



MEMORANDUM

TO: Canton Mountain Wind Project Team
FROM: Ted Guertin
DATE: June 22, 2012
SUBJECT: Revised WindPro Shadow Flicker Impact Assessment for the
SWT3.0-113 Wind Turbine with New 79.5m Hub Height

The WindPro shadow flicker impact assessment for the Canton Mountain Wind Project (Project) has been updated to evaluate the current revised wind turbine design. A shadow flicker impact analysis was originally conducted for the Project in December 2011. That analysis was based on the GE 2.75-103 wind turbine model which included a 103 meter rotor diameter. The analysis was then updated in May 2012 to evaluate Siemens SWT 3.0-113, which had a 113-meter rotor diameter and a 90-meter hub height. The wind turbine model for the current project design is based on the same wind turbine model (Siemens SWT 3.0-113), but the hub height has been reduced to a height of 79.5 meters.

While a lower hub height will generally result in bringing the shadow flicker impacts closer to the turbines and away from receptors, there can be cases where impacts for individual receptors can increase due to a receptor's revised orientation and proximity to the turbine's higher shadow flicker impact zones (which have an irregular "butterfly" shape pattern). The updated shadow flicker analysis results indicate that shadow flicker impacts decrease or stay the same at all but two of the modeled receptors (4 and 5), both of which are participating receptors. Revised Table 26-1 below presents the revised WindPro predicted shadow flicker impacts for the current design, along with the predicted impacts for the most recent past turbine design for comparison. Revised Table 26-2 shows that the relative statistics for predicted impacts changes slightly. The minor changes to predicted shadow flicker impacts do not change any of the original conclusions.

Table 26-1 (Revised). WindPro Shadow Flicker Analysis Results Summary

WindPro Receptor ID	Latitude (Deg, Min', Sec'') N	Longitude (Deg, Min', Sec'') W	Siemens SWT-3.0-113 90m Hub Height WindPro Expected Shadow Flicker (Hours:Min per Year)	Siemens SWT-3.0-113 79.5m Hub Height WindPro Expected Shadow Flicker (Hours:Min per Year)	Approximate Distance To Closest Turbine (feet)
1	44°29'35.28"	-70°18'04.80"	0:00	0:00	5316
2*	44°30'10.87"	-70°17'56.91"	0:00	0:00	2040
3	44°30'12.60"	-70°17'36.25"	4:06	3:58	3050
4*	44°30'45.07"	-70°17'32.90"	26:44	27:30	2899
5*	44°30'42.92"	-70°17'33.43"	19:01	20:29	2930
6	44°32'13.94"	-70°18'13.56"	0:00	0:00	5986
7	44°31'51.19"	-70°18'47.54"	0:00	0:00	4860
8	44°32'05.13"	-70°17'30.82"	0:00	0:00	5554
9	44°31'09.08"	-70°17'21.02"	28:22	27:40	3100
10	44°31'02.81"	-70°17'06.37"	19:12	19:01	4259
11	44°31'16.66"	-70°17'10.53"	10:32	10:27	3797
12	44°31'06.12"	-70°17'09.84"	17:40	17:19	3958
13*	44°31'48.77"	-70°18'33.94"	0:00	0:00	4064

*Denotes a participating receptor

Table 26-2 (Revised). Statistical Summary of WindPro Expected Shadow Flicker Impacts at Modeled Sensitive Receptor Locations

Cumulative Shadow Flicker Time (expected)	Siemens SWT-3.0-113 90m Hub Height Number of Receptors	Siemens SWT-3.0-113 79.5m Hub Height Number of Receptors
Total	13	13
= 0 Hours	6	6
> 0 Hours < 10 hours	1	1
≥ 10 Hours < 20 hours	4	3
≥ 20 Hours < 30 hours	2	3