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DOWNS RACHLIN MARTIN PLLC

November 8, 2007

Mrs. Susan M. Hudson, Clerk
Vermont Public Service Board
Drawer 20, 112 State Street
Montpelier, VT 05620-2701

RE: Southern Loop Transmission Upgrade Project
Certificate of Public Good – Section 248 Permit Application

Dear Mrs. Hudson:

I. Introduction

Vermont Electric Power Company, Inc. and Vermont Transco, LLC (collectively "VELCO") own and operate the Vermont bulk electric transmission network (115 kV and above) that integrates the Vermont electrical systems with the regional bulk power grid. The bulk transmission system also serves the electric load of the local sub-transmission and distribution networks in Vermont and in neighboring states. With this letter, VELCO and Central Vermont Public Service Corporation ("CVPS", and together with VELCO, the "Petitioners") respectfully submit a petition, prefiled testimony and exhibits in support of Petitioners' request, pursuant to Section 248 of Title 30, Vermont Statutes Annotated, and Public Service Board ("Board") Rule 5.400, for a Certificate of Public Good ("CPG") to construct the Southern Loop Transmission Upgrade Project (the "Southern Loop Project" or "Project").

The Project involves the addition of a second 345 kV transmission line between Vernon and VELCO's 345 kV Coolidge substation in Cavendish, Vermont, together with a new 345 kV substation at Vernon and additional 345 kV equipment at the Coolidge substation. In addition, to address existing local reliability problems on the CVPS system, the Project includes a new Newfane 345/115/46 kV substation and an approximately 1-mile 345 kV loop into the new Newfane substation from the new 345 kV Vernon-Cavendish line. Based upon the input from an extensive public outreach process for this Project (discussed in Mr. Johnson's prefiled testimony, enclosed), Petitioners propose to defer a previously identified Project component – an approximately 49 mile, 115 kV transmission line upgrade between Dummerston and Bennington via Stratton. CVPS plans to defer this Project component by implementing incremental DSM and encouraging the development of generation on customer sites.

The regional need for this Project was identified in the Critical Load Study prepared by VELCO for the Northwest Vermont Reliability Project ("NRP"), in which VELCO reported that a PV-20 outage with loss of the Vernon to Coolidge 345 kV line would result in voltage collapse at a 1165 MW load level (with NRP upgrades in service). It was also identified in the 2006 Long Range Transmission Plan Analysis as the most significant problem on the system. As a result, VELCO and the other signatories to the Docket No. 7081 Memorandum of Understanding ("Docket 7081 MOU") identified the Southern Loop Project as part of the transition plan set forth in the Docket 7081 MOU. Current analyses show that with other planned system upgrades in service, the Project is needed by the summer of 2010, at a 1055 MW statewide load level.[1]

II. Description of the Southern Loop Electric Reliability Problem and Need for System Reinforcements

A. The Regional Reliability Problem

The loss of the existing Vernon to Cavendish 345 kV line and the loss of the Vermont Yankee 345/115 kV transformer located at the southern end of the Vernon to Cavendish 345 kV line are the two biggest regional reliability concerns. The existing Vernon-Cavendish 345 kV line serves critical east – west and north – south energy transfers within New England and into and out of New York. If this line is lost at either current or studied future summer peak demand levels, numerous 115 kV lines can be overloaded in multiple states, potentially resulting in voltage collapse and blackouts impacting an area extending from north of the Capital District Area in New York (Albany, Schenectady and Troy) through Glens Falls, Saratoga and Whitehall, into central and northern Vermont, and to areas in and around central and northern New Hampshire. Under this scenario, greater than 85% of Vermont's electric customers could be impacted. Approximately 1000 MW of Vermont load, 580 MW of New York load, and 250 MW of New Hampshire load is at risk of voltage collapse or blackout in the event of an outage involving this 345 kV line.

The second regional reliability problem arises if the Vermont Yankee 345/115 kV transformer located at the Vermont Yankee substation in Vernon (at the southern end of the Vernon to Cavendish 345 kV line) is lost. This transformer connects the New England 345 kV network to the local 115 kV system, which in turn supplies load in southeastern Vermont (Brattleboro and surrounding areas) and southwestern New Hampshire. Loss of this transformer places all local loads in southeastern Vermont and southwestern New Hampshire on the 115 kV network supplied solely out of the Public Service Company of New Hampshire ("PSNH") network in New Hampshire, and CVPS' 46 kV network supplied remotely from Bennington. Loss of this 35+ year old transformer may result in a shutdown of the Vermont Yankee Nuclear Power Plant. There are few, if any, local options for alternate supply at or near peak summer demand levels. Outages on these remaining local transmission (115 kV) and local sub-transmission (46 kV) facilities lead to loss of local load until the lost facilities are restored. In these scenarios 30 to 50

[1] This forecasted need date for the Project assumes completion of all elements of the NRP and National Grid's so-called Monadnock Project, scheduled for completion in 2009. In addition, VELCO studies have assumed continued progress by the state's distribution utilities on power factor correction. Without these planned upgrades modeled, the Project is needed today.

MW of CVPS load in southeastern Vermont and 150 to 200 MW of load in southwestern New Hampshire could be lost.

B. Changes in the New York Model and Load Growth in New England Impact the Need for this Project

Of significance, the load level that must be carried on the existing Vernon to Cavendish 345 kV line is influenced not only by Vermont load levels but also by adjacent local and regional load levels, regional power transfer conditions and system modeling updates. Recent VELCO studies have identified significant changes in the New York model north of Schenectady/Albany, as well as noteworthy load growth in New Hampshire and the remainder of New England. These changes, when reflected in the power system models, resulted in significant increases in existing Vernon to Cavendish 345 kV line flow. That is, as regional load grows, this existing line supplies not only increased Vermont load, but also supplies a portion of increased regional demand in adjacent areas. Load levels modeled in New Hampshire have a noticeable impact. ISO-NE's 2007 Capacity, Energy, Loads and Transmission ("CELT") forecast predicts that these loads will increase at a rate of 2.5 to 3% per year over the next five years.

VELCO studies further indicate that the impact of load growth outside of Vermont on the Vermont "need" level for this Project is non-linear. In other words, as New England peak load increases, Vermont peak load must actually decrease, to maintain system reliability. While VELCO's planning analyses indicate a 2010 modeled 1155 MW critical load level for the Southern Loop Project, when VELCO modeled the critical load level using 2012 and 2014 regional forecasted loads, the critical load level (load level at which the contingencies result in unacceptable voltage or thermal performance) dropped by 20 MW in 2012 (to a 1135 MW critical load level), and even more significantly in 2014 (to a 1095 MW critical load level).

C. New Federal Reliability Standards Mandate that the Regional Deficiencies be Solved

VELCO, as an owner and operator of Vermont Bulk Power transmission facilities, has an obligation under Section 215 of the Federal Power Act[2] and newly enacted national Reliability Standards,[3] to plan and implement system upgrades that are robust enough to be able to withstand a range of contingencies while reliably serving customer demand and preventing identified outages; these upgrades must also be flexible enough to accommodate a broad range of system conditions over a planning horizon that takes into account lead times to place facilities in service.[4] Section 215 and the new federal Reliability Standards were enacted in the wake of the 2003 Northeast Blackout. The new Mandatory Standards became effective in June, 2007. Under the enforcement provisions of the Standards, effective June 4, 2007, VELCO may face enforcement actions including penalties of up to $1,000,000 per day if VELCO fails to plan and operate its system in accordance with these new Reliability Standards.

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2 16 U.S.C § 824o.

3 Mandatory Reliability Standards for the Bulk-Power System, FERC Order No. 693, 72 Fed. Reg. 16,416 (April 4, 2007), order on reh'g, Order No. 693-A, 120 FERC ¶ 61, 053 (2007)

4 Id. at ¶ 1683

D. Local Reliability Problems on the CVPS System in Southern Vermont

In addition to the regional reliability problems just described, electrical facilities in southern Vermont owned by CVPS have limited ability to support increased electrical demand and are unable to withstand failures of, or to have preventive maintenance conducted on, key components at present demand levels. CVPS's sub-transmission load in southern Vermont is served by a 66-mile, 46 kV sub-transmission line that runs from CVPS's Vernon Road substation in Brattleboro, Vermont, to CVPS's Woodford Road substation located in Bennington, Vermont. The CVPS system reliability problem stretches from southwestern to southeastern Vermont, covering the areas from Brattleboro-Stratton and Stratton-Bennington and potentially impacts 40,000 customers. During sixty percent (60%) of the hours in the year the loss of certain individual line segments or other equipment could result in a power outage to some or all of the customers in this load area of southern Vermont.

Since 1983, the local reliability problems created by load growth have been mitigated by CVPS through energy conservation, load control, interruptible/supplemental service ski area controls, and small system upgrades (e.g., capacitor additions at existing substations). Although CVPS has been successful over the past several decades in slowing load growth to defer transmission upgrades, the system has experienced a growing load factor, has now exceeded its capacity, and can no longer provide adequate and reliable service to customers in southern Vermont.

III. The Project Addresses the Reliability Deficiencies and Will Bring Vermont into Compliance with Mandatory Federal Reliability Standards

The Southern Loop Project will fix the system deficiencies described above and will bring VELCO into compliance with the new federal Reliability Standards, as well as similar regional Reliability Standards that apply to the system. The Southern Loop Project includes a new "Coolidge Connector", consisting of a second 345 kV transmission line from Vernon to Cavendish, Vermont, adjacent to VELCO's existing 345 kV Vernon to Cavendish transmission line, together with substation upgrades at VELCO's Coolidge substation located in Cavendish, and a new Vernon substation to be located just north of the existing Vermont Yankee 345 kV substation yard in Vernon. With the completion of a second Cavendish to Vernon 345 kV line, loss of one 345 kV line in the corridor still leaves the other to perform the necessary network function for this energy transfer tie. Second, the Project will result in a new substation in Vernon, just north of the Vermont Yankee substation, which will address the breaker failure contingencies by removing key elements of the local power system from adjacent breaker positions within the new Vernon substation. Finally, a second 345/115 kV autotransformer will be installed in this new substation, removing the local load reliability susceptibility for loss of the sole Vermont Yankee 345/115 kV autotransformer.

The Project addresses the local CVPS reliability problem in southern Vermont by including a new injection point (Vernon to Newfane portion of the Coolidge Connector 345 kV line, new Newfane 345/115/46 kV substation and one-mile 345 kV loop line between the Newfane substation and the new Vernon to Coolidge 345 kV line).

IV. Discussion of Alternatives Evaluated

Petitioners have evaluated potential transmission and non-transmission alternative ("NTA") solutions to the Project. VELCO retained La Capra Associates, Inc. ("La Capra") to perform economic and financial comparisons of non-transmission alternatives to the Project. CVPS studied non-transmission alternatives for its local reliability concern in southern Vermont using distributed utility planning techniques. CVPS's analysis, described in joint testimony submitted by CVPS (see testimony of Ms. Jones and Mr. Kirby) proposes the construction of the Stratton synchronous condensers and associated substation equipment as well as the deployment of incremental energy efficiency and generation on customer sites to reduce local peak demand to defer a 49 mile, 115 kV transmission line upgrade between Newfane and Bennington via Stratton.

La Capra examined the economic and financial performance of a broad set of potential alternatives to the Coolidge Connector component of the Southern Loop Project, including energy efficiency ("EE"), demand response ("DR"), new generation resources, and various combinations thereof. La Capra developed four alternative resource configurations ("ARCs") to the Project. [5]

- ARC 1: Achievable EE and DR, plus three new 25MW combustion turbine units
- ARC 2: Eight new 25MW combustion turbine units
- ARC 3: Achievable EE plus three new 25MW combustion turbine (CT) units (installed earlier than assumed in ARC 1)
- ARC 4: Achievable EE and DR, plus three new 25MW wood-fired biomass units

ARC 1 and ARC 4 are identical except for the type of new generation installed.

La Capra evaluated the cost-effectiveness of the ARCs against each other and as compared to the Coolidge Connector component of the Southern Loop Project. For economic comparisons, La Capra evaluated societal costs, system costs, capital costs, impact of regional cost support through Pool Transmission Facilities ("PTF") rate treatment[6], and relative rate impacts.

From the perspective of the Vermont Societal Test, ARC 1 has the lowest net present value ("NPV") societal costs, followed very closely by ARC 3 and then the Southern Loop Project. Associated with each ARC's economic outcomes are different capital requirements and rate impacts. The Southern Loop Project has the lowest capital costs to Vermont (approximately $13 million assuming PTF rate treatment as compared to ARC 4 at $735 million, ARC 1 at $517 million). The Project also yields the lowest average retail rates. By contrast, ARC 4 produces the highest rates.

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[5] Because the components of the ARCs are individual assets with specific sizes, the ARCs will represent differing amounts of system relief and capacity provided.

[6] About 94% of the Southern Loop Project costs qualify as PTF. However, PTF funding is not available for any portion of the Project unless the entire Vernon to Cavendish line is built.

Every component of every alternative solution, including transmission and non-transmission options, carries some uncertainty and risk that it might not be feasible to implement fully or it might perform differently than expected. La Capra advised that prudent utility planning requires that such risks be assessed and factored into any conclusions that might be drawn from its analysis and any implementation strategy that might result. According to La Capra, the biggest risk associated with the cost of the transmission alternative stems from potential escalation and capital interests cost that are associated with a prolonged permitting process. Permitting risks are somewhat high, as abutters to such projects often oppose them. In this situation, VELCO proposes to utilize an existing right-of-way with an expansion in cleared width. Once constructed, transmission upgrades pose very little operating risk, as they have no moving parts and are highly reliable, but are subject to outages primarily due to trees and storm events that can be managed with proper right-of-way maintenance.

On the other hand, La Capra concluded that there are significant risks inherent in the assumptions included in its study regarding Demand Response. In other jurisdictions, the potential has been established by a market test using, for example, Requests for Proposals for demand response resources. Until such a validation is done in the target geographic areas, considerable uncertainty will exist in the estimates of Demand Response. La Capra also concluded that permitting new generating units, even peaking-only units, is difficult and uncertain.

The Achievable EE scenario calls for utility expenditure of $594 million over the next ten years. *Status quo* spending by Efficiency Vermont ("EVt") (before any NTAs) was assumed to be $302 million over ten years (average $30 million per year) in the La Capra analysis. EVt budgets approved for 2007 and 2008 are $24 million and $31 million respectively. The Achievable EE scenario in Central and Northwest Vermont load zones requires increasing this amount to $56 million in 2009 and gradually increasing to $67 million by 2016, representing a ten-year commitment to spend approximately $594 million. This requires a substantial, long-term increase in state-wide EE budgets. La Capra's report concludes that the approval of such an aggressive budget is uncertain over the extended period of time needed for full implementation and realization of the requisite EE. In addition, as Optimal Energy noted in its analysis (discussed in Mr. Klienman's testimony) of potential EE resources for this Project: "An important source of uncertainty, however, is the fact that no utility has ever sustained such large distributed resource commitments for so long in so many markets simultaneously and actually achieved the relative magnitudes of peak demand savings projected over the next decade as indicated in this report." *See* Exhibit Petitioners JK-3, at 10 (attached).

V. The Strategy Being Pursued

La Capra recommended a two-pronged, parallel path approach to mitigating the risk of implementing solutions to the identified regional reliability problem. One parallel path is to pursue permitting and construction activities for the Coolidge Connector component of the Southern Loop Project via the §248 process. The other parallel path is to pursue additional EE measures and also pursue the development of additional generation resources (gas combustion turbines or biomass generation). In this scenario, La Capra determined that proceeding with the permitting of new generation alternatives would serve as a backstop measure and an insurance

policy if the line cannot be permitted or constructed. During these parallel processes, La Capra recommended that the permitting activities of the Coolidge Connector would be monitored, as would progress made on new generation options and EE performance. Peak loads would also be monitored to ensure that the need levels do not increase faster or slower than expected.

The Petitioners have considered the La Capra findings and recommendations, and conclude that they must pursue the permitting and construction of this transmission Project due to the reliability exposure and proven need for a robust, reliable solution that is well defined and has an established implementation plan. Based on the best information available at the time of filing, the Petitioners no longer believe that NTAs are viable as a deferral mechanism or reliability solution for the regional reliability problem. Further, La Capra and Optimal Energy warn that the risks associated with achieving the savings needed for system reliability through an NTA are more than uncertain, because no utility has ever sustained such large distributed resource commitments for so long in so many markets simultaneously and actually achieved the relative magnitudes of peak demand savings projected over this period of time. VELCO's planning evaluation identified the optimal location for generation components of the NTAs. As of the time of this filing, no firm commitments exist to site generation at any of the locations identified.

CVPS, as previously committed, will implement NTAs in Southern Vermont to defer an approximately 49 mile 115kV upgrade along CVPS' existing 46kV "Southern Loop." The implementation of NTAs in Southern Vermont is consistent with recommendations received during the public involvement process. Combining CVPS' implementation of NTAs in Southern Vermont with VELCO's pursuit of the Coolidge Connector is consistent the recommendation of the Southern Loop Community Working Group.

In the 45 Day Letter of Notice dated June 1, 2007, VELCO and CVPS stated that "VELCO and CVPS will monitor Vermont's electric load levels relative to the new 1190 MW critical need threshold and would move forward with the process leading to construction of the new transmission components should load growth require it." The letter also noted that a decision would need to be made by fall of 2008 regarding whether to proceed with the line. The assumed peak seasons to be monitored prior to the fall 2008 decision point were the summers of 2007 and 2008. As a result of extending the Project filing timeline, VELCO has been able to monitor the summer 2007 peak loads and has gained critical information about regional network loads (as discussed above regarding changes in the New York model and the impact of regional load growth) and their impacts upon Vermont system performance. This information revealed that the critical need threshold is not 1190 MW, but is 1155 MW. In addition, the summer of 2007 monitoring efforts observed 1090 MW of load during a modestly warm summer on a Friday. Weather-normalizing this monitored load level against available information suggests a Vermont 90/10 peak load for 2007 of approximately 1165 MW expected during any non-Friday weekday. Thus, monitoring of the 2007 peak loads not only indicates the need for the line remains, but also that it can no longer be deferred. The details regarding the analysis which resulted in a change to the critical need level are provided in the joint testimony of Mr. Diebold and Mr. LaForest.

The Petitioners have engaged in good faith efforts during this transition period under Act 61 and the recently adopted Docket No. 7081 MOU. The Vermont System Planning Committee ("VSPC") has already commenced meetings under the new Docket 7081 planning regime. The

Petitioners anticipate that continued efforts to evaluate and implement NTA resources as may be necessary to maintain system reliability would be undertaken through the VSPC. VELCO and CVPS will provide access to information resulting from the Southern Loop and Coolidge Connector NTAs studies to assist the VSPC's evaluation.

VELCO proposes to begin Project construction as soon as possible after receiving the required permits and approvals. In order to construct and commission the proposed transmission upgrades in time to meet the reliability need defined in the direct testimony of Mr. LaForest and Mr. Diebold. The estimated construction schedule is from the 2nd quarter of 2009 into the 1st quarter of 2011. This assumes receipt of a Certificate of Public Good in December of 2008. A failure to achieve this schedule will likely have adverse impacts on reliability and overall Project cost.

Sincerely,

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