

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 6184

Petition of Village of Ludlow Electric Light)
Department for a certificate of public good,)
pursuant to 30 V.S.A. Section 248(j), for)
authority to replace an existing 46/4.16 kV)
substation and feeder lines with a 46/12.47 kV)
substation and feeder lines in the Village of)
Ludlow, Vermont, for the purpose of upgrading)
electric service to Okemo Mountain Resort and)
surrounding areas in the Village and Town of)
Ludlow)

Order entered: 3/31/99

I. INTRODUCTION

This case concerns a petition filed by the Village of Ludlow Electric Light Department ("Ludlow") on December 14, 1998, requesting a certificate of public good ("CPG") under 30 V.S.A. § 248(j) to replace an existing 46/4.16 kV substation and related 4.16 kV distribution facilities, with a new 46/12.47 kV substation and two 12.47 kV feeders and related distribution facilities in order to accommodate expansion plans at the Okemo Mountain Resort in the Village of Ludlow, Vermont.

Ludlow served the petition, prefiled testimony, proposed findings, and a proposed order (along with a prospective CPG) on the Public Service Board ("Board"), the Department of Public Service ("DPS"), and the Agency of Natural Resources ("ANR").

Notice of the filing in this docket was sent on December 31, 1998, to all parties 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 February 2, 1999. Notice of the filing, with a request for comments on or before February 2, 1999, was published in the *Rutland Herald* and the *Eagle Times* on January 5 and 12, 1999.

The DPS filed a letter with the Board on February 2, 1999. In its letter, the DPS states that it does not oppose issuance of a CPG or request a hearing, provided that the Board imposes certain

conditions and modifies Ludlow's proposal for decision. Those conditions and modifications were described in that letter. Since that time, the DPS and Ludow have negotiated and resolved all issues. The resulting agreed-upon modifications and conditions were incorporated into a revised proposal for decision and revised proposed CPG, which were submitted to the Board and the ANR on March 17, 1999. The following Findings and CPG are based upon the March 17, 1999, proposal for decision and proposed CPG submitted to the Board.

The DPS also filed a Determination Under 30 V.S.A. § 202(f) on March 24, 1999.

No comments were received from any other parties or interested persons.

The Board has reviewed the petition and accompanying documents and agrees that, pursuant to 30 V.S.A. § 248(j), a CPG should be issued without the notice and hearings otherwise required by 30 V.S.A. § 248.

II. FINDINGS

Based upon the petition and its accompanying documents, the Board hereby makes the following findings in this matter.

1. Ludlow owns and operates a duly organized municipal electric plant under Chapter 79 of Title 30, Vermont Statutes Annotated, with a principal place of business at 9 Pont Street, PO Box 289, Ludlow, VT 05149-0289. Pet. at 1.

2. Ludlow owns and operates an electrical distribution system in the Town and Village of Ludlow, Vermont, providing electric service to customers within its system, including the Okemo Mountain Resort. ("Okemo"). Pet. at 1.

3. Ludlow's system presently provides electric service via three substations: the 46/12.47 kV Route 103 Substation; the 46/4.16 kV Commonwealth Avenue Substation; and the 46/12.47 kV Smithville Substation. All three substations are served by the same Central Vermont Public Service Corporation ("CVPSC") double-ended 46 kV subtransmission circuit, which roughly parallels Vermont Route 103 through Ludlow. Pet. at 1-2; Rice pf. at 3.

4. Okemo's electric service is presently supplied by Ludlow's 12.47 kV "Okemo" and "Solitude" feeders from the Route 103 Substation. The Okemo feeder traditionally has supplied most of the Okemo load, including Okemo's Black River water pumping facility. The Solitude feeder supplies Okemo's Solitude base area and snowmaking equipment at mid-mountain. Pet. at 2; Rice pf. at 3.

5. Okemo has notified Ludlow that, pursuant to its 10-Year Master Plan currently under Act 250 review, Okemo plans to expand its resort into the recently purchased Jackson Gore area, where it plans to develop new ski trails, 5 new lifts, snowmaking, a base lodge, condominiums, a hotel, and miscellaneous commercial, retail and service buildings. Okemo plans to begin construction during the Spring of 1999. Pet. at 2; Exh. Ludlow/PLM-1.

6. Pursuant to 30 V.S.A. § 209, § 2801 and § 2802, Ludlow has a "duty to serve" those customers located within its service territory, including Okemo. Pet. at 2.

7. Based upon the electrical demand and facilities construction data and schedule provided by Okemo, Ludlow estimates that Okemo's Jackson Gore expansion will add, over the next 5 years, 3440 kW to Ludlow's system winter peak (non-snowmaking) and 3100 kW of snowmaking load. Phase One of the Jackson Gore construction (1999-2001), which includes snowmaking, lifts and facilities construction, is estimated to increase Ludlow's system winter peak demand by 1434 kW. Exh. Ludlow/Supp-11 & Supp-12.

8. In addition to these new loads related to the Jackson Gore area expansion, Okemo has recently added approximately 600 kW of new load associated with its ongoing Solitude base area expansion project, and is actively constructing an eighteen-hole golf course. The Solitude expansion is expected to add approximately 300 kW to the Ludlow system winter peak demand by winter 1999-2000. These loads are not included or accounted for in the Jackson Gore development load projections. Rice pf. at 5; Exh. Ludlow/Supp-10.

9. Ludlow's 12.47 kV distribution system is already loaded slightly in excess of its firm system capability at present load levels. The Ludlow system is winter peaking. The firm capability rating of its 12.47 kV system is 9.4 MVA. The Ludlow internal 12.47 kV system peak demand (without snowmaking) is 9.4 MW. Ludlow also supplies 1.0 MW of CVPSC distribution load, resulting in a total 12.47 kV system demand of 10.4 MW. Finally, Ludlow supplies 1.4 MW of load at 4.16 kV, which results in a total system peak demand (including CVPSC load) of 11.8 MW. Pet. at 2-3; Rice pf. at 5.

10. A projection of Ludlow system loads, including the new Jackson Gore loads, reveals that the overall system demand in year 2003 is 3.1 MW greater than projected by Ludlow's

forecast filed with Ludlow's most recent Integrated Resource Plan ("IRP"). Rice pf. at 6; Exh. Ludlow/PLM-3.

11. The new Okemo load would significantly exceed Ludlow's 12.47 kV system firm capability, and would impair the electric system's stability and reliability absent new substation and distribution system capability. In order to meet the anticipated new demand and continue to provide safe, reliable and stable service to its customers, Ludlow proposes to add a new 46/12.47 kV source to its system. Pet. at 3; Rice pf. at 6.

12. Ludlow seeks to obtain a CPG pursuant to 30 V.S.A. § 248(j), authorizing it to construct a 46/12.47 kV substation in place of the existing 46/4.16 kV substation on Commonwealth Avenue in the Village of Ludlow. Pet. at 3.

13. Ludlow evaluated two viable options to provide additional 46 to 12.47 kV substation capability. Both involved the addition of a third 46/12.47 kV, 10/12.5/14 MVA transformer to the Ludlow system. Option 1, which was chosen by Ludlow, utilizes the existing Ludlow Commonwealth Avenue Substation site (and 46 kV transmission tap line). Option 2 would require the development of a new substation at the Jackson Gore area, in close proximity to the existing CVPSC 46 kV transmission line. Option 1 was chosen by Ludlow because it uses the existing distribution corridor, because of the location of the new loads on the Ludlow system, because it would not require significant new construction, and because it creates an opportunity to upgrade the distribution voltage at the Commonwealth Avenue Substation site to 12.47 kV, consistent with the remainder of Ludlow's distribution system. It also benefits this system because Ludlow will install oil containment facilities for the substation transformer and voltage regulators. Because of the age of this existing substation (existing transformers installed in 1952 and 1962), there are presently no oil containment facilities at the Commonwealth Avenue site. Rice pf. at 6-7.

14. A new 10/12.5/14 MVA transformer and two 12.47 kV feeder positions will be installed at the existing substation site. These circuits are required in order to connect the new substation capacity to the existing distribution system which supplies Okemo and other Ludlow customers and to provide back-up under contingency operating conditions. Rice pf. at 7-8; Exh. Ludlow/PLM-4.

15. The proposed new Commonwealth Avenue Substation will be constructed in accordance with the National Electrical Safety Code. The design of the proposed substation is similar to Ludlow's two other existing 12.47 kV substations. The proposed substation transformer foundation is designed based upon typical dimensions and will accommodate the dimensional and weight requirements of the transformer. The transformer will be protected by surge arresters and primary fuses and can be isolated by means of a group-operated load break switch. Rice pf. at 8-9; Exhs. Ludlow/Supp-1 & Supp-2.

16. The proposed new transformer and voltage regulators will be installed in a concrete oil containment area designed with the capacity of 100% of the transformer oil (the single largest volume of oil contained in any piece of the proposed substation equipment). The proposed oil containment system design is incorporated into the equipment foundation designs. The proposed oil containment system is designed to automatically drain excess accumulated rainwater so that periodic pumping is not required. The drain inlet will be located in the proposed transformer foundation sump. In the event of an oil leak, the oil will float on the water and potentially displace up to an equivalent amount of water, which displaced amount will be piped from the bottom up and through the drain inlet on the sidewall of the sump at a sufficient elevation to prevent the release of oil. The oil will be fully contained and covered by a concrete decking and crushed stone. A concrete slab with a berm around the perimeter will be used under the voltage regulators, and the area under the regulators will drain into the proposed transformer containment foundation. The structure will be filled with crushed stone to the level of the berm in order to create a level surface for personnel to access voltage regulator controls. Rice pf. at 8-9; Exhs. Ludlow/Supp-6 & Supp-9.

17. The proposed substation reconstruction will involve the extension of the existing fenced area in a southerly direction by approximately seventeen feet into an existing cleared and graded parking area. The existing substation driveway is located immediately to the south of the existing and proposed substation yard. The existing substation driveway is actually a level graded gravel turnout area approximately 40 feet deep, with approximately 110 feet of road frontage. Approximately 93 feet of unobstructed road frontage will remain in the parking area after the proposed construction is completed and this will be adequate to accommodate any vehicles needed to service the proposed substation. Ludlow has planted evergreens (6 foot cedar shrubs) for visual screening along the entire length of the existing substation fence between the existing substation and Commonwealth

Avenue. Evergreens will also be planted along the southern fence (facing the parking area) except in front of the gates. The northern side of the substation is screened by an existing equipment storage shed. The area to the rear of the proposed substation is undeveloped and screening is not proposed at this time. Rice pf. at 9; Exhs. Ludlow/Supp-1 & Supp-2.

18. The proposed substation area will be finished with gravel and a top layer of crushed stone for personnel safety and appearance. The proposed substation will be surrounded by a seven-foot-high chain-linked security fence topped with three strands of barbed wire. All fencing, parts, structures and equipment will be grounded to a station grounding system. Rice pf. at 9.

19. Two existing wood poles (35' and 40') will be removed from the front of the substation; one new 45' pole will be installed and one existing 45' pole will remain. Two new overhead circuits of 4/0 12.47 kV spacer cable will replace the existing 4.16 kV circuits. Each new circuit will run directly from the proposed substation bus structure (above the voltage regulators) to an existing wood pole located on Commonwealth Avenue. From there the circuits will turn 90° and follow the existing pole line down Commonwealth Avenue toward the village. The 46 kV tap line which supplies the existing substation presently enters the substation yard from the north and dead ends. This existing line will be extended across (above) the proposed 12.47 kV bus structure to a new 46 kV line dead end structure in order to make the power transformer more accessible for installation and maintenance. The existing 46 kV line is a radial spur (approximately 2000 feet in length) from the CVPSC 46 kV transmission system and it supplies only the Commonwealth Avenue Substation. Exhs. Ludlow/Supp-1 thru Supp-4 & Supp-6.

20. The proposed new Commonwealth Avenue Substation will have two feeders. One feeder will replace the existing High Street feeder and supply existing loads as well as Okemo's Black River pumping facility located adjacent to High Street. The existing 4/0 aluminum conductor on High Street is already insulated for 12.47 kV operation, and does not require reinsulation or replacement. The Black River pumping facility will be transferred to the proposed new Commonwealth Avenue substation feeder in order to make capacity available at Ludlow's existing Route 103 substation to supply new Okemo demand. Side taps will also be converted from 4.16 to 12.47 kV operation. The other feeder will replace the existing Main Street feeder in order to support the remaining village area load which is presently supplied at 4.16 kV via the existing Commonwealth Avenue Substation. An existing 12.47/4.16 kV stepdown transformer

will be utilized to supply the village area. Rice pf. at 8; Exh. Ludlow/PLM-6; Exhs. Ludlow/Supp-1 & Supp-2.

21. Ludlow will also need to upgrade an existing 0.2 mile single phase 12.47 kV overhead distribution line from Ludlow's existing Route 103 substation to the Jackson Gore base area along Ranta Road, and install a line extension to the new Jackson Gore base facilities, which will involve placement of an approximately 1.3 mile underground 12.47 kV distribution line connecting the Jackson Gore base area to the existing Solitude base area. Pet. at 5; Rice pf. at 9.

22. The Ludlow distribution system configuration following the proposed upgrade will be characterized by shorter feeders with loads located closer to substations. This configuration will allow for the implementation of conservation voltage regulation ("CVR"). Ludlow will reset voltage regulator settings using CVR techniques for new feeders and for existing feeders whose configurations have been altered. After implementing these settings, Ludlow will check customer locations on each feeder to assure that system voltages are consistent with predicted values. Rice pf. at 8-10; Exhs. Ludlow/PLM -5, -6 & Ludlow/Supp -13.

Orderly Development of the Region

[30 V.S.A. § 248(b)(1)]

23. The proposed project will 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 24 through 26, below.

24. This proposed project essentially involves the upgrading of an existing substation and related distribution facilities. Except for the line extension required at the Jackson Gore base area, virtually the entire proposed project will involve reconstruction at or within existing facilities and within existing rights of way. This is one of the reasons that reconstruction of the Commonwealth Avenue Substation was the option chosen by Ludlow. Collins/Barton pf. at 4.

25. The proposed project is consistent with the Town and Village of Ludlow Municipal Plan, because it will "[e] nsure supply of safe, sufficient, electricity to meet the needs of residents,

businesses, industries and visitors, at a reasonable cost." Collins/Barton pf. at 4 (quoting from the Town and Village of Ludlow, Vermont Municipal Development Plan, page 30, adopted 12/2/96).

26. The Southern Windsor County Regional Planning Commission, the Ludlow Planning Commission, the Ludlow Town Selectboard, the Village of Ludlow Board of Trustees and the Ludlow Development Review Board have been notified about this proposed project. As of the filing of the subject petition, none of these agencies have objected to the proposed project, and in fact, the Ludlow Town Selectboard, the Village of Ludlow Board of Trustees and the Ludlow Planning Commission have expressed their written approval of the proposed project.

Collins/Barton pf. at 4; Exh. Ludlow/CB-2.

Need For Present and Future Demand for Service

[30 V.S.A. § 248(b)(2)]

27. 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 3-13, above and 28 through 32, below.

28. The proposed project is necessary because Ludlow's existing capability is not adequate to meet the need for the proposed expanded operations of Okemo. Okemo's projected need over the next five years will impose an estimated increase of 3440 kW of non-snowmaking demand, representing approximately 29% of Ludlow's present system demand. The magnitude of this projected need is such that it cannot be met efficiently or effectively using the existing substation and distribution facilities, or through energy conservation/load management. Rice pf. at 12; Exhs. Ludlow/Supp-10 & Supp-11.

29. The magnitude of the expansion of Okemo's service requirements cannot be met through the acquisition of the remaining DSM potential savings that may exist elsewhere on the Ludlow system. Ludlow has pursued DSM potential through retrofit and fuel switching programs, as well as through new construction programs and other "lost opportunity" programs throughout its service territory. Underhill pf. at 4.

30. Okemo and Ludlow have implemented a four-pronged approach to implementing cost-effective energy-efficiency at Okemo's facilities. First, Ludlow and Okemo jointly participated in

an audit of Okemo's facilities to determine what societally cost-effective retrofit opportunities existed, and Okemo has substantially implemented these measures. Ludlow and Okemo are in the process of planning a follow-up audit in the spring of 1999 to determine what new efficiency opportunities may exist at Okemo as a result of operating changes and new technologies that have come about since the last audit. Secondly, Okemo has been upgrading its equipment at the time of replacement with more efficient equipment and technology. Most of this effort has occurred for snowmaking and lift loads. Thirdly, Okemo has a special contract with Ludlow that mitigates Okemo's impact on the Ludlow system by shifting loads off the Ludlow system peak and into more efficient and cost-effective usage patterns. Ludlow will continue to offer Okemo an annual special snowmaking contract designed to manage Okemo's snowmaking loads to control Ludlow's system winter peak.¹ Finally, all new construction at Okemo is built to energy-efficient new construction standards, either under Act 250 or Ludlow's own local equivalent to the Act 250 process. Underhill pf. at 5.

31. The new projected Okemo load itself should be energy efficient based on Ludlow's representation that it and Okemo will apply stringent new construction standards to that load. Underhill pf. at 4; Exh. Ludlow/Supp-10.

32. The new loads, as efficient as Ludlow represents that they will be, must still be served. The proposed Commonwealth Avenue Substation upgrade is the most cost-effective option. The new loads are occurring in such locations on the Ludlow system as to virtually require the expansion of the existing substation to adequately serve them. Generating dispersed DSM energy-efficiency savings elsewhere on the Ludlow system will not reduce the impact at this location. Underhill pf. at 4-5.

System Stability and Reliability

[30 V.S.A. § 248(b)(3)]

33. The proposed project is necessary to ensure stability and reliability, and will not adversely affect system stability and reliability. This finding is supported by Findings 34 through 39, below.

1. Of course the details and adequacy of any such special contract would be subject to Board review under 30 V.S.A. § 229.

34. The Ludlow Planning Commission has expressly identified as a goal for electric service: "ensure a supply of safe, sufficient electricity to meet the needs of residents, business, industries, and visitors at a reasonable cost." Collins/Barton pf. at 4, *citing* the Town and Village of Ludlow, Vermont Municipal Development Plan, adopted 12/2/96, at 30.

35. Ludlow's approved IRP, which is on file with the Board, implements firm supply planning. Firm supply planning is based on the concept that the utility supply substation and distribution subsystem should be able to withstand the loss of a single piece of supply equipment without a sustained loss of load. Restoration of all main line primary distribution should also be able to be accomplished via field switching and the resulting demand loads should not exceed any thermal equipment readings. Rice pf. at 13.

36. In order not to degrade system reliability, it is important that appropriate capacity upgrades occur when needed so that a system which has traditionally been firm, continues to be so. In order to insure that firm 12.47 kV substation capability is available on the Ludlow system, the total diversified non-interruptible 12.47 kV load should not exceed the maximum nameplate capacity of the remaining substation transformers and/or distribution feeder positions with one 46/12.47 kV transformer out of service. Rice pf. at 13.

37. The overall capability of the existing Smithville Substation is 9.4 MVA. For loss of the existing Route 103 Substation transformer, which principally serves Okemo load, the firm thermal capability rating of the Ludlow 12.47 kV distribution system is presently 9.4 MVA. As previously explained, the Ludlow 12.47 kV system is already loaded slightly in excess of its firm system capability rating of 9.4 MVA at present load levels. Rice pf. at 13.

38. The development of a second distribution feeder at the existing Smithville Substation was considered but would only increase the firm capability of the Ludlow system to approximately 11.4 MVA, due to distribution system limitations resulting from the location of the Smithville Substation with respect to areas of load growth. Rice pf. at 14.

39. The addition of a new 12.47 kV source at the proposed upgraded Commonwealth Avenue Substation is necessary to insure continued system stability and reliability with the projected new Okemo load. Rice pf. at 14.

Economic Benefit to the State

[30 V.S.A. § 248(b)(4)]

40. The proposed project will result in an economic benefit to the State and its residents. See Findings 41 through 47, below.

41. The total construction cost of the proposed project is estimated at \$930,000 (1998 dollars). Rice pf. at 15; Exh. Ludlow/PLM-10.

42. Because this proposed project is driven by the significant growth in electrical demand placed on the system by Okemo's ongoing expansion, Ludlow has requested, and Okemo has agreed, that Okemo will pay 100% of the proposed project's costs. Collins/Barton pf. at 3; Exh. Ludlow/CB-1.

43. There will be a Contribution-in-Aid-of-Construction equal to the cost of the proposed project to offset the additions to Plant-in-Service accounts of Ludlow. Therefore, there will be no impact on Ludlow's depreciation expense. Underhill pf. at 2-3.

44. Since Okemo is financing the proposed project, there will be no additional interest expense and no increase in the TIER requirement. Annual maintenance costs for the proposed substation and the feeder lines, as well as property taxes, insurance, and other overheads, will be nominal. These costs will be recovered under the special contract for snowmaking service, as well as through the charges to the individual meters for traditional utility service provided to the expanded Okemo load. Underhill pf. at 3.

45. The reduced line losses resulting from the proposed project will flow through to all Ludlow ratepayers in the form of reduced power supply expenses. Underhill pf. at 3.

46. Other benefits, such as improved power quality and reliability of the system, cannot be readily quantified in economic terms, but will flow through to the ratepayers as smoother operation of their equipment and reduced risk of power outages. Underhill pf. at 3.

47. Neither the Ludlow taxpayers nor ratepayers will be responsible for, or adversely impacted by, the cost of this proposed project. Collins/Barton pf. at 3.

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

[30 V.S.A. § 248(b)(5)]

48. The proposed project will not have an undue adverse affect on aesthetics, historic sites, air and water purity, the natural environment and the public health and safety. This finding is supported by Findings 49 through 86 below, which are based on the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8),8(A) and (9)(K).

Outstanding Resource Waters

[10 V.S.A. § 1424a(d)]

49. ANR staff visited the proposed site and did not identify any waters designated as outstanding water resources in the area of the proposed project. Further, because of the limited nature of the proposed project, the construction of the proposed substation and associated lines should have no impact on any outstanding resource waters of the state as identified by the Water Resources Board. Collins/Barton pf. at 5.

Water and Air Pollution

[10 V.S.A. § 6086(a)(1)]

50. The proposed project will not result in undue water or air pollution. This finding is supported by Findings 51 through 67, below.

51. The proposed project will not result in undue water pollution. Ludlow will install oil containment facilities for the substation transformer and voltage regulators at the proposed Commonwealth Avenue Substation. Because of the age of the existing substation (transformers installed in 1952 and 1962), there are presently no oil containment facilities at the Commonwealth Avenue site; thus, the proposed project will reduce the likelihood of water pollution. Rice pf. at 7, 9.

52. There will be minimal ground disturbance and dust generation during the construction of the proposed new substation and the pulling of the new lines. No water will be used during construction. Collins/Barton pf. at 5.

Headwaters

[10 V.S.A. § 6086(a)(1)(A)]

53. The proposed project will not traverse any headwaters areas, and will meet all applicable health and environmental conservation regulations regarding reduction of the quality of ground or surface waters, because very little waste will be generated and any waste associated with the

construction will be disposed of as described under criterion (1)(B), Waste Disposal, Findings 54 through 58, below, at state approved landfills. Collins/Barton pf. at 5-6.

Waste Disposal

[10 V.S.A. § 6086(a)(1)(B)]

54. The proposed project, as designed, will meet any applicable health and environmental conservation regulations regarding the disposal of wastes, and will not involve the injection of waste materials or any harmful toxic substances into the ground waters or wells. This finding is supported by Findings 55 through 58, below.

55. There will be no discharge of any substance to surface or ground water, either direct or indirect from the proposed project. An oil containment structure will be constructed to trap 100% of the transformer oil if a leak should occur. Collins/Barton pf. at 6; see Finding No. 16.

56. All construction debris will be disposed of at a state-approved landfill. Collins/Barton pf. at 6.

57. All trees and brush that must be cleared, if any, will be removed or mulched. Collins/Barton pf. at 6.

58. The existing substation facilities being removed, including any entrapped oils, will be disposed of in accordance with the applicable regulations governing such disposals. Collins/Barton pf. at 6.

Water Conservation

[10 V.S.A. § 6086(a)(1)(C)]

59. The proposed project uses no water. Collins/Barton pf. at 6.

Floodways

[10 V.S.A. § 6086(a)(1)(D)]

60. By its very nature, the addition of new conductors to an existing pole line and the replacement of an existing substation with a similarly constructed substation will have virtually no impact on any existing or future floodways. The proposed project will not in any way restrict or divert the flow of floodwaters, nor will it affect the discharge of any stream. Collins/Barton pf. at 7.

Streams

[10 V.S.A. § 6086(a)(1)(E)]

61. There are no shorelines or rivers which will be traversed or adversely impacted by this proposed project. The Commonwealth Avenue Substation site is adjacent to an intermittent stream or brook on the west side of the site. Except for a seventeen-foot expansion to the south, the proposed new substation will be reconstructed in the existing location. There is an existing solid concrete retaining wall adjacent to the existing and proposed substation along the stream bank. Collins/Barton pf. at 7; Exhs. Ludlow/Supp-1,-2, & -10.

62. The proposed substation construction will not require any further encroachment towards the stream bank and, therefore, the impact, if any, of the proposed project will be minimal to this stream. Collins/Barton pf. at 7.

63. The minimal nature of the proposed project is such that it will be consistent with and will maintain the existing condition of the brook in this area and will not endanger the health, safety, or welfare of the public, or adjoining landowners. Collins/Barton pf. at 7.

64. Ludlow will utilize appropriate soil stabilization techniques as necessary during construction. These techniques will include, but not necessarily be limited to, the use of staked hay bales or siltation fencing wherever natural grade could allow material to migrate off site, similar protection on the downslope of any stockpiled earth materials, replanting of disturbed area, stabilized seed bed until germination (cover with straw), prompt backfilling of excavations, and placement of crushed stone surfacing as soon as practical. Collins/Barton pf. at 7; Exh. Ludlow/Supp-10.

Shorelines

[10 V.S.A. §6086(a)(1)(F)]

65. The proposed project will not be located near any shorelines. Collins/Barton pf. at 7.

Wetlands

[10 V.S.A. § 6086(a)(1)(G)]

66. There are no wetlands in the vicinity of this project. Collins/Barton pf. at 5.

Air Pollution

[10 V.S.A. § 6086(a)(1)]

67. The proposed project will not result in unreasonable air pollution because there will be no emissions from the proposed project. Vegetative materials cleared from the proposed project

will be chipped and mulched or disposed of at an approved site off location. No burning will be required for this proposed project. Collins/Barton pf. at 6-7.

Sufficiency of Water And Burden on

Existing Water Supply

[10 V.S.A. § 6086(a)(2)(3)]

68. Since the proposed project uses no water, it will not draw on any existing water supply. Collins/Barton pf. at 6.

Soil Erosion

[10 V.S.A. § 6086(a)(4)]

69. The proposed project as designed will not result in unreasonable soil erosion or reduce the ability of the land to hold water. This finding is supported by Findings 70 through 73, below.

70. The proposed Commonwealth Avenue substation will be reconstructed at the existing substation site and the new and upgraded 12.47 kV transmission lines will be placed on existing Ludlow poles, so that the upgrade will create minimal soil disturbance. Collins/Barton pf. at 5.

71. No road construction or access road construction is proposed for this project. Collins/Barton pf. at 3, 7-8.

72. There will be no soil erosion at the proposed substation site. Any soil which has to be cleared away will be replaced with crushed rock within the perimeter of the proposed substation. Vehicular access to the proposed substation will be via the same parking lot which is southerly to and adjacent to the existing substation. Minimal disturbance to the area is anticipated and since the subject substation site area is level and protected by a retaining wall adjacent to the stream bed, there will be no significant runoff. Collins/Barton pf. at 7.

73. Ludlow will utilize appropriate soil stabilization techniques as necessary during construction. These techniques will include, but not necessarily be limited to, the use of staked hay bales or siltation fencing whatever natural grade could allow material to migrate off site, similar protection on the downslope of any stockpiled earth materials, replanting of disturbed area, stabilized seed bed until germination (cover with straw), prompt backfilling of excavations, and placement of crushed stone surfacing as soon as practical. Collins/Barton pf. at 7; Exh. Ludlow/Supp-10.

Traffic

[10 V.S.A. § 6086(a)(5)]

74. The proposed project will not cause unreasonable congestion or unsafe conditions with respect to transportation systems, in that the proposal is to reconstruct an existing substation at an existing site and replace existing distribution line on existing distribution poles. Collins/Barton pf. at 8.

75. Traffic congestion, if any, will be kept to a minimum since most of the construction will take place at the subject Commonwealth Avenue Substation site and away from busy Village streets and State highways. Construction vehicles should be able to park at the existing parking lot adjacent to the subject substation site. Proper safety precautions will be taken in the replacement of cable along existing lines. Collins/Barton pf. at 8.

Educational Services

[10 V.S.A. § 6086(a)(6)]

76. The proposed project will not cause an unreasonable burden on the ability of any of the involved municipalities to provide educational services. Collins/Barton pf. at 8.

Municipal Services

[10 V.S.A. § 6086(a)(7)]

77. The proposed project will not place an unreasonable burden on the ability of any involved municipalities to provide municipal services. Collins/Barton pf. at 8.

78. The only municipal services that will be affected are those of the Village of Ludlow Electric Light Department. Collins/Barton pf. at 8.

Aesthetics, Historic Sites or Rare

And Irreplaceable Natural Areas

[10 V.S.A. § 6086(a)(8)]

79. The proposed project will not have an undue adverse effect 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 80 through 85, below.

80. The reconstructed Commonwealth Avenue substation and feeder lines will be located primarily within the existing substation site and upon existing distribution poles. Only approximately 0.4 miles of double circuit 4/0 spacer cable will be installed on the existing Commonwealth Avenue distribution line, between the proposed new Commonwealth Avenue

substation and High Street. These two circuits will replace four existing 4.16 kV circuits presently supported by the same pole line. Rice pf. at 8; Exhs. Ludlow/Supp-1 &-2.

81. The existing 4/0 aluminum conductor on High Street is already insulated for 12.47 kV operation and will be used in order to tie the proposed new feeder to the Okemo feeder in the vicinity of Okemo's Black River pumping facility located near High Street. Therefore, the changes to the existing line will not be conspicuous. Rice pf. at 8.

82. The proposed substation reconstruction will involve the extension of the fenced area in a southerly direction by twenty-five feet into an existing cleared and graded parking area. Ludlow has planted evergreens along the southern fence line at the existing substation. This screening will be replicated, along with some new natural screening, along the easterly (road) side of the proposed substation. Rice pf. at 7-8.

83. The proposed substation construction will be very similar to the existing substation design and size and therefore will have minimal, if any, additional visual impact. In fact, this proposed new substation construction will be an improvement in that it will be constructed with new materials. Collins/Barton pf. at 5.

84. Based on the above, the proposed project will generally fit within the context of, and will not adversely affect, the areas of Ludlow where it will be located. Collins/Barton pf. at 4-5.

85. There are no historic sites that would be adversely affected by the proposed project, which will be located primarily within the existing substation site, upon existing poles and within an existing right-of-way. Collins/Barton pf. at 4.

Discussion

Based on the above findings, the Board finds that this proposed project will not have an undue adverse effect on the aesthetics or scenic and natural beauty of the area. In reaching this conclusion, the Board has relied on the Environmental Board's methodology for determination of "undue" adverse effects on aesthetics and scenic and natural beauty as outlined in the so-called Quechee Lakes decision. Quechee Lakes Corporation, #3W0411-EB and 3W0439-EB, dated January 13, 1986.

As required by this decision, it is first appropriate to determine if the impact of the proposed project will be adverse. The proposed project would have an adverse impact on the

aesthetics of the area if its design is out of context or not in harmony with the area in which it is located. If it is found that the impact would be adverse, it is then necessary to determine that such an impact would be "undue". Such a finding would be required if the proposed project violates a clear written community standard intended to preserve the aesthetics or scenic beauty of the area, if it would offend the sensibilities of the average person, or if generally available mitigating steps will not be taken to improve the harmony of the proposed project with its surroundings.

Given the facts of this case, it would be difficult to find that this proposed project would have an adverse effect on the aesthetics of the area because of the limited nature of the proposal, and the fact that it will be located primarily within an existing substation site, upon existing poles and within an existing right of way.

Even if the Board were to find this proposal aesthetically adverse, it would not be able to find that such adverse impact is undue because there is no written community standard that would be violated, the proposed project will not offend the sensibilities of the average person, and Ludlow will take generally available mitigating steps in the form of vegetative screening shown on the Project Sit Plan, Exhibit Ludlow/Supp-2.

**Necessary Wildlife Habitat and
Endangered Species**

[10 V.S.A. § 6086(a)(8)(A)]

86. The proposal does not traverse any designated natural areas or impact any endangered species that have so far been identified. Collins/Barton pf. at 8.

Development Affecting Public Investments

[10 V.S.A. § 6086(a)(9)(K)]

87. The proposed facilities will not unnecessarily or unreasonably endanger the public or quasi-public investments in any governmental public utility facilities, services, or lands, or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to such facilities, services, or lands. Collins/Barton pf. at 3-9.

88. The proposed substation will be reconstructed at the existing substation site and the proposed distribution line replacement will be located entirely on existing poles within an existing easement. Rice pf. at 8.

89. The only municipal services that will be affected by the proposed project are those of the Village of Ludlow Electric Light Department. Collins/Barton pf. at 8.

90. Because Okemo will fund 100% of the proposed project costs, the Village of Ludlow, its ratepayers and its taxpayers will not be adversely impacted by the proposed project costs. Collins/Barton pf. at 3; Underhill pf. at 2-3.

Public Health and Safety

91. All construction will be in accordance with the requirements of the National Electrical Safety Code. Rice pf. at 9.

Consistency with Resource Selection

Integrated Resource Plan

[30 V.S.A. § 248(b)(6)]

92. The proposed project is the most feasible and lowest impact means by which to meet Okemo's and Ludlow's needs. Because the timing of this upgrade is driven by the projected new Jackson Gore load, Okemo will pay the total project costs of the proposed Commonwealth Avenue substation and proposed distribution line. Okemo will also pay 100% of the costs associated with the proposed new distribution line and underground cable to be installed at Jackson Gore. Rice pf. at 15.

93. There are several ways in which this proposed project relates to Ludlow's IRP. The proposed project was evaluated using the principles of least-cost integrated resource planning, including the societal test based on Ludlow's avoided costs, life-cycle costing techniques, and an externalities adjustment ordered by the Board in Docket 5270. The components of the proposed project, the most significant being the substation transformer, are being selected based on their having the lowest life-cycle costs. Underhill pf. at 3-4; Rice pf. at 12; Exhibit Ludlow/PLM-9. While the DPS believes that the externalities it has advanced in Public Service Board Docket No. 5980 are appropriate adjustments to use, the DPS has not sought to litigate the issue here because its analysis using those adders shows that the proposed project is acceptable. Accordingly, the parties in this case agree that this subject docket is not appropriate for contesting the propriety of the respective externality adjustments and that the Board may issue a CPG without deciding that issue.

94. Both Ludlow and Okemo have aggressively pursued the implementation of cost-effective energy-efficient measures on existing load. Findings 29-30, above.

95. Ludlow represents that the projected new loads to be served by the proposed project will be as energy-efficient as is cost-effective for them to be based upon the societal test. Underhill pf. at 4.

Compliance With Electric Energy Plan

[30 V.S.A. § 248(B)(7)]

96. The DPS has determined, in a letter dated March 20, 1999, that the proposed project is consistent with the Vermont Twenty-Year Electric Plan in accordance with 30 V.S.A. § 202(f), provided the proposed project is constructed consistent with the recommended proposal for decision, under cover letter dated March 16, 1999, submitted by Ludlow in this docket.

Outstanding Water Resources

[30 V.S.A. § 248(B)(8)]

97. No waters of the state that have been designated as outstanding Resource Waters will be affected by the proposed project. See Finding 49, above.

Existing Transmission Facilities

[30 V.S.A. § 248(b)(10)]

98. The proposed project can be served economically by existing transmission facilities without undue adverse effect on Vermont utilities or customers. This finding is supported by Findings 99 and 100, below.

99. The proposed project will have no adverse affect on Vermont customers or utilities. CVPSC has completed a load flow analysis using its peak base case to look at the effect of adding 3 MW to the Ludlow Route 103 Substation for the Jackson Gore development. On the basis of peak information for Ludlow, which is a conservative load flow since it assumes that the Ludlow peak occurs at the same time as the CVPSC peak, the CVPSC analysis showed that this projected additional load would decrease the existing CVPSC transmission system voltage by 1%. Rice pf. at 15-16.

100. The addition of 3 MW for the Jackson Gore development will not adversely impact the existing CVPSC 46 kV system. Rice pf. at 16.

III. CONCLUSIONS

Based upon all of the above evidence, 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 in 30 V.S.A. § 248(j); and the proposed project will promote the general good of the state.

IV. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that the reconstruction of a 46/12.47 kV substation with two feeder lines and related distribution equipment in the Village of Ludlow, Vermont, by the Village of Ludlow Electric Light Department, in accordance with the evidence and plans submitted in this proceeding, will promote the general good of the State of Vermont in accordance with 30 V.S.A. § 248, and a certificate of public good to that effect shall be issued.

DATED at Montpelier, Vermont, this 31st day of March, 1999.

s/ Michael H. Dworkin)

) PUBLIC SERVICE

s/ Suzanne D. Rude)

) BOARD

s/ David C. Coen)

) OF VERMONT

OFFICE OF THE CLERK

Filed: March 31, 1999

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 of any technical errors, in order that any necessary corrections may be made.

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.