

# Wind Resource Summary for Raynesford Site

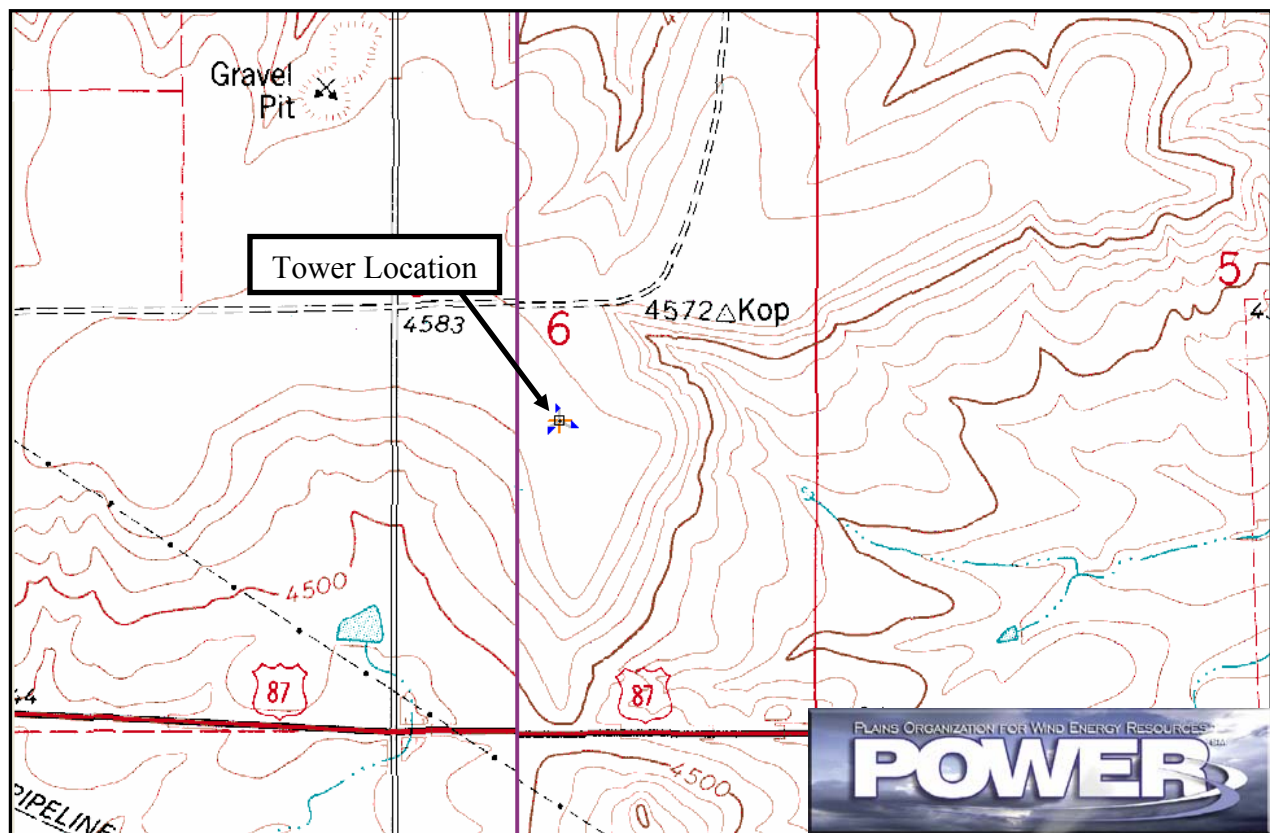
Plains Organization for Wind Energy Resources

Monitoring Period<sup>a</sup>: 7/1/2005 – 6/30/2006

## Site Description:

Latitude: N 47° 15' 43"	Township: 17 N
Longitude: W 110° 37' 29"	Range: 9 E
Elevation: 4560 feet	Section: 6
Tower Type: NRG Tilt-Up	Tower Height: 131 feet

The monitoring site is 5 miles east of the town of Raynesford, Montana. The tower is instrumented at three levels: 33 feet (10 m), 98 feet (30 m) and 131 feet (40 m). The tower is located on a hill that overlooks the Big Otter Creek to the southwest and the Hay Creek to the east. Vegetation around the site is predominantly prairie.



Summary Wind Data	33 ft AGL <sup>b</sup>	98 ft AGL	131 ft AGL
Mean Wind Speed	14.5 mph	16.3 mph	16.8 mph
Maximum, 10-min Mean Wind Speed	55.1 mph	61.5 mph	63.8 mph
Estimated Wind Power Class <sup>c</sup>	Class 5 (503 W/m <sup>2</sup> at 131 ft AGL)		

<sup>a</sup> Data recovery rates at 33, 98, and 131 feet were 97%, 97%, and 97%, respectively.

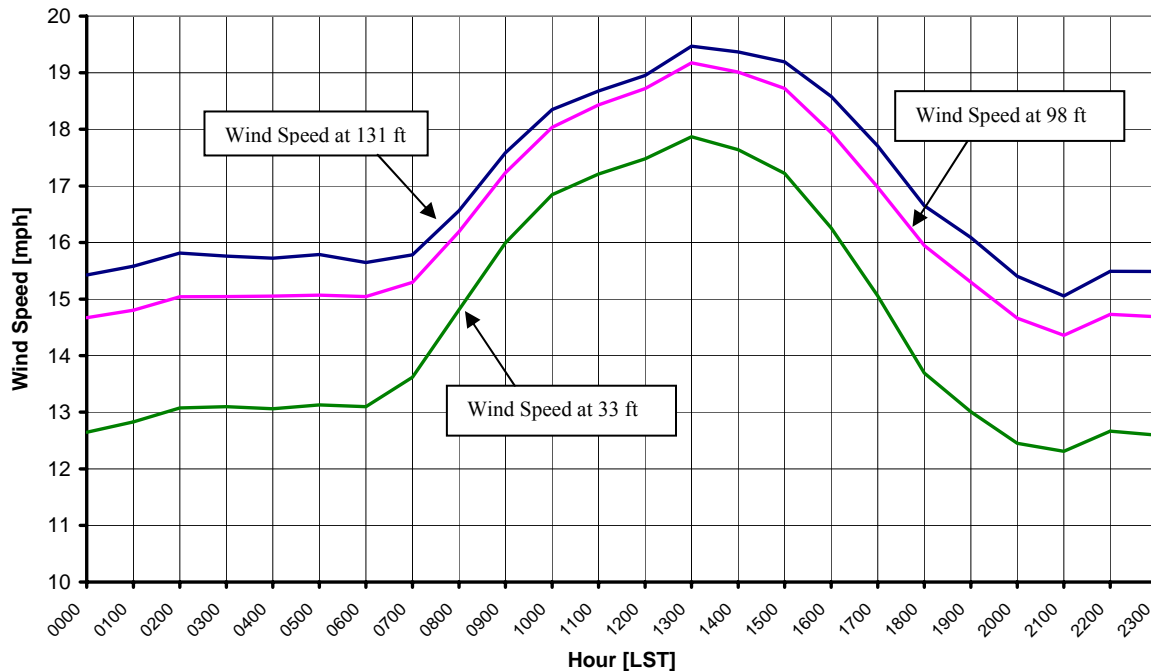
<sup>b</sup> Above ground level.

<sup>c</sup> Air temperature is not factored into calculations.

## Average Hourly Wind Speeds

LST <sup>d</sup>	131 ft AGL		98 ft AGL		33 ft AGL	
	mph	m/s	mph	m/s	mph	m/s
0000	15.4	6.90	14.7	6.56	12.6	5.65
0100	15.6	6.97	14.8	6.62	12.8	5.74
0200	15.8	7.07	15.0	6.72	13.1	5.84
0300	15.8	7.04	15.0	6.73	13.1	5.86
0400	15.7	7.03	15.1	6.73	13.1	5.84
0500	15.8	7.06	15.1	6.74	13.1	5.87
0600	15.6	7.00	15.0	6.73	13.1	5.86
0700	15.8	7.06	15.3	6.84	13.6	6.09
0800	16.6	7.40	16.2	7.24	14.8	6.62
0900	17.6	7.86	17.2	7.70	16.0	7.15
1000	18.4	8.20	18.0	8.06	16.8	7.53
1100	18.7	8.35	18.4	8.24	17.2	7.69
1200	19.0	8.47	18.7	8.37	17.5	7.81
1300	19.5	8.70	19.2	8.57	17.9	7.99
1400	19.4	8.66	19.0	8.50	17.6	7.89
1500	19.2	8.58	18.7	8.37	17.2	7.70
1600	18.6	8.31	17.9	8.02	16.3	7.27
1700	17.7	7.91	17.0	7.59	15.1	6.73
1800	16.7	7.44	15.9	7.13	13.7	6.12
1900	16.1	7.19	15.3	6.84	13.0	5.82
2000	15.4	6.89	14.7	6.56	12.5	5.57
2100	15.1	6.73	14.4	6.42	12.3	5.50
2200	15.5	6.93	14.7	6.58	12.7	5.66
2300	15.5	6.92	14.7	6.57	12.6	5.63

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7/1/2005 – 6/30/2006



<sup>d</sup> Local standard time.



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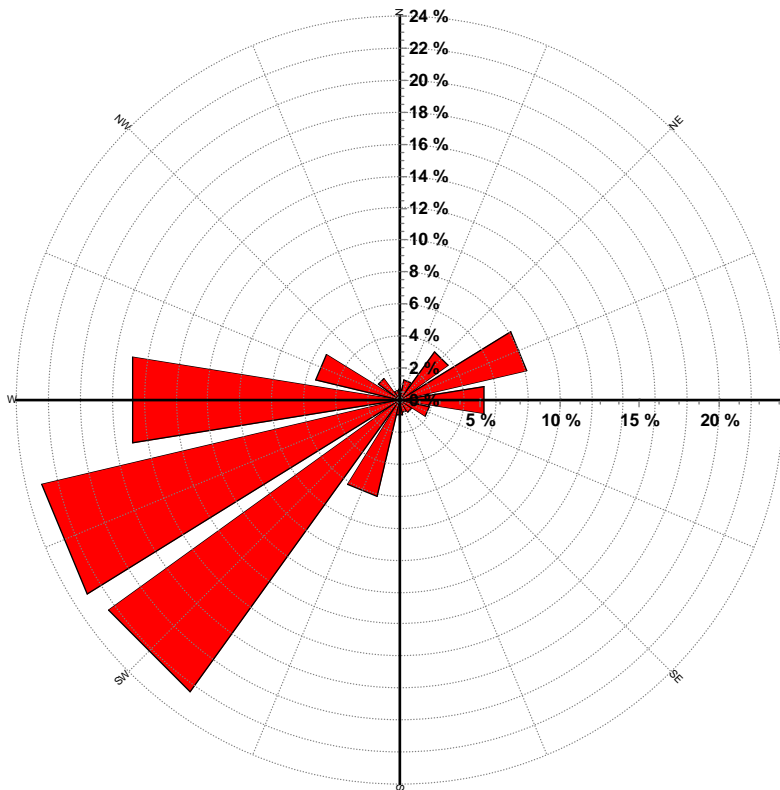
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## Wind Directional Frequency

**Winds from the...    Frequency (%)**

NNW	0.6
NW	1.7
WNW	5.4
W	16.9
WSW	23.0
SW	22.5
SSW	6.2
S	0.9
SSE	0.8
SE	0.9
ESE	1.9
E	5.3
ENE	8.1
NE	3.7
NNE	1.3
N	0.7

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Wind Rose for 131 ft AGL  
7/1/2005 – 6/30/2006



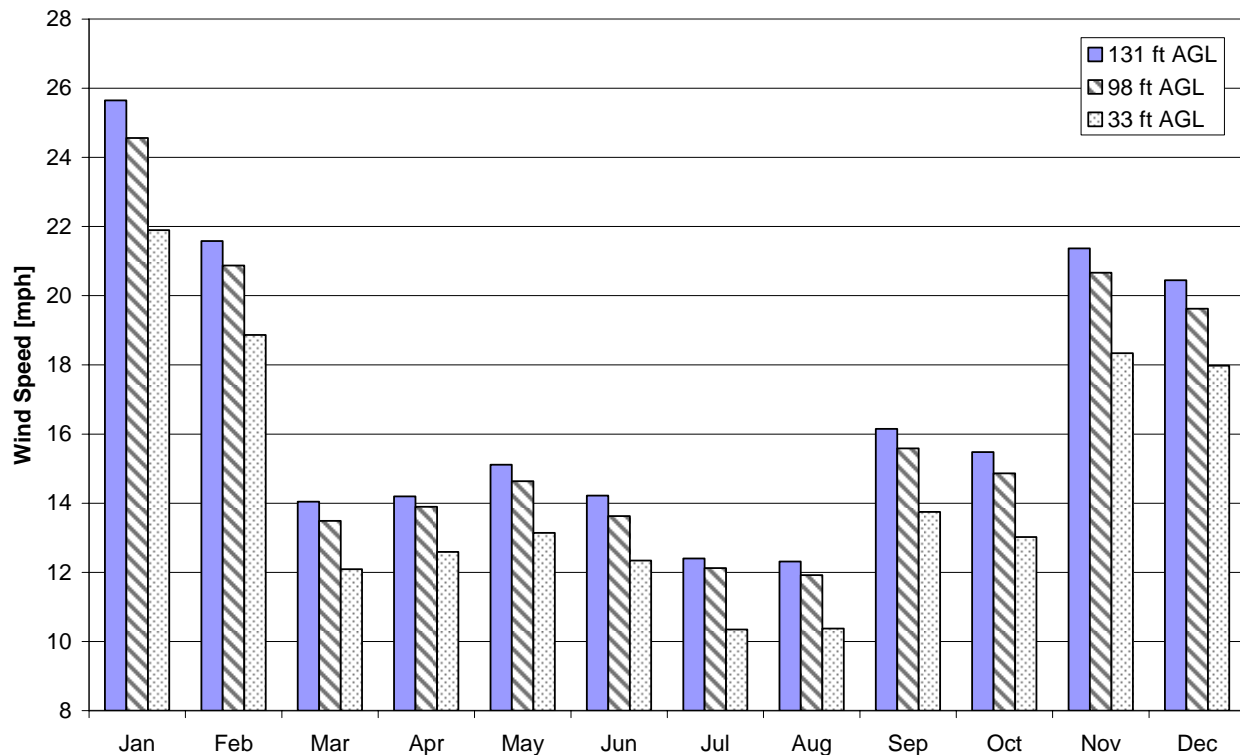
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## Monthly Wind Speed Averages

Month	131 ft AGL		98 ft AGL		33 ft AGL	
	mph	m/s	mph	m/s	mph	m/s
Jan	25.6	11.47	24.6	10.98	21.9	9.79
Feb	21.6	9.65	20.9	9.33	18.9	8.43
Mar	14.0	6.28	13.5	6.03	12.1	5.41
Apr	14.2	6.34	13.9	6.21	12.6	5.63
May	15.1	6.76	14.6	6.54	13.1	5.87
Jun	14.2	6.36	13.6	6.09	12.3	5.52
Jul	12.4	5.54	12.1	5.42	10.3	4.62
Aug	12.3	5.51	11.9	5.33	10.4	4.64
Sep	16.2	7.22	15.6	6.97	13.7	6.15
Oct	15.5	6.92	14.9	6.64	13.0	5.82
Nov	21.4	9.55	20.7	9.24	18.3	8.20
Dec	20.4	9.14	19.6	8.77	18.0	8.04

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