

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7250

Petition of Deerfield Wind, LLC for a Certificate of Public Good)
authorizing it to construct up to a 45 MW wind generation facility,)
and associated transmission and interconnection facilities,)
comprised of between 15 and 24 wind turbines on approximately 80)
acres in the Green Mountain National Forest, located in Searsburg)
and Readsboro, with turbines to be placed both on the east side of)
Route 8 on the same ridgeline as the existing GMP Searsburg wind)
facility Eastern Project Area), and along the ridgeline to the west of)
Route 8 in a northwesterly orientation (Western Project Area))

**PREFILED SUPPLEMENTAL DIRECT TESTIMONY OF
JOHN ZIMMERMAN**

ON BEHALF OF DEERFIELD WIND, LLC

July 30, 2007

Summary:

Mr. Zimmerman testifies regarding the revised project layout in terms of the location, number, and type of turbines; the location of the substation, and the location of the site access road. He also provides revised versions of certain exhibits.

1 **Q. Please state your name.**

2 Response. John L. Zimmerman

3

4 **Q. Have you previously submitted direct testimony in this matter?**

5 Response. Yes.

6

7 **Q. What is the purpose of your supplemental testimony?**

8 Response. My testimony describes the revised project layout, in terms of the
9 location, number, and type of turbines; the location of the substation, and the
10 location of the site access road. I also provide revised versions of certain exhibits.

11

12 **Q. In response to the Board's Order dated March 9, 2007, how has Deerfield
13 Wind refined the Project to provide "sufficient detail to allow for meaningful
14 review?"**

15 Response. Deerfield Wind has selected the number and size of turbines that will be
16 used in the Project and has optimized the placement of these turbines in the project
17 area. In addition, the location for the substation (northerly portion of the Western
18 Site Area) has been confirmed in connection with the Project's electrical
19 interconnection studies. Furthermore, the preferred access route to the Western Site
20 Area has been identified as that following Putnam Road, in the northeastern corner
21 of the Western Site Area.

22

1 **Q. Please describe the project refinements in terms of the number, type, and**
2 **layout of the wind turbines that will be used.**

3 Response. In terms of the wind turbines, the Project proposes to use 17 wind
4 turbines with a rotor size of 87 or 88 meters in diameter and a name plate power
5 rating of 2.0 or 2.1 megawatts. Seven of the turbines will be placed in the Eastern
6 Project Area and ten turbines will be placed along the ridgeline in the Western
7 Project Area. Several manufacturers have products in this size range. Suzlon Wind
8 Energy Corporation and Gamesa Wind US are preferred vendors for this Project
9 and each offers turbines in this size range. Both turbines have very similar physical
10 characteristics and either would fit on the new engineering footprint for this Project.
11 Similarly, both have similar transportation logistical needs, so the physical layout, as
12 illustrated in the ***Exhibit DFLD-JZ-Rev4***, can be considered appropriate for either.

13

14 **Q. Please describe the project refinements in terms of the location of the**
15 **substation and the access roads.**

16 Response. One substation location has been selected from the original two options.
17 The proposed substation location is in the extreme northwestern corner of the
18 Western Site Area, adjacent to the existing 69 kilovolt transmission line that crosses
19 the mountain at this location (See ***Exhibit DFLD-JZ-Rev4***). The Project's internal
20 electrical system is not altered substantially from the earlier designs and is illustrated
21 in this same exhibit. At the substation, the Project's 34.5 kilovolt electrical collection
22 circuit will be connected to switchgear and 34.5 – 69 kilovolt transformers before
23 connecting to the existing 69 kilovolt transmission line through a 3 ring buss. The

1 substation and electrical interconnection gear will occupy an area of approximately
2 29,000 square feet. The horizontal and vertical configuration of this equipment and
3 other electrical-related figures are presented in the supplemental testimony of Dave
4 Estey.

5 In terms of access roads, small changes in the alignment of the road were
6 made to accommodate providing access to the adjusted wind turbine locations, while
7 avoiding wetlands and other sensitive areas. Preferred access to the Western Site
8 Area is from the northern access route as described in the original filing and will
9 extend from Putnam Road, westerly past the new operations and maintenance
10 building, and then westward to the location for the substation and the northern end
11 of the Western Site Area. The refined road locations are shown in the general
12 project plan ***DFLD-JZ-Rev4*** and are further illustrated and described in the new
13 engineering drawings provided in Jason Krzanowski's supplemental testimony.

14

15 **Q. Is the revised project layout within the original Project area?**

16 Response. The revised project does not extend beyond the original Project Area.

17

18 **Q. Has the U.S. Forest Service been notified about the project refinements?**

19 Response. Yes, Deerfield Wind notified the U.S. Forest Service about the
20 refinements to the Project by letter dated June 8, 2007. The USFS issued a status
21 report dated June 26, 2007 which makes note of the revisions and states that the
22 special use authorization application has been updated accordingly. The dates for
23 the major milestones in the USFS process are completion of the Draft

1 Environmental Impact Statement (EIS) in early January 2008 and the Final EIS and
2 Record of Decision in late June 2008. The status report is included as **DFLD-JZ-**
3 **Rev26**.

4

5 **Q. Please describe the exhibits that have been revised to reflect the refinements**
6 **to the Project.**

7 Response. The selection of the size of turbines, the location of the substation, and
8 the selection of the northern access route to the Western Site Area has necessitated
9 that certain changes be made to some of the exhibits included with my original
10 testimony, as described more fully below.

11 JZ-Rev3 – Deerfield Wind Project, Aerial Perspective. This large scale aerial
12 photograph of the Project shows all or parts of the six towns surrounding the
13 Project's area. Modifications were made to reflect the modified or better defined
14 substation and access road locations.

15 JZ-Rev4 – Deerfield Wind Project, 17 Wind Turbine Layout. This map now
16 replaces previous exhibits JZ-4a and b. Using a USGS map as a base map, this map
17 shows the general project plan and layout of its major features at a scale similar to a
18 USGS map. As such it was modified to show the modified access road locations
19 and the substation locations, with reference to alternative routes or locations for
20 these features removed.

21 JZ-Rev5 – Wind Turbine Product Brochure. Previously this was a product
22 brochure for the GE 1.5sle Wind Turbine Generator System. In the supplemental
23 testimony, this becomes a product brochure and technical description of the Gamesa

1 G87 (a 2.0 MW turbine), and information on the Suzlon multi-megawatt class
2 turbines.

3 JZ-Rev12 – Decommissioning Cost Estimate. This exhibit provided the
4 estimated site restoration cost for a 22 turbine project. It has been modified in this
5 supplemental testimony to reflect the same for the proposed 17 turbine project.

6 JZ-Rev18 – Shadow Flicker Analysis. This exhibit contained potential
7 shadow flicker maps for the 22 and 24 turbine project designs. It has been re-run
8 using the same software and procedure for the 17 turbine layout. Output format of
9 the originals has been retained as much as practical. The original memorandum
10 from AWS Truewind that was part of my exhibit JZ-18 remains valid.

11 JZ-Rev19 – Sound Modeling Map. This exhibit shows the results of the
12 Sound Modeling. It has been updated in this supplemental testimony to reflect the
13 17 turbine project.

14

15 **Q. Is there any other information provided in the original Petition that you wish**
16 **to update at this time?**

17 Response. Yes several other aspects of the Project or its participants should be
18 updated and I will describe those in this section. The owners of the developer have
19 changed. Since the original petition was submitted in January 2007, PPM Energy has
20 been acquired by Iberdrola, a large Spanish utility company. Similar to its
21 predecessor owner, Iberdrola, through its subsidiaries, develops, constructs, and
22 operates wind energy projects throughout the United States. PPM Energy continues

1 to operate as before the ownership change and any effects on the Deerfield Project
2 should not be material.

3 Estimates for the long-term annual energy projection from the Deerfield
4 Project need to be updated with new values that reflect the new configuration and
5 the power curves for the proposed turbines. Using methods standard in the
6 industry, PPM estimates the net energy production from this plant to be
7 approximately 110,200 megawatt-hours (+/- 10%) of electrical energy per year.
8 This corresponds to a net capacity factor of approximately .37 (+/- 10%).

9 In terms of FAA lighting requirements, given the revised 17 turbine layout,
10 Deerfield Wind anticipates that in the range of seven to eight turbines will be lit at
11 night, in the same fashion as described in my original testimony and as finally
12 determined by the FAA.

13 Deerfield Wind's plans for selling the Project's power output have not
14 changed from the original filing. The letter of intent (LOI) between Deerfield Wind
15 and GMP is still in effect and the parties have extended the LOI to the end of this
16 year.

17

18 **Q. What effect will the refinements to the Project have on compliance with the**
19 **section 248 criteria?**

20 Response. For the most part, the analysis of the Project's impacts, both positive and
21 negative, will not materially change. A 17 turbine, 34 – 35.7 MW project is within
22 the range of project layouts contemplated in the original Petition, and was thus
23 evaluated by Deerfield Wind and its consultants. Each of Deerfield's witnesses has

1 filed supplemental testimony explaining his or her review of the revised project, as
2 outlined below:

3 Section 248(b)(1) – orderly development: no material change, given that the
4 location, size, and overall scope of the Project remains the same.

5 Section 248(b)(2) – need for the Project: no material change. See the supplemental
6 testimony of Ezra Hausman.

7 Section 248(b)(3) – system stability and reliability: no material change. See the
8 supplemental testimony of Dave Estey.

9 Section 248(b)(4) – economic benefits: no material change, given that the location,
10 size, overall scope of the Project remains the same. See also the supplemental
11 testimony of Ezra Hausman.

12 Section 248(b)(5) and (8) – aesthetics, historic sites, and environmental
13 considerations: no material change. See the supplemental testimony of Jason
14 Krzanowski, Michael Lew-Smith, Hope Luhman, Jean Vissering and Michael
15 Buscher, Jeffrey Parsons, Jeffrey Wallin, Steven Pelletier and Wallace Erickson, and
16 Paul Kerlinger.

17 Section 248(b)(6) – Integrated Resource Planning: no material change.

18 Section 248(b)(7) – Electric Energy Plan: no material change.

19 Section 248(b)(10) – transmission facilities: no material change. See the
20 supplemental testimony of Dave Estey.

21

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

23 Response. Yes, it does.