

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Joint Petition of Vermont Electric Power Company, Inc.,)
and Vermont Transco LLC (collectively known as)
VELCO) and the Village of Lyndonville Electric)
Department (LED) for a Certificate of Public Good)
pursuant to 30 V.S.A. § 248 authorizing the construction)
of a Substation in the Town of Lyndon, Vermont)

Docket No. ____

PREFILED TESTIMONY OF
SCOTT S. MALLORY
ON BEHALF OF
VERMONT ELECTRIC POWER COMPANY, INC.

Summary of Testimony

Scott S. Mallory's testimony provides a project summary, explains the need, summarizes the benefits and outlines Project costs. In addition, Mr. Mallory addresses the substantive criteria of 30 V.S.A. § 248.

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Introduction

- 1 Q1. Please state your name, current employer, business address, and position.
- 2 A1. My name is Scott S. Mallory, and I am currently employed by Vermont Electric Power
- 3 Company Inc. (together with Vermont Transco LLC collectively referred to as
- 4 “VELCO”) with the business address of 366 Pinnacle Ridge Road, Rutland, Vermont. I
- 5 am a Project Manager at VELCO, managing the Lyndonville Substation Project (Project),
- 6 as well as other various VELCO capital projects.
- 7
- 8 Q2. Please describe your educational background and work experience.

1 A2. My resumé is attached as Exhibit VELCO-Mallory-1.

2

3 Q3. Have you testified previously before the Public Service Board?

4 A3. Yes. I have provided testimony on the behalf of VELCO in Docket No. 7453 for the
5 Tafts Corners substation upgrade, Docket No. 7314 for the East Avenue Loop Project, in
6 Docket No. 6860 for the Northwest Vermont Reliability Project, and in other dockets on
7 behalf of Washington Electric Cooperative, Inc.

8

9 Q4. What is the purpose of your testimony in this proceeding?

10 A4. VELCO is seeking the Board’s permission to build a substation on property it owns in the
11 Town of Lyndon, Vermont. My testimony provides a project summary, explains the need
12 for the Project, summarizes its benefits, and outlines Project costs. In addition, I address
13 the substantive criteria of 30 V.S.A. § 248.

14

15 **Overview of The Proposed Upgrades, Existing System, Project Need, System Stability, and**

16 **Reliability**

17 [30 V.S.A. § 248(b)(2) and (3)]

18 Q5. Please describe the Project.

19 A5. The Project consists of the following:

- 20 a) Construction of a new substation on a VELCO-owned 8.61 acre parcel of land, north of
21 and adjacent to the Village of Lyndonville Electric Department (“LED”) No. 2 Substation
22 on Hill Street, in the Town of Lyndon, Vermont (Exhibit VELCO-Mallory-2);
23

- 1 b) The substation will consist of a four circuit breaker 115 kV ring bus and five circuit
2 breaker 34.5 kV ring bus with a 56 MVA 115/34.5 kV transformer and two 115 kV 12.5
3 MVAR capacitor banks with circuit breakers;
4
5 c) Modification to the existing adjacent 115 kV transmission line to connect to the new
6 substation consisting of removal of three wooden structures and replacement with five
7 wooden structures and associated non-specular 1272 kcmil ACSR conductors.
8
9 d) Modification to the existing adjacent 34.5 kV subtransmission lines to connect to the new
10 substation consisting of removal of eight wooden poles and replacement with twelve
11 wooden poles and associated conductors.
12

13 The engineering drawings graphically illustrate the Project components. Exhibit
14 VELCO-Mallory-3.

15

16 Q6. Please elaborate on the transmission line changes.

17 A6. The color coded site plan within Exhibit VELCO-Mallory-3 shows the details. The 115
18 kV and 34.5 kV lines coming from the north/northeast are proposed to be shifted from
19 their current position (in the joint corridor that follows the 115 kV line) to the west so
20 that they enter the substation directly from the north. This line shift within existing utility
21 easements, including removal of structures from the existing corridor and expected re-
22 vegetation, is designed to avoid the banks and buffer area of the ravine and wetland that
23 runs through the existing corridor. The wetland is part of the Lyndonville Source
24 Protection Area for the Village of Lyndonville.

25 The 115 kV line details are shown within the Plan and Profile drawing within
26 Exhibit VELCO-Mallory-3. During the line design process the proposed changes in the
27 existing 115 kV line have been confined to between structures 91 and 94. This has

1 resulted in fewer new structures and lower structure heights than in previous analysis.
2 All new structures will be wooden.

3 The 34.5 kV lines to the west of the proposed substation must be relocated to
4 facilitate construction and to provide the LED connections to the new substation as
5 explained in Mr. Mason's testimony. Please refer to the color coded site plan which has
6 more complete 34.5 kV pole location information than the Plan and Profile drawing.

7
8 Q7. Please elaborate on the substation design elements.

9 A7. In addition to VELCO's standard substation design of switched fence lights and switched
10 and photoelectric controlled lights on the control building, VELCO plans to install
11 additional switched yard lights on the lightning masts to provide a safe working
12 environment. All switched lights will be used only when necessary for night time
13 switching and/or maintenance activities.

14 The engineering general arrangement drawings denote several items as future that
15 are not part of this CPG request and will not be installed at this time. Instead, the
16 engineering design accounts for space for such possible future additions of a second
17 115/34.5 kV transformer, a second 115 kV line connection, and/or additional capacitor
18 banks, as well as the additional circuit breakers, conduits, etc. that would be required to
19 support a transformer, capacitor, or line in the future. The concept of a second
20 transformer being needed at this site has been noted within VELCO planning documents;
21 however, that need is based on load levels that are not expected until approximately 2027.

1 Also, in order to provide power during construction, the Petitioners plan to install
2 temporary power and communication circuits at the Project site, which will remain in
3 place only until completion of substation construction activities.

4
5 Q8. Please describe VELCO's interest in the Project and the scope of your testimony.

6 A8. This project is designed to enhance the transmission system's reliability under present
7 and future load levels and to increase the system's capacity to provide adequate electric
8 supply to meet present and future demand during all conditions, including those of
9 equipment maintenance and failure. VELCO will own and manage the Project, which
10 includes designing, constructing and maintaining the Project facilities.

11 In support of the request for a Certificate of Public Good (CPG) authorizing the
12 proposed substation upgrades, I will address each of the criteria under 30 V.S.A. §248.
13 Kenneth Mason, manager of LED and Kim Jones of Central Vermont Public Service
14 Corporation (CVPS) will address the need for the Project from their companies'
15 perspectives.

16
17 Q9. Please describe the existing transmission and sub-transmission systems that serve the area
18 of need.

19 A9. The primary area of need covers Caledonia and Essex counties in Vermont. Specifically
20 it consists of LED's entire service area (approximately 5,400 customers in the towns of
21 Lyndon, Sutton, Burke, Newark, Westmore, Kirby, Victory, East Haven, St. Johnsbury,
22 Wheelock, Sheffield, and Glover), and CVPS's service territory fed from the VELCO St.

1 Johnsbury substation (“Higgins Hill”) (approximately 6,240 customers in the towns of St.
2 Johnsbury, Concord, Lunenburg, Guildhall, Granby, Waterford, Barnet, Danville, and
3 Walden).

4 The primary area of need has only one 115 kV source from the statewide
5 transmission network (i.e., the Higgins Hill substation). In addition, the LED area has
6 only one 34.5 kV source (i.e., the 34.5 kV sub-transmission line from the Higgins Hill
7 substation that heads north to LED’s No.2 substation). The LED sub-transmission
8 system is also operated at 34.5 kV and serves four distribution substations; Industrial
9 Park, No. 2, Pudding Hill, and Burke Mountain.

10 The secondary area of need covers a broad section of northern Vermont that
11 would experience negative voltage impacts if there is a loss of transmission supply from
12 either the east or west side of the state. VELCO-Mallory-4.

13
14 Q10. Why are these proposed Project upgrades needed now?

15 A10. Electrical transmission facilities supporting the primary area of need are unable to
16 withstand failures of, or to have preventive maintenance conducted on, key components
17 at present demand levels and have a limited availability to support increased electrical
18 demand. In the event of an outage of the VELCO Higgins Hill 115/34.5 KV transformer,
19 other pieces of key equipment at that substation, or the 34.5 kV line feeding LED, all of
20 LED’s customers will be without power and possibly CVPS’s customers from its St.
21 Johnsbury Center and Fairbanks substations. If the Higgins Hill transformer fails, it is

1 estimated to take from two to four days to move a temporary spare into place, depending
2 on weather and local soil conditions, and the location of spare units.

3 Additionally, regardless of whether the above failure occurs, if there is a failure of
4 one of the northern Vermont transmission supply sources, the secondary area of need
5 (northern Vermont) would be impacted by low voltage deficiencies and potential voltage
6 collapse or widespread outages as a measure to prevent further system damage.

7 These reliability deficiencies have been identified in VELCO's 2006 Vermont
8 Transmission System 10 Year Long Range Plan and its 2009 Vermont Long-Range
9 Transmission Plan. Exhibit VELCO-Mallory-5. The Petitioners anticipate that the
10 proposed Project will reduce the number of customers impacted by these reliability
11 deficiencies, and improve service quality (reducing customer outage hours, as noted in
12 the testimony of Ms. Jones),

13
14 Q11. How does the Project address the identified reliability deficiencies?

15 A11. Failures of key existing transmission resources can have undesirable consequences for
16 the Caledonia and Essex County reliability area. By providing a new 115/34.5 kV power
17 transformer source in Lyndon, the Project would provide a redundant source and path of
18 power to the above area ensuring adequate supply to meet present and future demand
19 during all conditions, including those of equipment maintenance and failure. The
20 redundancy is created by having a 115/34.5 kV transformer at both the Higgins Hill and
21 Lyndonville substations along with a 34.5 kV line in between them, such that the area

1 load can be served from either if one transformer feed, or the line in between¹, fails or
2 needs to be taken out of service for maintenance.

3 In addition, the Project's 115 kV capacitor banks would provide voltage support
4 to northern Vermont to mitigate the above noted voltage deficiency in northern Vermont
5 transmission supply flows, post contingency.

6

7 Q12. Are there any additional benefits regarding how the Project addresses deficiencies?

8 A12. Yes. There is potential for significant load growth on the LED system given draft
9 expansion plans of the Burke Mountain Ski Resort (Burke 2000, LLC) that LED would
10 likely not be able to support with its current system design and capacity. The addition of
11 a 115/34.5 kV source connected directly to LED's system would in part allow for such
12 economic development if/when it materializes.

13

14 Q13. When do the Petitioners expect to complete the Project?

15 A13. The Petitioners hope to receive a CPG by March 1, 2010. Immediately thereafter, the
16 Petitioners will commence construction and expect to complete the construction prior to
17 April 1, 2011. Exhibit VELCO-Mallory-6

18

19 Q14. What impact will this upgrade have on system stability and reliability?

¹ Separate from the Project, the capacity of the existing 34.5 kV line feeding LED's system will be increased via LED conductor replacement in order to create a redundant electric path that is sufficient to supply power to the CVPS area during times of system maintenance or during a transmission system outage. LED filed its Petition for a Certificate of Public Good relating to this work on or about July 14, 2009.

1 A14. VELCO has determined in its transmission system planning analysis that the Project will
2 have no adverse impact on the stability and reliability of the VELCO transmission
3 system. In fact, the Project will improve system reliability by providing a redundant
4 source and path of power, as well as voltage support, to these areas.

5

6 Q15. Has the regional system operator, ISO-NE, reviewed this Project and if so, what has it
7 determined?

8 A15. ISO-NE has reviewed the Project design and potential for impacts to the bulk power
9 system of New England and has issued a letter of no adverse impact allowing VELCO
10 permission to construct. Exhibit VELCO-Mallory-7.

11

12

Project Cost And Alternatives

13 Q16. What is the estimated Project cost?

14 A16. As per Exhibit VELCO-Mallory-6, the budget estimate for the Project is \$15.513 million.
15 Project costs break down into seven (7) components: Material, Labor, Equipment (rental),
16 Indirects, Escalation, Capital Interest, and Contingency. Major assumptions were: (1) a
17 six month Section 248 permitting process; (2) other than the CPG and Construction
18 General Permit for stormwater run-off, no other regulatory permits are required for
19 construction; and (3) use of VELCO work crews to construct the 115 kV line taps of the
20 Project. This estimate includes the expected costs that LED would incur for relocation of
21 34.5 kV structures that are in the way of construction and for the 34.5 kV line taps to
22 connect existing lines to the new substation.

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Q17. Please explain the components of the cost estimate.

A17. Direct costs (i.e., Material, Labor, and Equipment) were provided by VELCO utilizing cost data from VELCO projects recently completed or currently in progress or from other projects recently constructed in the New England area.

VELCO estimated the indirect costs based on the people/hours required to support the Project, including but not limited to engineering and design, legal expenses, environmental and aesthetic expertise, and general project support.

VELCO developed escalation costs by utilizing an anticipated 2009-2011 spending plan, a projection of the Handy-Whitman cost index for direct costs, and Consumer Price Index for indirect costs.

VELCO applied a capital interest rate (interest cost during construction) by using current VELCO annual estimate rates and the Project spending plan. VELCO based the capital interest rate on its credit rating which is subject to change based on the financial market.

Finally, VELCO applied a 15% contingency, and LED a 20% contingency on the 34.5 kV line portion, based on the current level of Project definition and design.

Q18. How are the Petitioners allocating the substation costs?

A18. The project costs are allocated based on their asset classification. The following are the current estimated dollar values by asset classification:

1	Pool Transmission Facilities (PTF):	\$8,950,160
2	Non-PTF Specific Facilities:	\$2,843,529
3	Non-PTF Exclusive Facilities:	\$1,642,950
4	Non-PTF Shared Use Facilities:	\$2,076,407
5	Total:	\$15,513,046

6 The costs for each category are allocated according to VELCO's transmission tariffs.
7 Regarding the Specific Facility charges that are to be shared among the benefiting
8 utilities, LED and CVPS have signed a cost allocation agreement to split the charges
9 amongst the two parties. Exhibit VELCO-Mallory-8.

10
11 Q19. Could the same benefits be achieved in a more cost-effective manner by efficiency,
12 generation, conservation or other load management measures?

13 A19. No. The need for a second transformer in the St. Johnsbury area was identified in
14 VELCO's 2006 Vermont Transmission System 10 Year Long Range Plan, and the
15 Lyndonville Substation Project was identified in VELCO's 2009 Vermont Long-Range
16 Transmission Plan. The potential to defer the Project using non-transmission alternatives
17 was studied and discussed with the Vermont System Planning Committee (VSPC).
18 VELCO, CVPS and LED determined that non-transmission alternatives are not viable or
19 suitable replacements for the lack of redundancy in the transmission system in Caledonia
20 County to cover the primary area of need (at least 30 MW of load). As such the utilities,
21 along with the VSPC, determined that a detailed non-transmission analysis is not

1 necessary. Ms. Jones' testimony contains further details regarding a preliminary high
2 level non-transmission analysis that had been performed.

3
4 Q20. Have VELCO, LED, or CVPS investigated transmission and/or distribution alternatives to
5 the Project?

6 A20. VELCO investigated transmission and distribution alternatives to solve the identified
7 reliability deficiencies, as well as support planned load growth, in the March 26, 2008
8 Lyndonville Electric Department Feasibility Analysis. The primary alternative was to
9 add a second 115/34.5 kV transformer at Higgins Hill, additional 34.5 kV circuit breakers
10 at either a CVPS or LED substation, and a second 34.5 kV line nine miles in length
11 between Higgins Hill and the Lyndonville No. 2 substation. However, this alternative
12 was more costly and more problematic than the new 115 kV substation in Lyndon due to
13 space limitations at the Higgins Hill substation site and the added monetary and
14 environmental costs for nine miles of new line. The chosen option had an estimated cost
15 of \$24.3 million (Lyndonville option 1B assuming a 2010 completion) compared to \$33.5
16 million (St. Johnsbury option 2 assuming a 2010 completion)². The Lyndonville option
17 was chosen as superior as it is least cost, technically stronger (i.e., it provides a 115 kV
18 source closer to the area of need and the area of expected load increase, a higher level of
19 reliability, and a higher level of loss savings), and will have less environmental and
20 aesthetic impact due to no new or expanded corridor as would have been required for an
21 additional 34.5 kV line.

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Q21. Has the Project development conformed to the transmission planning requirements approved in the Memorandum of Understanding (MOU) of Docket 7081?

A21. Yes. VELCO and LED have presented and discussed Project information with the Vermont System Planning Committee (VSPC) at each of its quarterly meetings beginning June 10, 2008 through June 20, 2009 to keep members abreast of Project developments. This Project was identified prior to establishment of VSPC procedures regarding plan review, NTA analysis, and public engagement. However, an NTA screening was performed as required in the MOU and discussed above.

Q22. Please describe the public outreach efforts proposed for this Project.

A22. The public outreach efforts are designed to meet the requirements of the MOU from Docket #7081. The Petitioners began their outreach efforts in 2007 with a report included in the LED 2007 Annual Report. Details about the Project appeared in numerous newspaper articles in the Caledonia Record. Introductory calls were made to adjoining landowners between January and March, 2009. In addition the 2008 LED Annual Report contained information regarding the Project. The Project was mentioned within the public forums to discuss the 2009 Vermont Long-Range Transmission Plan. A letter describing the Project together with an overview and request for feedback was mailed on or about June 23, 2009. In an effort to incorporate an invitation mechanism that ensured

² The Project definition has since been further refined with fewer breakers and capacitor banks that are not needed at immediate load levels. Thus, the proposed Project cost estimate is now lower.

1 broad representation the letter was sent to landowners within the vicinity of the Project
2 and not just adjoining landowners. Exhibit VELCO-Mallory-15.

3 VELCO participated in a joint meeting of the Town of Lyndon Selectboard and
4 Planning Commission and Village of Lyndonville Trustees on July 13, 2009 to discuss
5 the project. A site visit with these local officials was held on August 17, 2009 together
6 with adjacent landowners.

7 VELCO will continue to structure public involvement to ensure that all affected
8 and interested stakeholders can participate, recognizing time, geographic, and
9 transportation barriers to participation. Public outreach efforts will include, but not be
10 limited to, an informational mailing to be included in LED's electric bill that will include
11 details of the project and associated costs, future public meetings, telephone calls,
12 meetings with landowners and media coverage. VELCO will maintain materials related
13 to the Project on its website.

14 VELCO will conduct outreach in a manner that strives for direct and effective
15 communication at all steps of the process with all individuals who may be affected by
16 expected project impacts.

17
18 **Orderly Development of the Region**

19 [30 V.S.A. § 248(b)(1)]

20 Q23. Will the substation upgrade unduly interfere with the orderly development of the region,
21 with due consideration having been given to the recommendations of the municipal and
22 regional planning commissions and municipal legislative bodies?

1 A23. No. This Project is consistent with the plans of the Town of Lyndon and the Northeast
2 Vermont Development Association and they support the Project.

3 VELCO met with each of the Town of Lyndon Selectboard and Planning
4 Commission together with the Village of Lyndonville Trustees on July 13, 2009 to
5 discuss the Project. Each waived the 45-day advance notice requirement as permitted by
6 30 V.S.A. 248(f), and reported support of the Project as consistent with the Town Plan.
7 See Exhibit VELCO-Mallory-9.

8

9 Q24. Have you reviewed the Northeastern Vermont Development Association (NVDA)
10 Regional Plan?

11 A24. Yes. NVDA adopted its Regional Plan for the Northeast Kingdom on June 29th, 2006.
12 NVDA waived the 45-day advance notice requirement as permitted by 30 V.S.A. 248(f),
13 and reported support of the Project as consistent with the Regional Plan. See Exhibit
14 VELCO-Mallory- 9.

15

16

Economic Benefit

17

[30 V.S.A. § 248(b)(4)]

18 Q25. Will the Project result in an economic benefit to the State?

19 A25. Yes. This Project creates economic and safety benefits to the citizens of Vermont
20 because it is the least-cost alternative to resolve the identified pressing reliability needs.
21 By improving the reliability of the Caledonia and Essex Counties electrical system; the
22 Project will avoid the costs and safety problems associated with power outages. Further,

1 the Project will allow for any future economic development on LED's system, as
2 explained in Mr. Mason's prefiled testimony.

3 The Project allows for an expected level of economic growth in the service area
4 and will provide reliable electric service to meet the pressing capacity needs of the
5 system in this area.

6
7 **Aesthetics, Historic Sites, Air and Water Purity, the Natural Environment**

8 [30 V.S.A. § 248(b)(5)]

9 Q26. Will this Project have an undue adverse effect on below ground historic sites?

10 A26. No. The Louis Berger Group, Inc. ("Berger") performed a Phase 1 Archeological Survey
11 in connection with the Project. Berger divided the Project area into six locations for
12 testing (A-F), excavating a total of 267 shovel test across the entire Project area. No
13 archeological remains were uncovered in Areas A, B, C, D, or F. Area E uncovered
14 modern wire nails, likely coming from the construction of a fence together with a single
15 piece of quartz. Despite cautious review of this area, no additional artifacts were found.
16 A copy of the draft report is included as Exhibit VELCO-Mallory-10.

17 A post work field meeting was held among VELCO, LED, Berger, and the Division for
18 Historic Preservation where the Phase I results were discussed and there was consensus
19 that no further work is necessary at this site.

20
21 Q27. Will this Project have an undue adverse effect on above ground historic sites?

1 A27. No. VELCO commissioned a report on above ground historic sites. Exhibit VELCO-
2 Mallory-11. Within the viewshed of the proposed substation and connecting lines that
3 will be modified there are no properties that appear on the State Register of Historic
4 Places. Seven properties have been found in the viewshed that potentially meet the
5 criteria for eligibility but have not been listed in the Register. The impacts to these
6 properties are solely visual and are generally not considered adverse within the report,
7 except that two of the seven properties may have impacts that are considered adverse
8 depending on the amount of tree removal on the east and north sides of the proposed
9 substation. These two properties share approximately the same viewshed location on
10 Lily Pond Road near the intersection of Whipple Hill Drive. Although impacts from
11 these two properties could potentially rise to the adverse category, they would not be
12 considered undue when accessed under the Quechee standard because: (1) the level of
13 adversity would be low and the average person would not be shocked or offended; (2)
14 the project does not violate a clear written community standard intended to preserve the
15 aesthetics or scenic beauty of the area; and (3) VELCO has taken reasonable mitigating
16 steps through the project design to improve the harmony of the project with its
17 surroundings. More details on this viewshed are noted in the following question and
18 answer.

19

20 Q28. Will this Project have an undue adverse effect on aesthetics?

21 A28. No. T.J. Boyle Associates did a detailed aesthetic analysis report for VELCO, which is
22 attached as Exhibit VELCO-Mallory-12. The report concluded that overall the Project's

1 visual impacts will not be adverse because: (1) the site is appropriately located to limit
2 views for a large extent of the surrounding area; and (2) views that are possible, mainly
3 from the east of the site, are limited in duration, partially or mostly screened, and are
4 mainly in context with the surrounding commercial properties.

5 The analysis highlights six areas of potential views with only one area being
6 noted as having an adverse impact: from Lily Pond Road northeast of the substation near
7 Whipple Hill Drive. At this location there will be views looking southwest into the
8 substation as well as the existing views of the 115 kV structures north of where the
9 substation will be placed. Given the additional views into the substation in this area this
10 view could be consider adverse. However, the views from this area will not be
11 considered unduly adverse because the substation will not be a dominant element, will be
12 partially screened, and along with the existing utility infrastructure, will not be seen as
13 shocking or offensive. In addition, the Project does not violate a clear written community
14 standard design regarding the aesthetics of this area, and VELCO has provided
15 reasonable mitigation in the design of the substation and reconfigured lines. A photo
16 simulation was created to illustrate the view from this area of the proposed Project
17 elements. Exhibit VELCO-Mallory-12, Appendix 2, Simulation 1.

18 The Project site is uniquely situated such that views from the west, north, and
19 northwest are screened by surrounding topology and dense vegetation. As part of the
20 design process VELCO has mitigated views from the south and east by siting the
21 substation and connecting transmission lines to the west of its parcel to retain existing
22 vegetation to the east, and to allow further vegetation by structure removal from the

1 existing corridor. The substation is also being sited to a level slightly lower than the
2 immediate surrounding ground level. This helps to screen the bulk of the substation
3 equipment that is less than twenty feet in height, from potential viewing areas. In
4 addition, VELCO has modified its original line design to lower structure heights and
5 avoid replacing structures number 90, 91 and 95.

6 Even if the Project were evaluated to have an overall adverse impact due to the
7 above area, the overall impact could not be considered unduly adverse because: (1) the
8 Project would not be shocking or offensive for the average person as it fits within the
9 context of the surrounding commercial/industrial area; (2) the Project does not violate a
10 clear written community standard intended to preserve the aesthetics or scenic beauty of
11 the area; and (3) the Project has been located on a site and has used design elements that
12 significantly limits visibility from publicly accessible viewpoints.

13
14
15 Q29. Will the proposed Project have an undue adverse effect on the environment?

16 A29. No. As more fully explained below,

17 During the design process we cataloged and verified field features to avoid impacts to
18 wetlands, water quality, soil erosion, wildlife habitat, rare plants/species/areas, and below
19 ground and above ground historic resources. In addition, the Project is being designed to
20 avoid any undue aesthetic or noise impacts. VHB Pioneer performed a Natural Resource
21 Assessment. See Exhibit VELCO-Mallory-13.

22

1 approximately 33 dBA with the cooling fans on. This sound level is consistent with a
2 quiet rural area and well below Environmental Board and Section 248 precedent
3 standards (i.e., 50-55 dBA). Exhibit VELCO-Mallory-14.

4
5 Q33. Will the Project result in undue water pollution?

6 A33. No. VELCO does not anticipate any discharges from the construction work or operation
7 of the proposed upgrades that could potentially cause any water pollution. The Project
8 will have a Spill Prevention and Countermeasure Control Plan to prevent the introduction
9 of waste materials into the ground water. VELCO will also apply for coverage under the
10 Vermont Construction General Permit for Storm Water Discharges (3-9020).

11
12 **Headwaters**

13 [10 V.S.A. § 6086(a)(1)(A)]

14 Q34. Will the Project result in undue adverse impacts to headwaters?

15 A34. No. The headwaters criterion is satisfied because the Project will meet all applicable
16 health and environmental conservation department groundwater and surface water
17 regulations for all Project lands. VHB Pioneer analyzed available information to
18 determine if the Project will be located in any lands that meet the criteria of 10 V.S.A. §
19 6086 (a)(1)(A). VHB Pioneer determined that the Project investigation area consists of
20 rolling hills with no steep slopes (>15%) and that it ranges from 800 to 870 feet above
21 mean sea level. VHB Pioneer concluded that the Project will not be located on lands that
22 are:

- 1 • headwaters or watersheds characterized by steep slopes and shallow soils (10
- 2 V.S.A. § 6086 (a)(1)(A)(i)); or
- 3 • above 1,500 feet elevation (10 V.S.A. § 6086 (a)(1)(A)(iii)); or
- 4 • areas supplying significant amounts of recharge waters to aquifers (10 V.S.A. §
- 5 6086 (a)(1)(A)(v)).

6
7 With regard to 10 V.S.A. § 6086 (a)(1)(A)(ii) and (iv), respectively, the drainage areas of
8 several of the delineated features are less than 20 square miles and, as depicted on the
9 Natural Resources Map, the Project involves lands that are in the Lyndonville Source
10 Protection Area (ZONE III), for the Village of Lyndonville. The Project satisfies the
11 requirements of 10 V.S.A. § 6086 (a)(1)(A) because the Project will meet all applicable
12 Vermont Department of Environmental Conservation (DEC) health regulations and
13 environmental ground and surface water regulations. VELCO has applied for coverage
14 under the Vermont Construction General Permit for Stormwater Discharges (3-9020),
15 and the Project will have a Spill Prevention and Countermeasure Control Plan (SPCC)
16 and will be directly connected to municipal sewer and water. Therefore, there will be no
17 undue adverse impacts to headwaters from the construction and/or operation of the
18 Project. Exhibit VELCO-Mallory-13 p. 5.

19
20 **Waste Disposal**

21 [10 V.S.A. § 6086(a)(1)(B)]

22 Q35. Please discuss VELCO's plans regarding waste disposal.

23 A35. The Project will have a Spill Prevention and Countermeasure Control Plan (SPCC) plan to
24 prevent the introduction of waste materials into the groundwater. In addition, an Erosion
25 Prevention and Sediment Control (EPSC) plan will be developed to manage disturbed

1 soil during Project construction. Any woody debris from the Project site will be chipped
2 on-site and used for soil stabilization or removed by the contractor. Areas of disturbed
3 earth will be managed in accordance with the Project's EPSC plan. Therefore, there will
4 be no undue adverse impacts due to waste disposal as a result of the construction of or
5 operation of the Project. Exhibit VELCO-Mallory-13 p. 5.

6
7 **Water Conservation**

8 [10 V.S.A. § 6086(a)(1)(C)]

9 Q36. Please describe water conservation measures associated with the Project.

10 A36. The proposed Project does not involve the use of water for manufacturing purposes and
11 the Project when constructed will be directly connected to municipal sewer and water.
12 The facility will be designed with a low flow toilet to conserve water when used,
13 although the frequency of use is expected to be minimal. Given that the proposed Project
14 has incorporated water conserving devices and does not propose to use water for
15 manufacturing purposes, there will be no undue adverse impacts to water supplies as a
16 result of the construction of the substation Project. Exhibit VELCO-Mallory-13 p. 10.

17
18 **Floodways**

19 [10 V.S.A. § 6086(a)(1)(D)]

20 Q37. Is any part of the Project located within a 100 year flood boundary or floodplain?

21 A37. No. VHB Pioneer analyzed the available Federal Emergency Management Agency
22 (FEMA) Flood Insurance Rate Map and determined that the Project is not located on any

1 lands that meet criteria (§ 6086(a)(1)(D)) which addresses floodways. As such, there will
2 be no floodway impacts as a result of the proposed substation Project. Exhibit VELCO-
3 Mallory-13_ p. 6.

4
5 **Streams**

6 [10 V.S.A. § 6086(a)(1)(E)]

7 Q38. Describe any **streams** in the vicinity of the Project.

8 A38. VHB Pioneer delineated and surveyed one stream within the investigation area (Exhibit
9 VELCO-Mallory-13_. See tabular Summary of Delineated Wetlands and Streams on
10 page 3 of the Appendix). Stream designated 2009-TB/SC-1 is an un-named tributary of
11 the East Branch Passumpsic River. The stream designated 2009-TB/SC-1 has stable
12 banks, with little evidence of erosion (See photograph on page 4 of the Appendix.). The
13 Project will apply for coverage under the Vermont Construction Permit for Stormwater
14 Discharge (3-9020), and thereby develop and implement a site specific erosion
15 prevention and sediment control (EPSC) plan, which will ensure no undue or adverse
16 impacts will result from this Project. This stream will likely be crossed with the use of a
17 temporary bridge to allow construction crews to access the nearby 115kV line to perform
18 necessary structure work to connect the new substation to the line. The use of a
19 temporary bridge crossing will maintain the stream in its natural condition. The stream
20 crossing will be performed in accordance with the VELCO Environmental Guidance
21 Manual, which has been reviewed by the ANR and the US Army Corps of Engineers
22 (USACE). Exhibit VELCO-Mallory-13 p. 7.

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Shorelines

[10 V.S.A. § 6086(a)(1)(F)]

Q39. Does the Project affect any shorelines?

A39. No. No activities for the Project are proposed to take place within areas defined as shorelines. As such, there will be no undue or adverse impacts to shorelines as a result of the Project. Exhibit VELCO-Mallory 13 p. 8.

Wetlands

[10 V.S.A. § 6086(a)(1)(G)]

Q40. Will the Project result in undue or adverse impacts to any wetlands?

A40. No. The wetlands criterion for an Act 250 Permit, as incorporated into Section 248, requires that the Project complies with the Vermont Wetland Rules (VWR). The VWR regulate significant wetlands (Class One and Class Two wetlands) and their buffers. VHB Pioneer delineated and surveyed four Class Three wetlands within the investigation area (See Exhibit VELCO-Mallory-13, Tabular Summary of Delineated Wetlands and Streams on page 3 of the Appendix). These wetlands were typically located in the lowlands and ravines though the site, and are generally associated with a watercourse. Wetlands identified by VHB Pioneer were generally located within the existing transmission right of way, and consisted of emergent and scrub-shrub features, which are maintained, with the exception wetland 2009-2, in an early successional state through VELCO's Four Year Vegetation Management Cycle. Representative photographs of

1 each wetland were taken and are located on pages 4 and 5 of the Appendix. Exhibit
2 VELCO-Mallory-13. Wetland transects were conducted for each wetland; data were
3 collected from locations on the wetland and upland sides of the wetland boundaries. The
4 wetlands within the investigation area have been determined to be Vermont Class Three
5 wetlands. Class Three wetlands are not regulated by the Vermont Wetland Rules and do
6 not have a regulated buffer. VELCO plans to use a single temporary crossing to access a
7 portion of the line to the east of Wetland 2009-4. The wetland will be crossed at the
8 narrowest point and wetland mats will be used to minimize disturbance to the wetland.
9 As no significant wetland impacts are anticipated, there will be no undue or adverse
10 impacts to identified wetlands as a result of the Project. Exhibit VELCO-Mallory-13 p.
11 8.

12
13 **Water Supply**

14 [10 V.S.A. § 6086(a)(2)&(3)]

15 Q41. Will the Project burden existing water supplies?

16 A41. No. The proposed Project will take advantage of the existing municipal hookup, and
17 VELCO has been in consultation with the Village of Lyndonville during the planning
18 phase of the Project. The Project will be covered by the Vermont Construction Permit for
19 Stormwater Discharge (3-9020), have an approved SPCC Plan, and be directly connected
20 to municipal water and sewer. As detailed above in the Water Conservation section, the
21 Project will require only a low-flow toilet, which after construction, will be used

1 infrequently. As such, there will be no undue or adverse impacts to water supplies as a
2 result of the Project. Exhibit VELCO-Mallory-13 p. 10.

3
4 **Soil Erosion**

5 10 V.S.A. § 6086(a)(4)

6 Q42. Will the Project cause soil erosion?

7 A42. The effects of soil erosion on adjacent water bodies and wetlands will be managed in
8 accordance within the Project's specific EPSC Plan and as such no undue impacts will
9 result. Such a plan will include the installation of preventative measures, monitoring and
10 maintenance of the measures, inspections and proactive action taken to address areas that
11 pose significant erosion potential. As such, there will be no undue or adverse impacts to
12 soil erosion as a result of the Project. Exhibit VELCO-Mallory-13 p. 10.

13
14 **Traffic**

15 [10 V.S.A. § 6086(a)(5)]

16 Q43. Will there be any traffic problems resulting from the Project?

17 A43. Petitioners expect no long-term traffic impacts from the Project and only minor short-
18 term traffic impacts due to deliveries of Project equipment to the Substation site during
19 the construction period (expected to be April 1, 2010 through March 1, 2011). Such
20 deliveries will use existing roads with vehicles that are commonly used on such public
21 roads.

22

1 Habitat and Endangered Species, as discussed in a memorandum dated June 1, 2009 by
2 VHB Pioneer. See Exhibit VELCO-Mallory-13, Appendix p. 25-26. Since there were no
3 occurrences of the target threatened or endangered species found within the investigation
4 area during the survey, no areas of potential habitat for the target species or the species
5 themselves were found within the investigation, and no significant natural areas were
6 reported within or adjacent to the Project site, there will be no undue adverse impacts as a
7 result of the Project.

8
9 **Development Affecting Public Investments**

10 [10 V.S.A. § 6086(a)(9)(K)]

11 Q46. Will the Project negatively impact public investment in a public resource?

12 A46. No. The Project will not unnecessarily or unreasonably endanger any public or quasi-
13 public investment in any facility, service, or lands, or materially jeopardize or interfere
14 with the function, efficiency, or safety of, or the public's use or enjoyment of or access to
15 any facility, service, or lands.

16
17 **Public Health and Safety**

18 [30 V.S.A. § 248(b)(5)]

19 Q47. Will the Project have any adverse effects on the health, safety, or welfare of the public or
20 adjoining landowners?

21 A47. No. The construction of the Project will be designed in accordance with the National
22 Electric Safety Code requirements. The Petitioners will use high-quality materials and

1 adhere to prudent utility construction practices throughout the construction phase. The
2 Project will not unnecessarily or unreasonably endanger the public or adjoining
3 landowners.

4
5 **Consistency with Integrated Resource Plan**

6 [30 V.S.A. § 248(b)(6)]

7 Q48. Is the Project consistent with a recent integrated resource plan?

8 A48. Yes. While VELCO does not have an integrated resource plan, I have reviewed
9 VELCO's 2009 Vermont Long-Range Transmission Plan ("VELCO Plan") and found
10 that the Project is consistent with the VELCO Plan. The Project is listed as priority
11 number one in the list of proposed transmission projects as it is needed at statewide load
12 levels much lower than experienced today. Exhibit VELCO-Mallory-5..

13
14 **Compliance with Twenty Year Electric Plan**

15 [30 V.S.A. § 248(b)(7)]

16 Q49. Does the Project comply with the Department of Public Service's 2005 Vermont Electric
17 Plan?

18 A49. Yes. Vermont's Twenty Year Electric Plan adopted by the Department of Public Service
19 ("DPS") in January of 2005 sets forth several basic objectives that must be satisfied in
20 serving the public interest. When utilities design and implement long range resource
21 plans, the Plan requires them to strive to meet Vermont's electric energy needs in a
22 manner that is "efficient, adequate, reliable, secure, sustainable, affordable, safe, and

1 environmentally sound, while encouraging the state’s economic vitality and maintaining
2 consistency with other state policies.” Utilities must “carefully balance” these objectives.
3 The Project strikes the proper balance among each of these objectives.
4

5 Q50. What are the overreaching goals of the Plan?

6 A50. The DPS recognizes the following in the Plan:

7 Modern society has come to depend on reliable electricity as an essential
8 resource for national security, health and welfare, communications,
9 finance, transportation, food and water supply, heating, cooling, lighting;
10 computers and electronics; commercial enterprise ;and even entertainment
11 and leisure. In short, nearly all aspects of modern life are driven by
12 electricity. Customers have grown to expect that electricity will almost
13 always be available when needed at the flick of a switch. Most customers
14 have also experienced local outages . . . What is not expected is the
15 occurrence of a massive outage on a calm, warm day. Widespread
16 electrical outages, such as the one that occurred on August 14, 2003, are
17 rare, but they can happen if multiple reliability safeguards break down.
18 Such outages, in turn, produce considerable economic losses.
19

20 (Plan at 7-1.)

21
22 Drawing from the State Energy Policy, the Plan establishes as a
23 benchmark that, “. . . to the greatest extent practicable, . . . Vermont can
24 meet its energy service needs in a manner that is adequate, reliable, secure
25 and sustainable,; that assures affordability and encourages the state’s
26 economic vitality, the efficient use of energy resources and cost effective
27 demand side management; and this environmentally sound . . .
28

29 (Plan at 1-5.) The Plan goes on to elaborate upon some of the key concepts found
30 in the quoted section.

31 On September 1, 2009, the Petitioners requested a determination from the
32 Department, pursuant to 30 V.S.A. § 202(f), that the project is consistent with the
33 electrical energy plan for the state.

1
2 Q51. Will the Project meet the need for “adequate” and “reliable” energy service?

3 A51. Yes. The Plan states that “adequate” means “that there is sufficient electric
4 energy to meet the needs of Vermont’s business and residents as the state
5 economy grows and expands.” “Reliable” is expressed in terms of minimizing
6 outages due to transmission or distribution system failures . . .” (Plan at 1-4)

7 The Project is designed to provide a redundant source and path of power
8 to Caledonia and Essex counties ensuring adequate supply to meet present and
9 forecasted demand during all conditions, including those of equipment
10 maintenance and failure.

11 The DPS recognized the critical importance of an adequate and reliable
12 transmission and distribution infrastructure as a means of handling peak demand:

13 To meet peak demands, not only must utilities secure sufficient
14 electric supplies to meet peak demands, they must be able to distribute
15 them to customers over the network of transmission and distribution lines
16 that cross the state. Therefore, Vermont’s poles and wires network must
17 be large enough to handle all of the electricity demanded.

18
19
20 (Plan at 3-6).

21
22 Q52. Is the Project “affordable”?

23 A.52. The term “affordable” is expressed in terms of ensuring that consumers are provided with
24 electric service “at the least total cost to society.” (Plan at 1-6). As previously noted the
25 Project is the least cost option to address the identified reliability deficiencies.

26

1 Q53. Is the Project “efficient”?

2 A53. The term “efficient” in the Plan references a general need to adequately explore and
3 compare the Project to demand side management (“DSM”), load response, and other
4 potential energy efficient solutions. Non-transmission alternatives were found to be not
5 viable or suitable replacements for the lack of redundancy in the transmission system in
6 Caledonia County. Fundamentally, the Project is about reliability; without creating a
7 reliable transmission infrastructure with redundant paths, no amount of efficiency efforts
8 will achieve a corresponding gain in the adequacy, safety and reliability of the grid as a
9 whole.

10

11 Q54. Will the Project be “safe” and “environmentally sound”?

12 A54. Yes. The term “safe” as used in the Plan takes into consideration the protection of public
13 health and safety as part of planning. The Project is being proposed to improve the
14 reliability and reduce the number of customer outages hours within the areas of need.
15 Providing dependable electric service will make it easier for local health and safety
16 providers to perform their work.

17 Concerning the “environmental soundness” of the Project, the Petitioners are proposing
18 to take substantial measures to reduce or altogether avoid impacts of the Project on the
19 natural environment, whether through erosion control plans, a low noise transformer, or
20 specialized construction practices for sensitive areas.

21

1 Q55. In addition to the more general goals outlined in the Plan, the Plan has some specific
2 goals, such as requiring VELCO to support and cooperate with others in regional
3 transmission and distribution optimization. (Plan at 8-3). Did the Petitioners undertake
4 any area-specific analysis here?

5 A55. Yes. VELCO has been performing long term expansion planning to identify needs, and
6 to discuss with Vermont utilities and the general public the various transmission projects
7 it is undertaking. The Project was evaluated in VELCO's 2009 Long Range Plan and has
8 been discussed publicly with the VSPC.

9 Also relating to system optimization and Integrated Resource Planning ("IRP"), the
10 Project is referenced with the IRPs of LED and CVPS, as detailed in the prefiled
11 testimonies of Kenneth Mason and Kim Jones.

12

13 **Impact on Vermont Utilities and Customers**

14

[30 V.S.A. § 248(b)(10)]

15 Q56. Can existing or planned transmission facilities serve the Project without creating an
16 undue adverse effect on Vermont utilities or customers?

17 A56. Yes. Existing transmission facilities can serve the Project without creating an undue
18 adverse effect on Vermont utilities and customers. The proposed substation will be
19 adjacent to existing transmission lines and the Project is designed to enhance the existing
20 utility system and to improve service to customers.

21 Q57. Does this conclude your testimony?

22 A57. Yes.

EXHIBIT LIST

Exhibit VELCO-Mallory 1	Scott Mallory's Resume
Exhibit VELCO-Mallory 2	USGS Site Location Map
Exhibit VELCO-Mallory 3	Color Coded Site Plan, Site Plan, General Arrangement, 115 kV Plan and Profile, and One-Line Diagram
Exhibit VELCO-Mallory 4	Reliability Area Maps
Exhibit VELCO-Mallory 5	2009 Vermont Long-Range Transmission Plan
Exhibit VELCO-Mallory 6	Cost Estimate and Schedule Information
Exhibit VELCO-Mallory 7	ISO-NE Proposed Plan Application Approval Letter
Exhibit VELCO-Mallory 8	Cost Allocation Agreement for Specific Facilities
Exhibit VELCO-Mallory 9	Waiver/Support Letters
Exhibit VELCO-Mallory 10	Archaeological Investigation Report
Exhibit VELCO-Mallory 11	Above Ground Historic Report
Exhibit VELCO-Mallory 12	Aesthetic Report
Exhibit VELCO-Mallory 13	Natural Resources Report
Exhibit VELCO-Mallory 14	Noise Analysis
Exhibit VELCO-Mallory 15	VELCO Public Letter

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