Site Information:

Project: Wind Hybrid Project

Location: Morris, MN

Elevation: 350 m

Sensor Information:

1 NRG #40 Anem. m/s
2 NRG #40 Anem. m/s
3 NRG #40 Anem. m/s
4 NRG #40 Anem. m/s
5 NRG #40 Anem. m/s
6 NRG #40 Anem. m/s
7 #200P Wind Vane
8 #200P Wind Vane
9 NRG #110S Temp C
10 BP-20 Barom. mb
11 No SCM Installed
12 No SCM Installed

November 2003

Summary Report

SITE 1080

WCROC

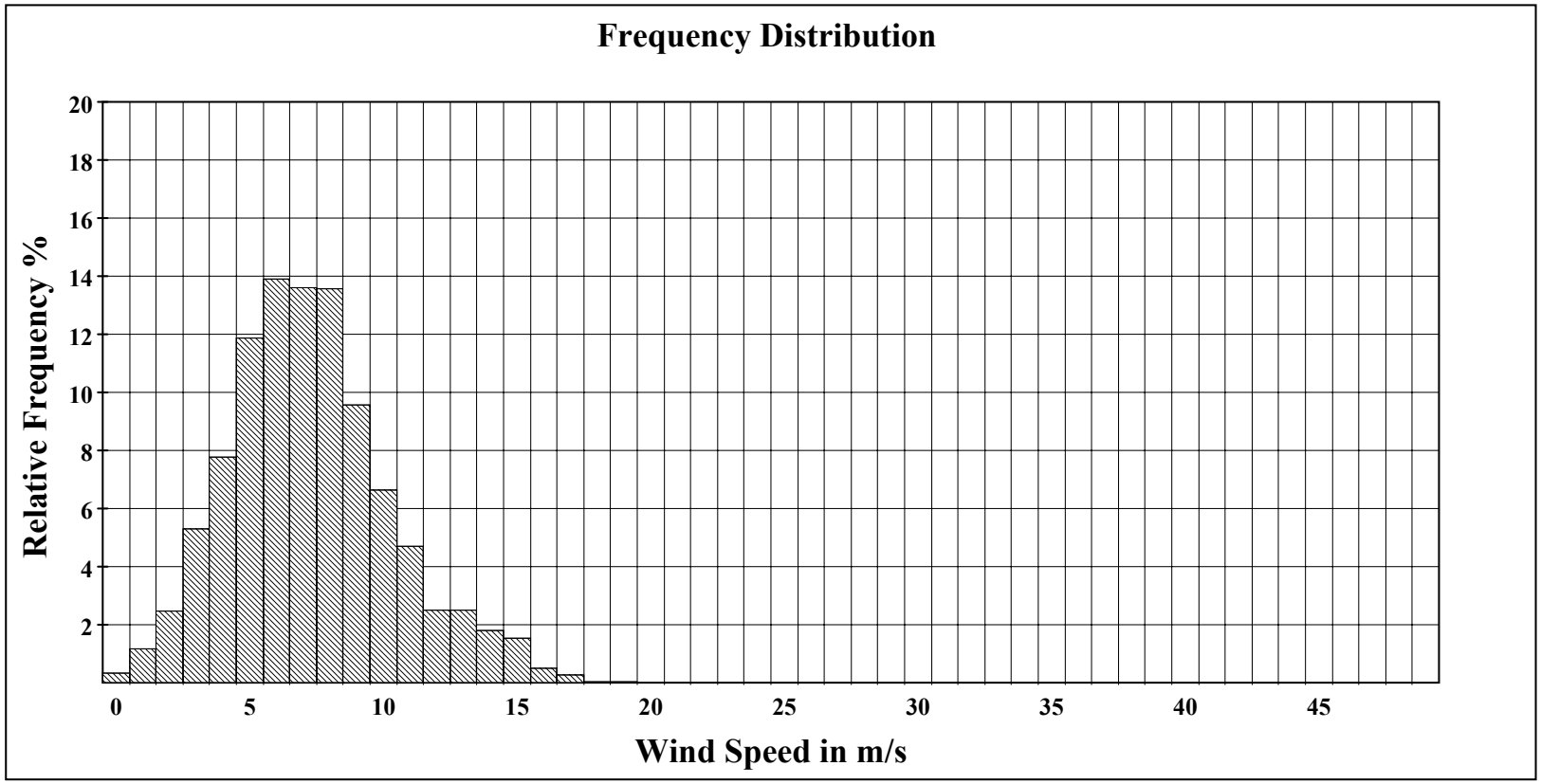
Channel	1	2	3	4	5	6	7	8	9	10		
Height	50 m	50 m	40 m	40 m	30 m	30 m	50 m	40 m	2 m	2 m	------	------
Units	m/s	m/s	m/s	m/s	m/s	m/s	deg	deg	C	mb	-----	-----
Intervals with Valid Data	4317	4317	4317	4316	4317	4317	4317	4317	4317	4317		
Average Filtered Data	7.24	7.49	6.61	7.05	6.29	6.53	205.91	206.55	-1.49	978		
Average for All Data	7.24	7.49	6.61	7.05	6.29	6.53	205.91	206.55	-1.49	978		
Min Interval Average	0.4	0.4	0.4	0.4	0.4	0.4			-15.9	956.6		
Date of Min Interval	11/1/2003	11/1/2003	11/1/2003	11/1/2003	11/1/2003	11/1/2003			11/24/2003	11/20/2003		
Time of Min Interval	6:50:00 AM	6:50:00 AM	6:40:00 AM	6:50:00 AM	6:40:00 AM	6:40:00 AM			7:30:00 AM	4:40:00 AM		
Max Interval Average	18.5	19	17.6	18.3	17	17.6			15	1000.6		
Date of Max Interval	11/12/2003	11/12/2003	11/12/2003	11/12/2003	11/12/2003	11/12/2003			11/17/2003	11/8/2003		
Time of Max Interval	9:50:00 AM	9:50:00 AM	9:50:00 AM	9:50:00 AM	9:50:00 AM	9:50:00 AM			3:10:00 PM	8:40:00 AM		
Average Interval SD	0.81	0.77	0.82	0.78	0.8	0.78	5.58	6.05	0.03	0.01		
Min Sample	0.4	0.4	0.4	0.4	0.4	0.4			-15.9	956		
Date of Min Sample	11/1/2003	11/1/2003	11/1/2003	11/1/2003	11/1/2003	11/1/2003			11/24/2003	11/20/2003		
Time of Min Sample	6:40:00 AM	6:40:00 AM	6:40:00 AM	6:40:00 AM	4:20:00 AM	6:30:00 AM			7:20:00 AM	3:20:00 AM		
Max Sample	24.4	25.2	23.3	24	22.9	23.7			15.2	1000.3		
Date of Max Sample	11/12/2003	11/12/2003	11/12/2003	11/12/2003	11/12/2003	11/12/2003			11/17/2003	11/7/2003		
Time of Max Sample	9:50:00 AM	9:50:00 AM	9:50:00 AM	9:50:00 AM	9:50:00 AM	9:50:00 AM			3:10:00 PM	11:00:00 PM		
Average Interval TI	0.12	0.11	0.13	0.11	0.13	0.13						
Wind Speed Direction							WNW	NW				

Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 1:
NRG #40 Anem. m/s
Height: 50 m
Serial #: SN:

November 2003

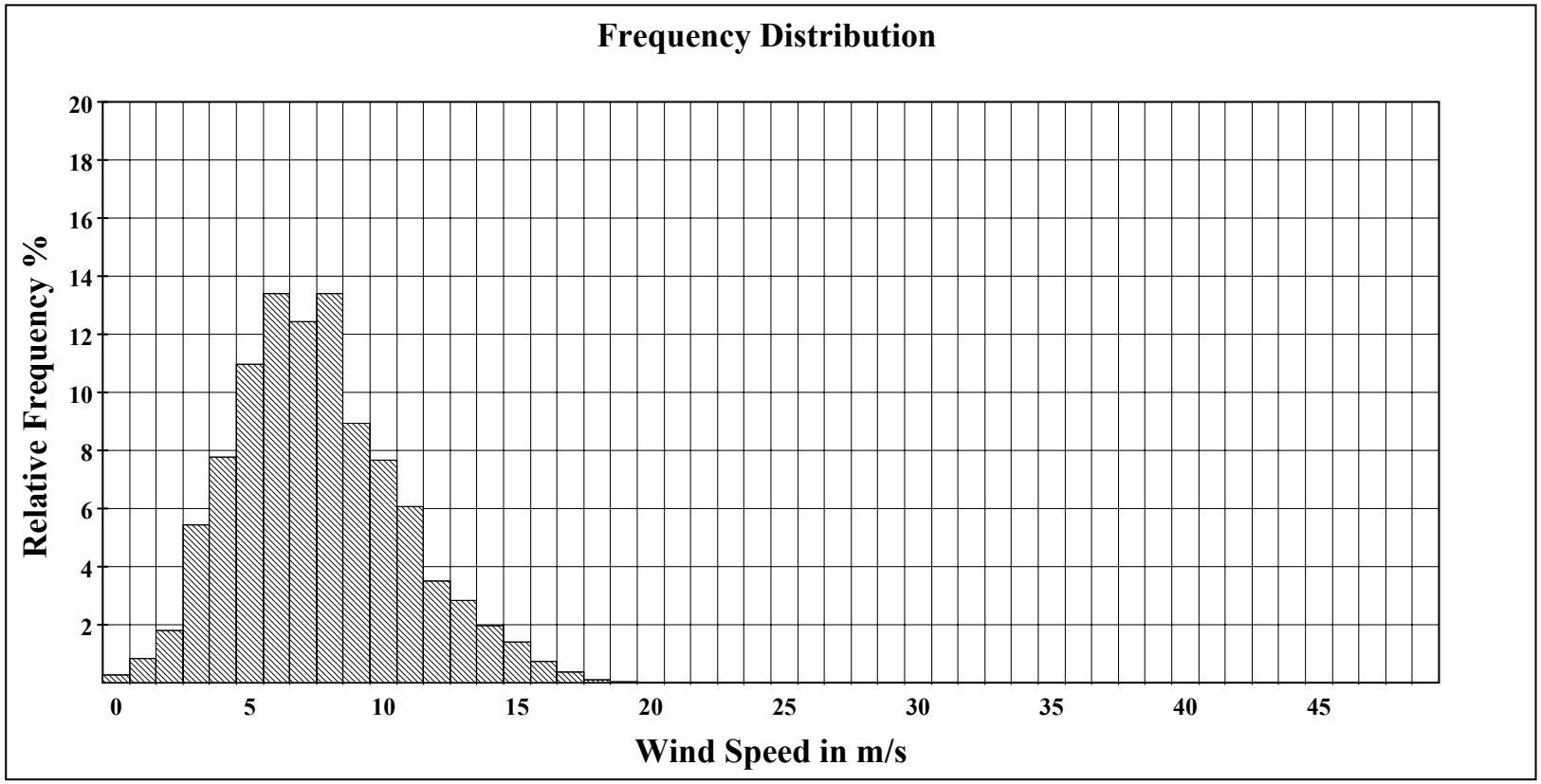
Frequency Distribution, 50 m, Ch 1
SITE 1080
WCROC



Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 2:
NRG #40 Anem. m/s
Height: 50 m
Serial #: SN:

November 2003
Frequency Distribution, 50m, Ch 2
SITE 1080
WCROC

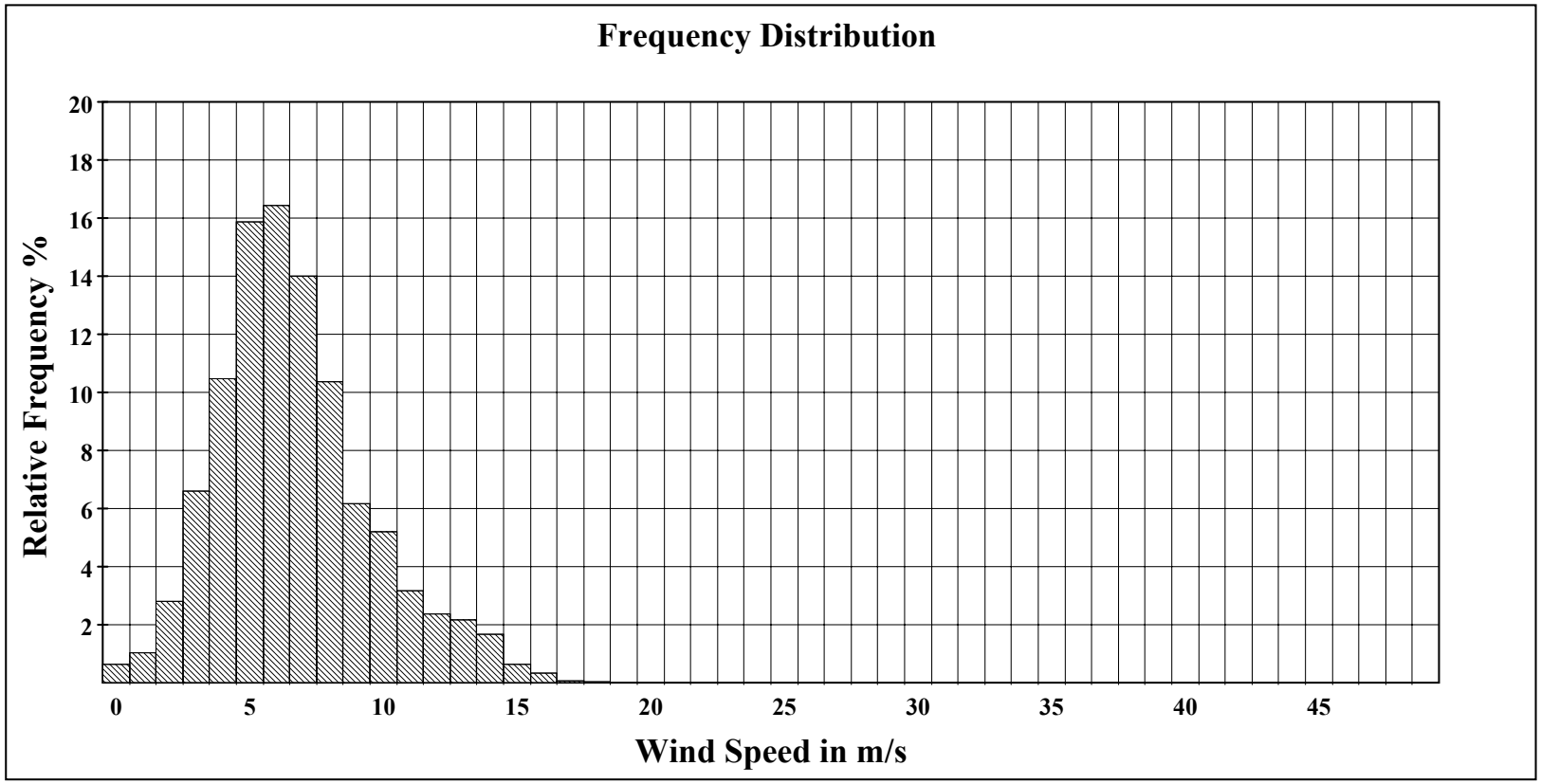


Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 3:
NRG #40 Anem. m/s
Height: 40 m
Serial #: SN:

November 2003

Frequency Distribution, 40m, Ch 3
SITE 1080
WCROC

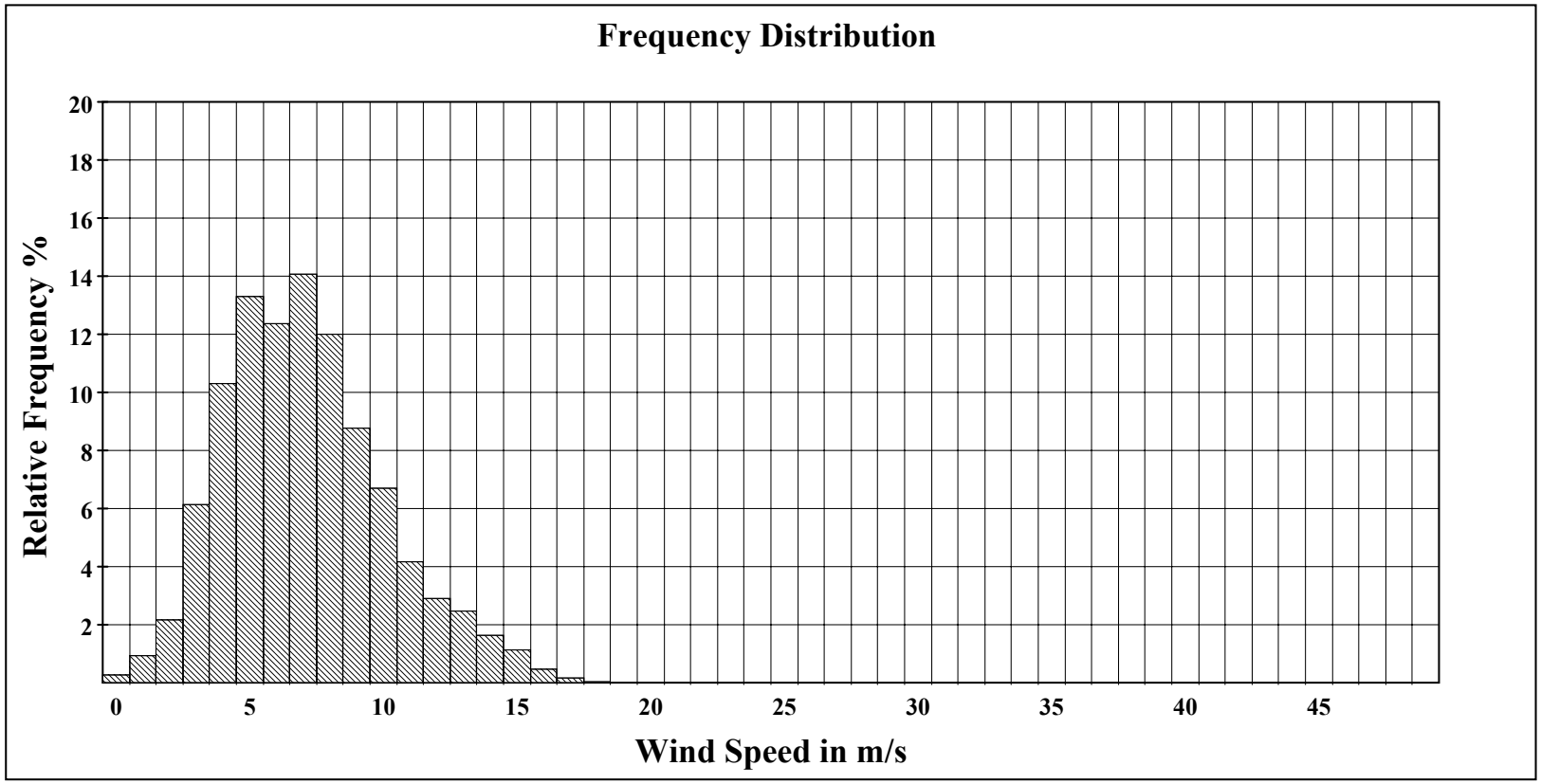


Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 4:
NRG #40 Anem. m/s
Height: 40 m
Serial #: SN:

November 2003

Frequency Distribution, 40m, Ch 4
SITE 1080
WCROC

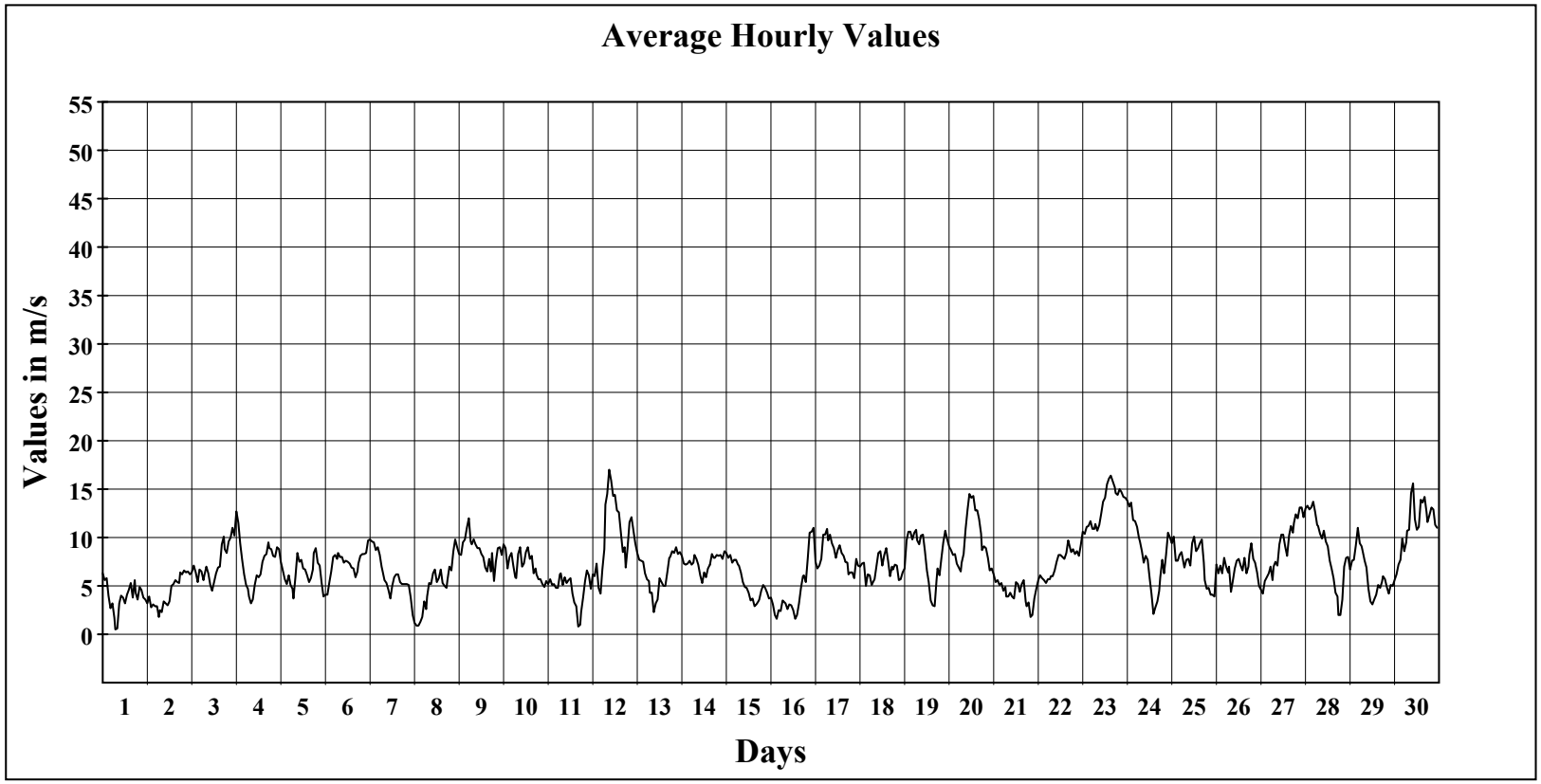


Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 1:
NRG #40 Anem. m/s
Height: 50 m
Serial #: SN:

November 2003

Hourly Averages Graph, 50m, Ch 1
SITE 1080
WCROC



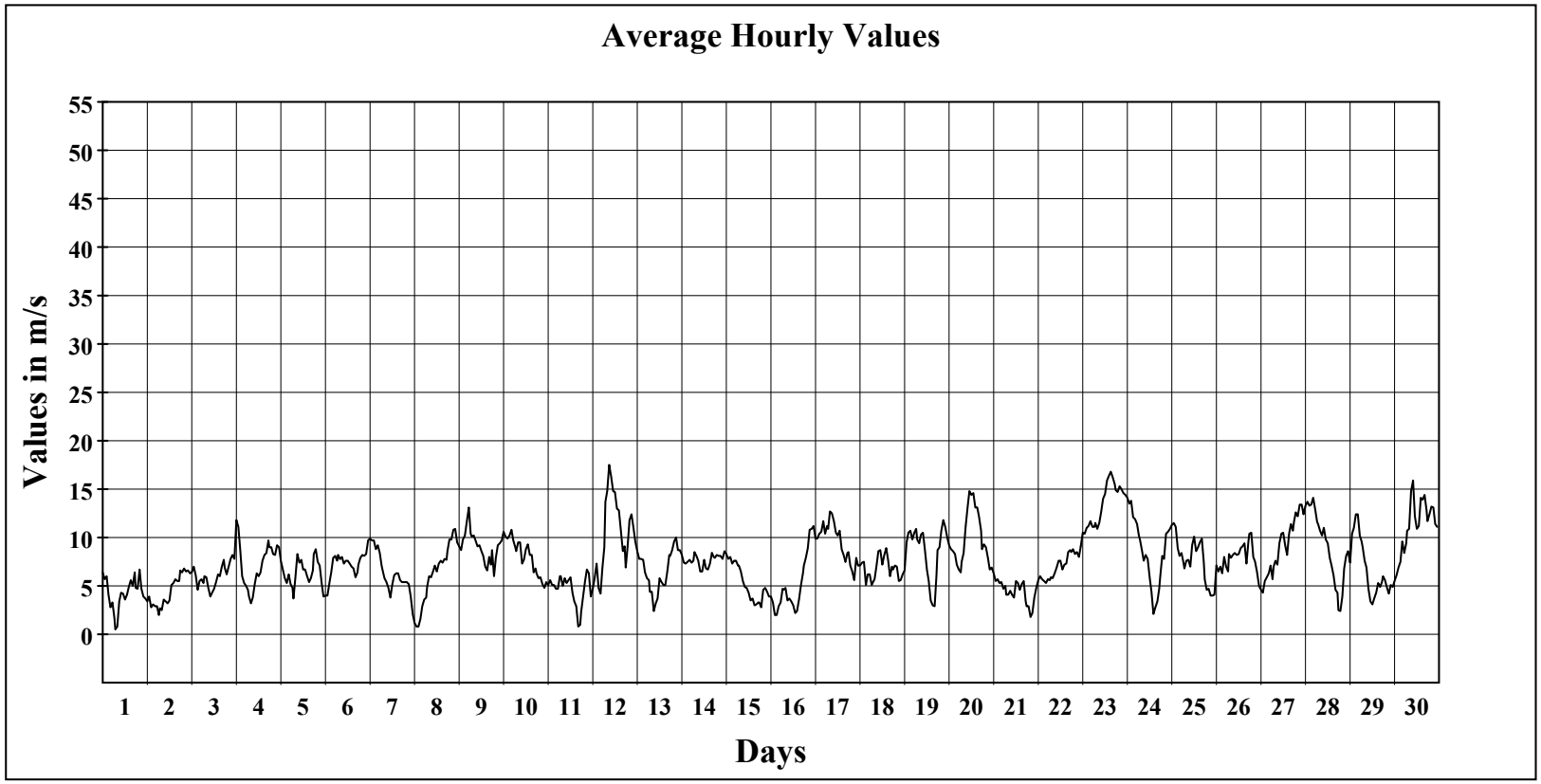
Average Value: 7.2

Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 2:
NRG #40 Anem. m/s
Height: 50 m
Serial #: SN:

November 2003

Hourly Averages Graph, 50m, Ch 2
SITE 1080
WCROC



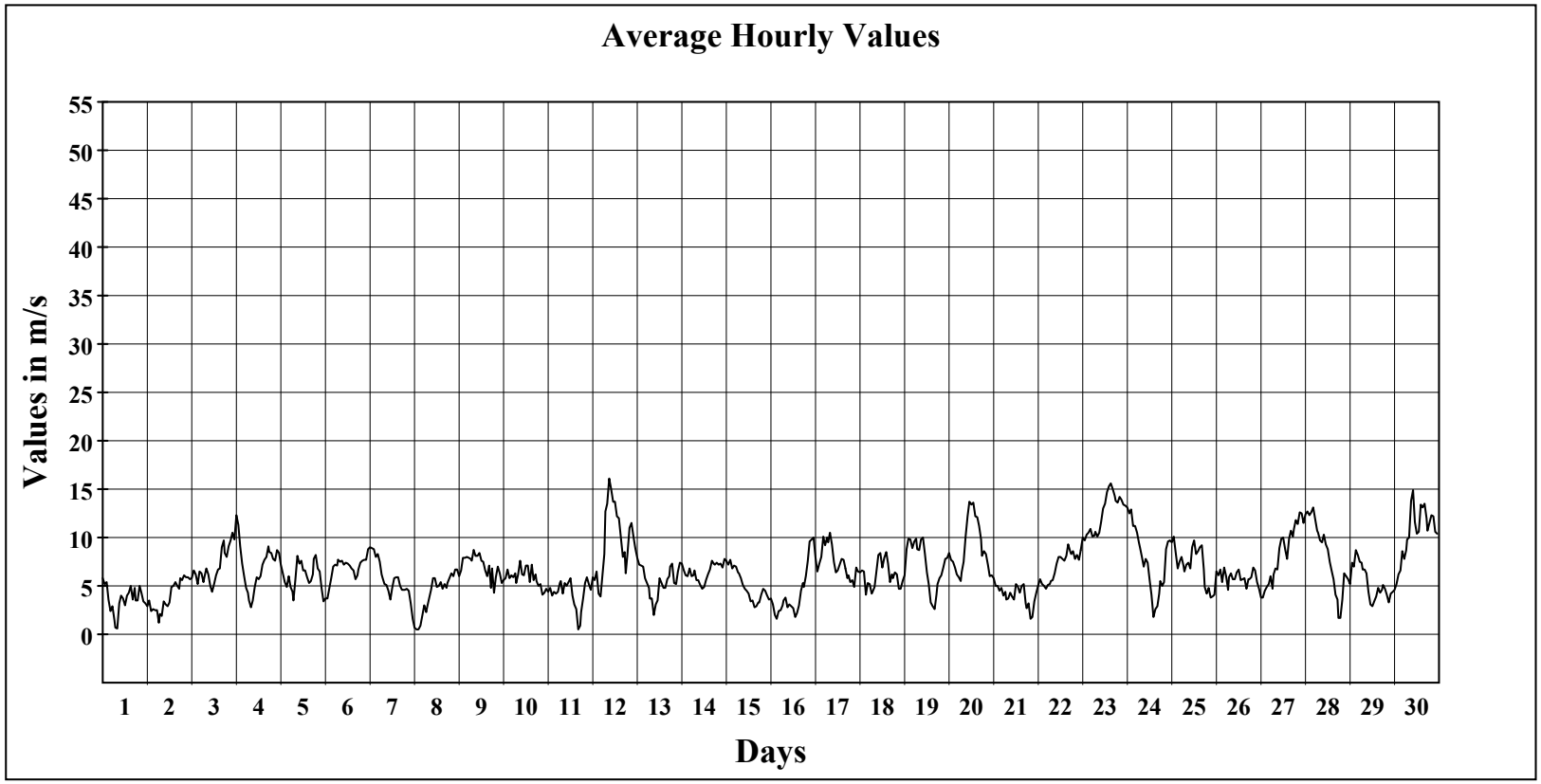
Average Value: 7.5

Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 3:
NRG #40 Anem. m/s
Height: 40 m
Serial #: SN:

November 2003

Hourly Averages Graph, 40m, Ch 3
SITE 1080
WCROC



Average Value: 6.6

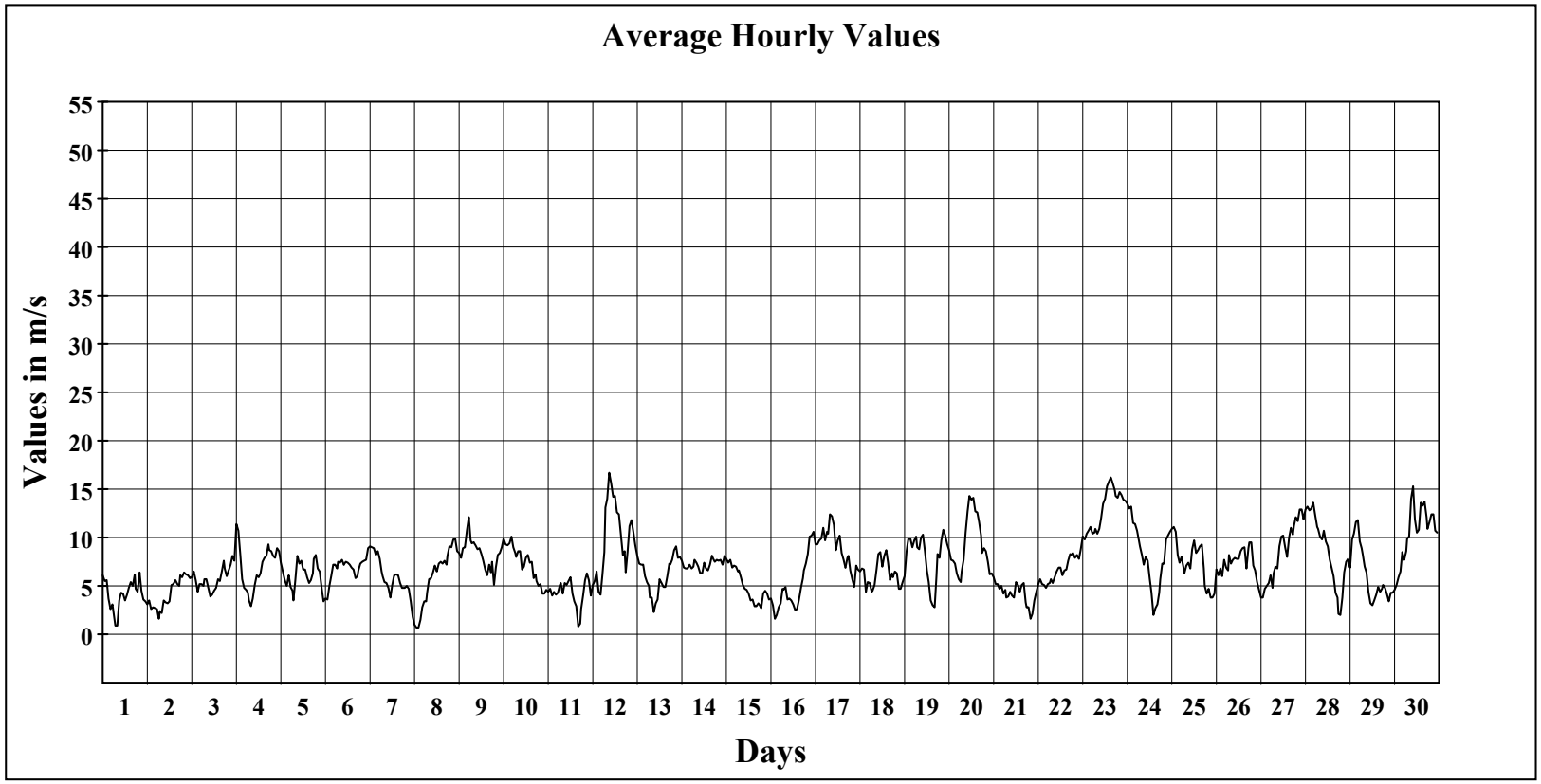
Generated Monday, December 08, 2003 Total 10-minute intervals: 4320 Intervals used in calculations: 4317 Percent data used: 99.9 NRG Systems SDR Version 4.25

Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 4:
NRG #40 Anem. m/s
Height: 40 m
Serial #: SN:

November 2003

Hourly Averages Graph, 40m, Ch 4
SITE 1080
WCROC



Average Value: 7.0

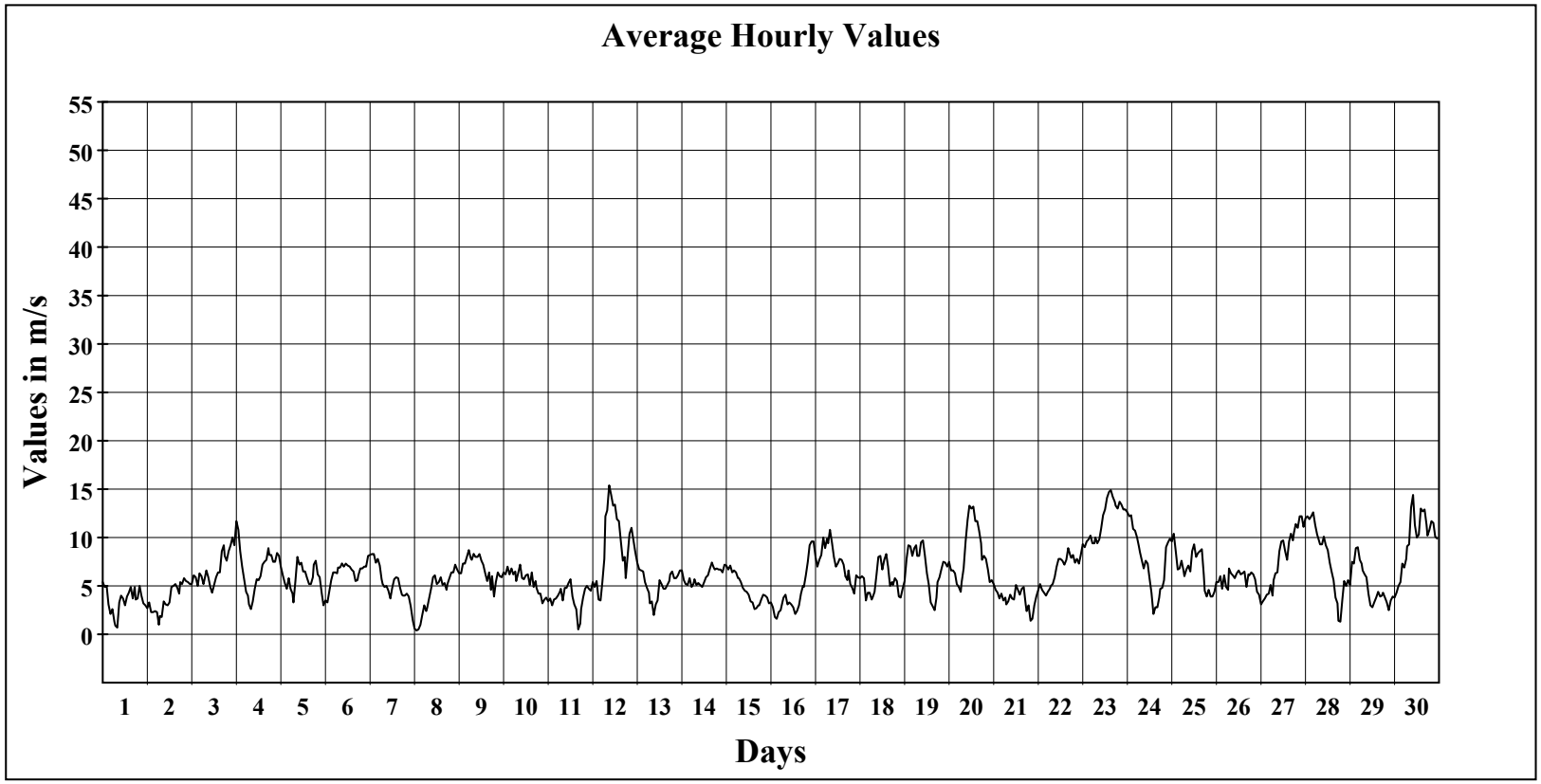
Generated Monday, December 08, 2003 Total 10-minute intervals: 4320 Intervals used in calculations: 4316 Percent data used: 99.9 NRG Systems SDR Version 4.25

Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 5:
NRG #40 Anem. m/s
Height: 30 m
Serial #: SN:

November 2003

Hourly Averages Graph, 30m, Ch 5
SITE 1080
WCROC



Average Value: 6.3

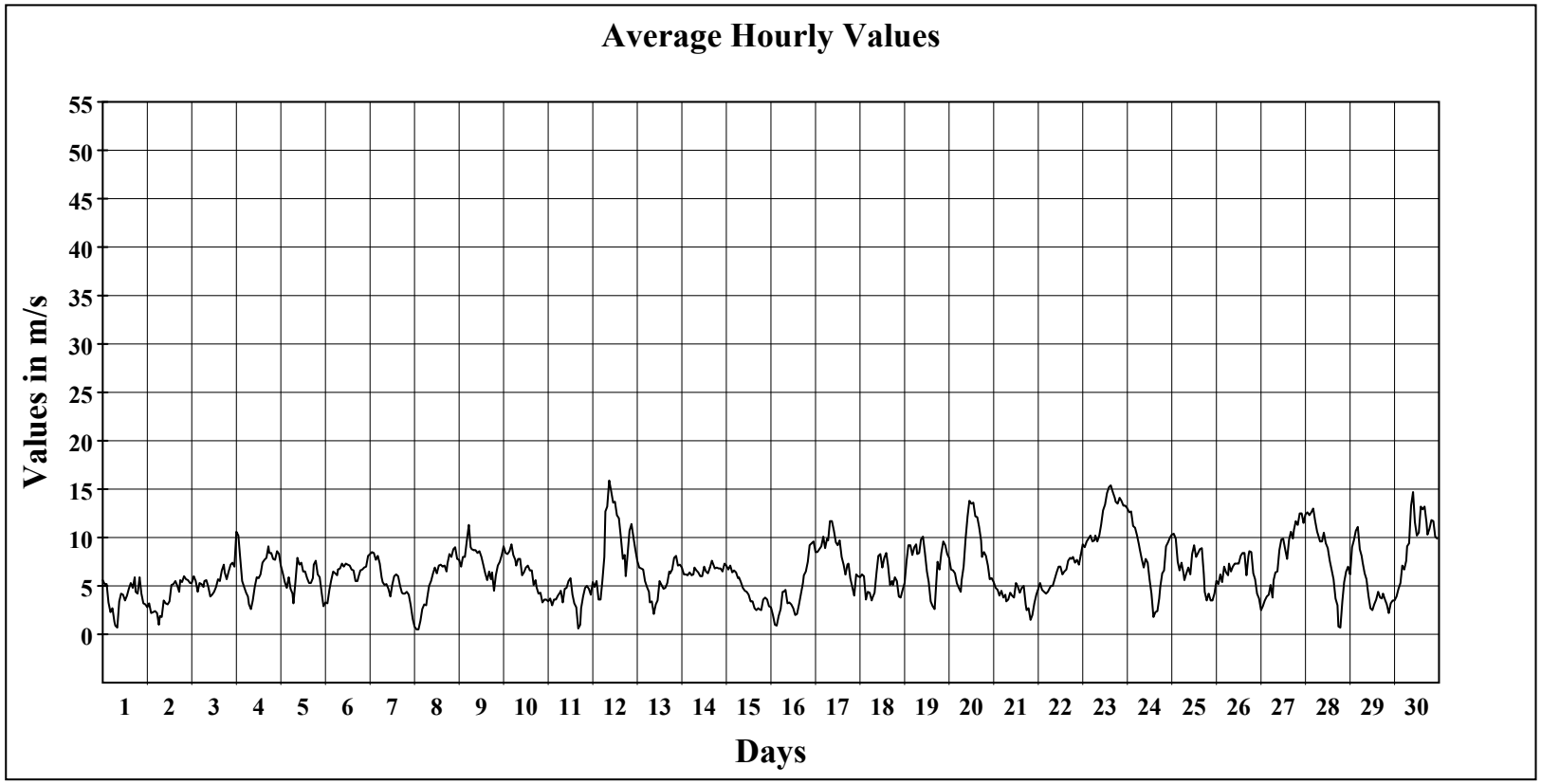
Generated Monday, December 08, 2003 Total 10-minute intervals: 4320 Intervals used in calculations: 4317 Percent data used: 99.9 NRG Systems SDR Version 4.25

Site Information:
Project: Wind Hybrid Project
Location: Morris, MN
Elevation: 350 m

Sensor on channel 6:
NRG #40 Anem. m/s
Height: 30 m
Serial #: SN:

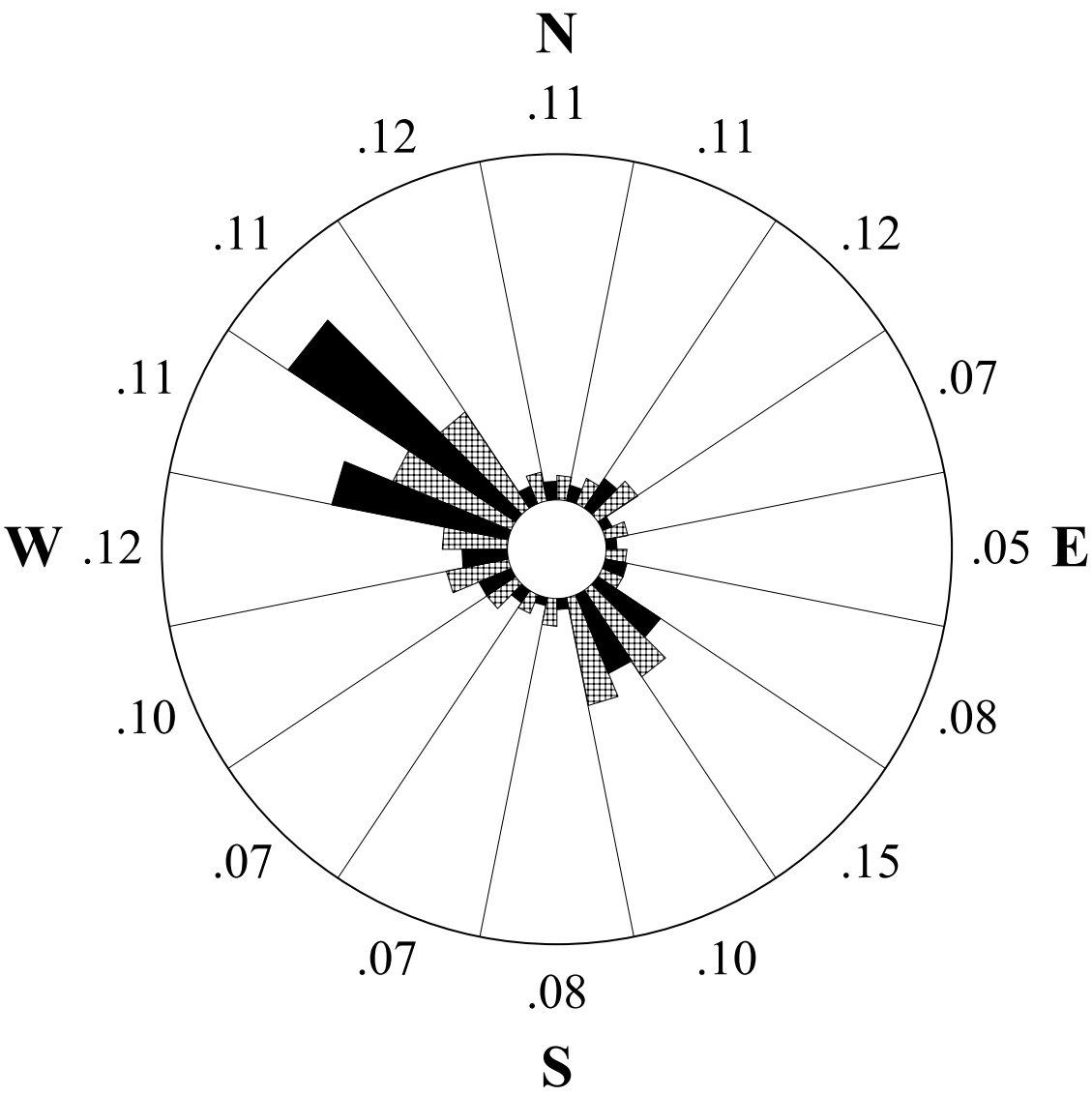
November 2003

Hourly Averages Graph, 30m, Ch 6
SITE 1080
WCROC



Average Value: 6.5

Generated Monday, December 08, 2003 Total 10-minute intervals: 4320 Intervals used in calculations: 4317 Percent data used: 99.9 NRG Systems SDR Version 4.25



November 2003

Wind Rose, 50m, Ch 1, 7

SITE 1080

WCROC

Site Information:

Project: Wind Hybrid Project

Location: Morris, MN

Elevation: 350 m

Anemometer on channel 1:

NRG #40 Anem. m/s

Height: 50 m

Serial #: SN:

Vane on channel 7:

#200P Wind Vane

Height: 50 m

Serial #: SN:

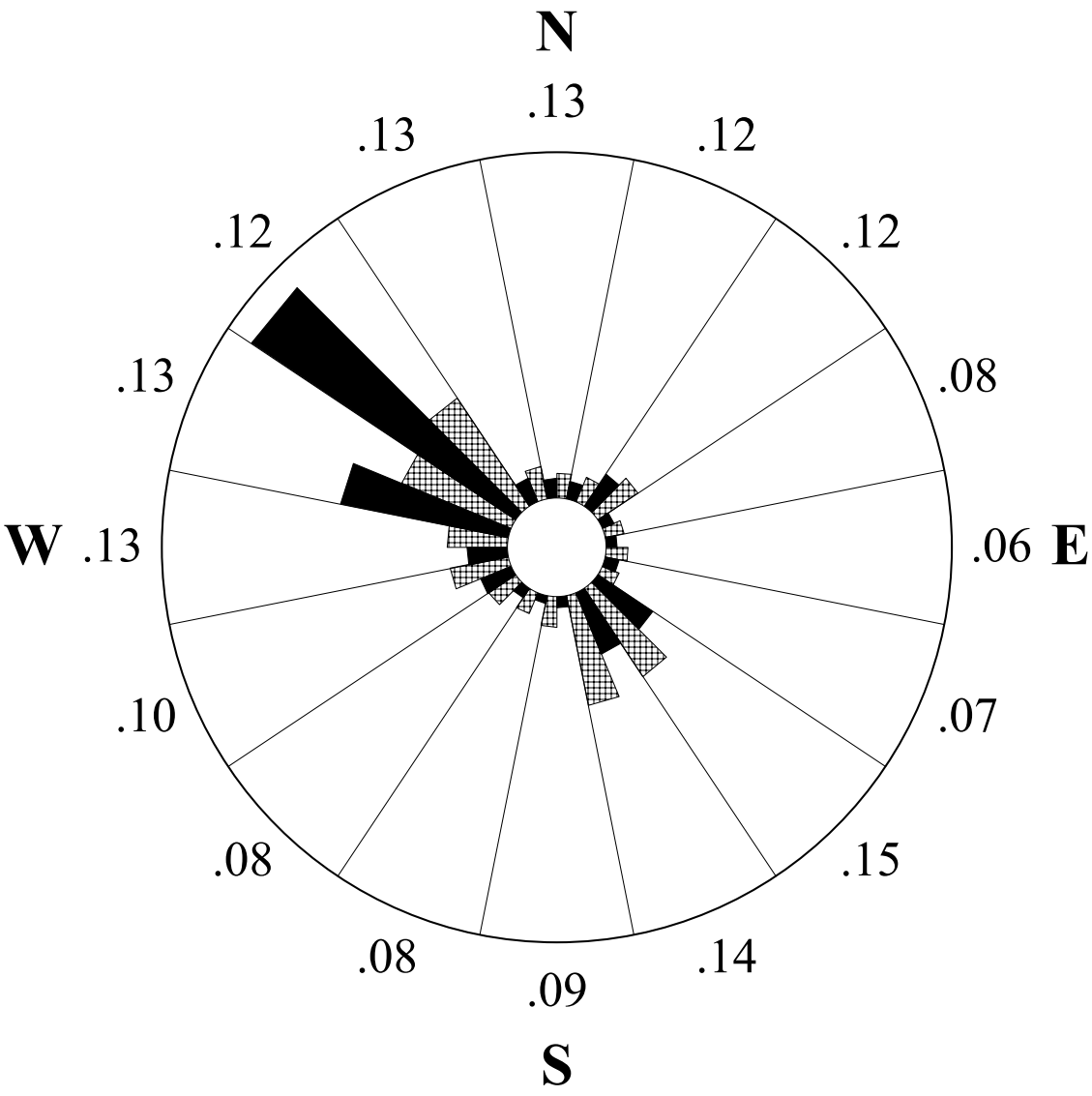
Outer Numbers are Average TIs for speeds greater than 4.5 m/s

Inner Circle = 0%

Outer Circle = 40%

Percent of Total Wind Energy

Percent of Total Time



November 2003

Wind Rose, 40 m, Ch 3, 8

SITE 1080

WCROC

Site Information:

Project: Wind Hybrid Project

Location: Morris, MN

Elevation: 350 m

Anemometer on channel 3:

NRG #40 Anem. m/s

Height: 40 m

Serial #: SN:

Vane on channel 8:

#200P Wind Vane

Height: 40 m

Serial #: SN:

Outer Numbers are Average TIs for speeds greater than 4.5 m/s

Inner Circle = 0%

Outer Circle = 40%

Percent of Total Wind Energy

Percent of Total Time