

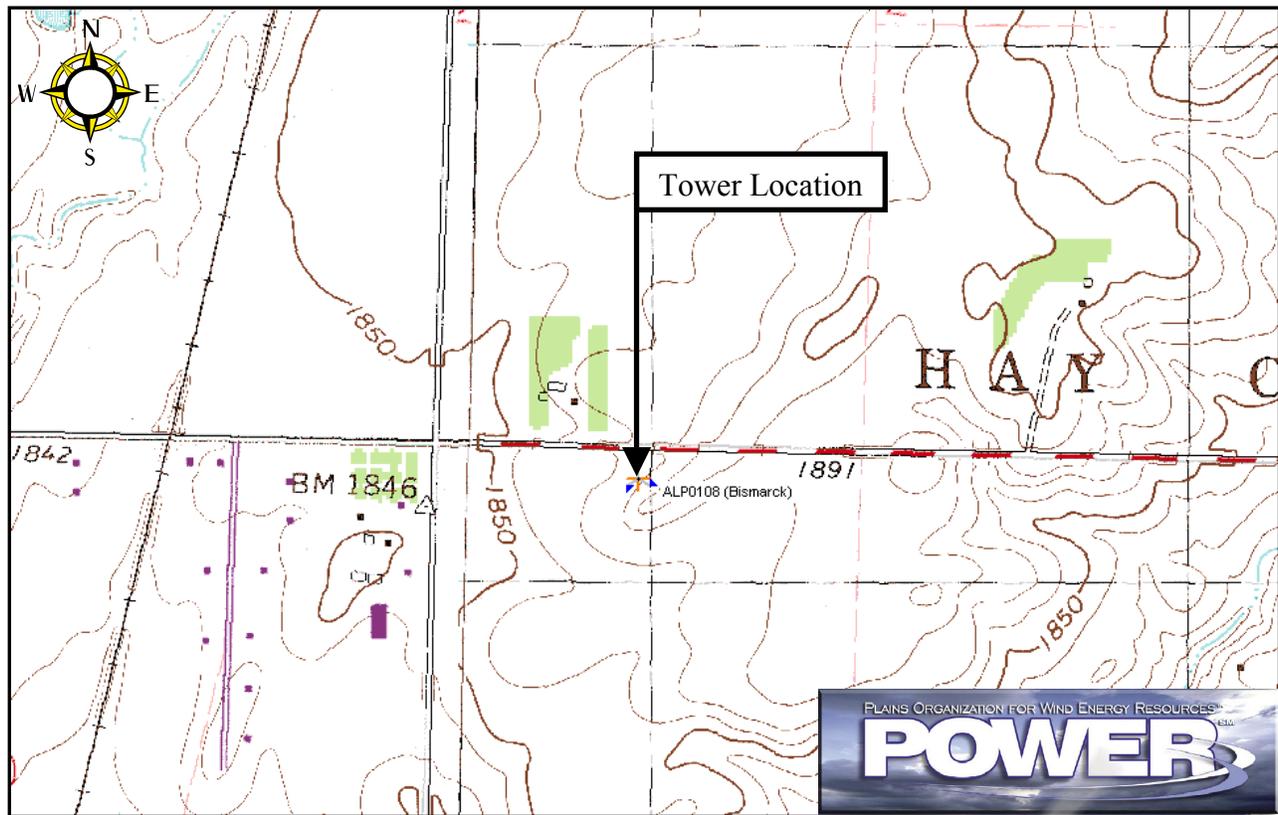
Wind Resource Summary for ALP0108 (Bismarck, ND)

12/04/2001 – 5/20/2003

Site Description:

Latitude: N 46° 52' 51"	Township: 139 N
Longitude: W 100° 44' 47"	Range: 80 W
Elevation: 1,880 feet	Section: 9
Tower Type: NRG Tilt-Up	Tower Height: 66 feet

The site is located in a rural residential area approximately 5 miles north-northeast of Bismarck. An earth home is located south east of the tower about 100 feet; the soil that covers the home creates a mound that is roughly 20 feet tall. Other homes surround the tower, as well as trees and dense vegetation. The wind exposure at this site is categorized as poor.

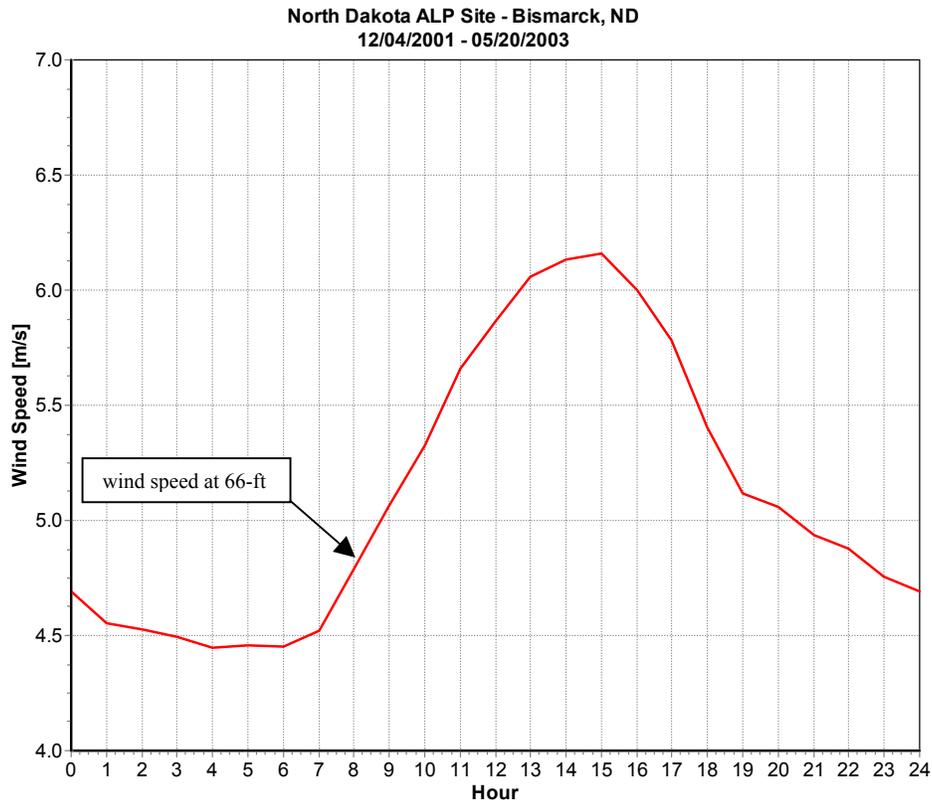


Summary Wind Data:	66-ft AGL^a
Mean Wind Speed	11.5 mph
Maximum, 10-min Mean Wind Speed	53.2 mph – 2/11/2002 1:10 pm
Mean Wind Power Density	161 W/m ²

^a Above ground level.

Average Hourly Wind Speeds

LST	66-ft AGL (m/s)	66-ft AGL (mph)
0000	4.69	10.5
0100	4.55	10.2
0200	4.52	10.1
0300	4.50	10.1
0400	4.45	10.0
0500	4.46	10.0
0600	4.45	10.0
0700	4.52	10.1
0800	4.79	10.7
0900	5.07	11.3
1000	5.33	11.9
1100	5.66	12.7
1200	5.87	13.1
1300	6.06	13.6
1400	6.13	13.7
1500	6.16	13.8
1600	6.00	13.4
1700	5.78	12.9
1800	5.40	12.1
1900	5.12	11.4
2000	5.06	11.3
2100	4.94	11.0
2200	4.88	10.9
2300	4.76	10.6



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701-777-5000 or bstevens@undeerc.org

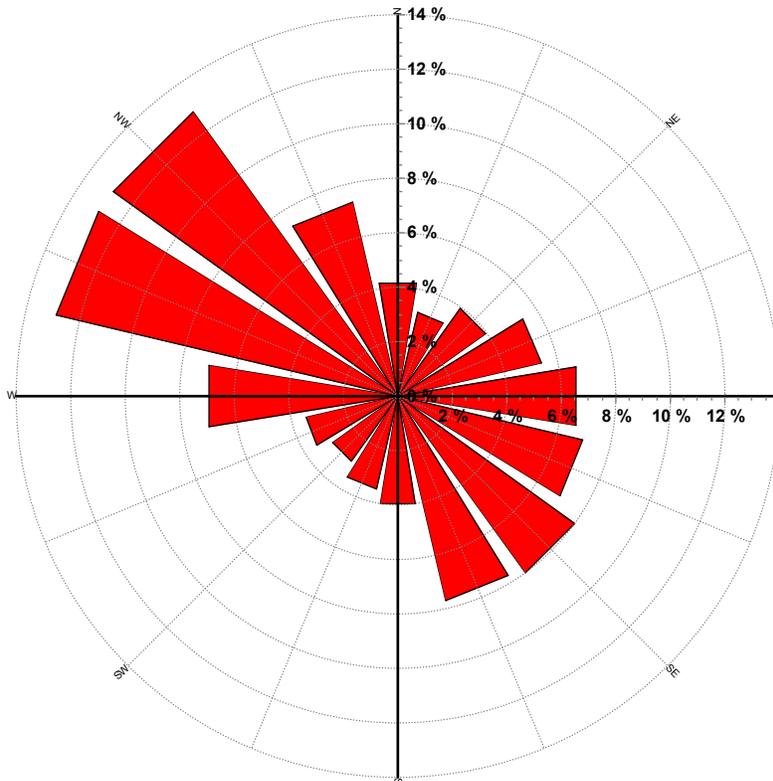
Creation Date: 12/02/2003

Wind Directional Frequency

Winds from the... Frequency (%)

NNW	7.3
NW	12.8
WNW	12.9
W	7.0
WSW	3.5
SW	2.9
SSW	3.5
S	4.0
SSE	7.7
SE	8.0
ESE	7.0
E	6.6
ENE	5.4
NE	4.0
NNE	3.2
N	4.2

North Dakota ALP Site - Bismarck, ND
Wind Rose for 66-ft AGL
12/04/2001 - 05/20/2003



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