

# Wind Resource Summary for Loraine Site

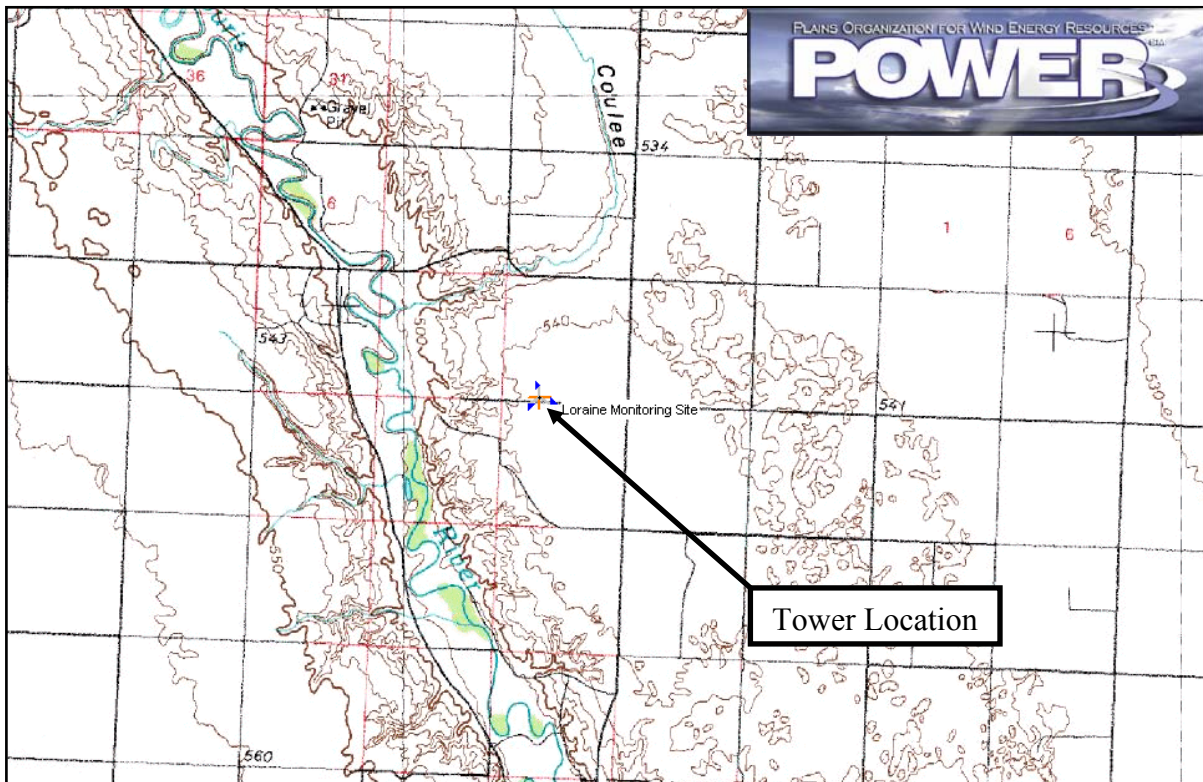
Renville County Job Development Authority

Monitoring Period:<sup>a</sup> 7/16/2003 – 8/18/2004

## Site Description:

Latitude: N 48° 51' 54"	Township: 162 N
Longitude: W 101° 50' 24"	Range: 86 W
Elevation: 1782 feet	Section:
Tower Type: NRG Tilt-Up	Tower Height: 66 feet

The tower is located approximately 14 miles west of Loraine, North Dakota, on an elevated area to the east of the Souris, or Mouse, River. The site has good exposure to the wind in all directions.



<b>Summary Wind Data:</b>	<b>66 ft AGL<sup>b</sup></b>
<b>Mean Wind Speed</b>	13.2 mph
<b>Maximum 10-min Mean Wind Speed</b>	47.2 mph – 3/10/04 11:20 a.m.
<b>Estimated Wind Power Class<sup>c</sup></b>	Class 3 (237 W/m <sup>2</sup> )

<sup>a</sup> Data recovery rate for the period, 7/16/2003 to 8/18/2004, is 99%.

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

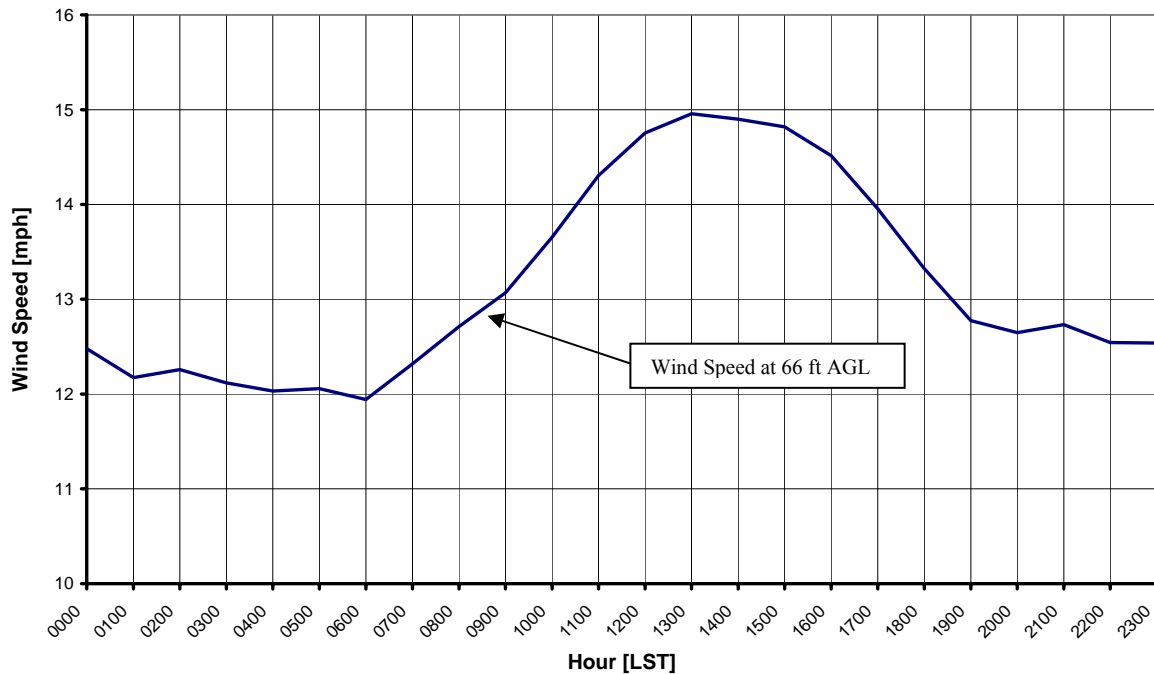
<sup>c</sup> Air temperature is not factored into calculation.

## Average Hourly Wind Speeds

66 ft AGL

LST <sup>d</sup>	mph	m/s
0000	12.5	5.58
0100	12.2	5.44
0200	12.3	5.48
0300	12.1	5.42
0400	12.0	5.38
0500	12.1	5.39
0600	11.9	5.34
0700	12.3	5.51
0800	12.7	5.68
0900	13.1	5.84
1000	13.7	6.10
1100	14.3	6.40
1200	14.8	6.60
1300	15.0	6.69
1400	14.9	6.66
1500	14.8	6.62
1600	14.5	6.49
1700	14.0	6.24
1800	13.3	5.96
1900	12.8	5.71
2000	12.6	5.65
2100	12.7	5.69
2200	12.5	5.61
2300	12.5	5.61

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7/16/2003 – 8/18/2004



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



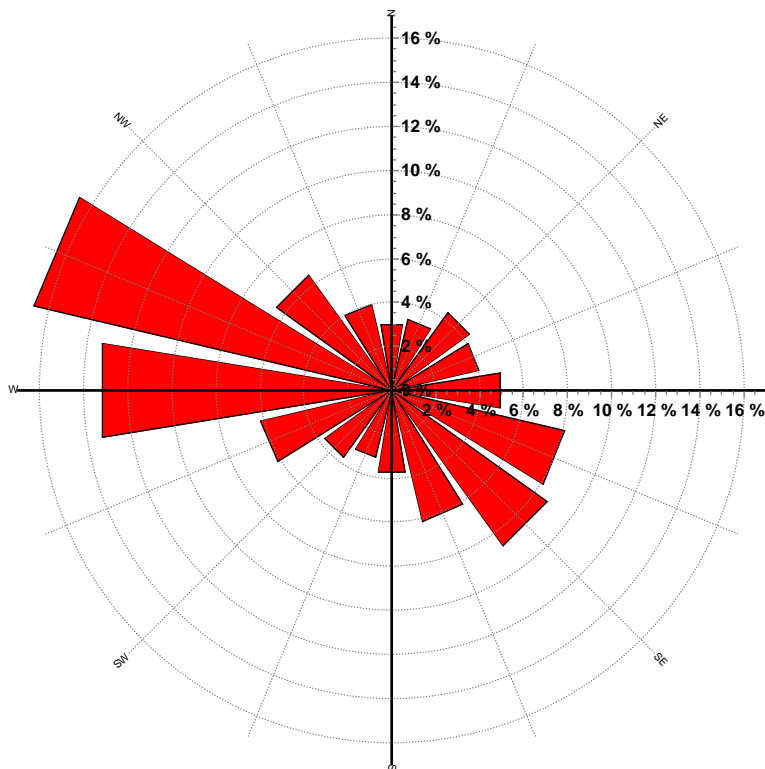
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Creation Date: 10/1/2004

## Wind Direction Frequency

Winds from the...	Frequency (%)
NNW	4.0
NW	6.5
WNW	16.7
W	13.3
WSW	6.1
SW	3.7
SSW	3.1
S	3.8
SSE	6.1
SE	8.7
ESE	8.1
E	5.0
ENE	4.1
NE	4.4
NNE	3.3
N	3.0

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 Wind Rose for 66 ft AGL  
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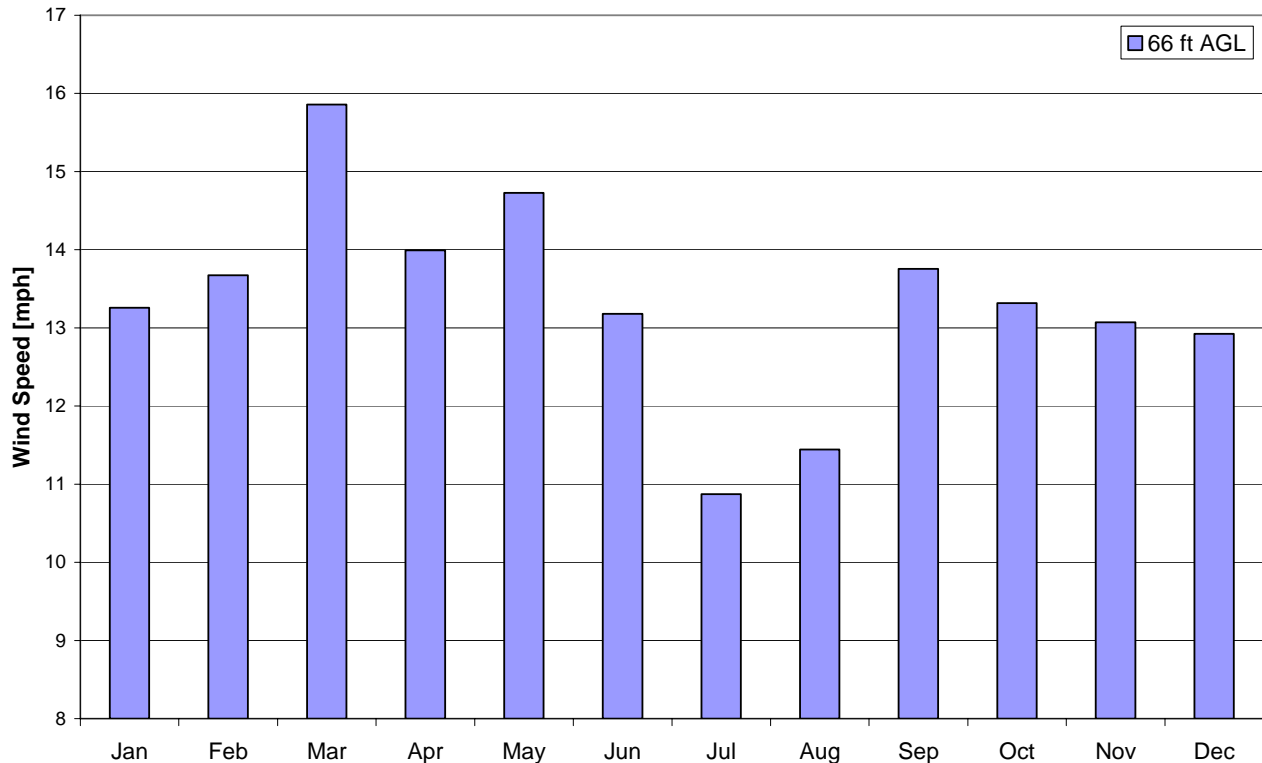
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## Monthly Wind Speed Averages

66 ft AGL

Month	mph	m/s
Jan	13.3	5.93
Feb	13.7	6.11
Mar	15.9	7.09
Apr	14.0	6.26
May	14.7	6.58
Jun	13.2	5.89
Jul	10.9	4.86
Aug	11.4	5.12
Sep	13.8	6.15
Oct	13.3	5.95
Nov	13.1	5.84
Dec	12.9	5.78

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