

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No. _____

Petition of Deerfield Wind, LLC for a Certificate)
of Public Good pursuant to 30 V.S.A. section 248,)
authorizing it to construct up to a 45 MW wind electric)
generation facility, and associated transmission and)
interconnection facilities, in Searsburg and Readsboro,)
Vermont, and operate the same.)

**PREFILED DIRECT TESTIMONY OF
MICHAEL LEW-SMITH
ON BEHALF OF DEERFIELD WIND, LLC**

January 8, 2007

Summary:

Michael Lew-Smith describes his investigations concerning wetlands, surface water bodies, rare and irreplaceable natural communities, and rare, threatened and endangered plant species. Mr. Lew-Smith assesses the Project's potential impacts under Act 250 criteria 1(A), 1(D), 1(E), 1(G), 4, 8, and 8(A) with respect to those resources, and concludes that the Project will not have an undue adverse impact.

1 **Q. Please state your name and business address.**

2 Response. My name is Michael Lew-Smith. I am an environmental consultant with
3 the company Arrowwood Environmental, located at 950 Bert White Road,
4 Huntington, Vermont.

5

6 **Q. Please describe your qualifications and experience.**

7 Response. I have a Bachelor's Degree in Natural Resource Management and a
8 Master's Degree in Plant Biology. I have worked as an environmental consultant
9 independently for 5 years and with Arrowwood Environmental for 6 years. I
10 conduct wetland delineations, wetland functional assessments, rare plant inventories
11 and natural resource inventories throughout Vermont. My resume is attached as
12 ***Exhibit DFLD-MLS-1.***

13

14 **Q. Have you previously testified before the Public Service Board or in other**
15 **judicial or administrative proceedings?**

16 Response. Yes. I have testified before the Public Service Board, Docket 7067.

17

18 **Q. What is the purpose of your testimony?**

19 Response. Arrowwood Environmental was retained by Deerfield Wind, LLC to
20 conduct an environmental assessment and prepare recommendations for the
21 proposed Deerfield Wind Farm in Searsburg and Readsboro, Vermont. My
22 testimony covers the Project's impacts on wetlands, rare and irreplaceable natural
23 areas, and rare plants. The results of this analysis are contained in two separate

1 reports marked as ***Exhibit DFLD-MLS-2*** and ***Exhibit DFLD-MLS-3*** and
2 accompanying maps marked ***Exhibits DFLD-MLS-4a, 4b, and 4c.***

3 Note that since the Existing Natural Resource Conditions Report (***DFLD-***
4 ***MLS-2***) was released, a new version of the GMNF EIS has been published. The
5 new EIS reduces the list of Management Indicator Species (MIS) from 14 to 5 and
6 broadens the "major issue or habitat" which each species covers. No new species
7 were added, and species still included on the MIS list are: white-tailed deer, American
8 woodcock, ruffed grouse, gray squirrel, and brook trout. All of these species are
9 addressed in ***Exhibit DFLD-MLS-2***

10 I have also included Arrowwood's "Searsburg Wind Power Expansion
11 Project Bat Habitat Assessment and Mapping Final Report," (May 2005), ***Exhibit***
12 ***DFLD-MLS-5***, which Robert Roy and Wallace Erickson reference further.

13

14 **Q. Please summarize the investigations that you conducted on the**
15 **environmental impacts of the proposed Deerfield Wind Farm.**

16 Response. Arrowwood Environmental's assessment began with an examination of
17 digital maps including USGS topographic maps, National Wetlands Inventory (NWI)
18 maps, Non-Game and Natural Heritage (NNHP) maps of rare species,
19 orthophotographs, National Hydrology Dataset of surface waters and digital soil
20 maps from the Natural Resources Conservation Service (NRCS). These maps were
21 compiled digitally and used in the assessment of the different environmental aspects
22 of the Project. Field work began in the summer of 2003 and continued into the fall
23 of 2005. Field inventories were conducted by my business partner, Jeff Parsons, and

1 myself. Initial field assessments consisted of walking the proposed route and an
2 approximate 100-foot radius from the proposed disturbance area. More detailed and
3 extensive assessments were made in areas where resources were present (wetlands,
4 streams, wildlife habitat etc.). Resources were mapped using sub-meter GPS
5 technology where appropriate.

6

7 **Q. Are there any wetlands within the Project Area?**

8 Response. Yes. There are a total of 17 wetlands within the Project Area. Five of
9 these wetlands occur in the Eastern Project Area, three wetlands occur near the base
10 of the Putnam Road access route, three wetlands occur along the southern access
11 route to the Western Project Area, four wetlands occur along the proposed
12 transmission line and two wetlands occur along the existing wind facility access road.

13

14 **Q. Please describe the type, size and functions and values of these wetlands.**

15 Response. All of the wetlands within the Project Area are Class III wetlands. There
16 are no Class II or Class I wetlands within the Project Area. These wetlands are
17 described in the text of **Exhibit DFLD-MLS-3**, and the locations are shown on
18 **Exhibits DFLD-MLS-4a, 4b, and 4c**. There are three conifer swamps near the
19 turbine locations in the Eastern Project Area. These are relatively small wetlands,
20 being 0.14, 0.19 and 0.05 acres in size. These wetlands are likely significant for water
21 quality, sediment retention, erosion control and potentially for amphibian habitat.
22 The functions and values for all of these wetlands were determined using the
23 Vermont Wetland Evaluation Form and based on field work and remote mapping

1 work. There are 10 seepage wetlands within or near the Project Area ranging in size
2 from 0.01 acres to 0.5 acres. The examples of these seepage wetlands that occur
3 along streams are likely significant for erosion control and sediment retention. While
4 some seepage wetlands are used extensively by bear, as Jeff Parsons' testimony states,
5 these examples are not likely significant for bear use because of the composition of
6 the vegetation. There are two Shallow Emergent Marsh wetlands and an old field
7 wetland along Rt 8 which are likely not significant for any functions and values.
8 Finally, there is a forested swamp near the base of the Putnam Road access which is
9 likely significant for many functions, but 450' away from any proposed disturbance.

10

11 **Q. What are the expected impacts to these wetlands?**

12 Response. The proposed Putnam Road access route will require the filling of
13 Wetland F. Wetland F is a small seepage wetland, approximately 400 sq. ft. in size. It
14 is situated about 45 feet east of Route 8 and just south of the current Putnam Road,
15 as shown on **Exhibit DFLD-MLS-4a**. The placement of the access road cannot
16 be moved to avoid this wetland due to the clearances and turning radii required for
17 the construction vehicles.

18

19 **Q. Have any steps been taken to avoid impacts to these wetlands?**

20 Response. Yes. I worked extensively with the civil engineer, Jason Krzanowski,
21 both in the office and in the field to minimize the Project's impact on wetlands. The
22 selection of the access road to the Western Project Area was determined in a large
23 part by the desire to minimize impacts on natural resources, including wetlands.

1 Also, on the ridge of the Eastern Project Area, the original layout called for the road
2 and turbine clearing area to be within the boundaries of Wetland A (***Exhibit***
3 ***DFLD-MLS-4c***). We relocated the road and turbine so that the road does not cross
4 the wetland and the turbine clearing area maintains a 25-foot buffer from the
5 wetland. The alternate road layout presented by Jason Krzanowski in ***Exhibit***
6 ***DFLD-JK-5*** was also assessed for its impacts to Wetlands A, B and C. It was
7 determined that a road in this location would have a greater negative impact to these
8 wetlands by affecting the hydrology of the headwater areas. In my opinion, the
9 proposed road to the west of Wetlands A, B and C is the preferred route because it
10 minimizes the impacts to these wetlands. Finally, the original proposed layout of the
11 road upgrade along the existing wind turbine access road resulted in the partial filling
12 of Wetland AA. Working with Jason Krzanowski, we redesigned the road upgrade
13 to avoid any impacts to this wetland.

14

15 **Q. Do you consider these impacts to be undue or adverse impacts?**

16 Response. No, I do not.

17

18 **Q. In your opinion has Deerfield Wind avoided wetlands impacts to the**
19 **maximum practicable extent?**

20 Response. In my opinion, the Applicant has met this standard through careful siting
21 of the proposed turbines, roadways, and other infrastructure. This includes the
22 relocation of the road and turbine to avoid impacts to the Wetland A (***Exhibit***
23 ***DFLD-MLS-4c***), the relocation of the access road to the Western Project Area to

1 the proposed Putnam Road route and the relocation of the existing road upgrade to
2 avoid Wetland AA.

3

4 **Q. Are there any rare or irreplaceable natural areas within the Project Area, and if**
5 **so, what are the expected impacts to these areas?**

6 Response. Based on information from the Vermont Agency of Natural Resources,
7 the U.S. Forest Service, and field work conducted by Jeff Parsons and myself, there
8 are no rare or irreplaceable natural areas within the Project Area. There are therefore
9 no expected impacts to these types of areas from the Project.

10

11 **Q. Have you conducted any rare plant surveys of the Project Area?**

12 Response. Yes. A rare plant survey was undertaken for the southern access route
13 and the Eastern and Western Project Area ridgelines. This inventory was conducted
14 during the growing season of 2003 and is described in **Exhibit DLFD-MLS-2**. A
15 rare plant inventory was also conducted for the Putnam Road route and the
16 proposed transmission line corridor. This inventory was conducted during the
17 growing season of 2006 and is described in **Exhibit DLFD-MLS-3**.

18

19 **Q. What are the results of the surveys you have conducted?**

20 Response. No Vermont or Federally listed Threatened or Endangered Species were
21 found during those surveys. In addition, no plants currently tracked by the Vermont
22 Natural Heritage Program were discovered.

23

1 **Q. Will the proposed project have an impact on any rare plants?**

2 Response. With the exception of the Putnam Road access route and the
3 Transmission collector line, which have not yet been surveyed, the Project will not
4 have an impact on any rare plants. If rare plants are discovered during the inventory
5 of the Putnam Road access site or the Transmission collector line, steps will be taken
6 to avoid the plant population(s) whenever possible.

7

8 **Q. Are there any Outstanding Resource Waters within the Project Area? If so,**
9 **please describe the impact that the proposed project would have on these waters.**

10 Response. There are no Outstanding Water Resources within the Project Area.
11 There will, therefore, be no impact on any of these waters from the Project. In
12 addition, I have consulted with the ANR regarding whether there are any “highly
13 significant” bodies of water that could be potentially impacted by the Project, as the
14 Board has requested applicants to do. ANR currently has no classification of “highly
15 significant” bodies of water and could not provide any guidance on this issue. In my
16 opinion, there are no highly significant bodies of water in the Project Area that
17 would be impacted.

18

19 **Q. Have you conducted an inventory of streams and shorelines within the**
20 **proposed Project Area?**

21 Response. Yes. Using a combination of topographic maps, digital orthophotos, the
22 National Hydrologic Dataset, and field work, I have mapped the streams within the
23 Project Area. Field work consisted of verifying the digital map data and locating

1 additional streams that were not part of the digital maps. Streams and drainages
2 discovered in the field were sketched on a map and located with a sub-meter GPS
3 unit where they crossed the proposed road and clearing areas. Each stream was then
4 classified into a "Perennial," "Intermittent" or "Ephemeral" drainage based on
5 stream characteristics noted in the field. The locations of the mapped streams are
6 described in *Exhibit DFLD-MLS-3*, and shown on *Exhibits DFLD-MLS-4a, 4b,*
7 *and 4c.*

8

9 **Q. What is the result of that inventory?**

10 Response. A total of 11 streams have been mapped within the Project Area, six in
11 the Eastern Project Area, three along the Putnam Road Access route and two along
12 the Southern Access route. Of these 11 streams, four were classified as Ephemeral,
13 six as Intermittent and one as Perennial.

14

15 **Q. Will the proposed project have any impacts on these streams?**

16 Response. The Project has been designed to avoid surface water resources to the
17 extent practicable. While specific stream-crossing designs have not been developed
18 at this time, Arrowwood Environmental plans on working closely with the civil
19 engineer and the Vermont Department of Environmental Conservation on
20 developing stream crossings that minimize the impacts to these surface waters. Each
21 stream crossing will be carefully designed so that natural stream flow is maintained
22 and erosion prevented. It is anticipated that either small wooden bridges or open
23 bottom culverts will be utilized in the crossing locations. Traditional pipe culverts

1 will be avoided to the extent possible. It is therefore expected that there will be no
2 significant impacts to streams from the proposed development.

3

4 **Q. Does this conclude your testimony at this time?**

5 Response. Yes.