

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7324

Petition of the Village of Northfield Electric)
Department for a Certificate of Public Good)
pursuant to 30 V.S.A. § 248(j) authorizing the)
upgrade of two substations in the Town of)
Northfield, Vermont)

Order entered: 9/20/2007

I. INTRODUCTION

This case involves a petition filed by the Village of Northfield Electric Department ("Northfield") on June 7, 2007, requesting a certificate of public good under 30 V.S.A. § 248(j) to upgrade two substations in Northfield, Vermont. Northfield submitted prefiled testimony, proposed findings, and proposed order pursuant to the requirements of 30 V.S.A. § 248(j).

Notice of the filing was sent on July 12, 2007, to all entities specified in 30 V.S.A. §248(a)(4)(c) and all other interested parties. The notice stated that any party wishing to submit comments as to whether the petition raises a significant issue with respect to the substantive criteria of 30 V.S.A. § 248 needed to file comments with the Board on or before August 13, 2007. A similar notice of the filing was published in the *Times Argus* on July 16 and July 23, 2007.

The only comment received was from the Department of Public Service, filed on August 13, 2007, stating that it does not believe that the petition raises a significant issue with respect to the criteria of Section 248 and has no objection to the issuance of a certificate of public good.

The Board has determined that the proposed construction will be of limited size and scope and that the petition has effectively addressed the issues raised with respect to the substantive criteria of 30 V.S.A. § 248. Consequently, we find that the procedures authorized by Section 248(j) are sufficient to satisfy the public interest, and no hearings are required.

II. FINDINGS

1. The proposed Project involves upgrades to two existing substations on the Northfield system, the King Street substation and the Norwich substation. Hipp pf. at 4.

2. The King Street substation currently has a 12.47 kV transformer with a nameplate rating of 6.25 MVA. The existing transformer was installed in the late 1970s. The 2005 peak load on the King Street substation was 4.3 MVA. Hipp pf. at 4.

3. The Norwich substation serves Norwich University ("University") and has a 4.16 kV transformer bank, consisting of three single-phase units, with a nameplate rating of 1500 kVA. The Norwich substation serves the majority of the University load, which currently peaks at just under 1400 kVA. Hipp pf. at 4; exh. WH-14.

4. The King Street substation serves as the backup for all of the Norwich substation loads. Hipp pf. at 5.

5. The University is undergoing a multi-year expansion program of its facilities. Hipp pf. at 7-9.

King Street substation

6. Northfield is proposing to make the following modifications to its King Street substation:

- replace the existing 5/6.25 MVA transformer at the King Street substation with a transformer rated at 7.5/10.5 MVA;
- Upgrade the existing 250 kVA voltage regulators to 333 kVA; and
- Increase the transformer 34 kV fuse rating to 200 amps to match the new transformer size.

Hipp pf. at 3.

7. Northfield proposes to install an oil-retention pit at the King Street substation. Due to the costs of installing the oil-containment pit, the pit would be constructed to accommodate a 10/14 MVA transformer in the event that the King Street substation transformer would need to be upgraded to that size in the future. The oil-containment pit would be constructed so as to ensure containment of the amount of oil in a 10/14 transformer plus approximately 19 inches of rainfall. Hipp pf. at 4.

8. All proposed construction at the King Street substation would take place within the existing fenced area. Hipp pf. at 12.

Norwich Substation

9. Northfield proposes to make the following modifications to its Norwich substation:

- Upgrade the exit feeder voltage from 4.16 kV to 12.47 kV;
- Replace the three existing 500 kVA single-phase transformers with the 5/6.25 MVA three-phase transformer currently at the King Street substation;
- Dismantle the existing wood pole structures and replace these structures with galvanized 34.5 kV and 12.47 kV structures;
- Install an oil-containment system similar to the one proposed for the King Street substation; and
- Install the three 250 kVA voltage regulators removed from the King Street substation at the Norwich substation in place of the 4 kVA regulators currently in the Norwich substation.

Hipp pf. at 4.

10. The proposed new 12.47 kV low-voltage structure at the Norwich substation would have positions for two 12.47 kV underground exit feeder circuits. One circuit would supply the University's proposed new South Campus loads and three existing campus buildings, which would be transferred to this new circuit. This circuit would also connect to Northfield's 12.47 kV distribution circuit on Route 12 for emergency back-up purposes. The second circuit would supply a new 1500 kVA pad-mounted 12.47 kV/4.16 kV stepdown transformer located just outside the substation fence. The new pad-mounted transformer would supply the existing Norwich campus 4.16 kV overhead distribution system, with the exception of the three buildings that would be transferred to the new South Campus 12.47 kV circuit. Hipp pf. at 9-10.

11. The existing fence enclosure at the Norwich substation is approximately 56 feet by 57 feet. Under the proposed upgrades, the fenceline would be expanded to 60 feet by 73 feet. Hipp pf. at 12-13.

12. During reconstruction of the Norwich substation, an existing 1500 kVA pad-mounted transformer, located on campus, would supply the 4.16 kV University loads. This existing pad-mounted transformer is sourced from the King Street substation and has been used in the past to

provide emergency backup for the University when the Norwich substation is out of service. Hipp pf. at 10.

Cost

13. The proposed project would cost approximately \$895,971, exclusive of permitting costs. Norwich University has agreed to pay 50% of the project costs. Hipp pf. at 13.

Construction Schedule

Because the proposed upgrades are driven primarily by the expansion of the University, Northfield proposes to implement the following construction schedule.

14. The existing 250 kVA voltage regulators at the King Street substation would be left in place until such time as the University undertakes the South Campus expansion (projected to take place after the Spring of 2008). At that time, Northfield would move the voltage regulators from the King Street substation to the Norwich substation. Northfield would defer the purchase of the new 333 kVA regulators for the King Street substation until that time. Hipp pf. at 11.

15. Northfield would dismantle the wood-pole Norwich substation and replace it with steel structures. Northfield would install the transformer from the King Street substation in place of the three existing 500 kVA single-phase transformers at the Norwich substation. Northfield would energize the transformer at 4.16 kV until the South Campus construction requires a conversion to 12.47 kV. Northfield would re-install the existing 125 kVA voltage regulators until the conversion to 12.47 kV. Hipp pf. at 11.

16. Northfield would outfit the future South Campus circuit bay at the Norwich substation with buswork and switches, but otherwise leave the bay vacant until it is needed at the time of voltage conversion. The remaining circuit bay at the Norwich substation would be used to supply the existing University 4.16 kV system directly, without a 12.47 kV/4.16 kV pad-mounted stepdown transformer. The pad-mounted transformer would be put in place only as part of the conversion of the Norwich substation to 12.47 kV. Hipp pf. at 11-12.

Orderly Development of the Region

[30 V.S.A. § 248(b)(1)]

17. The proposed project would not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality. This finding is supported by findings 18 through 20, below.

18. The proposed upgrades impact existing substations and would not have adverse aesthetic impacts. Hipp pf. at 14-15.

19. The proposed project would not interfere with the orderly development of the region and complies with both the Central Vermont Regional Plan and the Town of Northfield's Municipal Plan. Hipp pf. at 14-15.

20. The Central Vermont Regional Planning Commission and the Northfield Planning Commission waived the 45-day advance notice period otherwise required by Section 248(f). Letter of July 25, 2007, from Joslyn Wilschek to Susan Hudson.

Need for Present and Future Demand for Service

[30 V.S.A. § 248(b)(2)]

21. The proposed project is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy efficiency and load management measures. This finding is supported by findings 22 through 28, below.

22. The current system does not adequately serve the future anticipated growth on the Northfield system. Hipp pf. at 5-8.

23. The University is expanding its campus facilities over the next few years. This expansion includes the construction of a campus center to be completed at the end of summer 2007 that will add approximately 1167 kVA, and construction of several new dormitories and administration buildings that would add approximately 1183 kW to Northfield's load. Hipp pf. at 5-6.

24. The demand added by the University's expansion will be beyond the capability of the existing 4.16 kV facilities and Norwich substation. Hipp pf. at 6.

25. The King Street substation will continue to be the backup for the Norwich substation. The Norwich expansion will restrict the ability of the King Street substation transformer to provide backup for University loads. Hipp pf. at 6-7.

26. The load on the Norwich substation peaks at approximately 1400 kVA, while the transformer bank at the substation has a nameplate capacity of 1500 kVA. As distribution systems approach their load limitations, voltage levels, power quality, and other performance measures begin to suffer. Hipp pf. at 7.

27. The existing wood pole and timber-framed Norwich substation is not suitable for either enlargement or conversion to a higher voltage. Hipp pf. at 7-8.

28. The need for the proposed upgrade could not be met through efficiency, conservation or other load management measures. The University has taken advantage of Efficiency Vermont's programs. Hipp pf. at 13.

System Stability and Reliability

[30 V.S.A. § 248(b)(3)]

29. The proposed project would not adversely affect system stability and reliability. The modifications proposed at the substations consist of increasing the size of the transformers and voltage regulators, which would not adversely affect system stability. The proposed project would improve Northfield's system stability and reliability by allowing future load growth without causing the existing transformer at the King Street substation to fail. Hipp pf. at 12-13.

Economic Benefit to the State

[30 V.S.A. § 248(b)(4)]

30. The proposed project would result in an economic benefit to the state. The proposed project would allow the University to continue its expansion, which would provide economic and educational benefits to the region. Hipp pf. at 15.

Aesthetics, Historic Sites, Air and Water Purity, the Natural Environment and Public Health and Safety

[30 V.S.A. § 248(b)(5)]

31. The modifications as proposed will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and public health and safety. This finding is supported by findings 32 through 65 below, which are the criteria specified in 10 V.S.A. §§ 1424(a)(d) and 6086(a)(1)-(8)(a) and (9)(k).

Outstanding Resource Waters

[10 V.S.A. § 1424(a)(d)]

32. The proposed project would not affect any outstanding resource waters. Hipp pf. at 16.

Water and Air Pollution

[10 V.S.A. § 6086(a)(1)]

33. The proposed project would not result in undue water or air pollution. This finding is supported by findings 34 through 36, below.

34. The proposed project would not produce any emissions. Hipp pf. at 17.

35. The transformers are the only components that would produce continuous noise. The design sound level for the new 7500/10500 kVA King Street substation transformer is 67 db, compared to a design sound level of 66 db for the existing 5000/6250 kVA transformer. There are houses adjacent to the King Street substation. The Norwich substation is located approximately 300 yards from the nearest building and is surrounded by a parking lot and railroad tracks. Hipp pf. at 17; exh. WH-4(a).

36. The proposed project involves the installation of oil-retention pits, thereby providing greater protection to water resources than currently exists. Hipp pf. at 18.

Discussion

With respect to the issue of noise pollution, we find that the project would not cause an undue adverse impact. There are no residences in the immediate vicinity of the Norwich substation. The King Street substation is adjacent to several residences; however, the noise level is projected to increase by only one decibel.

Headwaters

[10 V.S.A. § 6086(a)(1)(A)]

37. The proposed project is not near any headwaters. Hipp pf. at 18.

Waste Disposal

[10 V.S.A. § 6086(a)(1)(B)]

38. The proposed project would meet applicable health and environmental conservation regulations regarding disposal of wastes, and would not involve the injection of waste materials or any harmful or toxic substances into ground water or wells. This finding is supported by findings 39 through 41, below.

39. Construction debris would be disposed of in a state-approved landfill. Hipp pf. at 18.

40. The proposed project would not result in increased stormwater flow. Hipp pf. at 18.

41. Northfield would test the oil pit excavations for contamination at each substation. Hipp pf. at 18.

Discussion

Northfield proposes to test the soil removed during excavation and dispose of any contaminated soil in accordance with Northfield's hazardous waste plan. However, Northfield does not propose to perform any further action if the soil is contaminated. We require Northfield to report to the Board and parties if there is any contamination at either site. If contaminated soil is found at either site, Northfield must propose a plan for surveying groundwater at the site for contamination.

Water Conservation

[10 V.S.A. § 6086(a)(1)(C)]

42. The proposed project would not require the use of municipal water supplies during or after construction. Hipp pf. at 19.

Floodways, Streams, and Shorelines

[10 V.S.A. §§ 6086(a)(1)(D)(E) &(F)]

43. The proposed project is not located near any shorelines or floodways. Hipp pf. at 19-20.

44. The Dog River is located approximately 300 feet from the King Street substation. King street and several residences are between the stream and the substation. Hipp pf. at 20; exh. WH-4(a).

45. At the Norwich substation, the Dog River is located approximately 150 feet from the substation, and is separated from the substation yard by the Central Vermont Railroad embankment. Hipp pf. at 20.

Wetlands

[10 V.S.A. § 6086(a)(1)(G)]

46. The proposed project would comply with the Vermont Wetland Rules and would not cause undue adverse impacts to wetlands. This finding is supported by findings 47 and 48, below.

47. There are no Class II wetlands at either substation site. Hipp pf. at 20; exh. WH-13.

48. There is a Class III wetland approximately 50 feet from the King Street substation fence. Northfield is not proposing to perform any work outside the substation fence at this location. Hipp pf. at 20-21.

49. The project would not impact any wetlands. Hipp pf. at 20.

Sufficiency of Water and Burden on Existing Water Supply

[10 V.S.A. §§ 6086(a)(2)&(3)]

50. The proposed project would not require the use of any municipal water supplies during or after construction. Hipp pf. at 19.

Soil Erosion

[10 V.S.A. § 6086(a)(4)]

51. The proposed project would not result in unreasonable soil erosion or reduce the ability of the land to hold water. This finding is supported by findings 52 and 53, below.

52. The proposed construction at the King Street substation would take place within the existing fenceline on a crushed stone surface. The crushed stone surface would minimize the amount of exposed soil. Northfield would regrade and supplement as needed after construction is complete. Hipp pf. at 21.

53. Northfield proposes to utilize haybale and geotextile fabric retention fence to surround the construction site at the Norwich substation. Excess excavated soil that is not re-used within the substation would be disposed of off-site. The fence expansion would not interfere with the retention pond already on-site. Hipp pf. at 21-22.

Discussion

Northfield's environmental consultant recommends that any erosion prevention and sediment control measures put in place at the sites be constructed and maintained according to the guidelines established by the Vermont Water Quality Division in the Vermont Handbook for Erosion Prevention and Sediment Control. We require Northfield to adhere to this recommendation.

Transportation Systems

[10 V.S.A. § 6086(a)(5)]

54. The proposed project would not cause unreasonable congestion or unsafe conditions with respect to the use of highways, waterways, railways, airports and airways, and other means of transportation. This finding is supported by findings 55 and 56, below.

55. During construction, Northfield would deliver materials and equipment by truck, causing a minimal increase in traffic on Route 12 and King Street. Parking would be at the two substation sites. Hipp pf. at 22.

56. Existing traffic at the sites consists of occasional maintenance vehicles or line trucks, as needed during outage conditions. Post-construction traffic conditions would be similar to existing conditions. Hipp pf. at 22.

Educational Services

[10 V.S.A. § 6086(a)(6)]

57. The proposed project would not affect educational services. Hipp pf. at 22.

Municipal Services

[10 V.S.A. § 6086(a)(7)]

58. The proposed project would not affect municipal services. Hipp pf. at 22.

**Aesthetics, Historic Sites
and Rare and Irreplaceable Natural Areas**

[10 V.S.A. § 6086(a)(8)]

59. The proposed project would not have an undue adverse impact on the scenic or natural beauty of the area, or upon aesthetics, historic sites or rare and irreplaceable natural areas. This finding is supported by findings 60 through 63, below.

60. All upgrades at the King Street substation would be located within the existing fence-line and would not create noticeable changes from what currently exists at the site. Hipp pf. at 15.

61. The Norwich substation is located adjacent to a railroad embankment and commuter student parking lot and at the base of a slope leading to the National Guard Armory. The site is minimally visible to anyone outside those areas. Hipp pf. at 15.

62. The proposed project would not adversely impact any historic or archaeological sites. Hipp pf. at 16.

63. The proposed project would not adversely impact any rare and irreplaceable natural areas. Hipp pf. at 23.

Necessary Wildlife Habitat and Endangered Species

[10 V.S.A. § 6086(a)(8)(A)]

64. The proposed project would not impact any necessary wildlife habitat or endangered species. Hipp pf. at 23.

Development Affecting Public Investments

[10 V.S.A. § 6086(a)(9)(K)]

65. The proposed project would not unnecessarily or unreasonably endanger the public or quasi-public investment in public facilities, services, lands, or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment or access to the public facility, service, or lands. Hipp pf. at 23.

Least-Cost Integrated Resource Plan

[30 V.S.A. § 248(b)(6)]

66. The proposed project complies with Northfield's most recent approved integrated resource plan. Hipp pf. at 24.

Compliance with Electric Energy Plan

[30 V.S.A. § 248(b)(7)]

67. The proposed project complies with the Vermont Twenty-Year Electric Plan. This finding is supported by findings 68 and 69, below.

68. The Vermont Twenty-Year Electric Plan calls for the provision of electrical service that balances the following policy goals: "efficient, adequate, reliable, secure, sustainable, affordable, safe, and environmentally sound, while encouraging the state's economic vitality and maintaining consistency with other state policies." The proposed project meets these goals. Hipp pf. at 25.

69. The Department of Public Service filed a determination, in a letter filed on August 12, 2007, that the proposed project is consistent with the Vermont Twenty-Year Electric Plan, in accordance with 30 V.S.A. 202(f).

Outstanding Resource Waters

[30 V.S.A. § 248(b)(8)]

70. The proposed project is not located near any outstanding resource waters. Hipp pf. at 16.

Waste to Energy Facilities

[30 V.S.A. § 248(b)(9)]

71. Based on the Board's review of the petition, the proposed project does not involve construction of waste to energy facilities. Accordingly, this criterion is inapplicable.

Existing or Planned Transmission Facilities

[30 V.S.A. § 248(b)(10)]

72. The proposed project can be economically served by existing or planned transmission facilities without undue adverse impact on Vermont utilities or customers. Hipp pf. at 25.

III. REQUIRED VOTE AND ASSESSMENT OF RISKS AND BENEFITS

Northfield is required by Section 248(c) to conduct a vote on the proposed project, and to provide its voters with a written assessment of associated risks and benefits identified by the Board and an assessment of any other risks and benefits determined by Northfield.

The benefits associated with the proposed project include increased reliability and stability for Northfield's system. The risks associated with the proposed project involve the financial costs of the upgrade and the limited environmental impacts of moving the Norwich substation fence.

IV. CONCLUSION

Based upon all of the above evidence, we conclude that the proposed construction will be of limited size and scope; the petition does not raise a significant issue with respect to the substantive criteria of 30 V.S.A. § 248; the public interest is satisfied by the procedures authorized by 30 V.S.A. § 248(j); and the proposed project will promote the general good of the state.

V. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that the proposed upgrades to Northfield's King Street and Norwich substations, in accordance with the evidence and plans presented in this proceeding, will promote the general good of the State of Vermont in accordance with 30 V.S.A. Section 248, and a certificate of public good shall be issued in the matter.

Dated at Montpelier, Vermont this 20th day of September, 2007.

<u>s/James Volz</u>)	
)	PUBLIC SERVICE
)	
<u>s/David C. Coen</u>)	BOARD
)	
)	OF VERMONT
<u>s/John D. Burke</u>)	

OFFICE OF THE CLERK

FILED: September 20, 2007

ATTEST: s/Susan M. Hudson
Clerk of the Board

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.