

# Wind Resource Summary for Medina Site

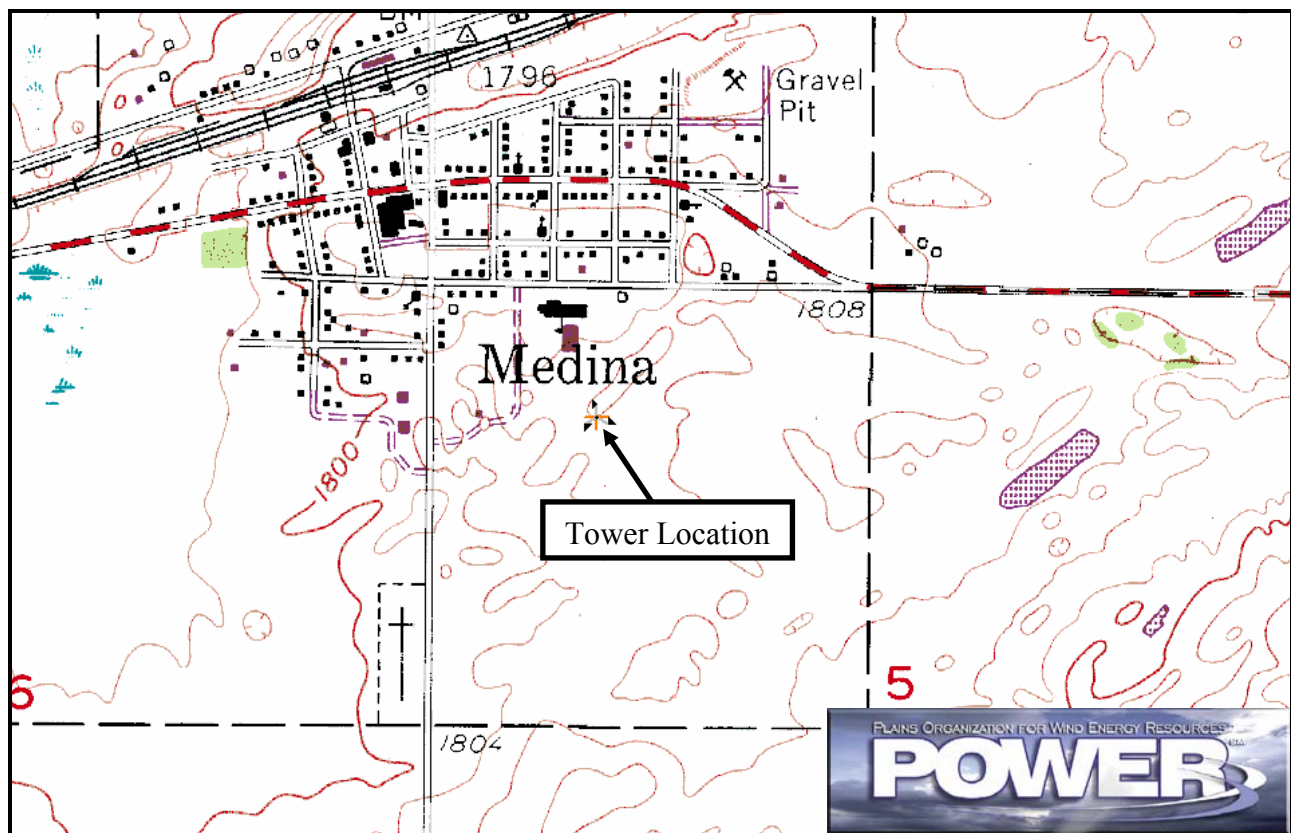
North Dakota Anemometer Loan Program – Site ALP0503

Monitoring Period<sup>a</sup>: 10/25/2005 – 4/13/2007

## Site Description:

Latitude: N 46° 53' 24"	Township: 139 N
Longitude: W 99° 17' 46"	Range: 68 W
Elevation: 1806 feet	Section: 5
Tower Type: NRG Tilt-Up	Tower Height: 66 feet

The monitoring system was installed for Medina Public School. The tower is located south of the school buildings and east of a baseball field. Buildings to the north and northwest will impact the winds from these directions. Otherwise, the tower has good exposure to the winds. The vegetation around the site is primarily grasses.



Summary Wind Data	66 ft AGL <sup>b</sup>
Mean Wind Speed	11.7 mph
Maximum, 10-min Mean Wind Speed	40.1 mph – 3/20/2007 11:50 a.m.
Estimated Wind Power Class <sup>c</sup>	Class 2 (163 W/m <sup>2</sup> )

<sup>a</sup> Data recovery rate was 97%.

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

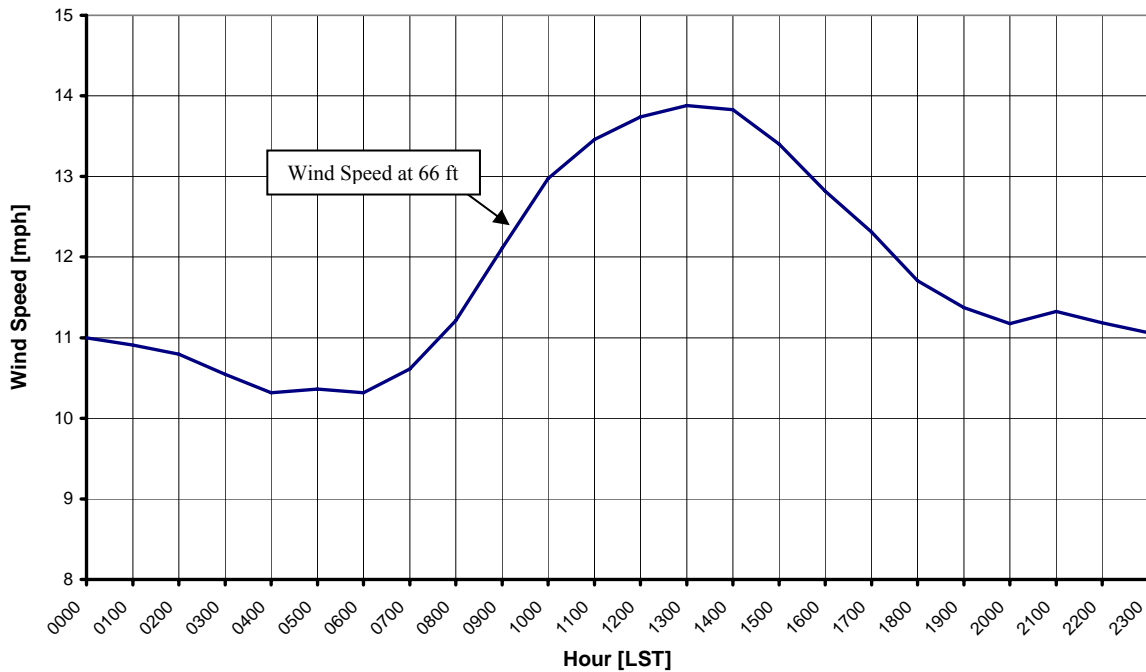
<sup>c</sup> Air temperature was not factored into calculation.

## Average Hourly Wind Speeds

66 ft AGL

LST <sup>d</sup>	mph	m/s
0000	11.0	4.92
0100	10.9	4.88
0200	10.8	4.83
0300	10.5	4.72
0400	10.3	4.61
0500	10.4	4.63
0600	10.3	4.61
0700	10.6	4.75
0800	11.2	5.01
0900	12.1	5.41
1000	13.0	5.80
1100	13.5	6.02
1200	13.7	6.14
1300	13.9	6.21
1400	13.8	6.18
1500	13.4	5.99
1600	12.8	5.73
1700	12.3	5.50
1800	11.7	5.23
1900	11.4	5.08
2000	11.2	5.00
2100	11.3	5.06
2200	11.2	5.00
2300	11.1	4.94

**North Dakota 2005 ALP Site – Medina (ALP 0503)**  
10/25/2005 – 4/13/2007



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



Energy & Environmental Research Center  
701-777-5000 or [bstevens@undeerc.org](mailto:bstevens@undeerc.org)

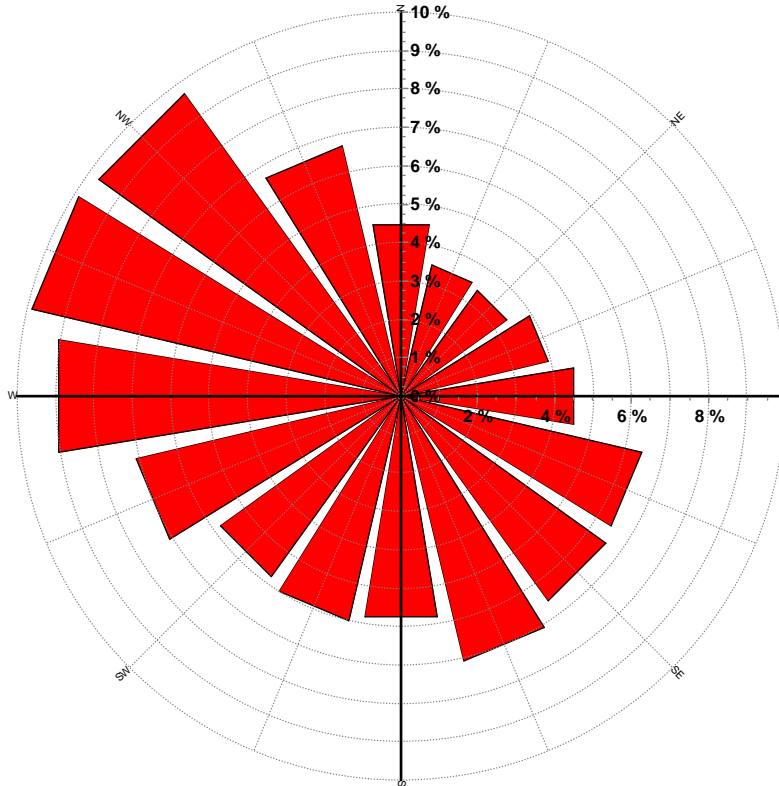
Creation Date: 7/12/2007

## Wind Directional Frequency\*

Winds from the...	Frequency (%)
NNW	6.7
NW	9.7
WNW	9.9
W	9.0
WSW	7.1
SW	5.8
SSW	6.0
S	5.8
SSE	7.1
SE	6.6
ESE	6.4
E	4.5
ENE	3.9
NE	3.4
NNE	3.5
N	4.5

\* 10/25/2005 – 2/3/2007 (Wind direction sensor fails QA tests after 2/3/2007)

North Dakota 2005 ALP Site – Medina (ALP 0503)  
Wind Rose for 66 ft AGL  
10/25/2005 – 2/3/2007



Energy & Environmental Research Center  
701-777-5000 or [bstevens@underc.org](mailto:bstevens@underc.org)

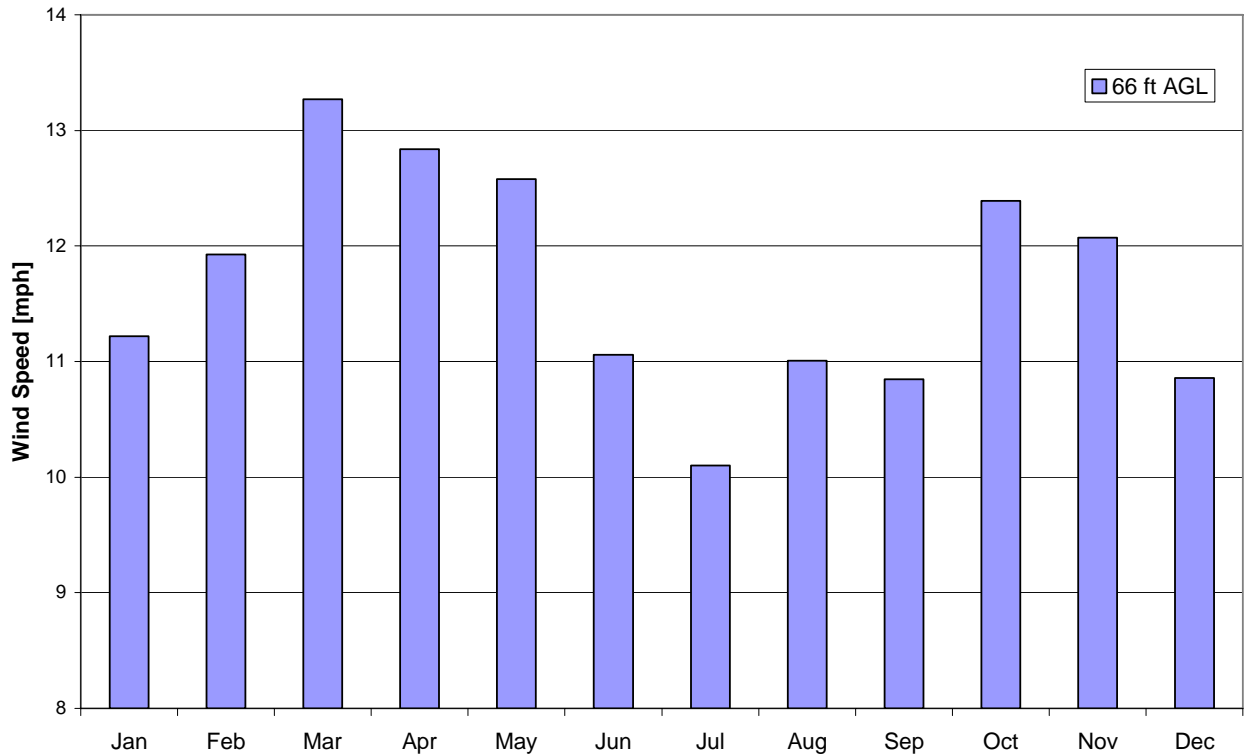
Creation Date: 7/12/2007

## Monthly Wind Speed Averages

**66 ft AGL**

<b>Month</b>	<b>mph</b>	<b>m/s</b>
Jan	11.2	5.02
Feb	11.9	5.33
Mar	13.3	5.93
Apr	12.8	5.74
May	12.6	5.62
Jun	11.1	4.94
Jul	10.1	4.52
Aug	11.0	4.92
Sep	10.8	4.85
Oct	12.4	5.54
Nov	12.1	5.40
Dec	10.9	4.85

**North Dakota 2005 ALP Site – Medina (ALP 0503)**  
10/25/2005 – 4/13/2007



Energy & Environmental Research Center  
701-777-5000 or [bstevens@undeerc.org](mailto:bstevens@undeerc.org)

Creation Date: 7/12/2007