

STATE OF VERMONT
PUBLIC SERVICE BOARD

Petition of Green Mountain Power Corporation)
for a Certificate of Public Good pursuant to 30)
V.S.A. § 248 authorizing the removal of an)
existing substation and the construction of a)
new substation in the Town of Rockingham)
)

Docket No. _____

PREFILED TESTIMONY OF JOHN K. BENSON, P.E.

ON BEHALF OF

GREEN MOUNTAIN POWER CORPORATION

Summary of Testimony

Mr. Benson's testimony addresses how the proposed Green Mountain Power Substation and the reconfiguration of the associated distribution lines is consistent with the Section 248 archeological, environmental and historic sites criteria.

PREFILED TESTIMONY OF JOHN K. BENSON, P.E.
ON BEHALF OF
GREEN MOUNTAIN POWER CORPORATION

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

2 **1A.** My name is John K. Benson. My business address is DuBois & King, Inc. 28 North
3 Main Street, Randolph, Vermont 05060.

4
5 **2Q. What is your training and experience as a professional engineer?**

6 **2A.** I am a professional engineer registered in the states of Maine and Vermont. I have been
7 engaged in the planning, design, permitting, and construction of land development,
8 transportation, and utility projects in northern New England for over 30-years. I am
9 currently Vice President and Director of the Environmental Documentation, Permitting
10 and Natural Resources Division of DuBois & King, Inc. (“D-K”), a multidisciplinary
11 engineering firm headquartered in Randolph, Vermont, where I have been employed for
12 the past 32 years. A copy of my resume is attached as Exhibit__[JKB-1].

13

14 **3Q. Have you ever testified before the Public Service Board before, and if so, in what**
15 **dockets?**

16

17 **3A.** I provided environmental impact information to Central Vermont Public Service Corp.
18 (“CVPS”) in support of its application to the Public Service Board for the upgrade of the
19 power subtransmission line to serve the Husky Campus in Milton, Vermont, Docket
20 5982, in 1997.

1 **4Q. Why did Green Mountain Power Corporation (“Green Mountain Power”) hire**
2 **Dubois & King, Inc. with respect to the Bellows Falls substation project?**

3
4 **4A.** Green Mountain Power hired D-K in 2001 to evaluate relocation options for the Bridge
5 Street substation in Bellows Falls, Vermont. The resulting report is attached as
6 Exhibit__[JKB-2] and a 2007 update to the report is attached as Exhibit__[JKB-3]. The
7 report, as updated, is referred to in my testimony and that of Patrick Kearney as the
8 “Relocation Study”. D-K has also been retained by Green Mountain Power to provide
9 expert testimony on aesthetic, environmental historic places and archeological criteria of
10 30 V.S.A. § 248.

11

12 **5Q. Why did the Relocation Study require updating?**

13 **5A.** Although the Relocation Study supports the selection of the proposed substation site, the
14 chief author of the Relocation Study project passed away before the final version could
15 be completed. The Relocation Study was updated in connection with completing it.

16

17 **6Q. What was your personal involvement in this study?**

18 **6A.** I assisted in the identification and evaluation of potential sites and coordinated the
19 environmental reviews.

20

21 **7Q. Please briefly describe the process your firm used to identify and evaluate**
22 **alternative sites for the project?**

23

24 **7A.** We considered the ability of available area to accommodate the substation, taking into
25 account the following factors.

- 1 ▪ Interconnection to the existing electrical sub-transmission and electrical
- 2 distribution system.
- 3 ▪ Minimized impacts on the surroundings, environmental, and cultural resources.
- 4 ▪ Accessibility.
- 5 ▪ Conformance with local zoning.

6 The necessary information was obtained through a review of existing available
7 information/ mapping and by actual field observations.

8

9 **8Q. How many sites did your firm evaluate?**

10 **8A.** As presented in Exhibits __ [JKB-2] and [JKB-3], and explained in greater detail below,
11 D-K evaluated three potential sites: 1) the Riverside Site, 2) the Upper Island Station Site
12 (the proposed site) and 3) the Upper Island Canal Site.

13

14 **9Q. How was the proposed site chosen?**

15 **9A.** Ultimately, the Relocation Study used the following criteria in its evaluation of
16 alternatives to the current location for the Bridge Street Substation. The new substation
17 site must:

- 18 • Be accessible to heavy trucks, including transport of the Green Mountain Power
- 19 Mobile Substation for use during emergency repair conditions;
- 20 • Be able to accommodate the proposed substation and to interconnect with the existing
- 21 electrical sub-transmission and electrical distribution systems;
- 22 • Not adversely affect the local environment and be in context with surrounding
- 23 historical land uses and architectural styles;
- 24 • Not adversely affect known or suspected archeological sites;

- 1 • Conform to local zoning and local and regional planning rules and regulations.

2
3 D-K recommended the Upper Island Station Site as the preferred site for the following
4 reasons:

5
6 The proposed 0.65 acre site is already owned by Green Mountain Power. On an adjacent
7 lot, New England Power Company d/b/a National Grid (“National Grid”) currently
8 operates its Vilas Bridge Substation. All electrical equipment on the site will be owned
9 and operated by Green Mountain Power. In addition, existing 46kV transmission lines
10 (National Grid’s 4401 and 4402 lines) are within 100 feet of the proposed substation and
11 the proposed site is in close proximity to all existing distribution circuits.

12
13 The proposed substation will be located in an area where it will “fit in” with similar
14 electrical facilities, specifically, National Grid’s Vilas Bridge Substation. The proposed
15 substation will be located several hundred feet away from the canal and the Connecticut
16 River. An orthophoto (aerial photograph) portraying the general location of the proposed
17 substation is attached to the prefiled testimony of Patrick J. Kearney at Exhibit__[PJK-1]
18 and a portion of a USGS contour map showing the relative elevations of the proposed
19 substation site and the surrounding area is attached substation is attached to the prefiled
20 testimony of Patrick J. Kearney at Exhibit__[PJK-2]. Sites marked with letters on the
21 aerial photograph in Exhibit__[PJK-1] correspond to views of the proposed substation
22 location in attached to the prefiled testimony of Patrick J. Kearney at Exhibit__[PJK-3].

1
2 Site #1 (Riverside) was considered by Green Mountain Power and rejected, after
3 consultation with the Town of Rockingham, for the following reasons:

- 4 • The property is not owned by Green Mountain Power and it is in the Environmental
5 Protection Agency (“EPA”) environmental Brownfields Program, based
6 on information available on the Vermont Department of Environmental Conservation
7 (“DEC”) website. Site #1 is located in an area where the soil contains high
8 concentrations of volatile organic compounds (“VOCs”), semivolatile organic
9 compounds (“SVOCs”) and metals. Currently there is an ongoing environmental
10 investigation at the site under EPA supervision. Neither that investigation nor
11 remediation has been completed.
- 12 • Site work in this area would involve significant additional expense by an
13 environmental contractor and soils would have to be handled appropriately and
14 removed if necessary. Therefore the costs and potential liability would likely be
15 much greater than the proposed site.
- 16 • Access to the site through a narrow alleyway and across railroad tracks would be
17 problematic compared with the proposed site. Green Mountain Power would have
18 difficulties transporting its mobile substation to Site #1 in the event of an unexpected
19 outage.
- 20 • A substation at Site #1 would block the access road to the National Grid switch yard
21 and would encroach on an existing easement.
- 22 • A substation at Site #1 would be located very near existing historic buildings.

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Following an April 3, 2007 meeting with representatives of Green Mountain Power, Town of Rockingham officials asked that Green Mountain Power reconsider a possible substation site located at Site # 1 near the old Grist Mill, next to the National Grid switch yard. Green Mountain Power’s re-assessment identified the following additional disadvantages, compared to the proposed site:

- The vacant wooded area south of the Grist Mill site and adjacent to Mill Street is not owned by Green Mountain Power and would require extensive site work, including construction of an entrance road and parking lot. . There are indications of ledge outcroppings in this area that would likely result in expensive road construction, site preparation and electrical grounding methods.
- Transmission line connections would require new system impact studies with National Grid, TransCanada Northeast, Inc. (“TransCanada”) and CVPS whereas studies associated with the proposed site are well under way.

Similarly, Site #3 was rejected for the following reasons:

- No transmission lines exist near site #3; any new line would therefore require extensive construction, which would likely be difficult due to existing buildings and municipal infrastructure.
- New overhead lines would likely be visually intrusive.
- Site #3 was on land not owned by Green Mountain Power.
- Site #3 was under consideration for construction of a proposed Island Park and local

1 officials expressed an interest in keeping the option for such a project open.

2
3 **11Q. Based upon the work your firm has completed please will the proposed project have**
4 **an adverse effect on air and water quality, the natural environment, public health**
5 **and safety, headwaters, floodways, streams, shorelines or wetlands or result in**
6 **undue soil erosion, air or water pollution (30 V.S.A. §§ 248(b)(5), (8), 10 V.S.A. §**
7 **1424a(d)).**

8
9 **11A.** No. My analysis of each of the relevant criteria listed in 10 V.S.A. § 6086 and § 6068
10 and 30 V.S.A. § 248(b)(8) is as follows:

11
12 **Headwaters**

13 **[10 V.S.A. §§ 1424a(d), 6086(a)(1)(A)]**

14 The project is not located in a headwater area, is not above 1,500 feet in elevation, is not
15 located within a watershed of a public water supply, does not provide significant recharge
16 to aquifers and the Connecticut River's drainage area is over 20 square miles at the
17 project location.

18
19 **Waste Disposal**

20 **[10 V.S.A. § 6086(a)(1)(B)]**

21 The project will meet all applicable health and environmental conservation department
22 regulations regarding the disposal of wastes and will not involve the injection of waste or
23 toxic substances into ground waters. There is no sewage disposal associated with or
24 required for this project.

25

1 Stormwater – The site is currently used by Green Mountain Power for storage of poles
2 and equipment. Most of the site area is currently paved or gravel. Once completed, there
3 will be no net change in impervious surface area. Stormwater will not be collected but
4 will sheet flow to adjacent vegetated areas as it does currently. As presented in the letter
5 from the DEC Water Quality Division, Exhibit__[JKB-4], a Stormwater Discharge
6 Permit is not required for this project.

7
8 Solid waste – The project will not generate solid waste. During construction, a limited
9 quantity of waste materials will be generated from the proposed substation site. The
10 majority of the materials (packaging concrete & waste metals) will be recycled. Material
11 that is not suitable for recycling will be disposed of properly at a certified landfill. For a
12 description of the decommissioning process for the existing substation, please refer to the
13 prefiled testimony of Patrick J. Kearney and Charles E. Wilson.

14
15 **Water Conservation/Usage**

16 **[10 V.S.A. § 6086(a)(1)(C), (a)(2), (a)(3)]**

17 The project will not use water during or after construction. As such, the project will
18 comply with, or will have no effect on, criteria relating to: water conservation (10 V.S.A.
19 § 6086(a)(1)(C)), sufficiency of water supplies for the reasonably foreseeable future (10
20 V.S.A. § 6086(a)(2)), and burden on the water supply (10 V.S.A. § 6086(a)(3)).

21
22 **Floodways**

1 the canal to the dam. See Exhibit__[PJK-5] to the prefiled testimony of Patrick J.
2 Kearney.

3
4 **Shorelines**

5 **[10 V.S.A. § 6086(a)(1)(F)]**

6 As indicated in connection with criteria (1)(E) above, the only work adjacent to an
7 existing water body relates to the removal of the existing substation and the installation of
8 an overhead/underground power line connecting the proposed substation to the existing
9 distribution system. A silt fence will be installed along the top of the bank/retaining wall
10 to protect the canal during removal of the existing substation. Removal of the existing
11 Bridge Street Substation will enhance the visual impact within the Town of Rockingham
12 and improve the public's view of the Bellows Falls Canal.

13
14 **Wetlands**

15 **[10 V.S.A. § 6086(a)(1)(G)]**

16 There are no wetlands in proximity to the project site. Thus, the project will meet
17 applicable Water Resources Board regulations regarding impacts on designated
18 significant wetlands. Based on visual observation and discussions with the Vermont
19 Agency of Natural Resources Water Quality Division, there are no floodways, streams,
20 shorelines or wetlands located within 150 feet of the proposed substation. No
21 Conditional Use Determination (“CUD”) will be required for this project. *Id.* In

1 addition, please see site screening report for wetlands and environmental review in the
2 Relocation Study, Exhibits __[JKB-2], [JKB-3].

3
4 **Soil Erosion**

5 **[10 V.S.A. § 6086 (a)(4)]**

6 The project will not cause unreasonable soil erosion or reduction in the capacity of the
7 land to hold water so that a dangerous situation results.

8
9 **A. Bridge Street Substation Site**

- 10 1. Existing Condition – Consists of a paved access drive off of Canal Street
11 and a fenced in substation with surface treatment within the fenced area as
12 gravel and concrete pads.
- 13 2. Existing Ground Slope – 3% +/-.
- 14 3. Proposed Earth Disturbance – 0.17 acres, removal of existing substation.
- 15 4. Erosion Prevention and Sedimentation Control Measures – Limit disturbed
16 area and stabilize construction exit. Install site fence between yard and
17 canal prior to construction, and stabilize exposed soils (seed/mulch).
- 18 5. Final Land Treatment – Topsoil, seed and mulch.

19 **B. Proposed Substation Site**

- 20 1. Existing Conditions – Paved drive, gravel yard within fenced area and
21 concrete pad for transformer storage.
- 22 2. Existing Ground Slope – 1 - 8% with the majority of the site less than 3%.

- 1 4. Final Land Treatment – Seed/mulch around pole base in lawn areas.
- 2 D. Bridge Street (West of Canal)
- 3 1. Existing Condition – Paved road/drive, concrete sidewalk, lawn and gravel
- 4 drive to back of post office.
- 5 2. Proposed Earthwork – Prior to Bridge Street Substation removal, install
- 6 three poles to carry two circuits from the east side of the canal to the
- 7 existing overhead lines behind the post office. Thereafter, these lines will
- 8 be placed underground. Two conduits will run underground from the new
- 9 pole on the east side of the canal, under the road surface/attached to the
- 10 bridge/over the canal to a pull station at the existing substation site, then
- 11 continue underground to the existing overhead lines behind the post office
- 12 as requested by the Town. The trench length is less than 500 feet.
- 13 3. Erosion Prevention and Sedimentation Control Measures – Minimize area
- 14 of disturbance, install silt fence between pull station and the canal, and
- 15 install conduits concurrently with trench excavation and backfill.
- 16 4. Final Land Treatment – Restore to existing conditions.
- 17 E. East Side of Canal
- 18 1. Existing Conditions – Overhead pole line along east side to canal.
- 19 2. Proposed Earth Work – Replacement of existing overhead line/poles with
- 20 new line/poles. To the extent possible, the Company proposes to place the
- 21 new poles in the same location/holes as the existing poles.

1 Green Mountain Power to service/operate the proposed substation will be less than the
2 current number of trips to access poles and transformers stored at the Bridge Street
3 Substation.

4
5 **Educational Services**

6 **[10 V.S.A. § 6086 (a)(6)]**

7 The project will not result in an increase in employment or relocation of existing
8 employees of Green Mountain Power and is not located adjacent to an existing or
9 proposed educational facility. As a result, the project will not affect the ability of local
10 governments to provide educational services. The project will increase the reliability of
11 the existing power distribution system, thus providing an indirect benefit to the region's
12 educational facilities.

13
14 **Municipal Services**

15 **[10V.S.A. § 6086(a)(7)]**

16 The project will not place an unreasonable burden on the ability of local governments to
17 provide municipal or governmental services. Green Mountain Power met several times
18 with local officials during the site selection and design process. The Town supports the
19 relocation of the Bridge Street Substation from downtown to the new location. The
20 proposed substation will be located much further away from the canal and incorporate
21 more modern spill containment systems, thus reducing the potential for accidental release
22 which would require local/state emergency services. In addition, as noted above, the

1 project will increase the reliability of the existing power distribution system, thus
2 providing another indirect benefit to the community.
3

4 **Historic Sites, Rare and Irreplaceable Natural Areas, Archeological Resources**

5 **[10 V.S.A. § 6086(a)(8)]**

6 In connection with the Relocation Study, the site was reviewed for the presence of
7 historic resource, rare or irreplaceable natural areas. D-K's review included a site visit by
8 an Architectural Historian, a Field Naturalist and an Archaeologist. As presented in the
9 Relocation Study, Exhibits__[JKB-2], [JKB-3], the transmission elements of the
10 proposed substation project will not result in an adverse effect on historic sites, rare or
11 irreplaceable natural areas. The proposed Green Mountain Power substation site consists
12 entirely of previously disturbed land within the fence line of the existing Green Mountain
13 Power pole and transformer storage property. The construction of the proposed
14 substation will therefore have no effect on sensitive archeological sites. The proposed
15 new distribution lines will largely replace existing distribution lines, as shown on Mr.
16 Kearney's Exhibit__[PJK-5], and thus will not alter the visual character of the town in
17 general or the island in particular. Because existing distribution corridor will be used for
18 the placement of poles, and because the proposed substation location is on previously-
19 disturbed land within the confines of an already-fenced area currently used by Green
20 Mountain Power, the proposed project will not adversely affect historic sites, natural
21 areas or animal or plant life. The area adjacent to the proposed substation has also been
22 previously disturbed -- National Grid's Vilas Bridge Substation is located on one side of

1 the lot and Island Corporation's building is located on another side. In some cases, such
2 as on the west side of the Bridge Street Canal, an existing distribution line will be
3 removed. In addition, the distribution lines will be undergrounded between the east side
4 of the canal and the connection to the existing overhead lines behind the Bellows Falls
5 Post office. The distribution line along the east side of the canal will be replaced with a
6 similar type/style line as presented in testimony of Patrick Kearney. In fact, Green
7 Mountain Power is proposing to install the new poles positions that are as close to the
8 existing poles as possible and to reuse existing guy anchors to the extent possible. As
9 indicated by Mr. Steele, the net aesthetic effect of such removal and undergrounding will
10 be positive.

11
12 **Necessary Wildlife Habitat and Endangered Species**

13 **[10 V.S.A. § 6068(a)(8)(A)]**

14 The Project will not destroy or imperil necessary wildlife or endangered species habitat.
15 There are no identified threatened or endangered species, critical wildlife habitat or deer
16 wintering areas identified on or directly adjacent to the project site. See Exhibits __[JKB
17 -2], [JKB-3].

18
19 **13Q.** Does this complete your testimony?

20 **13A.** Yes it does.