

# Wind Resource Summary for Fort Yates Site

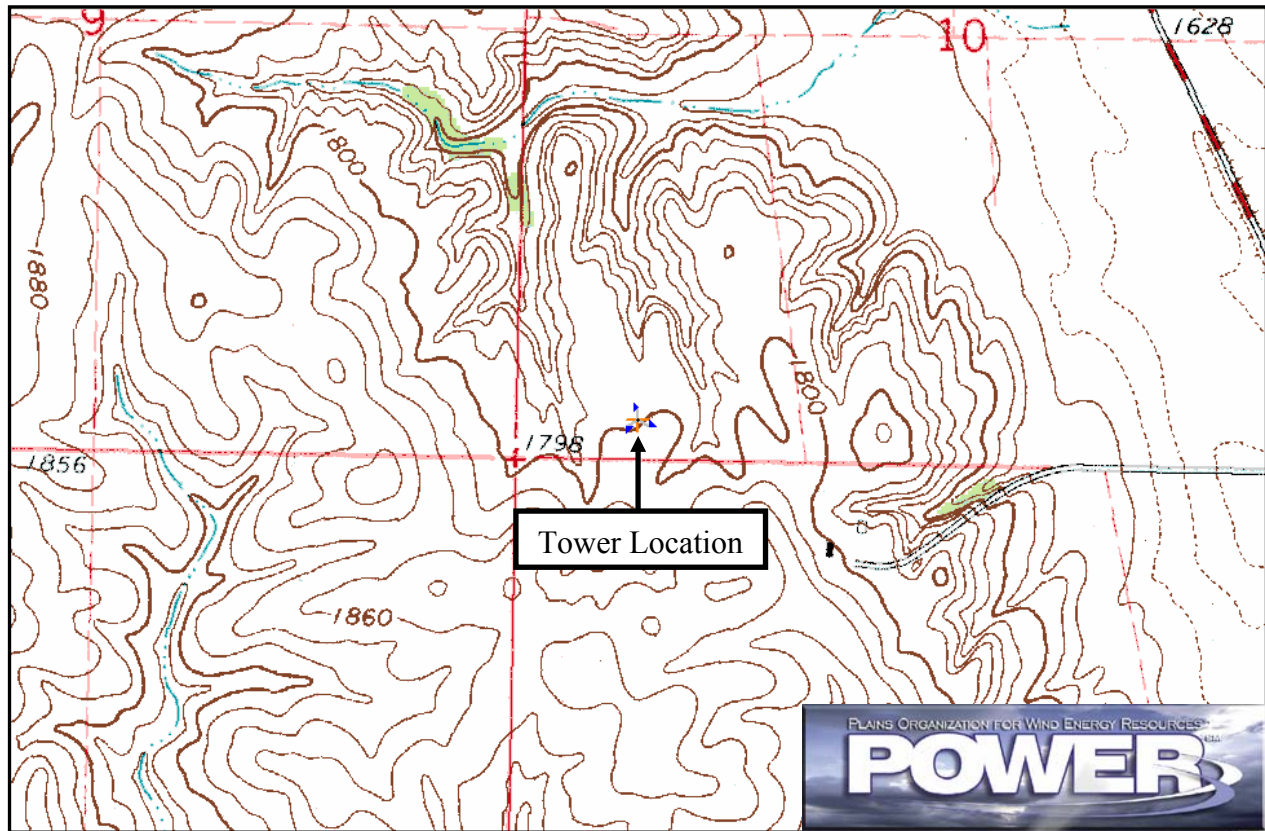
## Standing Rock Sioux Tribe

### Spring<sup>a</sup> 1997

#### Site Description:

Latitude: N 46° 5' 20"	Township: 130 N
Longitude: W 100° 41' 15"	Range: 80 W
Elevation: 1800 feet	Section: 34
Tower Type: NRG Tilt-Up	Tower Height: 131 feet

The monitoring site was 2.8 miles west of the town of Fort Yates, North Dakota. The tower was instrumented at three levels: 33 ft (10 m), 98 ft (30 m), and 131 ft (40 m). Slaughter House Bay of Lake Oahe is approximately 1 mile to the northeast. The landscape is very rugged with numerous ravines and hills. The vegetation is predominantly native grasses.



Summary Wind Data:	33 ft AGL <sup>b</sup>	98 ft AGL	131 ft AGL
Mean Wind Speed	11.0 mph	12.8 mph	14.6 mph
Maximum, 60-min Mean Wind Speed	41.9 mph at 131 ft AGL – 5/7/1997 4:00 p.m.		
Estimated Wind Power Class <sup>c</sup>	Class 3 (291 W/m <sup>2</sup> at 131 ft AGL)		

<sup>a</sup> Spring is defined as the months of March, April and May. Spring 1997 begins with March 1997. Data recovery rates at 33, 98, and 131 feet were 94%, 93%, and 95%, respectively.

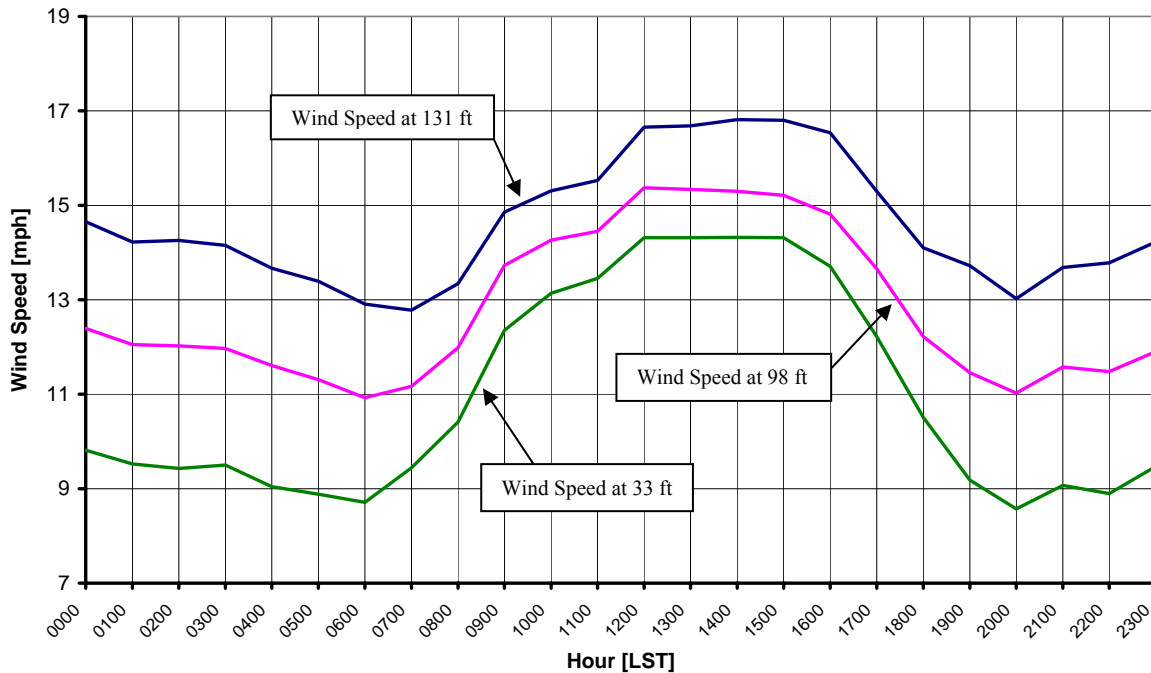
<sup>b</sup> Above ground level.

<sup>c</sup> Air temperature was 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	14.7	6.55	12.4	5.54	9.8	4.39
0100	14.2	6.36	12.0	5.39	9.5	4.26
0200	14.3	6.37	12.0	5.37	9.4	4.22
0300	14.1	6.33	12.0	5.35	9.5	4.25
0400	13.7	6.11	11.6	5.19	9.0	4.04
0500	13.4	5.99	11.3	5.06	8.9	3.97
0600	12.9	5.77	10.9	4.88	8.7	3.89
0700	12.8	5.71	11.2	4.99	9.4	4.22
0800	13.3	5.96	12.0	5.36	10.4	4.65
0900	14.9	6.64	13.7	6.14	12.4	5.52
1000	15.3	6.84	14.3	6.38	13.1	5.87
1100	15.5	6.94	14.4	6.46	13.5	6.01
1200	16.7	7.44	15.4	6.87	14.3	6.40
1300	16.7	7.46	15.3	6.86	14.3	6.40
1400	16.8	7.52	15.3	6.84	14.3	6.40
1500	16.8	7.51	15.2	6.80	14.3	6.40
1600	16.5	7.39	14.8	6.62	13.7	6.13
1700	15.3	6.84	13.7	6.11	12.2	5.46
1800	14.1	6.30	12.2	5.46	10.5	4.70
1900	13.7	6.13	11.5	5.12	9.2	4.10
2000	13.0	5.82	11.0	4.93	8.6	3.83
2100	13.7	6.12	11.6	5.17	9.1	4.05
2200	13.8	6.16	11.5	5.13	8.9	3.98
2300	14.2	6.36	11.9	5.32	9.5	4.24

**Standing Rock Sioux Tribe – Fort Yates Site  
Spring 1997**



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



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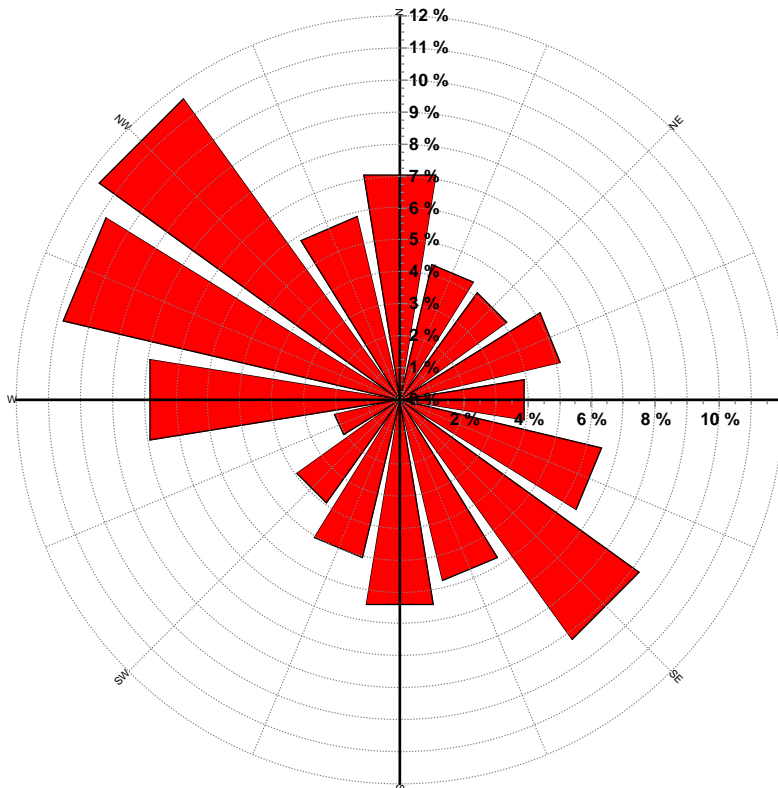
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## Wind Directional Frequency

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

NNW	5.9
NW	11.6
WNW	10.8
W	7.9
WSW	2.1
SW	4.0
SSW	5.1
S	6.5
SSE	5.8
SE	9.2
ESE	6.5
E	4.0
ENE	5.1
NE	4.1
NNE	4.3
N	7.1

Standing Rock Sioux Tribe – Fort Yates Site  
Wind Rose for 131 ft AGL  
Spring 1997

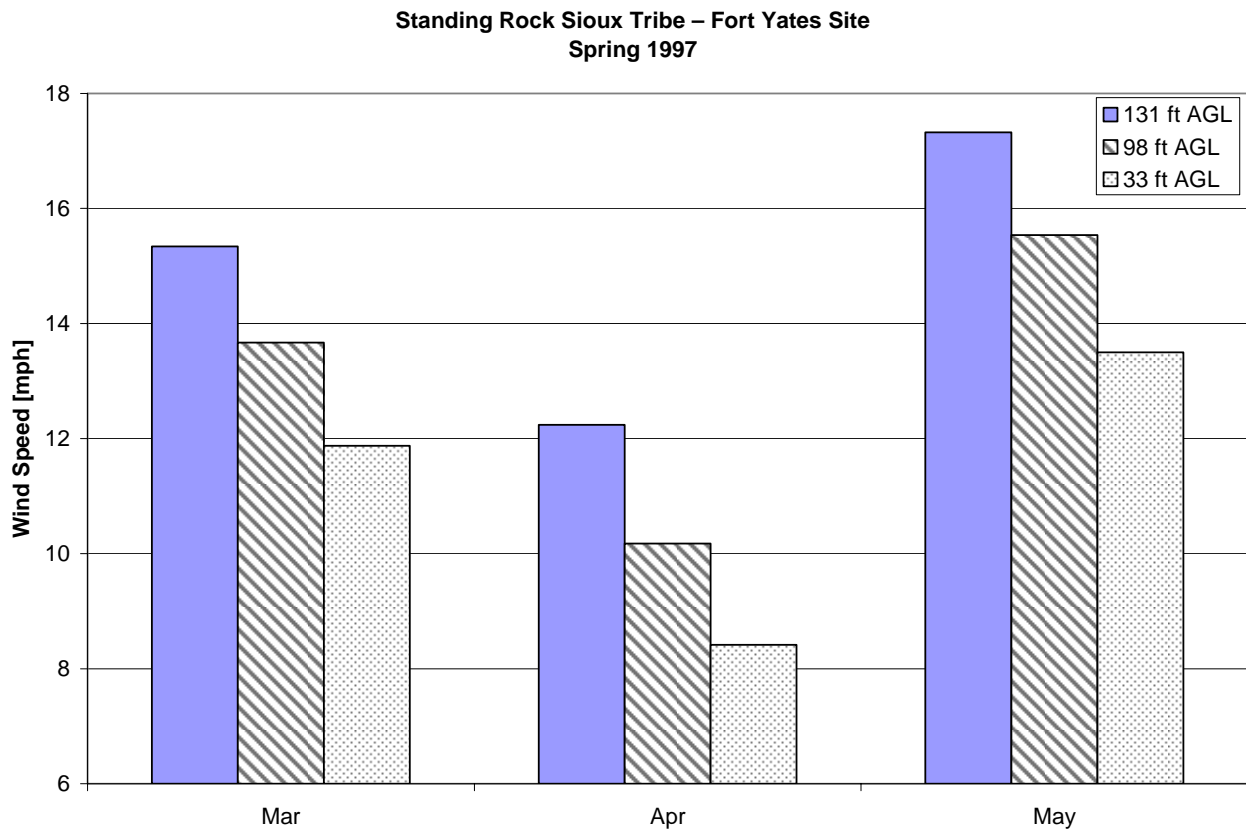


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## Monthly Wind Speed Averages

Month	131 ft AGL		98 ft AGL		33 ft AGL	
	mph	m/s	mph	m/s	mph	m/s
Mar	15.3	6.86	13.7	6.11	11.9	5.31
Apr	12.2	5.47	10.2	4.55	8.4	3.76
May	17.3	7.74	15.5	6.95	13.5	6.03



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