STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No.

Petition of Vermont Transco LLC and Vermont	)
Electric Power Company, Inc., requesting a	)
certificate of public good, pursuant to 30 V.S.A.	)
§ 248, authorizing the construction of the PV20	)
Cable Replacement Project	)

PREFILED TESTIMONY AND EXHIBITS OF
SCOTT S. MALLORY
ON BEHALF OF
VERMONT TRANSCO LLC & VERMONT ELECTRIC POWER COMPANY, INC.

September 8, 2015

Mr. Mallory's testimony provides an overall summary of the proposed PV20 Project, describes the Project's estimated cost and schedule, and explains how the Project complies with a subset of the § 248(b) criteria, namely (b)(1) (orderly development of the region), (4) (economic benefit to the state), (5) (aesthetics, noise, public health and safety, transportation systems, educational and municipal services, and development affecting public investments).

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EXHIBITS

Introduction

Q1. Please state your name, occupation, and business address.

A1. My name is Scott S. Mallory, and I am currently employed by Vermont Electric Power Company Inc. (together with Vermont Transco LLC collectively referred to as "VELCO" or "Petitioner") with the business address of 366 Pinnacle Ridge Road, Rutland, Vermont, 05701. I am a Project Manager at VELCO, managing the PV-20 Project, as well as other VELCO projects.

Q2. Please describe your educational background and professional experience.

A2. My educational background and professional experience are set forth on my resume, which is attached as Exhibit Petitioner SSM-1.

Q3. Have you previously provided testimony before the Vermont Public Service Board?

A3. Yes. I have provided testimony on the behalf of VELCO for the K35 Line Project (Docket 7900), Jay Substation Project (Docket 7708), Lyndonville Substation Project (Docket 7562), Gorge Area Reinforcement Project (Docket 7460), Taft Corners substation upgrade (Docket 7453), East Avenue Loop Project (Docket 7314), Northwest Vermont Reliability Project (Docket 6860), and in other dockets on behalf of Washington Electric Cooperative, Inc.

Q4. What is the Petitioner requesting from the Public Service Board?

A4. The Petitioner is seeking a Certificate of Public Good ("CPG") authorizing the replacement of the VELCO-owned segment of the PV20 circuit from the New York border, located underwater within Lake Champlain, to the overhead point of interconnection, located in Grand Isle, Vermont, including the construction of a new termination station (to be located north of the existing station) and the installation of two new overhead transmission line structures to reroute the line. Once the new facilities are in service, the Petitioner will remove the existing cables, termination station and associated equipment, and the existing overhead line structures that are being replaced.

Q5. What is the purpose of your testimony?

A5. My testimony provides an overview of the proposed PV20 Project. I introduce the other VELCO witnesses offering testimony in support of the Project, and I offer a summary of the Project Cost Estimate, the expected cost treatment, and the proposed Project construction schedule. I explain how the Project satisfies several of the Section 248(b) criteria, including orderly development of the region, economic benefit, noise, public health and safety, aesthetics, transportation systems, municipal and educational services, and development affecting public investments.

Q6. Please identify each of the other witnesses testifying on behalf of VELCO, and describe the scope of their testimony.

A6. In addition to myself, VELCO submits the prefiled testimony and exhibits from the following witnesses:

Witness	Subject
Hantz A. Présumé VELCO	Provides a summary of the Project; explains the transmission system impacts of a potential cable failure; describes the reliability criteria; and assesses consistency of the Project with company and state plans.
Timothy Follensbee II VELCO	Addresses the Project's potential impacts on the environmental and historic sites criteria.
Edward McGann VELCO	Discusses the engineering and design details for the Project components.

Project Overview

Q7. Please describe the proposed PV20 Project.

A7. The existing PV20 115 kV circuit is jointly owned by VELCO and the New York Power Authority ("NYPA") and it connects the NYPA Plattsburgh substation in Beekmantown, NY to the VELCO Sand Bar substation in Milton, VT[1]. A portion

[1] NYPA and VELCO ownership is demarcated at the state border within Lake Champlain.

of this circuit runs underwater (submarine) in Lake Champlain between Plattsburgh, New York and Grand Isle, Vermont. The existing submarine segment of the circuit consists of four 500 kcmil cables, installed in 1958, and three 1,000 kcmil cables, installed in 1970. VELCO's segment of the submarine portion of the line continues underground and then connects to the existing Grand Isle termination station before connecting to the Sand Bar substation via an overhead[2] transmission line. The VELCO portion of the PV-20 Project, which is subject to this CPG petition, will involve: (1) the installation of a new high-voltage transmission line, consisting of four cables, from the underwater Vermont-New York border to a new termination station in Grand Isle, Vermont, primarily within Lake Champlain (a distance of approximately 0.7 miles); (2) the construction of a new termination station with associated equipment and access road, located just north of the existing termination station in Grand Isle, Vermont; (3) the installation of two overhead transmission line structures to connect the new cables from the new termination station to the remainder of the VELCO PV20 line; (4) the removal of the existing 115 kV submarine transmission line, and (5) the removal of the existing Grand Isle termination station, associated equipment, and overhead transmission structures. See Exhibit Petitioner SSM-2 for an orthophoto of the site overlaid with a depiction of the site plan.

[2] A portion of this overhead line is buried along a 2 mile portion of US Route 2 – the causeway.

All four of the new cables will contain energized conductors. Three of the cables will carry load, while the fourth will be energized only from the Vermont side at the Grand Isle terminal to be able to monitor its health for emergency use, if necessary. The cables will be approximately six inches in diameter and will run for approximately 3,504 feet (the entire new PV20 installation will run approximately 9,250 feet between the new Grand Isle, Vermont terminal station and the new Plattsburgh, New York terminal station). The new Grand Isle termination station is being built to the immediate north of the existing station so that the existing PV20 line may remain in service during construction. The new termination station will include protection and control equipment as well as switches and will require the installation of new overhead line structures to the east to interconnect with the remainder of the Vermont portion of the PV20 circuit. Mr. McGann's testimony and exhibits include further engineering and design details regarding VELCO's portion of this Project.

Q8. Please describe VELCO's interest in the Project and why it is needed.

A8. VELCO and NYPA jointly own the existing submarine segment of the PV20 line and have concluded that the submarine cables should be replaced at this time. The cables have reached the end of their lifespan, have been damaged, and one of the cables can no longer be put into service. VELCO and NYPA collaborated on designing the proposed Project to meet present and future demand for electric

service during all conditions, including conditions involving equipment maintenance and failure. Four of the seven existing cables have been in place since 1958 and have exceeded their 50-year lifespan by seven years; one of the four failed in 1969 and likely damaged the other cable to which it was connected. The other three cables were installed in 1970 to restore and increase the circuit's capacity and are within five years of reaching their 50-year lifespan. Line inspections have shown physical armor damage and corrosion, anode damage and disconnection, and cables laying unprotected on rocks. Dissolved gas analysis has shown elevated gas levels indicative of damage. Also, the planned 50-year lifespans should be viewed conservatively as the cables have been damaged from several faults and excessive loading. The Quanta Technology Transmission Life Extension & Modernization Summary Report (Exhibit Petitioner SSM-3) summarizes the cables' condition and the Realtime Utility Engineers Transmission Life Extension & Modernization Assessment (Exhibit Petitioner SSM-4) contains the full assessment and is provided under seal pursuant to the Federal Energy Regulatory Commission's ("FERC") Critical Energy Infrastructure Information protocols.

Further, the existing cables are filled with mineral oil for cooling purposes and have reservoirs and piping that could potentially leak or spill oil. The oil-pressurization reservoirs are obsolete and replacements, if needed, would be

very costly and time consuming to build or repair on a custom basis. An inadvertent release of oil on land or into the lake during a failure of the aged cables or related equipment would result in environmental impacts, which would require remediation. Removal of the oil filled cables and equipment eliminates the potential of future water quality impacts associated with the existing cables and appurtenances. The replacement cables do not contain any oil.

The existing Grand Isle termination station also has aged equipment that the Board previously recognized in Docket 7942 was in need of replacement to save maintenance costs and improve reliability (i.e., updates to the control building, control panel, wiring, cable current flow monitoring, and the replacement of lead piping).

Finally, re-routing the existing overhead transmission line is needed to accommodate the location of the new termination station.

Q9. How are VELCO and NYPA executing the Project?

A9. NYPA and VELCO are coordinating the Project through an agreement whereby we share the costs of the overall Project, but each entity is solely responsible for their own indirect costs and direct costs pertaining to land/right-of-way acquisition and connecting overhead transmission line structures. We are jointly

contracting with companies to install the cable and termination stations and to remove the existing PV20 facilities in both New York and Vermont. For permitting, NYPA and VELCO are each responsible for securing their own state permits for the portion of the Project in their states and we are jointly applying for required permits from the Army Corps of Engineers as federal jurisdiction extends beyond state boundaries.

Q10. What are the benefits of installing a spare (fourth) cable?

A10. In order to maintain the existing function of a spare cable (as per the 1958 and 1970 designs) it is prudent to install a spare cable at a reasonable cost to avoid lengthy transmission outages. It is not feasible to utilize the existing equipment as a spare given its deteriorated and obsolete condition and the risks of oil filled equipment.

An installed spare cable significantly mitigates the outage time in replacing or repairing a failure of one of the three-phase cables as it could be switched to transmit electricity within one day and used until the damaged cable was repaired. Without a spare cable, a failure of one cable would cause an immediate long term outage of the PV20 circuit. Lengthy outages on this transmission circuit would create undesirable reliability and likely cost consequences. Mr. Présumé's testimony details why the PV20 line needs to be maintained at its full

capacity to provide transmission reliability in Vermont, New England, and New York.

However, I highlight here that repairing a damaged submarine cable is a time consuming and difficult process. First, it requires locating the fault along the approximate 1.7 mile length of the cable. Divers must cut the cable underwater, after which the cable must be hoisted up to the surface via a dispatched repair barge, then tested, spliced, and placed back underwater. If the cable is damaged in the underground portion (i.e., the shore section) then it would need to be extracted from the conduit, spliced, and replaced. During ideal conditions with a repair segment of cable on hand, the repair time would likely exceed six weeks. If a fault occurs during frozen lake or adverse weather conditions, or when repair contractors and a suitable barge are unavailable or undeliverable, the repair time would increase significantly, to the order of months.

The added cost to VELCO to procure and place the proposed spare cable into service (an estimated cost of approximately $3m) is a reasonable portion of the VELCO Project installation cost (7% of $45m). If a spare submarine cable were to be installed at a later date it would cost much more as engineering, procurement, and installation costs would need to be replicated.

Q11. Why are the proposed submarine cables and terminal equipment insulated and rated for 230 kV when the Project will operate at 115 kV?

A11. The investment in additional cable insulation allows for the flexibility for future capacity upgrades of the PV20 line during the expected 40-year service life of the cable. Future increased capacity would facilitate an increased West to East transfer across and into Vermont[3]. Existing 230 kV grid infrastructure in this region includes 230 kV lines from central New York which connect to NYPA's Plattsburgh substation in Beekmantown, New York, a 230 kV line east of Vermont, which connects to VELCO's substation in Williamstown, Vermont and the underground portion of the PV20 between Milton and South Hero, Vermont, which is also constructed to allow for 230 kV operation (i.e., the pipe-type cable in the causeway[4]).

The majority of the Project cost is within manufacturing, delivery and installation of the submarine cables. The increase in cable insulation from 115kV to 230kV is a small incremental cost in terms of the Project's overall cost. The estimated incremental cost is approximately $266 thousand, which will be split with NYPA, out of a total installation project cost of $83 million. To upgrade the

[3] Board approval, as well as the upgrade of other components, would need to be obtained in the future to be able to reconstruct and operate this line segment at 230 kV.
[4] Board approval was granted in Docket No. 5778 for upgrading this segment in the causeway allowing a 230 kV rating.

cables later on from 115 kV to 230 kV would require a duplication of the engineering, manufacturing, delivery, and installation costs which would be much greater than the incremental cost.

Q12. If the entire PV20 line from Plattsburgh, New York to Milton, Vermont were upgraded to 230 kV, would there be any system benefits?

A12. Yes, however we are not proposing to upgrade or operate to 230 kV as part of this Project. The PV20 line is a critical facility included as part of several regional interfaces that are monitored and managed in real time to maintain reliability and market efficiency in New England and New York. A future 230 kV PV20 line from Beemantown, New York to Williamstown, Vermont would have a number of benefits, including improving transfer power capability across regional interfaces inside and between New York and New England, enhancing the transmission system's ability to withstand severe system outages by increasing short circuit strength, and reducing the need to run local generation to address system concerns.

Overview of Project Construction

Q13. Please describe the expected construction methods for the installation.

A13. Construction is expected to begin with access road construction, general site grading, and horizontal directional drilling to place conduit from a cable

transition point just west of the new Grand Isle termination station to approximately 894 feet to the west in the lake. In contrast to open-trench excavation, directional drilling minimizes environmental disturbance to the shoreline and shallow waters of the lake that are generally sensitive to flora and fauna. After grading and drilling, the steel structures, protection and control equipment and switches within the termination station can be installed.

The submarine cables will be delivered via transport barges from Port Elizabeth, New Jersey through the Champlain canals into Lake Champlain and laid into the lake with an installation barge. To avoid anchor and other external damage, the cables will be buried via a water jet-plow about four feet into the lake bottom from the cable transition point off-shore, outward to underwater-depths up to 100 feet. After 100 feet in underwater-depth, the cables will be laid on the lakebed as the costs and safety risks associated with burial rise at this point and risk of anchor or other types of damage is mitigated. At the cable transition points offshore, the cables will be pulled through the underground conduits and connected to the new termination stations on land.

Two overhead transmission line structures will be rebuilt to the east of the termination station according to the plans (Exhibit Petitioner EM-4) and conductor strung on them to connect the new termination structure to the remainder of the existing line. Mr. Follensbee's testimony explains the

construction methods for removing the existing submarine cables and termination station as well as the associated environmental testing, temporary impacts, and precautionary procedures to be used with regard to cable removal and waste disposal.

Q14. Will construction require any blasting?

A14. It is possible as blasting may be necessary to remove rock for installation of the termination station, cable manhole, and to initiate the horizontal directional drilling into the lake. To the extent that blasting is required VELCO will abide by its blasting management plan, the site-specific notification and survey radius, and the Best Management Practices for Blasting to Avoid Environmental Contamination from the Vermont Agency of Natural Resources. Please refer to Exhibit Petitioner SSM-5.

Q15. What is the plan with respect to removal of the existing cables and termination station?

A15. The Project includes the removal of the existing PV20 facilities. This work involves removal of the seven existing oil-filled cables, located underwater between the Vermont-New York border and underground between the lake and the existing Grand Isle termination station, the existing termination station, and two of the existing overhead transmission line structures. Removal of the

existing facilities will be performed after the Project has been put into active service so as to avoid lengthy electrical outages and reliability problems between New York and New England.

Q16. Do you anticipate any complications with TDI-New England's New England Clean Power Link project that is also scheduled for Lake Champlain construction in 2017?

A16. No, provided VELCO is granted its request made in Docket No. 8400 for recovery of any incremental costs in protecting, removing, or installing our existing or proposed replacement cables as well as for TDI-NE to be required to avoid causing conflicts or delays in our construction progress. These protections are contained in the VELCO and TDI-NE stipulation dated July 24th 2015 and submitted in Docket 8400 as Exhibit TDI-JMB-21.

As for a TDI-NE crossing on top of a VELCO submarine cable with its planned underwater cables, VELCO has discussed this with TDI-NE and expects TDI-NE to install a covering atop the VELCO cable at TDI-NE's expense which will provide protection as well as allow for eventual subsequent removal/repair. If needed for a VELCO crossing of a TDI-NE cable, VELCO will design a covering that provides protection, acceptable to VELCO and TDI-NE, for use during our construction.

Q17. Do you foresee any complications with respect to Anbaric Transmission/National Grid's Vermont Green Line that is proposed within Lake Champlain?

A17. Not at this time. The Vermont Green Line transmission proposal is still in the routing phase and was most recently modified to run from upstate New York to New Haven, Vermont. A new connection to VELCO's facilities in New Haven would not offer a direct replacement to the PV20 line in supplying northwest Vermont nor would it be directly controllable by VELCO and ISO New England to provide contingency response, as the PV20 line is, as it would be backed by contracts in the energy market as a merchant transmission facility instead of emergency assistance flows. VELCO will continue to review Vermont Green Line proposals to ensure our new cables are not negatively impacted.

Q18. What impact will installation of the terrestrial facilities have on existing electric distribution and telecommunications facilities in the immediate area?

A18. To ensure installation of the new line does not impact the electric distribution facilities owned by Vermont Electric Cooperative ("VEC") in the immediate area, or the telecommunications provider(s) attached to those facilities, VELCO will coordinate installation activities with VEC and those providers to ensure proper facility movement and safe clearances.

Q19. Will the Project require any other upgrades to the VELCO system?

A19. No, the Project will not require any new equipment or other facilities at other VELCO sites.

Project Cost Estimate

Q20. Please describe the approach for developing VELCO's Project components cost estimate.

A20. There are six (6) principal Project cost elements: the VELCO overhead line work, the VELCO only costs of the new terminal at Grand Isle[5], the shared costs of the terminal stations, the shared costs of the new cables, the shared costs of removing the old terminal stations, and the shared costs of removing the old cables.

The first step involves identifying the resources required to plan, design, and construct all the Project elements. The cost estimate was developed utilizing seven (7) resources categories to establish the total cost for each Project element. The seven (7) resource categories which are as follows: (1) Material, (2) Labor, (3) Equipment, (4) Indirects, (5) Escalation, (6) Capital Interest, and (7) Contingency.

[5] VELCO has non-shared costs specific to its terminal that includes land acquisition and equipment for: fiber optic communications, security, testing and commissioning, and associated indirect, escalation, capital interest, and contingency costs.

Q21. Please summarize the process used to develop the direct and indirect costs.

A21. The direct costs of material, labor, and equipment were developed utilizing cost data received from bids to perform this specific work (cable and transition station installation and removal as discussed in this testimony and in that of Mr. Follensbee), and for the overhead line work, data from projects VELCO recently completed or that are currently in progress.

The detailed line items for each Project element were estimated into sub categories following the FERC Chart of Accounts. Developing the cost estimates by FERC code enhances VELCO's ability to track costs in a manner consistent with the reporting format of actual costs as required by FERC. Also, escalation costs can be more accurately calculated by applying the Handy-Whitman cost index to the estimated costs by FERC code.

The project team developed the cost estimate for indirect costs ('indirects"), escalation, capital interest, and contingency. The indirect costs were estimated based on the resources required to support the completion of the Project by resource category. Typical resource categories included in the indirect estimated costs include: Engineering and Design; Operations; Planning; Communications; Environmental Engineering; Archeological Studies, Field Surveys, Impact Mitigation; Aesthetic Impact; Legal Expenses; Regulatory Permitting and Filings,

Administrative Overheads; Mobilization and Demobilization; Project Management; Construction Supervision; and Project Administration. For this project specifically, a major component of the indirect costs are the contractor mobilization and demobilization fees to deliver equipment to and from the lake.

The indirect estimated costs of project support services are based on the number of people/hours (Level of Effort or LOE) required to support the particular function as well as outsourced consulting services for each resource category (e.g. archeology studies, engineering, and surveying, etc.).

Q22. Please explain the derivation of the other cost components.

A22. Escalation costs were developed by VELCO Project Controls utilizing an anticipated 2015-2019 spending plan and projected Handy-Whitman cost index and consumer price index (CPI).

Capital interest (AFUDC or interest cost during construction) was applied at a yearly compounded rate averaging approximately 7.5% and also follows the Project spending plan as applied to the escalation cost calculation. The capital interest rate is typically based on the company's credit rating and is subject to change based on financial market conditions.

Finally, the Project cost estimate also accounts for a contingency applied specifically to each project element reflective of its level of design and

construction risk. The total average rate of contingency is approximately nineteen percent (19%) applied to all of the above costs due to the preliminary detailed designs and the uncertainty and risk associated with the Project level of definition.

Q23. What is the total cost estimate for the Project?

A23. The total estimated combined costs of the NYPA and VELCO portions of replacing the termination stations and line are $91.6 million ($83.3million for the installation of new cables, spare cable, and structures, and $8.3 million for the removal of existing cables and structures). The estimated capital cost for VELCO's portion of the installations is $45.1 million (PTF and non-PTF), and the estimated cost for VELCO's portion of the removals is $4.6 million. Please refer to Exhibit Petitioner SSM-6 for a summary by cost category and Project element.

Q24. What is the design status of the VELCO elements within the Project direct costs?

A24. The overhead transmission line design has been completed but for a detailed release to begin material procurement.

The submarine cable and termination station installation plans are at a preliminary design level and have been issued for bid. The successful bidder will finalize the engineering work by incorporating its cable procurement and

construction specifics into the design. Information from the bidders has been received and incorporated within the cost estimate.

The submarine cable and termination station removal work is also at a preliminary design level and has been issued for bid. The successful bidder will finalize the work by incorporating its construction/removal specifics into the design. Information from the bidders has been incorporated within the cost estimate.

Q25. What risk elements were considered when developing the cost estimate and how were the risks addressed in the estimate?

A25. The risk elements considered in the estimate are the project duration, level of certainty regarding ground conditions for submarine and below-grade work, required environmental, archeology mitigation measures, and potential resource constraints at the anticipated time and type of construction. Contract negotiations will attempt to account for some of these specific risks. Contingency was applied to the estimate by project element to account for these risks in accordance with widely recognized standard project management practices recommended by organizations such as the Project Management Institute ("PMI").

Q26. Please describe how VELCO expects to recover the cost associated with these upgrades.

A26. The Vermont portion of the PV20 transmission line, including the termination station, is currently classified as a Pool Transmission Facility ("PTF") within the ISO New England transmission tariff and, thus, the bulk of the replacement assets will receive the same treatment. The costs will be capitalized, amortized within the New England Regional Network Service charge, and spread across New England ratepayers. Vermont will pay its load ratio share (approximately four percent) of the $41.6 million VELCO portion of costs that are classified as PTF.

The non-PTF costs of the replacement, approximately $3.6m, will be included in the VELCO common facilities' asset base and charged in accordance with the 1991 Vermont Transmission Agreement to the Vermont distribution utilities based on their state peak billing demand ratio. This amount consists of the spare cable, spare termination station parts, a portion of the land costs, and associated indirect, escalation, capital interest, and contingency costs.

The Vermont portion of the spare (fourth) submarine cable will not be considered PTF and therefore not included in the New England Regional Network Service charge because the cable will be reserved for future use and will

not carry load except under emergency circumstances in the event of a failure of one of the cables.

As for the removal costs, VELCO's share, estimated at $4.6 million, will be funded from VELCO's accumulated depreciation account, which currently has sufficient reserves.

Q27. How are the costs shared between NYPA and VELCO?

A27. As part of the development of this project, VELCO and NYPA reviewed existing agreements and developed a project-specific agreement that aligns with past approaches that includes sharing construction, operation, and maintenance costs 50/50 between VELCO and NYPA. Thus, NYPA will pay fifty percent of the shared costs of engineering, permitting, procurement, and construction of the replacement transmission facilities and removal costs, with VELCO paying the remainder. Although the engineering documents plan for 3,504 of the 9,250 feet of new cable between the termination stations to be within Vermont (i.e., 38 percent) the 50 percent cost to VELCO is an appropriate cost allocation within the agreement. NYPA is tasked with taking the lead on operation, maintenance, and repairs, as well as leading the Project's administrative efforts involving contracting, oversight, billing, and scheduling with the engineering and construction vendors, all of which provides a benefit to VELCO.

In looking at the values within Exhibit Petitioner SSM-6 the VELCO costs compared to NYPA costs shown are not split exactly 50/50 because they are total costs that include each company's non-shared costs and overheads in addition to the costs that are shared.

Project Schedule

Q28. What is the schedule for the Project?

A28. Presuming a timely commitment to the cable manufacturing queue and timely receipt of permits we propose to begin primary construction as soon as September of 2016 with work on the directional drilling, access road, site grading, and termination station installation. The cable installations and remaining termination station work are scheduled to start with the lake thaw and opening of the Champlain canal system in the spring of 2017 and to be completed by the winter of 2017. The subsequent removals are planned to start in the spring of 2018 and be completed by summer of that year. The schedule presumes completion of final engineering design during the winter of 2015/2016, material procurement down payments by May 2016, and receipt of a Certificate of Public Good by August of 2016. A failure to achieve this schedule will likely have adverse impacts on construction timing and overall Project costs. An overall project schedule is presented in Exhibit Petitioner SSM-6.

Q29. When will VELCO order the new cables?

A29. In order to meet the 2017 installation schedule VELCO plans to order the cables by May 2016.

Public Outreach and Orderly Development of the Region (30 V.S.A. § 248(b)(1) & Docket 7081)

Q30. Please describe the public outreach efforts VELCO undertook related to this Project, including any communications with the Grand Isle Planning Commission and Northwest Regional Planning Commission.

A30. VELCO designed the public outreach efforts to meet the requirements of the Memorandum of Understanding from Docket No. 7081. VELCO has provided periodic updates on the Project to the Vermont System Planning Committee at its quarterly meetings between September 2013 and July 2015.

VELCO contacted the town Select Board and Planning Commission, and the Regional Planning commission to discuss the Project's scope of work and potential impacts. The town of Grand Isle did not raise any questions or concerns. I presented Project details to, and answered questions from, the Project Review Committee of the Regional Planning Commission.

Once the Project's need and site details were refined, VELCO issued a 45-day advance notice about the Project to the town of Grand Isle and to the Northwest Regional Planning Commission. We also provided landowners adjoining the

Project with a copy of the 45-day prefiling notice. In addition, VELCO arranged a public meeting to discuss and answer questions about the Project. The public meeting was lightly attended by an abutting landowner and a guest of the Regional Planning Commission.

Q31. Have you reviewed the plans of the Town of Grand Isle and of the Northwest Regional Planning Commission?

A31. Yes. As part of our project development and review process, I reviewed and took into consideration the Grand Isle Town Plan (effective 2012) and the Plan for the Northwest Region (2007-2012) (effective 2007) as well as the Plan for the Northwest Region 2015-2023 (effective September 2, 2015).

Q32. Will the Project 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 and municipal legislative bodies?

A32. No, it will not. The Project is a replacement of existing facilities. It is consistent with the principles and goals of the town and regional plans.

The Regional Plan emphasizes that infrastructure, including energy, be expanded and upgraded to help meet the region's economic development goals (see goal 3.b at page 3 of Exhibit Petitioner SSM-7). It also speaks to upgrading

existing transmission lines when necessary to improve supply, reliability, and efficiency (see goal 1.d).

The Land Use Plan section of the Grand Isle Town Plan has a goal "to enhance environmental quality, preserve the character of Grand Isle and protect its natural assets." (Town Plan at 11).

> The purpose of the Commercial Recreation Shoreline District is to provide for commercial recreation and other compatible uses which require locations on or access to the public waters of Lake Champlain….Future development in this District must comply with the State's setbacks from the shoreline of Lake Champlain which is sufficient to maintain the lakeshore as a scenic and natural resource and to prevent erosion and pollution of Lake Champlain waters. (Town Plan at 18)

VELCO considered these guidelines during the Project's development and review. The proposed replacement of existing facilities, including a setback from the shore and horizontal directional drilling from the shore into the lake, will minimize the amount of potential impacts on Lake Champlain shoreline and limit soil erosion and disturbance of the shoreline's natural features. In addition, maintaining the shoreline vegetation will minimize the visual impact from both the lake and from Route 314. Clearing of trees will be carefully limited as highlighted within the Aesthetic Report (Exhibit Petitioner SSM-8).

The Town of Grand Isle has given VELCO a letter of support for the Project and the Northwest Regional Planning Commission found that the Project does not conflict with its Plan. Please see Exhibit Petitioner SSM-9.

Economic Benefit to the State and its Residents
(30 V.S.A. § 248(b)4))

Q33. What economic benefit to the State and its residents will the Project provide?

A33. This Project creates economic and safety benefits to the citizens of Vermont because it replaces aged and damaged infrastructure before its complete failure. Such failure could result in higher wholesale electricity prices, generation limits, difficulty in performing transmission system maintenance, and potentially exposing the electrical system to voltage collapse problems.

Reliable electric service is critical as outages can damage computers, equipment and appliances; interrupt businesses; and threaten public safety. The Project provides an economic benefit to the state and its residents by reducing the risk of these losses as well as reducing maintenance costs associated with aged and inadequate equipment. The state and its residents also benefit from reliable electric transmission service because it is fundamental to the state's economic development.

The Project will also increase property and education tax revenues based on the capital investment required for the replacement assets. VELCO expects to report a grand list value of the new cables and terminal station at approximately $22m, resulting in roughly a $389,000 property tax bill during the new cables' first year of service.

Noise, Public Health and Safety
(30 V.S.A. § 248(b)(5))

Q34. Have you evaluated the noise impacts of the replacement facilities at the Project site?

A34. Yes. The operation of the submarine cables, the termination station, and the overhead transmission structures do not produce noise, therefore the Project's operation will not create any adverse impact on sound levels at the Project site.

The Project's installation and removal work is expected to occur from the fall of 2016 through the summer of 2018 with noise mainly consisting of vehicle back-up alarms, drilling, assembly, and potentially blasting.

In addition, other than the work involving scheduled transmission outages, horizontal directional drilling, or submarine cable installation or removal in the lake, VELCO shall restrict construction activities to the hours between 7:00 A.M. and 7:00 P.M., Monday through Sunday, and shall cease land construction activities on State and Federal Holidays. Temporary lighting may be utilized during construction hours.

Q35. Will VELCO's portion of the Project have any adverse effects on the health, safety, or welfare of the public or adjoining landowners?

A35. No. VELCO's project components will be designed and constructed in accordance with National Electric Safety Code requirements. The company will adhere to prudent utility construction practices throughout the construction phase, and the Project will not endanger the public or adjoining landowners; for example the termination station will be fenced. In addition, the Project will adhere to the VELCO PV-20 Blasting Management Plan, submitted as Exhibit Petitioner SSM-5. Vessel use and potential need for lake traffic restrictions will be coordinated with the US Coast Guard and their notice to mariners, the US Army Corp of Engineers, harbor and marina masters, and ferry operators.

VELCO and NYPA will operate and maintain the equipment installed as part of this Project in the same safe manner that the companies operate and maintain the existing cables and all of its facilities.

Also once this transmission line is replaced, the Project will reduce the risk of widespread blackouts, which can present serious risks to public health and safety by providing reliable electricity through the New York/Vermont interconnection during system contingency events.

Aesthetics and Scenic Beauty of the Area
(30 V.S.A. § 248(b)(5) & 10 V.S.A. § 6086(a)(8))

Q36. Will the Project elements adversely impact aesthetics?

A36. No. VELCO routinely engages T.J. Boyle Associates to assist our team in conducting potential aesthetic impact review associated with our electric transmission projects. In this case, T.J. Boyle Associates was retained to review and assess any potential impact associated with the replacement of the terminal station and overhead transmission line and structures in Grand Isle. Its findings are presented in Exhibit Petitioner SSM-8.

The aesthetic analysis report finds that there are no areas within the one mile study area where the Project would have an adverse aesthetic impact, and the general visibility of the proposed transmission infrastructure would be very limited, similar in appearance to the existing transmission structures, and in a more concealed location. In addition the existing termination station will be removed. For these reasons, the effect on the area as a whole is considered not unduly adverse.

The termination station equipment will be almost completely surrounded by existing mature vegetation, most of which consists of evergreen species. Any views from nearby Vermont Route 314 and Lake Champlain will be screened by the existing vegetation or, where only partially screened, be consistent with the existing condition of the landscape (i.e., a view of the existing termination station).

The two new transmission line structures will not introduce new electrical infrastructure into the landscape as they will replace two existing structures. The specifications of the new structures are discussed in more detail by Mr. McGann and detailed in Exhibit Petitioner EM-4.

The Project is adjacent to a location already containing a termination station and overhead transmission structures, and meets the generalized goals and objectives of the Regional Plan and Town Plan by being located with significant nearby screening vegetation and by providing societal benefits of reliable energy transmission. The Project visibility overlaps with existing transmission infrastructure in a location that has historically contained such, therefore providing that it will not be considered offensive or shocking to the average person. Furthermore, VELCO has taken steps to mitigate Project impacts by designing it in an adjacent location to use existing trees to provide screening instead of rebuilding in the existing location.

Consequently, TJ Boyle Associates determined, and VELCO concurred that no mitigation is recommended.

Traffic and Transportation
(30 V.S.A. § 248(b)(5) & 10 V.S.A. § 6086(a)(5))

Q37. Please describe the potential Project impacts with respect to use of public roads.

A37. The Project poses no long-term traffic impacts. VELCO anticipates only minor, short duration traffic impacts, due to deliveries of equipment and material to the site during the construction period (expected to be from the fall of 2016 to the summer of 2018). Such deliveries will use existing roads with vehicles that are commonly used on public roads. During delivery of any large equipment, VELCO and its contractors will employ the services of traffic control personnel to manage traffic flow. VELCO's contractors will obtain all required highway permits associated with the work and deliveries.

Q38. Will there be any impacts with respect to the use of Lake Champlain?

A38. For materials to be installed and removed from Lake Champlain there may be short-term restrictions to the recreational use of the lake due to directional drilling, cable delivery, installation, and removal. However, such restrictions would be coordinated and limited to a specific work zone within the lake. Vessel use and potential need for lake traffic restrictions will be coordinated with the US Coast Guard, the US Army Corp of Engineers, harbor and marina masters, and ferry operators. As the submarine cable routes are north of the Grand Isle ferry, no significant impact is expected to the ferry route or its schedule.

Q39. Will rail transportation be affected by the Project?

A39. No. We expect no impacts to railway transportation arising from this Project.

Municipal and Educational Services
((30 V.S.A. § 248(b)(5) & 10 V.S.A. § 6086(a)(6) & (7))

Q40. What impact will the Project have on the ability of the town to provide educational and municipal services?

A40. The Project will not have any impact on educational or other municipal services, as the transmission line and new terminal station will not require any additional municipal services.

Development Affecting Public Investments
(30 V.S.A. § 248(b)(5) & 10 V.S.A. § 6086(a)(9)(K))

Q41. Will the Project negatively impact public investment in a public resource?

A41. The Project will not unnecessarily or unreasonably endanger any public or quasi-public investment in any facility, service, 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 any facility, service, or lands. Lake Champlain access and ferry use will not be significantly impacted as construction activities will be temporary and create only limited travel restrictions in the specific construction area.

Q42. Does this conclude your testimony?

A42. Yes.