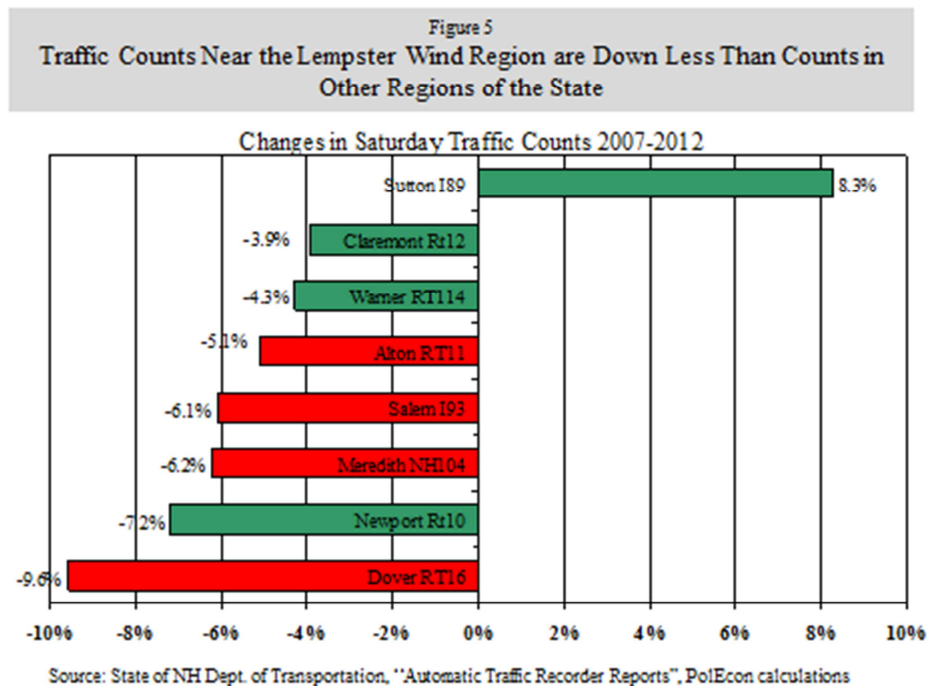
Discussion

To a degree, high rates of revenue growth found at state parks in the Lempster Wind region are a function of the fact that it is easier for smaller parks that generate smaller amounts of revenue to experience larger percentage increases or decreases in revenue than it is for larger parks or the statewide aggregate to do so. Nevertheless, the large increase in attendance and camping revenues at state parks closest to Lempster Wind is a strong indication that visitors seeking natural and recreational amenities in the region did not avoid the parks in response to the presence of Lempster Wind in the region.

D. Traffic Counts

Weekend traffic counts (minimizing commuter traffic) collected by automatic recorders are an indication of the volume of visitors to a region. We examined traffic counts at the major roadways closest to Lempster Wind from 2005 to 2012. The lingering effects of gasoline price spikes that reduced vehicular travel may have permanent impacts on vehicle traffic counts are still apparent in the data. Reductions in traffic volumes due to gasoline prices and a national recession should not, however, differentially affect regions of New Hampshire. Difference in traffic count trends by region should be the result of other factors because all regions were confronted by the same high gas prices and week national economy. This analysis examines evidence of the impact that Lempster Wind may have had on traffic volume in the region, and by extension, visitors to the region.

We selected the three automatic recorder locations closest to Lempster Wind along with the closest major highway (I89 at Sutton in Merrimack County) to examine changes in Saturday traffic counts between 2007 and 2012. In addition, as a control group for comparison purposes, we selected two roadways on which weekend visitors to the state frequently travel (NH 16 in Dover and I93 in Salem) and two other, lesser travelled roads (in Meredith and Alton). Results of this analysis are presented in Figure 5. In the graphic, data for roadways closest to Lempster Wind are colored green, while those in other areas of the state are in red. The chart shows that the volume of weekend travel on roads in the Lempster Wind region since the facility became operational are not significantly different from trends in weekend traffic on roads in other parts of the state. The one exception is traffic volume on I89 at Sutton which has shown a significant increase since 2007.



Discussion

Evidence that wind farms result in significant decreases in tourism visits should be reflected in changes in the volume of weekend traffic in a region. More accurately, the evidence should be reflected in changes in weekend traffic volume, after the introduction of a wind farm, that differ significantly from the traffic volume trends of regions that did not experience the introduction of a wind farm. Although the analysis is limited, the findings do not support that contention that the introduction of a wind farm results in traveler avoidance of regions with wind farms.

E. Anecdotal Evidence

This report relies on analyses of publicly available economic and other data to assess the impacts of wind farms on tourism in New Hampshire. There is, however, relevant anecdotal evidence that indicates wind farms in a number of U.S. and international sites have become tourism draws.

- Anecdotal information obtained as the result of Iberdrola's presence in Lempster suggests that the Lempster wind farm has increased the level of interest in the town and contributed to increased visits. Because neither meal and rooms sales data nor employment tourism-dependent industries is available at the town level for Lempster (or other towns), this anecdotal evidence cannot be verified. However, town officials and some area businesses report increased numbers of visitors, and requests for information about the wind farm.
- The Mountain View Grand Resort in Whitefield, NH is recognized as one of the most "eco-friendly" hotels in New Hampshire. 100% of their energy is produced through onsite wind power generation and their advertising prominently displays their wind turbine demonstrating the growing emphasis on eco-tourism and sustainability.
- A report issued by Renewable Energy Vermont notes that "the Mt. Snow Haystack Regional Chamber of Commerce reported that of those who made inquiries, about 10% asked for information about the turbines in Searsburg." Other wind farm sites are listed as local "tourist attractions." Some sites plan for and encourage tourism, with visitor centers, educational and informational programs, the opportunity to climb wind towers to enjoy the "spectacular views," and even "the unique experience of staying overnight an operating wind farm" at one Minnesota facility.
- A California Adventure travel company is actively promoting wind farm tours.¹⁷
- In Madison County, New York, the town of Fenner has created the "FREE" - *Fenner Renewable Energy Education Center* - as a grass-roots organization formed to educate the public on the benefits of renewable energy and other sustainable

¹⁷ (<http://caladventures.com/listings/windfarmtoursnone>)

practices. The center is designed to provide a focal point for the tourists who drive to the town to see a wind farm that has been operational since 2001.

- Atlantic City wind turbines have become a tourist attraction at the town's wastewater treatment facility, with about 15,000 people per year attending one of the many tours they offer. The Atlantic City Convention and Visitors Authority recognizes the wind farm as a tourist attraction and some hotels offer rooms that feature views of the wind turbines.
- The 2,650 mile Pacific Crest Trail, ranked the 10th best hiking trail in the country, passes directly through the Tehachapi Wind Farm, with approximately 5,000 wind turbines, and the Manzana Wind Farm.

Discussion

Our analysis relies primarily on direct data and evidence of wind farm impacts in New Hampshire but it is also appropriate to consider examples and evidence that is not contained in regularly reported data and that might lend insight into possible tourism impacts of wind farms. Our analysis of data was conducted with an eye toward identifying any negative impacts that may have resulted from the introduction of Lempster Wind in 2008. As we have noted, any negative or positive impacts are so small as to not be discernible in the data. Absent findings of significant negative (or positive) impacts from Lempster Wind, anecdotal evidence also suggests that wind farms can and are successfully being incorporated into visitor attraction strategies of some regions with wind farms.

VI. Implications for the Wild Meadows Region

The current volume and concentration of tourism related activity in the Wild Meadows region defines the parameters for the range of likely impacts of the proposed wind farm on the region. Direct evidence of the impact of existing wind farms in New Hampshire on visits, visitor spending, and employment can then be applied to the Wild Meadows project to produce an estimate of tourism impacts in the immediate, expanded, and larger Grafton County tourism economies.

The many similarities between the Lempster Wind and Wild Meadows regions make the findings of this study regarding the tourism impacts of Lempster Wind especially appropriate to consider when estimating potential impacts of the proposed Wild Meadows project. The similarities between the regions include:

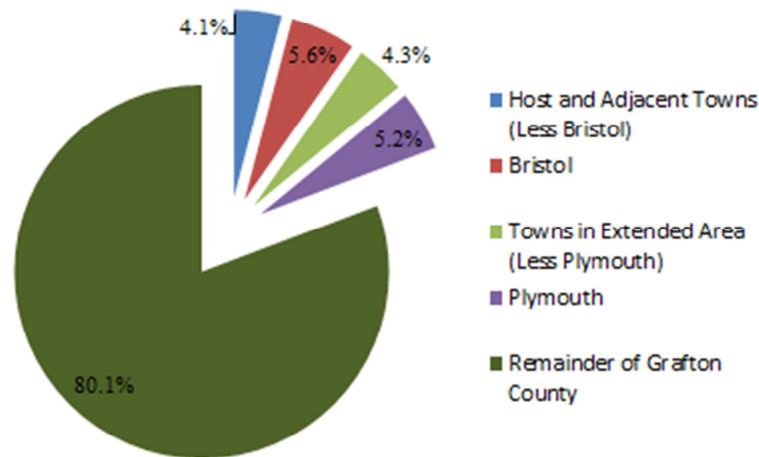
- Both are rural areas with hilly terrain and significant forestation.
- Both are located in the western part of the state - 25 miles apart.
- Both areas feature nearby recreational bodies of water with waterfront housing.
- Both have very small numbers of private sector employment in the host and towns adjacent to the wind farms.
- Although each region has important natural and recreational amenities, the local economy in the expanded region of each wind farm is not tourism dependent. Manufacturing is a key driver of the employment base of the labor market area in

which Lempster Wind is located and educational services and manufacturing are the dominant employment sectors in the labor market area surrounding the Wild Meadows project.

- Both have low population density of approximately 35 persons per square mile, well below the state average of 147 persons per square mile.
- The population of the host and adjacent towns of both regions tend to have a higher median age and fewer younger residents than the statewide average.
- The average assessed value of housing units in each region is below the statewide average.

Figure 6 presents the share of Grafton County tourism activity (as measured by entities subject to the meals and rentals tax) represented by the immediate Wild Meadows region (host towns and towns immediately adjacent to them) as well as an extend area that includes towns more than one town away from the project’s host towns. The chart shows that host towns and towns directly adjacent to them account for about 10 percent of entities subject to the meals and rooms tax in Grafton County, with Bristol alone (a manufacturing-based local economy) accounting for more than one-half of that amount (or about 5.6% of Grafton County’s meals and rentals tax payers). Adding towns in the extended Wild Meadows region increases the percentage of Grafton County’s meals and rentals tax payers that are located in larger Wild Meadows region by another nine percent. However, the town of Plymouth, accounts for more than one-half of the meals and rentals tax payers in the extend area.

Figure 6
 Outside of Bristol and Plymouth (Two Towns That are Not Tourism-Based Local Economies) the % of all Grafton County’s Rooms and Meals Tax Payers in the Extended Project Area is About 8%



The research literature on wind farm impacts indicates that any impacts on tourism diminish with distance from the project site. Using the percentage of tourism activities represented by different towns in the Wild Meadows region presented above, the results of

survey-based studies of wind farm impacts on tourism, and the results of our analysis of wind farm impacts in New Hampshire, we can estimate a range of tourism impacts in the region as well as on the larger Grafton County tourism economy.

Among the strongest studies employing the best methodologies to estimate wind farm impacts on tourism, the largest negative effects were found to range from an impact of a -0.48% reduction in tourism expenditures where a wind farm is directly present, to as high as -1.59%.¹⁸ Studies citing positive tourism impacts are careful to note that the probability of positive impacts varies considerably and can depend on the efforts to incorporate wind farms and wind farm education into regional tourism promotion efforts. For our estimates we chose a range of possible positive and negative impacts of up to +/-2% of tourism spending on those towns in the Wild Meadows region, with impacts diminishing with distance from the project site, and lowest for the towns of Bristol and Plymouth where a larger percentage of meals and rental expenditures is unrelated to tourism activity. This represents an impact range about 30 percent larger than those found in studies employing the best research methodologies.

To estimate the potential impact of the proposed wind farm on tourism expenditures in the Wild Meadows region, we multiplied the potential impact on the towns in the region by the percentage of regional tourism business they represent to arrive at an overall estimate of the magnitude (+/-) of impacts. The same procedure was followed for estimating the potential impact on tourism expenditures for the larger Grafton County region. Table 5 shows our estimate of the range of impacts in the region and Grafton County. For the Wild Meadows region we estimate a range of impacts on tourism expenditures of +/- 1.28%. In the larger Grafton County tourism economy, we estimate the range of impacts on tourism to be in a range of +/- 0.24% of tourism expenditures, or about one-quarter of one percent. If we include Belknap County in the study region, the impact on combined Belknap and Grafton County tourism of +/- 0.15%.

Table 5
Estimated Impacts of Wild Meadows on Tourism Expenditures

Impact Region	(a) % of Regional M&R Payers	(b) Maximum Local Impact Range (+/-)	Potential Impact (+/-) on Total Regional Tourism (a * b)	(d) % of Grafton Co. M&R Payers	Impact on Grafton Co. Tourism Spending (b * d)
Host and Adjacent Towns (Less Bristol)	22%	2.0%	0.45%	4.1%	0.08%
Bristol	29%	1.0%	0.29%	5.6%	0.06%
Towns in Extended Area (Less Plymouth)	22%	1.5%	0.33%	4.3%	0.06%
Plymouth	27%	0.8%	0.20%	5.2%	0.04%
Totals	100%		1.28%		0.24%

¹⁸ Glasgow Caledonian University, 2008, op. cit.

An impact of 0.24 percent of tourism expenditures in Grafton County translates into about \$614,000 dollars in meals and rooms expenditures in the county which had about \$256 million in meals and rooms expenditures over the most recent 12 month report period,¹⁹ however, because only about 60 percent of meals and rental expenditures are likely the result of visitor spending²⁰ the amount attributable to visitors is likely to be closer to +/- \$380,000. Adding retail sales and other spending by visitors suggests that the range of impacts is likely to be closer to +/- \$450,000 in the County. To place the magnitude of that potential range of wind farm impacts into context, by comparison, a \$.33 increase or decrease in gasoline prices over current levels of \$3.35, would have an impact approximately three to five times greater in Grafton County, or between \$1.5 and \$3.0 million.

If the impact is negative, the additional economic activity created in the county as a result of the ongoing operations of the wind farm would more than offset the decrease in tourism expenditures in the region. Although the possibility is rarely considered and may be viewed by some as heretical to offer in public discussion, it is also possible that the impact of Wild Meadows could be positive. Some survey research suggest that wind farms are more likely to attract rather than discourage visitors – although the difference between those saying a wind farm would make them more or less likely to visit is small, and the percentage that would either be more or less likely to visit a region with a wind farm is also small. In addition, some wind farms have anecdotally been shown to increase interest in and visits to a region. Increased interest in environmental tourism, greater attention to climate change issues, energy and renewable energy production issues nationally, along with survey research that suggests younger individuals are much more likely to express interest in visiting wind farms, all point to paths by which the proposed project could increase visits to the region.

Because of the margin for error in these estimates, we conclude, however, as have most prior studies of tourism impacts, that the best estimate is that the project will have little or no impact on regional tourism expenditures.

VII. Conclusions

This study looked for evidence of wind farm impacts on regional tourism using key metrics of the tourism industry. Unlike most prior studies of wind farm impacts, the study used a natural experiment in the form of the commissioning of a wind farm in Lempster, New Hampshire to assess wind farm impacts. We examined tourism metrics and trends in the region before and after the presence of the wind farm and compared those trends to a control group (the remaining regions in New Hampshire that did not experience the location of a wind farm during the time period examined). Our results support the findings of visitor survey-based studies of wind farm impacts that have found little or no impact on tourism activity in response to the presence of wind farms.

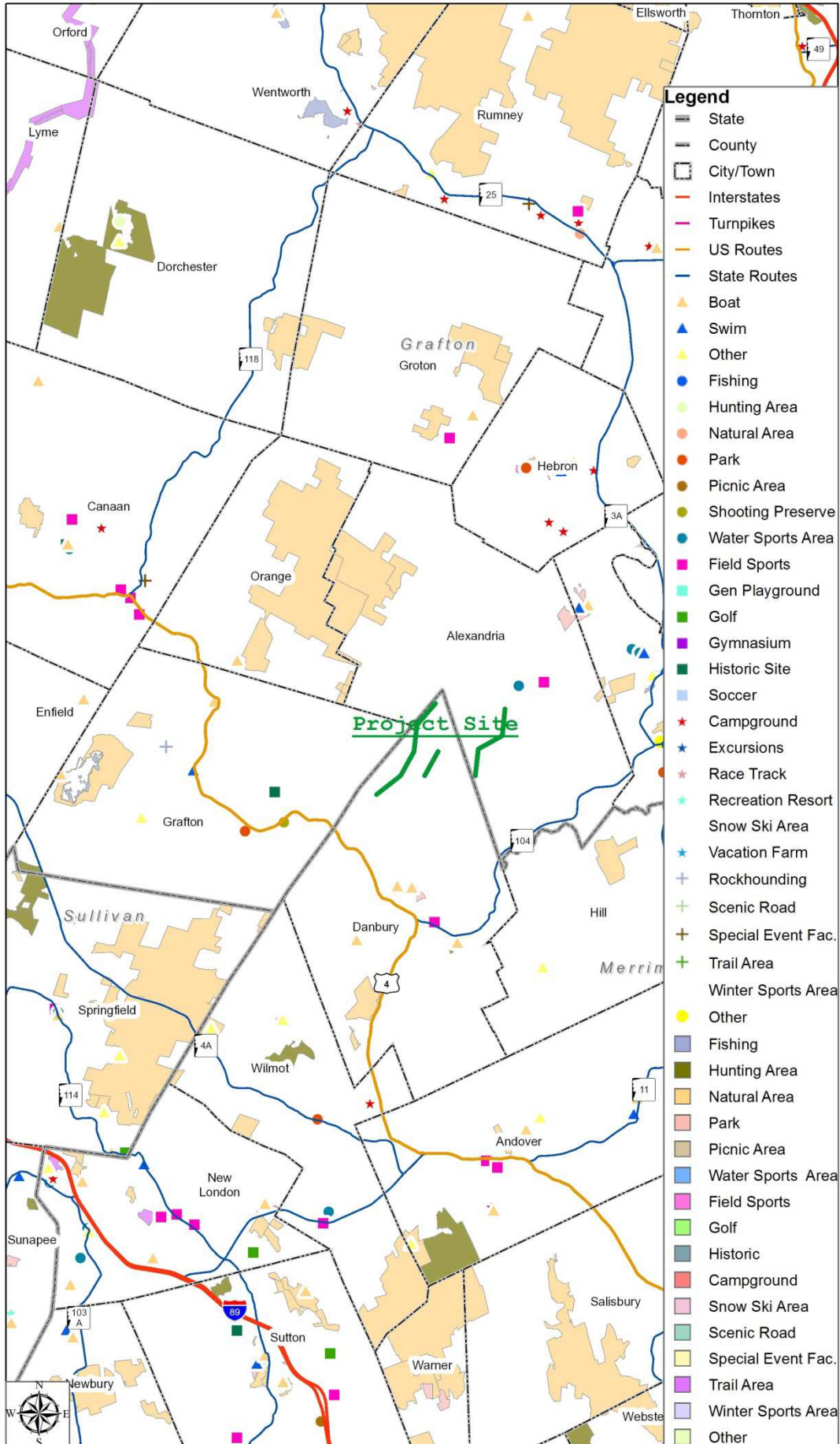
¹⁹ For the August 2012 to July 2013 12 month period, meals and rooms receipts in Grafton County totaled \$255,859,330 according to the NH Dept. of Revenue $\times .0024 = \$614,062$

²⁰ About 50% of meals spending is from visitors while almost all rooms spending is to visitors but because meals represents a much larger share of total meals and rooms expenditures, about 60 percent of the total is likely to be from visitor spending.

Our primary conclusion is that concerns about wind farm impacts on tourism are greatly overstated. Although we cannot definitively say that wind farms have had no impact on tourism in New Hampshire, our analysis of the data clearly indicate that either there were no impacts or any impacts have been too small to be discernible in the data. This is consistent with a majority of the studies of wind farm impacts, but by examining economic data available as a result of a natural experiment rather than survey techniques, our study adds an additional element of objectivity to the data and to the research that finds little or no impact of wind farms on tourism. Despite a majority of researchers concluding that wind farms have little or no impact on tourism, wind farms continue to be the focus of heated debates over their potential to affect tourist activity. This suggests that subjective assessments of the aesthetics of wind farms contribute to the willingness of some, who feel strongly that wind farms are detrimental to tourism, to discount empirical assessments of wind farm impacts. If subjective assessments of the aesthetics of wind farms contribute to the belief that wind farms are detrimental to tourism then it is unlikely that any amount empirical evidence demonstrating no impact will alter those views.

Finally, based on our analysis of wind farm impacts in New Hampshire, prior studies of wind farm impacts, and the characteristics of the Wild Meadows region, we estimate that that the impact of the proposed wind farm on tourism in the region is likely to be no more than +/- 1.28% of tourism activity and the impact on the larger Grafton County region is likely to be no more than +/- 0.24%. By comparison, a \$0.33 increase or decrease in gasoline prices would have impacts three to five times larger.

Appendix A



Appendix B

Appendix B

WELCOME TO NEW HAMPSHIRE STATE PARKS

Escape from the hectic pace of everyday living and enjoy one of New Hampshire's State Park properties. Just think: Wherever you are in New Hampshire, you're probably no more than an hour from a New Hampshire State Park property. Our state parks, historic sites, trails, and waysides are found in a variety of settings, ranging from the white sand and surf of the Seacoast to the cool lakes and ponds inland and the inviting mountains scattered all over the state.

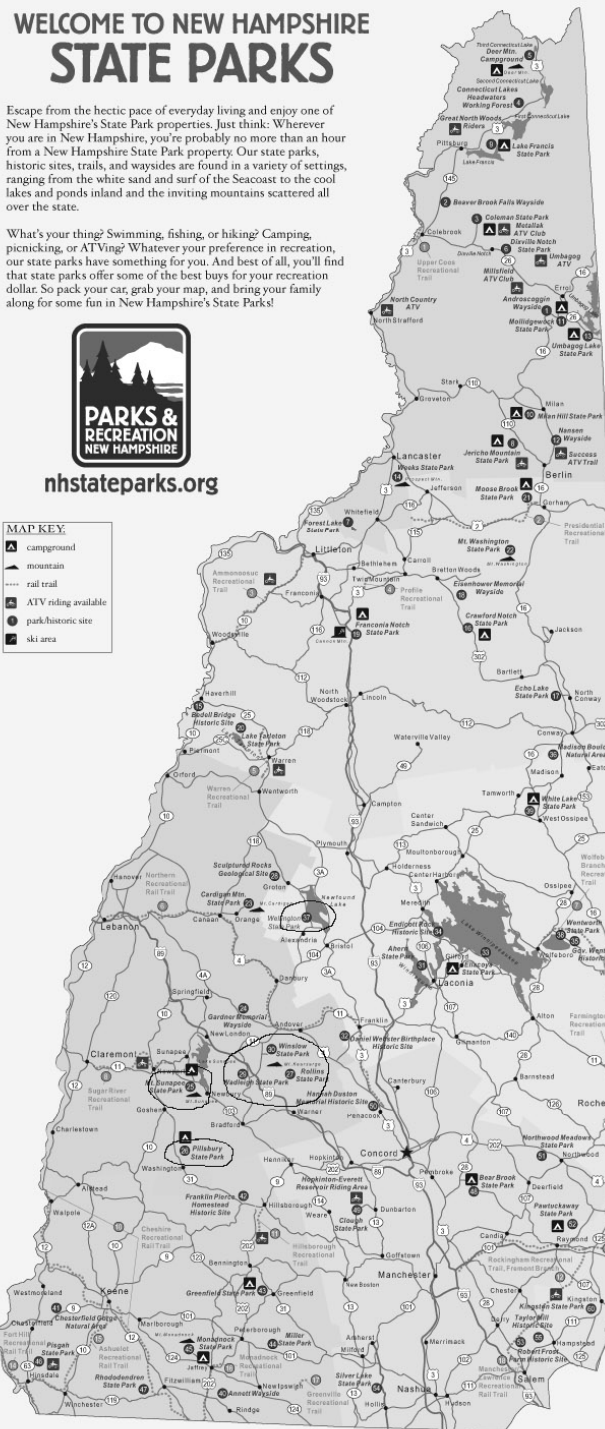
What's your thing? Swimming, fishing, or hiking? Camping, picnicking, or ATV riding? Whatever your preference in recreation, our state parks have something for you. And best of all, you'll find that state parks offer some of the best buys for your recreation dollar. So pack your car, grab your map, and bring your family along for some fun in New Hampshire's State Parks!



nhstateparks.org

MAP KEY:

- campground
- mountain
- rail trail
- ATV riding available
- park/historic site
- ski area



New Hampshire State Parks Amenities at a Glance

	Restrooms*	ATV	Hiking	Boat Launch	Fishing	Camping	Swimming	Winter Use
Great North Woods Region								
1 Androscoggin Wayside								
2 Beaver Brook Falls Wayside								
3 Coleman State Park								
4 Connecticut Lakes Headwaters Working Forest								
5 Deer Mountain Campground								
6 Dixville Notch State Park								
7 Forest Lake State Park								
8 Jericho Mountain State Park								
9 Lake Francis State Park								
10 Milan Hill State Park								
11 Molligwook State Park								
12 Nansen Wayside								
13 Umbagog Lake State Park								
14 Weeks State Park								
White Mountains Region								
15 Rockfall Bridge Historic Site								
16 Crawford Notch State Park								
17 Echo Lake State Park								
18 Eisenhower Memorial Wayside								
19 Franconia Notch State Park								
20 Lake Umbagog State Park								
21 Moose Brook State Park								
22 Mount Washington State Park								
Dartmouth/Lake Sunapee Region								
23 Cannon Mountain State Park								
24 Gardner Memorial Wayside								
25 Mount Sunapee State Park								
26 Hillsbury State Park								
27 Sullivan State Park								
28 Sculptured Rocks Geological Site								
29 Wadleigh State Park								
30 Windfall State Park								
Lakes Region								
31 Abner State Park								
32 Daniel Webster Birthplace Historic Site								
33 Lilacosa State Park								
34 Rockport Rock Historic Site								
35 Governor Wentworth Historic Site								
36 Madison Boulder Natural Area								
37 Willington State Park								
38 Wentworth State Park								
39 White Lake State Park								
Monadnock Region								
40 Amherst Wayside								
41 Cheshire Edge - Natural Area								
42 Franklin Pierce Homestead Historic Site								
43 Greenfield State Park								
44 Miller State Park								
45 Monadnock State Park								
46 Pugh State Park								
47 Rhododendron State Park								
Merrimack Valley Region								
48 Bear Brook State Park								
49 Clough State Park								
50 Hannah Tamm Memorial Historic Site								
51 Northwood Meadows State Park								
52 Pawtucket State Park								
53 Robert Frost Farm Historic Site								
54 Silver Lake State Park								
55 Taylor Mill Historic Site								
Seacoast Region								
56 Fort Constitution Historic Site								
57 Fort Stark Historic Site								
58 Hampton Beach State Park								
59 James State Beach								
60 Kingston State Park								
61 North Beach								
62 North Hampton State Beach								
63 Osceola Point State Park								
64 Dye Harbor State Park								
65 Wallis Sands State Park								
66 Wentworth-Coolidge Mansion Historic Site								
67 White Island Historic Site								

* Restrooms: Facilities may include flush or pit toilets and showers. For more information, contact the specific park.
 † Pets: Note that in some cases, pets are allowed only in certain park areas. Check with the park for its specific pet policy.

Recreational Rail Trails offer a variety of opportunities. Visit nhrails.org for a list of permitted activities on each trail.	Recreational Rail Trails (listed north to south)	miles
1 Upper Cows Recreational Trail (Colebrook-Beecher Falls)		10.4
2 Presidential Recreational Trail (Jefferson-Gorham)		18.3
3 Ammonoosuc Recreational Trail (Woodsville-Littleton)		19.2
4 Profile Recreational Trail (Bethlehem)		1.5
5 Warren Recreational Trail (Warren)		4.0
6 Northern Recreational Trail (Boscawen-Lebanon)		11.5
7 Wolfboro Branch Recreational Trail (Wolfboro-Wakefield)		41.0
8 Sugar River Recreational Trail (Newport-Camden)		9.5
9 Farmington Recreational Trail (Farmington-Rochester)		8.0
10 Cheshire Recreational Trail (North Walpole-Berlinham)		42.0
11 Hillsborough Recreational Trail (Hillsborough-Berlinham)		7.7
12 Rockingham Recreational Trail (Fremont Branch Gloucester-Fremont-Beate St Dory)		18
13 Rockingham Recreational Trail, Portsmouth Branch (Manchester-Newfield)		25.3
14 Fort Hill Recreational Trail (Hinsdale)		8.9
15 Ashcroft Recreational Trail (Keene-Winchester)		21.0
16 Monadnock Recreational Trail (Massachusetts Line-Jaffrey)		7.2
17 Greenville Recreational Trail (Greenville)		2.2
18 Manchester-Jaffrey Recreational Trail (Salem-Windham)		5.4



Several of New Hampshire's state parks are located on or near mountains. Some offer scenic auto roads, and all offer hiking trails.



Swimming, fishing, canoeing, and other water activities, either freshwater or ocean, are major features of many of New Hampshire's state parks.



State Historic Sites preserve and extend New Hampshire's cultural and historical heritage. These 16 sites let visitors experience New Hampshire's history.



In addition to miles of OHV riding trails, many of our parks offer opportunities for mountain biking for all abilities.



New Hampshire State Parks offer wonderful winter activities, from skiing, snowmobiling, and snowshoeing to wildlife viewing, camping, and more.



New Hampshire State Parks include 14 campgrounds offering a range of accommodations, from primitive sites to full hookups, as well as cabins and yurts.