STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Petition of BNE Energy Inc. for a Declaratory Ruling for the Location, Construction and Operation of 4.8 MW Wind Renewable Generating Projects on Flagg Hill Road in Colebrook, Connecticut ("Wind Colebrook South") and Winsted-Norfolk Road in Colebrook, Connecticut ("Wind Colebrook North")	**Petition Nos. 983 and 984**
	April 19, 2011

SUPPLEMENTAL PREFILED TESTIMONY OF CHARTER OAK ENVIRONMENTAL SERVICES, INC. BY MARK A. FRANSON, P.E.

Q13. You have previously filed testimony in this proceeding. Why are you submitting this supplemental testimony?

A13. I am submitting this testimony to revise and supplement my previous testimony, dated March 15, 2011 in these proceedings.

Q14. For what reasons have you revised your testimony?

A14. My testimony has been revised for the following reasons.

First, an additional location for the northwestern turbine on the Colebrook North site has been proposed by BNE Energy, Inc. (BNE), requiring revision to both the Charter Oak map and distances table (Charter Oak Exhibit 3 revised as presented in Charter Oak Exhibit 6). The addition of this proposed location also resulted in a change to the table of distances between the proposed wind turbines. My evaluation includes both the original proposed location, labeled CN-1 in our exhibits, and the proposed "alternate" location, labeled CN-1A in our exhibits, for the northwestern wind turbine at the Colebrook North site.

Second, the two original BNE petitions presented six wind turbine locations in "Northing" and "Easting" coordinates. Charter Oak used its GIS software to convert these coordinates to latitude and longitude. In its March 15, 2011 interrogatory responses, BNE

provided coordinates for the three Colebrook South turbines using latitude and longitude. Charter Oak noticed a small discrepancy between its latitude and longitude coordinates and those presented by BNE. Charter Oak has since contacted VHB (BNE's technical consultant) to request latitude and longitude for all of the seven wind turbine locations under consideration. The coordinates as presented in Charter Oak Exhibit 8 have been used as the basis for the current map and table exhibit (Charter Oak Exhibit 6).

Third, in reviewing Charter Oak's table of distances between buildings and wind turbines, it became apparent that in a few instances we did not use the distance to the closest wind turbine, thus overstating the distance from the turbine in those cases. The current table (Charter Oak Exhibit 6) reflects the distance to the closest wind turbine, as originally intended.

Fourth, when preparing the original map and table internally as a draft, the building numbering system was organized by street. It became apparent that this system made it more difficult to find a particular building number on the map. Therefore, the building numbering system was adjusted so that the numbers followed a more numerical order on the map. In subsequently adjusting the table distances, there were instances where the distances did not properly correlate to the building numbers, resulting in incorrectly reported distances for particular buildings. The current map and table are properly correlated (Charter Oak Exhibit 6).

Finally, the March 15, 2011 Charter Oak table of distances between buildings and the nearest wind turbine (Charter Oak Exhibit 3) did not have street addresses (certain building numbers were identified only by street name) for a number of building locations. Addresses have been added to the building numbers using Figure 1: "Probable Case Shadow Flicker" in the Supplemental Flicker Analysis prepared by VHB, dated February 2011 (Wind Colebrook North) and March 2011 (Wind Colebrook South). Charter Oak obtained the addresses from Table 5, "Receptor Locations," within that report.

Q15. As a result of these changes and additions, have you created new exhibits?

A15. Yes. Charter Oak Exhibits 6, 7 and 8 are new exhibits. They are intended to replace Charter Oak Exhibits 3, 4 and 5, which were attached to my pre-filed testimony dated March 15, 2011.

Q16. Did your methodology in creating those exhibits change from that described in your pre-filed testimony dated March 15, 2011?

A16. No. The only changes to methodology are discussed above, namely, that we obtained latitude and longitude obtained from VHB, BNE's technical consultant, and that an additional source of street addresses was BNE's supplemental shadow flicker analyses. We also obtained tax maps from the Town of Colebrook and added those to our internal maps for purposes of calculating distances from the proposed turbine locations to property lines, but those property lines are not included in the attached exhibits and therefore did not change our methodology.

Q17. How many structures did you identify that are located within 1.25 miles of any of the seven proposed wind turbines?

A17. A total of 174 structures were identified within 1.25 miles of any of the seven proposed wind turbines.

Q18. Do you know what types of structures these are?

A18. Yes. The vast majority of these structures are residential.

Q19. How many structures did you identify that are located within 1 mile of any of the seven proposed wind turbines?

A19. A total of 121 structures are located within 1 mile of any of the proposed wind turbines. Again, the majority of these structures are residential.

Q20. How many structures did you identify that are located within half a mile of any of the seven proposed wind turbines?

A20. A total of 34 structures are located within a half mile of any of the proposed wind turbines, broken down as follows: (1) within a half mile of any Colebrook South turbines: 17 structures; (2) within a half mile of any Colebrook North turbines: 9 structures; and (3) within a half mile of any turbines in both Colebrook South and North: 8 structures.

Q21. How many property lines did you identify within 984 feet of any of the seven proposed wind turbines?

A21. There are a total of 20 property lines located within 984 feet of any of the proposed wind turbines. Ten of those property lines are located within 984 feet of the three Colebrook South turbines (excluding the property at 17 Flagg Hill Road, which is also owned by BNE). Ten of those property lines are located within 984 feet of four proposed Colebrook North turbines.

This answer is based on the property lines that appear on the tax maps for the relevant area of Colebrook. We entered the tax map lines onto our GIS map.

Q22. How many of those property lines within 984 feet of any of the seven proposed wind turbines are residential?

A22. To my understanding, most of the properties within 984 feet of the seven proposed turbine locations are zoned residential. At Colebrook North, 9 of the 10 property lines are for residentially zoned parcels. Three of those parcels appear to be undeveloped. The tenth property is the gun club property across Route 44.

At Colebrook South, 6 of the 10 property lines are for residentially zoned parcels. One of those parcels appears to be undeveloped. Three other property lines are for undeveloped parcels, including the Nature Conservancy property, the nearby state forest land and a parcel that BNE's petition states is owned by the Town of Norfolk. The tenth property is the gun club property.

These breakdowns mean that 15 of the 20 properties within 984 feet of any of the seven proposed wind turbines are zoned residential. Three of the remaining properties consist of conservation or publicly owned land.

Q23. Is Beckley Bog within 1.25 miles of any wind turbines?

A23. Yes. Beckley Bog is a geographic feature that is oriented north to south and is about 7,000 feet long in the north to south direction. The width of Beckley Bog varies from about 200 feet to about 1,250 feet. The approximate mid-point of this feature was identified as the approximate mid-point north to south and then east to west. All of Beckley Bog is within 1.25 miles of at least one wind turbine. The approximate mid-point is within 1.25 miles of four of the proposed wind turbines. This observation is illustrated on the map presented as Charter Oak Exhibit 6.

Q24. How close is the approximate mid-point of Beckley Bog to the nearest turbine?

A24. Turbine CS-3 is the closest to Beckley Bog. It is 3,668 feet from the approximate mid-point of Beckley Bog.

Q25. Is Rock Hall, located at 19 Rock Hall Road, within 1.5 miles of any wind turbines?

A25. Yes.

Q26. How close is the nearest turbine to Rock Hall's property line?

A26. Turbine CN-3 is closest. It is 2,198 feet from Rock Hall's property line. The next closest turbine is CN-1A at a distance of 2,697 feet.

Q27. How close is the nearest turbine to Rock Hall itself?

A27. Turbine CN-3 is closest. It is 2,661 feet from Rock Hall itself. The next closest turbine is CN-1A at a distance of 3,000 feet.

Q28. How far are the turbines at Colebrook South from Rock Hall?

A28. At Colebrook South, Turbine CS-2 is closest to Rock Hall. It is 7,155 feet (1.36 miles) from Rock Hall's property line and 7,428 feet (1.4 miles) from Rock Hall itself.

The statements above are true and accurate to the best of my knowledge.

April 19, 2011
Date

Mark A. Franson, P.E.

ATTACHMENTS

Charter Oak Exhibit 6:	Map: Colebrook North and South Wind Turbines, Distances to Buildings and Beckley Bog
	Table: Colebrook North and South Wind Turbine, Distances to Buildings and Beckley Bog
Charter Oak Exhibit 7:	Distances Between Wind Turbines
Charter Oak Exhibit 8:	Latitude and longitude table for the seven proposed wind turbine locations

CERTIFICATION

I hereby certify that a copy of the foregoing document was delivered by first-class mail and e-mail to the following service list on the 19th day of April, 2011:

Carrie L. Larson
Paul Corey
Jeffery and Mary Stauffer
Thomas D. McKeon
David M. Cusick
Richard T. Roznoy
David R. Lawrence and Jeannie Lemelin
Walter Zima and Brandy L. Grant
Eva Villanova

and sent via e-mail only to:

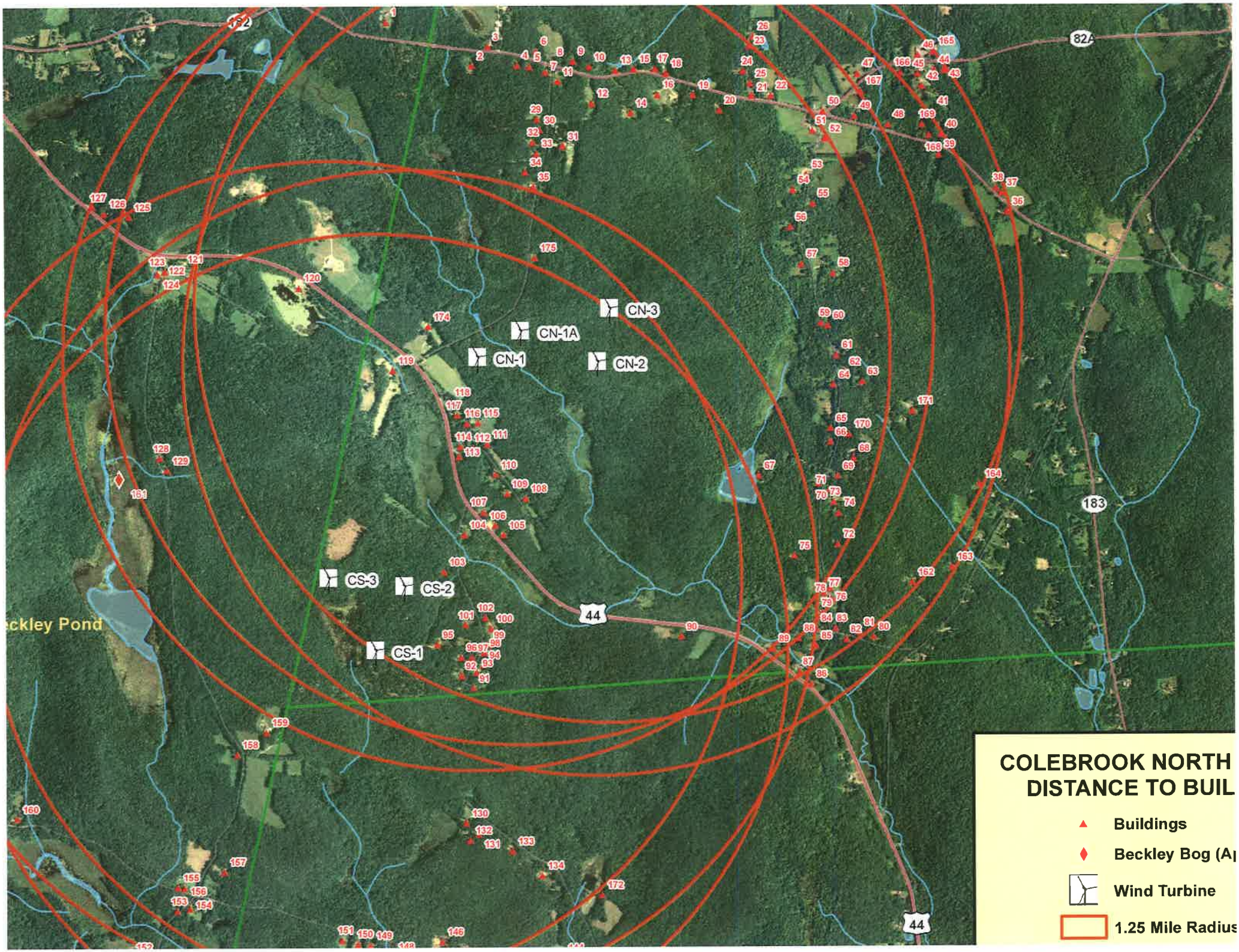
John R. Morissette
Christopher R. Bernard
Joaquina Borges King

Emily A. Gianquinto

Charter Oak Exhibit 6

Map: Colebrook North and South Wind Turbines, Distances to Buildings and Beckley Bog

Table: Colebrook North and South Wind Turbines, Distances to Buildings and Beckley Bog


CN-3
CN-1A
CN-1
CN-2
CS-3
CS-2
CS-1
44
183
82A
COLEBROOK NORTH
DISTANCE TO BUIL
Buildings
Beckley Bog (A
Wind Turbine
1.25 Mile Radius

COLEBROOK NORTH AND SOUTH WIND TURBINES DISTANCE TO BUILDINGS AND BECKLEY BOG							
		Nearest Turbine[1]			Next Nearest Turbine		
MAP ID	Street Address	ID	Direction to Turbine	Distance (ft)	ID	Direction to Turbine	Distance (ft)
Stillman Hill Road/Colebrook Road							
1	299 Colebrook Road	CN-1A	SSE	5333	CN-1	SSE	5490
2	215 Stillman Hill Road	CN-1A	SSE	4269	CN-3	SE	4405
3	206 Stillman Hill Road	CN-1A	S	4527	CN-3	SE	4557
4	197 Stillman Hill Road	CN-3	SSE	4113			
5	195 Stillman Hill Road	CN-3	SSE	4019			
6	190 Stillman Hill Road	CN-3	SSE	4225			
7	191 Stillman Hill Road	CN-3	SSE	3874			
8	188 Stillman Hill Road	CN-3	SSE	4001			
9	178 Stillman Hill Road	CN-3	S	3948			
10	174 Stillman Hill Road	CN-3	S	3833			
12	173 Stillman Hill Road	CN-3	S	3254			
13	164 Stillman Hill Road	CN-3	S	3773			
14	165 Stillman Hill Road	CN-3	S	3109			
15	158 Stillman Hill Road	CN-3	S	3811			
16	147A Stillman Hill Road	CN-3	S	3469			
17	152 Stillman Hill Road	CN-3	SSW	3869			
18	144 Stillman Hill Road	CN-3	SSW	3830			
19	143 Stillman Hill Road	CN-3	SSW	3633			
20	135 Stillman Hill Road	CN-3	SW	3600			
21	124 Stillman Hill Road	CN-3	SW	4069			
22	118 Stillman Hill Road	CN-3	SW	4249			
36	Stillman Hill Road	CN-3	WSW	6545			
37	Stillman Hill Road	CN-3	WSW	6533			
38	46 Stillman Hill Road	CN-3	WSW	6477			
39	65 Stillman Hill Road	CN-3	WSW	5811			
48	Stillman Hill Road	CN-3	SW	5328			
49	94 Stillman Hill Road	CN-3	SW	4973			
50	Stillman Hill Road	CN-3	SW	4634			
168	68 Stillman Hill Road	CN-3	SW	5805			
169	70 Stillman Hill Road	CN-3	SW	5786			
Phelps Road							
23	96 Phelps Road	CN-3	SSW	4720			
24	99 Phelps Road	CN-3	SSW	4328			
25	Phelps Road	CN-3	SSW	4218			
26	96 Phelps Road	CN-3	SSW	4879			
27	69 Phelps Road	CN-3	SSW	6434			
28	Phelps Road	CN-3	SSW	6544			

Note: 1. If nearest wind turbine is either CN-1 or CN-1A, then the next nearest wind turbine is identified.

		Nearest Turbine[1]			Next Nearest Turbine		
MAP ID	Street Address	ID	Direction to Turbine	Distance (ft)	ID	Direction to Turbine	Distance (ft)
Rock Hall Road							
11	3 Rock Hall Road	CN-3	SSE	3678			
29	16 Rock Hall Road	CN-3	SSE	3199			
30	20 Rock Hall Road	CN-3	SSE	3024			
31	19 Rock Hall Road	CN-3	SSE	2661			
32	28 Rock Hall Road	CN-3	SSE	2890			
33	32 Rock Hall Road	CN-3	SSE	2701			
34	40 Rock Hall Road	CN-3	SE	2525			
35	44 Rock Hall Road	CN-3	SE	2261			
174	112 Rock Hall Road	CN-1	SE	908	CN-1A	E	1466
175	49 Rock Hall Road	CN-1A	S	1178	CN-3	SE	1415
Bunnel Street Ext							
40	1 Bunnel Street Ext	CN-3	SW	5980			
41	7 Bunnel Street Ext	CN-3	SW	6046			
42	21 Bunnel Street Ext	CN-3	SW	6117			
45	25 Bunnel Street Ext	CN-3	SW	6185			
165	31 Bunnel Street Ext	CN-3	SW	6589			
Rockwell Road-182A							
43	Rockwell Road	CN-3	SW	6551			
44	81 Rockwell Road	CN-3	SW	6418			
46	92 Rockwell Road	CN-3	SW	6358			
47	106 Rockwell Road	CN-3	SW	5444			
166	89 Rockwell Road	CN-3	SW	5975			
167	109 Rockwell Road	CN-3	SW	5291			

Note: 1. If nearest wind turbine is either CN-1 or CN-1A, then the next nearest wind turbine is identified.

		Nearest Turbine[1]			Next Nearest Turbine		
MAP ID	Street Address	ID	Direction to Turbine	Distance (ft)	ID	Direction to Turbine	Distance (ft)
Pinney Street							
51	3 Pinney Street	CN-3	SW	4294			
52	Pinney Street	CN-3	SW	4369			
53	33 Pinney Street	CN-3	SW	3803			
54	39 Pinney Street	CN-3	SW	3485			
55	42 Pinney Street	CN-3	SW	3648			
56	49 Pinney Street	CN-3	WSW	3168			
57	Pinney Street	CN-3	WSW	3153			
58	Pinney Street	CN-3	W	3626			
59	Pinney Street	CN-3	W	3390			
60	78 Pinney Street	CN-3	W	3513			
61	86 Pinney Street	CN-3	WNW	3714			
62	94 Pinney Street	CN-3	WNW	3892			
63	98 Pinney Street	CN-3	WNW	4210			
64	95 Pinney Street	CN-3	WNW	3789			
65	105 Pinney Street	CN-2	WNW	3890			
170	108 Pinney Street	CN-2	WNW	4193			
171	106 Pinney Street	CN-2	WNW	5103			
66	109 Pinney Street	CN-2	WNW	3947			
67	117 Pinney Street	CN-2	NW	3165			
68	114 Pinney Street	CN-2	WNW	4388			
69	122 Pinney Street	CN-2	WNW	4260			
70	121 Pinney Street	CN-2	NW	4038			
71	124 Pinney Street	CN-2	NW	4250			
72	142 Pinney Street	CN-2	NW	4824			
73	128 Pinney Street	CN-2	NW	4395			
74	134 Pinney Street	CN-2	NW	4548			
75	Pinney Street	CN-2	NW	4412			
76	158 Pinney Street	CN-2	NW	5302			
77	161 Pinney Street	CN-2	NW	5186			
78	158 Pinney Street	CN-2	NW	5302			
79	161 Pinney Street	CN-2	NW	5374			
Millbrook Road							
80	Millbrook Road	CN-2	NW	6219			
81	121 Millbrook Road	CN-2	NW	6002			
82	Millbrook Road	CN-2	NW	5957			
83	166 Millbrook Road	CN-2	NW	5706			
84	129 Millbrook Road	CN-2	NW	5500			
85	132 Millbrook Road	CN-2	NW	5715			
88	Millbrook Road	CN-2	NW	5458			
89	Millbrook Road	CN-2	NNW	5370			
164	Millbrook Road	CN-2	WNW	6420			

Note: 1. If nearest wind turbine is either CN-1 or CN-1A, then the next nearest wind turbine is identified.

		Nearest Turbine[1]			Next Nearest Turbine		
MAP ID	Street Address	ID	Direction to Turbine	Distance (ft)	ID	Direction to Turbine	Distance (ft)
Norfolk Road							
86	124 Norfolk Road	CN-2	NNW	6170			
Flagg Hill Road							
91	48 Flagg Hill Road	CS-1	W	1698			
92	47 Flagg Hill Road	CS-1	W	1458			
93	44 Flagg Hill Road	CS-1	W	1677			
94	42 Flagg Hill Road	CS-1	W	1759			
95	29A Flagg Hill Road	CS-1	W	1010			
96	43 Flagg Hill Road	CS-1	W	1390			
97	45 Flagg Hill Road	CS-1	W	1564			
98	40 Flagg Hill Road	CS-2	WNW	1673			
99	36 Flagg Hill Road	CS-2	WNW	1646			
100	30 Flagg Hill Road	CS-2	WNW	1554			
101	33 Flagg Hill Road	CS-2	WNW	1174			
102	28 Flagg Hill Road	CS-2	WNW	1397			
103	17 Flagg Hill Road	CS-2	WSW	685			
104	8 Flagg Hill Road	CS-2	SW	1270			
Winsted Norfolk Road - Route 44							
87	2 Winsted Norfolk Road - Route 44	CN-2	NNW	5908			
90	37 Winsted Norfolk Road - Route 44	CS-2	W	4521			
105	110 Winsted Norfolk Road - Route 44	CS-2	SW	1790			
106	114 Winsted Norfolk Road - Route 44	CS-2	SW	1748			
107	120 Winsted Norfolk Road - Route 44	CS-2	SW	1734			
116	150 Winsted Norfolk Road - Route 44	CN-1	N	1082	CN-1A	NNE	1701
117	154 Winsted Norfolk Road - Route 44	CN-1	NNE	992	CN-1A	NNE	1681
118	160 Winsted Norfolk Road - Route 44	CN-1	NE	851	CN-1A	NE	1603
119	177 Winsted Norfolk Road - Route 44	CN-1	E	1348	CN-1A	ENE	2123
Greenwoods Road E							
120	602 Greenwoods Road E	CN-1	SSE	3039	CN-1A	ESE	3594
125	473 Greenwoods Road E	CN-1	ESE	5963	CN-1A	ESE	6485
126	463 Greenwoods Road E	CN-1	SE	6347	CN-1A	ESE	6876
127	453 Greenwoods Road E	CN-1	SE	6561	CN-1A	ESE	7087
Greenwood Tpke							
108	32 Greenwood Tpke	CN-1	NNW	2386	CS-2	NNE	2389
109	25 Greenwood Tpke	CS-2	NNE	2212	CN-1A		
110	17 Greenwood Tpke	CN-1	N	1903	CN-1A	N	2324
111	12B Greenwood Tpke	CN-1	N	1419	CN-1A	N	1886
112	10 Greenwood Tpke	CN-1	N	1461	CN-1A	NNE	2008
113	1 Greenwood Tpke	CN-1	N	1627	CN-1A	NNE	2232
114	4 Greenwood Tpke	CN-1	N	1461	CN-1A	NNE	2078
115	12A Greenwood Tpke	CN-1	N	1064	CN-1A	NNE	1615

Note: 1. If nearest wind turbine is either CN-1 or CN-1A, then the next nearest wind turbine is identified.

		Nearest Turbine[1]			Next Nearest Turbine		
MAP ID	Street Address	ID	Direction to Turbine	Distance (ft)	ID	Direction to Turbine	Distance (ft)
Grantville Road							
155	289 Grantville Road	CS-1	NE	4918			
156	289 Grantville Road	CS-1	NE	4865			
160	171 Grantville Road	CS-3	NE	6263			
Tim Oconnor Road							
121	Tim Oconnor Road	CN-1	ESE	4894	CN-1A	E	5473
Beckley Road							
122	111 Beckley Road	CN-1	ESE	5102	CN-1A	E	5705
123	5 Beckley Road	CN-1	ESE	5147	CN-1A	E	5737
124	12 Beckley Road	CN-1	ESE	5245	CN-1A	E	5841
128	123 Beckley Road	CS-3	SE	3264			
129	131 Beckley Road	CS-3	SE	3063			
157	393 Beckley Road	CS-1	NNE	4277			
158	324 Beckley Road	CS-1	NE	2755			
159	319 Beckley Road	CS-1	NE	2162			
Skinner Road							
130	135 Skinner Road	CS-1	NNW	3115			
131	129 Skinner Road	CS-1	NW	3363			
132	133 Skinner Road	CS-1	NNW	3382			
133	123 Skinner Road	CS-1	NW	3884			
134	121 Skinner Road	CS-1	NW	4482			
172	126 Skinner Road	CS-1	NW	5334			
Danbury Quarter Road							
135	168 Danbury Quarter Road	CS-1	NW	6426			
136	164 Danbury Quarter Road	CS-1	NW	6505			
137	Danbury Quarter Road	CS-1	NW	6641			
138	Danbury Quarter Road	CS-1	NW	6718			
139	Danbury Quarter Road	CS-1	NW	6675			
140	159 Danbury Quarter Road	CS-1	NW	6521			
141	157 Danbury Quarter Road	CS-1	NW	6377			
142	165 Danbury Quarter Road	CS-1	NW	6144			
143	167 Danbury Quarter Road	CS-1	NW	6033			
173	177 Danbury Quarter Road	CS-1	NW	5846			
144	178 Danbury Quarter Road	CS-1	NW	5757			
146	206 Danbury Quarter Road	CS-1	NNW	4783			
148	195 Danbury Quarter Road	CS-1	N	4924			
149	199 Danbury Quarter Road	CS-1	N	4723			
150	201 Danbury Quarter Road	CS-1	N	4705			
151	203 Danbury Quarter Road	CS-1	N	4667			
School House Road							
152	211 School House Road	CS-1	NE	6257			
153	243 School House Road	CS-1	NE	5224			
154	248 School House Road	CS-1	NE	5075			

Note: 1. If nearest wind turbine is either CN-1 or CN-1A, then the next nearest wind turbine is identified.

		Nearest Turbine[1]			Next Nearest Turbine		
MAP ID	Street Address	ID	Direction to Turbine	Distance (ft)	ID	Direction to Turbine	Distance (ft)
Grantville							
147	104 Grantville Road	CS-1	N	5113			
145	105 Grantville Road	CS-1	N	5080			
Hannifin Road							
162	Hannifin Road	CN-2	NW	6141			
163	Hannifin Road	CN-2	NW	6543			
161	Beckley Bog (Approximate Center)	CS-3	SE	3668			

NOTE: Total number of locations listed is 175.

Note: 1. If nearest wind turbine is either CN-1 or CN-1A, then the next nearest wind turbine is identified.

Charter Oak Exhibit 7

Distances Between Wind Turbines

COLEBROOK NORTH AND SOUTH WIND TURBINES DISTANCE BETWEEN CENTER POSTS OF WIND TURBINES (FT)							
	CN-1	CN-1A	CN-2	CN-3	CS-1	CS-2	CS-3
CN-1	---	805	1910	2243	4950	3828	4237
CN-1A	805	---	1310	1459	5591	4463	4978
CN-2	1910	1310	---	868	5806	4714	5491
CN-3	2243	1459	868	---	6606	5498	6197
CS-1	4950	5591	5806	6606	---	1129	1379
CS-2	3828	4463	4714	5498	1129	---	1214
CS-3	4237	4978	5491	6197	1379	1214	---

Charter Oak Exhibit 8
Colebrook Wind Turbine Coordinates

SOUTH

ID Number	Location	Latitude	Longitude
CS-1	Southern	41° 57' 44.229" N	73° 08' 46.814" W
CS-2	Northeastern	41° 57' 54.386" N	73° 08' 40.651" W
CS-3	Northwestern	41° 57' 55.714" N	73° 08' 56.622" W

NORTH

ID Number	Location	Latitude	Longitude
CN-1	Western	41° 58' 30.486" N	73° 8' 25.321" W
CN-1A	Western (Relocated)	41° 58' 34.481" N	73° 8' 16.085" W
CN-2	Southeastern	41° 58' 29.702" N	73° 7' 59.969" W
CN-3	Northeastern	41° 58' 38.061" N	73° 7' 57.378" W