

**RECREATION USERS  
STUDY REPORT**

**DOWNEAST WIND ENERGY PROJECT**

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## **1 INTRODUCTION**

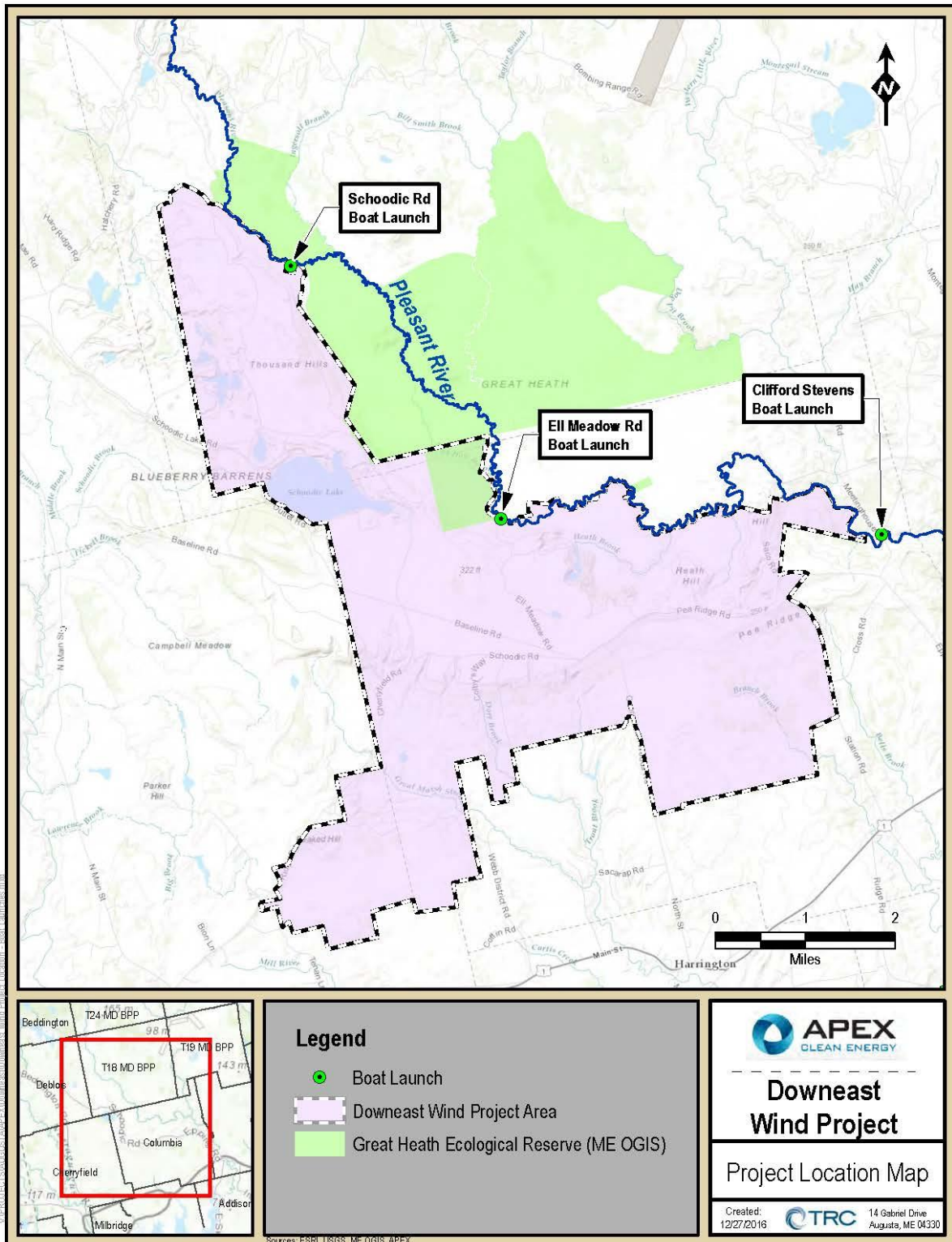
Apex Clean Energy (Apex) is exploring the feasibility of constructing the Down East Wind Energy Project (Downeast Wind or Project), a utility-scale wind energy project, in Washington County, Maine. The Project is expected to generate 90 to 150 megawatts of clean, homegrown energy. Local wind monitoring confirms that the area under consideration is ideal for a project of this size, which will produce enough safe, pollution-free energy to power approximately 45,000 U.S. homes. The power from Downeast Wind will be sold directly to Maine utilities at a 12% discount to wholesale electricity prices at the time at which the electricity is produced.

The Project is located in the vicinity of an area designated as the Great Heath Public Reserved Land (Great Heath). TRC completed a study to assess late summer and fall recreation use in this region. The study involved conducting recreation user surveys throughout the season as well as the placement of questionnaire boxes in likely recreational areas. A data analysis was performed on the information obtained. This report provides the results of this study.

## **2 STUDY AREA**

The study area included lands and waters located near Columbia, Maine in Washington County. Figure 2-1 illustrates the study area, as well as the location of the recreation sites that are discussed in this report.

Figure 2-1: Recreation User Study Area



### **3 METHODS**

#### **3.1 Study Preparation**

Recreation specialists completed an initial desktop review of the site utilizing TRC’s digital library of publically available and proprietary datasets. This understanding was supplemented by obtaining and reviewing state, regional, and local recreational information that is germane to the greater Project area.

Based on prior experience completing recreational studies in Maine, TRC developed a recreation user contact survey to be administered on site by TRC field staff and a questionnaire to be placed in the proposed survey boxes. Both instruments requested information about party size, length of stay, recreation activities and a rating of the aesthetic value associated with the region.

Appendices A and B provide copies of these documents.

A site visit was conducted to determine locations for conducting recreation user surveys and installing questionnaire survey boxes. The Schoodic Road state boat launch was identified as a suitable location for both activities. For the second site, the majority of boat launches shown on public source maps (e.g. State of Maine website, Delorme atlas) had roads that were signed as “no trespassing, permission only” or difficult to access. The second recreation user survey site was set at the Clifford Stevens Memorial Canoe boat launch as, while outside of the Project area, it allowed for safe interactions with users.

A questionnaire box was installed at the Ell Meadow Road boat launch, which was believed to be a public recreation site.

#### **3.2 Field Work**

The recreation use study occurred from August through November, 2016. Survey days were randomly selected. On each survey day, observations were made at the recreation sites for four hours. Observations of recreation activity was used to estimate recreational use at the Project over the course of the study.

##### ***Recreation User Surveys***

Staff administered the recreation user survey to one adult per recreation party encountered. Surveys were planned to be conducted on two weekday and two weekend days per month from September through November of 2016. For months containing holidays (Labor Day, Columbus Day, and Thanksgiving), an additional day during the holiday weekend were added. An

expanded August study period of 10 days was used to capture late summer use. Table 3.2-1 provides a list of recreation user survey dates conducted at each of the recreation sites.<sup>1</sup>

### ***Questionnaires***

Questionnaire boxes were inspected each time a recreation user survey was completed. A total of two questionnaires were completed by recreationists at the Schoodic Road Boat Launch.

**Table 3.2-1: Recreation Use Survey Dates at Each Recreation Site in 2016**

	<b>Spot Count – Survey Dates for Each Month in 2016</b>			
<b>Site</b>	<b>August</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>
Clifford Stevens Boat Launch	3	0	0	0
Schoodic Road Boat Launch	10	5	5	5
Ell Meadow	0	2	1	0

### **3.3 Variance from Study Plan**

#### ***Recreation User Survey***

The Clifford Stevens Memorial Canoe boat launch was identified as the second recreation site for completing recreation user surveys. However, upon consultation, it was determined that public access from the Project area to this site was not possible due to the presence of falls and no portage facilities. Surveys were conducted at the Ell Meadow boat launch but on October 17th, 2016 Apex received a call from an individual purporting to be the property owner who stated that the boat launch is located on private property and he did not give permission for surveys to continue. For the remainder of the study period surveys were completed at the Schoodic Road boat launch.

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<sup>1</sup> Section 3.3 describes the variances from the study plan.

## ***Questionnaire Survey***

At the outset of the Project, a questionnaire box was installed at the Ell Meadow boat launch. However, as discussed above, on October 17<sup>th</sup>, 2016, the purported owner of the property stated that he did not want studies to continue and so the box was removed at the end of the week.

### **3.4 Data Entry and Analysis**

#### **3.4.1 Data Entry**

Data collected as part of the study was entered into Excel spreadsheets. Upon completion of data entry, all data was reviewed by a second individual to verify that data was entered correctly.

#### **3.4.2 Data Analysis**

##### **3.4.2.1 Recreation Use**

Recreation use estimates for the Schoodic Road Boat Launch were developed through statistical analysis of data collected during the 25 survey days spent at the recreation site. The statistical analysis included calculation of the mean, standard deviation, and the 95 percent confidence interval for the four-hour study period used during the fieldwork. From these results, an estimated level of use from August through November was calculated. An average length of recreation day of 12 hours was assumed, yielding a total of 3 four-hour periods per day<sup>2</sup>. An upper bound for use, at the 95 percent confidence interval, was also computed. Consistent with commonly the accepted definition, a recreation day was defined as each visit by a person to the Project for recreational purposes during any portion of a 24-hour period.

Statistical analyses were not performed for the Clifford Stevens Boat Launch, which was determined to not provide access to the Great Heath recreation area, or for the Ell Meadow recreation site, which was determined to be private land and inaccessible to the public.

##### **3.4.2.2 Recreation User Survey**

The Recreation User Survey was designed to gather information about user characteristics, use patterns, and user preferences. Because only two surveys were completed, the sample size was not large enough to perform a statistical analysis of the data. Rather, the raw data from the completed forms is provided, with a brief discussion of the results.

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<sup>2</sup> While the average recreation day is expected to have varied throughout the study period, 12 hours is used as a conservatively high estimate to fully capture the level of use estimated to have occurred at the site.



## 4 RESULTS

### 4.1 Recreation Use

In total 31 survey counts were completed at three recreation and access sites within the study area. During these time periods, a total of two recreational groups were encountered:

- On August 17, 2016, two fishermen were observed at the Clifford Stevens site but they declined to take the survey as “they are not usually in the river”.
- On October 7, 2016, a solitary bird hunter was encountered at the Schoodic Road Boat Launch but this individual declined to take the survey as they had already completed the questionnaire.

No recreation users were observed during the other 29 survey periods. At the Schoodic Road Boat Launch, the mean (average) number of recreation users observed was 0.04 during the four-hour study period, for an expected mean of 0.12 persons per 12-hour recreation day.<sup>3</sup> The standard deviation, which measures the spread of the observed results (number of recreationists), for each four-hour period was 0.20. The 95 percent confidence interval for the four-hour survey period was +/- 0.077 recreationists. Thus, it is 95 percent certain that if all four-hour recreation periods were surveyed the mean would be within 0.077 of the calculated mean of 0.04 recreationists.<sup>4</sup>

### 4.2 Recreation Survey

Two questionnaires were completed. The results for these are shown in Table 4-1.

**Table 4-1: Responses to Recreational Questionnaire**

	<b>Respondent #1</b>	<b>Respondent #2</b>
Date / Time	9/3/16, 11:30	10/1/2016, 14:30
Size of Group	2 adults	1 adult
Home Location	South Portland (04106)	Machias (04654)
Where Visiting	Schoodic Boat Launch	Bog Brook/ Pleasant River

<sup>3</sup> The mean for the 12-hour recreation day is expected to be the four-hour mean of 0.04 multiplied by 3 (the number of four-hour periods in a 12-hour recreation day).

<sup>4</sup> Because negative results for this survey do not exist, the confidence interval would actually fall between 0.003 and 0.117 recreationists (that is, + 0.077 and -0.037).

	<b>Respondent #1</b>	<b>Respondent #2</b>
How much time was spent in Great Heath during this trip?	1 day	30 days
Primary Activity	Exploration based on listing in Gazetteer	Paddling, Hunting, Viewing Wildlife
How many trips do you Plan to take	No answer.	Winter: 2 Spring: 14 Early Summer: 7 Late Summer: 7 Fall: 60
Average number of days per trip?	No answer.	1
Aesthetic appeal of Great Heath, on scale of 1 (very low) to 7 (very high)	5	7
Are you aware of the proposed wind power project?	No	No
Potential for wind project to have an impact on recreational experience, on scale of 1 (positive) to 5 (negative)	Uncertain	No answer.
Please describe how proposed wind power project may impact recreational experience.	No answer.	No answer.
How likely are you to return to Great Heath if wind power project is visible, on scale of 1 (more likely) to 5 (less likely)?	No answer.	No answer.
Please provide any additional comments.	No answer.	No answer.

## **5 DISCUSSION**

### **5.1 Recreation Use**

Based on recreation survey data at the Schoodic Road Boat Launch, total recreational use of the site from August 1 through November 30, 2016 is estimated to be 15 recreationists. The upper bound estimate, based on the 95 percent confidence interval, is 43 recreationists. These estimates are consistent with the low number (two questionnaires) of responses received via the survey boxes which were available throughout the study period. Recreation use at Schoodic Road Boat Launch was only observed in October 2016. No use was observed during the other months in the study period. Survey questionnaires returned to the boxes indicated September (Labor Day weekend, party of two) and October (weekend, party of one) use. Observed recreation activity at the Schoodic River Boat Launch was hunting.

### **5.2 Recreation User Surveys**

Recreation user surveys were designed to be administered through the survey boxes available at the recreation sites and through in-person contacts during the spot counts. Two surveys were returned via survey boxes. The results of those surveys are described in this section. No surveys were completed during the spot counts. During the spot counts, two recreation groups were encountered, one each at the Schoodic River Boat Launch and the Clifford Stevens Boat Launch (later removed from the study). The recreationist at Schoodic River Boat Launch declined to participate in the survey, having already completed a questionnaire via the survey box.

Both survey respondents were from Maine (ZIP codes 04106 and 04654). Party sizes consisted of two adults and one adult. The party of two reported spending one day visiting the Schoodic Boat Launch area and primarily engaging in “exploration based on listing in Gazetteer.” The party of one reported visiting 60 times per year, most often in the spring, and engaging on the current trip in paddling, hunting, and viewing wildlife in the Bog Brook/Pleasant River Area. The recreationists rated the aesthetic appeal of the Great Heath a 5 and a 7 on a scale of 1 (very low) to 7 (very high). Neither recreationists was aware of the proposed wind power project. One reported being “uncertain” of the potential for the wind project to have an impact on recreational experience. The other recreationist did not respond to the question. Neither recreationist responded to the additional questions regarding the proposed wind project or provided additional comments.

## **6 CONCLUSIONS**

Apex Clean Energy (Apex) is exploring the feasibility of constructing the Down East Wind Energy Project (Downeast Wind or Project), a utility-scale wind energy project, in Washington County, Maine near the Great Heath Public Reserved Land. TRC completed a study to assess late summer and fall recreation use in this region which involved conducting recreation user surveys throughout the season as well as the placement of questionnaire boxes. While three potential recreation sites were initially identified, one of these sites is disconnected from the Project area and another was on private land where the owner did not allow the survey to be conducted. As a result, only the Schoodic Road Boat Launch was surveyed throughout the entire study period.

Based on recreation survey data at the Schoodic Road Boat Launch, the area experiences a very low level of recreation activity. Total recreational use of the site from August 1 through November 30, 2016 is estimated to be 15 recreationists with an upper bound (at the 95 percent confidence level) estimate of 43 recreationists. This level of use equates to roughly one recreationists every nine days, with an upper bound of one recreationists approximately every three days. Only one recreation user was observed at this location during the study period and this individual declined to be interviewed as they had previously completed a questionnaire. In terms of the questionnaires, only two surveys were completed in total and only one at the Schoodic Road Boat Launch. The respondent at the Schoodic Road Boat Launch rated the aesthetic appeal of the Great Heath as a five (5) out of seven (7) but was unaware of the proposed wind project and had “no opinion” as to the likelihood that its installation would impact the visual appeal of the site. The recreationist did not answer other questions related to the potential effects of the proposed wind project and did not provide any additional comments.

## **APPENDIX A – GREAT HEATH RECREATION USER SURVEY**

## Great Heath Recreation User Survey

1. How many people are in your group? Adults: \_\_\_\_\_ Minors: \_\_\_\_\_
2. What is your zip code? \_\_\_\_\_
3. Where in the Great Heath Public Reserved Land have you been or do you plan on going? \_\_\_\_\_
4. How much time have you/will you spend in the Great Heath Public Reserved Land during this trip? \_\_\_\_\_ (days)
5. What is/was your primary activity during this trip to the Great Heath Public Reserved Land?

Paddling \_\_\_\_\_ Hunting \_\_\_\_\_  
 Fishing \_\_\_\_\_ Viewing Wildlife \_\_\_\_\_  
 Other \_\_\_\_\_

6. How many trips (including this one) have you taken or do you plan to take to the Great Heath Public Reserved Land during:

Winter (December 1, 2015 – February 29, 2016) \_\_\_\_\_  
 Spring (March 1, 2016 – May 26, 2016) \_\_\_\_\_  
 Early Summer (May 26, 2016 – July 30, 2016) \_\_\_\_\_  
 Late Summer (August 1, 2016 - September 5, 2016) \_\_\_\_\_  
 Fall (September 5, 2016 – November 30, 2016) \_\_\_\_\_

7. What is the average number of days per trip:

Winter (December 1, 2015 – February 29, 2016) \_\_\_\_\_  
 Spring (March 1, 2016 – May 26, 2016) \_\_\_\_\_  
 Early Summer (May 26, 2016 – July 30, 2016) \_\_\_\_\_  
 Late Summer (August 1, 2016 - September 5, 2016) \_\_\_\_\_  
 Fall (September 5, 2016 – November 30, 2016) \_\_\_\_\_

8. On a 7-point scale where 1 means “Very Lower Scenic Value” and 7 means “Very High Scenic Value”, how would you rate the aesthetic appeal of the Great Heath Public Reserved Land?

Very Low Scenic Value	Somewhat Low Scenic Value	Low Scenic Value	Average Scenic Value	High Scenic Value	Somewhat High Scenic Value	Very High Scenic Value
1	2	3	4	5	6	7

9. Are you aware that a wind power project is proposed to the west and south of the Great Heath Public Reserved Land?  
 Yes \_\_\_\_\_ No \_\_\_\_\_

**10.** Once constructed, the proposed wind power project (i.e., wind turbines) will be located to the west and south of this location at a distance greater than 0.5 miles away and may be visible from the Great Heath Public Reserved Land. On a scale of 1 to 5 please rate how you think the wind power project may impact the quality of your recreational experience, where 1 means a positive impact, 3 means no impact, and 5 means a negative impact. (If you are uncertain, please indicate “uncertain” and skip to Question 12.

Positive	Somewhat Positive	No Impact	Somewhat Negative	Negative
1	2	3	4	5

**Uncertain** \_\_\_\_\_

**11.** Please describe briefly how you think the proposed wind power project may impact your recreational experience?

\_\_\_\_\_

**12.** On a scale of 1 to 5 please rate how likely you are to return to the Great Heath Public Reserved Land if a wind power project is visible, where 1 means a more likely, 3 means no effect, and 5 means a less likely.

More Likely	Somewhat More Likely	No Effect	Somewhat Less Likely	Less Likely
1	2	3	4	5

**13.** Do you have any additional comments? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Thank you very much for participating in this survey.**

**Surveyor please record the following information:**

Gender of the survey respondent. Male \_\_\_\_\_ Female \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Survey Location: \_\_\_\_\_

Weather: \_\_\_\_\_

**APPENDIX B – GREAT HEATH RECREATION  
BOX SIGN AND QUESTIONNAIRE**



Apex Clean Energy is conducting a Recreation Survey to determine the number of people currently utilizing the Great Heath Public Reserve Lands, the types of activities they are participating in, and determine recreation users' opinions about their recreation experience.

Apex Clean Energy thanks you for your assistance and cooperation with their study.

For additional information on this survey you can contact:

Paul Williamson  
Development Manager  
Apex Clean Energy  
Telephone (207) 242-3521

Great Heath Recreation Survey – 2016

Site Name: \_\_\_\_\_

1. What is today's Date? \_\_\_\_\_
2. What time is it? \_\_\_\_\_
3. How many people are in your group? Adults: \_\_\_\_\_ Minors: \_\_\_\_\_
4. What is your zip code? \_\_\_\_\_
5. Where in the Great Heath Public Reserved Land have you been or do you plan on going? \_\_\_\_\_
6. How much time have you/will you spend in the Great Heath Public Reserved Land during this trip? \_\_\_\_\_ (days)
7. What is/was your primary activity during this trip to the Great Heath Public Reserved Land?  
 \_\_\_\_\_ Paddling                      \_\_\_\_\_ Fishing                      Other \_\_\_\_\_  
 \_\_\_\_\_ Hunting                      \_\_\_\_\_ Viewing Wildlife

8 How many trips (including this one) have you taken or do you plan to take to the Great Heath Public Reserved Land during:

- Winter (December 1, 2015 – February 29, 2016) \_\_\_\_\_
- Spring (March 1, 2016 – May 26, 2016) \_\_\_\_\_
- Early Summer (May 26, 2016 – July 30, 2016) \_\_\_\_\_
- Late Summer (August 1, 2016 - September 5, 2016) \_\_\_\_\_
- Fall (September 5, 2016 – November 30, 2016) \_\_\_\_\_

9. What is the average number of days per trip:

- Winter (December 1, 2015 – February 29, 2016) \_\_\_\_\_
- Spring (March 1, 2016 – May 26, 2016) \_\_\_\_\_
- Early Summer (May 26, 2016 – July 30, 2016) \_\_\_\_\_
- Late Summer (August 1, 2016 - September 5, 2016) \_\_\_\_\_
- Fall (September 5, 2016 – November 30, 2016) \_\_\_\_\_

10. On a 7-point scale where 1 means "Very Lower Scenic Value" and 7 means "Very High Scenic Value", how would you rate the aesthetic appeal of the Great Heath Public Reserved Land?

Very Low Scenic Value	Somewhat Low Scenic Value	Low Scenic Value	Average Scenic Value	High Scenic Value	Somewhat High Scenic Value	Very High Scenic Value
1	2	3	4	5	6	7

11. Are you aware that a wind power project is proposed to the west and south of the Great Heath Public Reserved Land? Yes \_\_\_\_\_ No \_\_\_\_\_

**12.** Once constructed, the proposed wind power project (i.e., wind turbines) will be located to the west and south of this location at a distance greater than 0.5 miles away and may be visible from the Great Heath Public Reserved Land. On a scale of 1 to 5 please rate how you think the wind power project may impact the quality of your recreational experience, where 1 means a positive impact, 3 means no impact, and 5 means a negative impact. (If you are uncertain, please indicate “uncertain” and skip to Question 14.

Positive	Somewhat Positive	No Impact	Somewhat Negative	Negative
1	2	3	4	5

**Uncertain** \_\_\_\_\_

**13.** Please describe briefly how you think the proposed wind power project may impact your recreational experience?

\_\_\_\_\_

**14.** On a scale of 1 to 5 please rate how likely you are to return to the Great Heath Public Reserved Land if a wind power project is visible, where 1 means a more likely, 3 means no effect, and 5 means a less likely.

More Likely	Somewhat More Likely	No Effect	Somewhat Less Likely	Less Likely
1	2	3	4	5

**15.** Do you have any additional comments? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Thank you for taking the time to complete this survey. We appreciate your assistance with this study.**