STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. ____

Petition of Vermont Transco LLC, and Vermont Electric Power Company, Inc. (collectively, "VELCO"), for a Certificate of Public Good pursuant to 30 V.S.A. § 248 authorizing upgrades to VELCO's existing St. Johnsbury Substation, located in St. Johnsbury, Vermont

PREFILED TESTIMONY OF EDWARD J. MCGANN
ON BEHALF OF VERMONT ELECTRIC POWER COMPANY, INC.

This testimony and associated exhibits have been filed ePUC

October 30, 2023

Ed McGann's testimony describes the proposed St. Johnsbury Project's engineering and design details related to upgrading VELCO's existing substation located at 397 Higgins Hill Road, St. Johnsbury, Vermont. Mr. McGann also addresses 30 V.S.A. § 248(b)(2) (need) and (b)(5) (public health and safety) regarding the substation work.

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PREFILED TESTIMONY OF EDWARD J. MCGANN
ON BEHALF OF VERMONT ELECTRIC POWER COMPANY, INC.

Introduction

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

A1. My name is Ed McGann. I am the Director of Engineering and System Protection for Vermont Electric Power Company, Inc. and Vermont Transco LLC (collectively referred to as "VELCO" or the "Petitioners") and I am responsible for the overall technical design of VELCO's transmission facilities. I have served in an engineering capacity since joining VELCO in 2004. My business address is 366 Pinnacle Ridge Road, St. Johnsbury, Vermont 05701.

Q2. Please describe your educational background and work experience.

A2. I received my Bachelor of Science degree in Electromechanical Engineering Technology from Vermont Technical College in 1999. Specific information regarding my work experience is detailed in my resume, attached as Exhibit Petitioner EJM-1.

Q3. Have you previously provided testimony before the Vermont Public Utility Commission (Commission)?

A3. Yes, I have provided testimony in multiple Commission proceedings, including Docket No. 8604 (PV20 Cable Replacement Project), Docket No. 8605

(Connecticut River Valley Project), Case No. 17-3808, (St. Albans Project), and Case No. 20-0444 (Sandbar Project).

Q4. Do you hold any professional licenses or certifications?

A4. Yes, I am a registered Professional Engineer in the state of Vermont.

2. Testimony Overview

Q5. What is the purpose of your testimony?

A5. My testimony addresses VELCO's proposed St. Johnsbury Project's engineering and design details related to upgrading VELCO's existing substation located at 397 Higgins Hill Road, St. Johnsbury, Vermont that are not otherwise addressed in John Fiske's prefiled testimony. I also address 30 V.S.A. § 248(b)(2) (need) and (5) (public health and safety) regarding the substation work.

Q6. Have you prepared exhibits relating to the proposed substation work?

A6. Yes. Exhibits related to the substation include Exhibit Petitioner EJM-2, which contains a One-Line Diagram of the St. Johnsbury substation. Exhibit Petitioner EJM-3 contains an aerial photograph of the substation. Exhibit Petitioner EJM-4 contains the general arrangement plan and elevation drawings for the substation. Exhibit Petitioner-EJM-5 contains the overall site plan and grading details for the substation.

Q7. Please describe the St. Johnsbury substation lighting plans.

A7. The existing substation lighting plan includes perimeter fence mounted lights. With replacement of the perimeter fence, the existing fence lights will be removed. For replacement lighting, VELCO will mount yard lights on the building and on the steel structures. The new lights will consist of high efficiency Light Emitting Diode down-lights. The building mounted lights are controlled by a photocell and therefore will be on continuously at night and off during the day. Lights mounted to the steel structures will be manually switched remotely by SCADA and VELCO security or locally by on-site personnel during emergency repair and security response events.

Q8. What design standards did VELCO use to design the proposed St. Johnsbury substation upgrades?

A8. VELCO followed its Substation Design Standards for the design of St. Johnsbury substation upgrades. VELCO's Substation Design Standards are based on industry standards, including the National Electrical Safety Code (NESC), Institute of Electrical and Electronic Engineers (IEEE), American National Standards Institute (ANSI) and National Electrical Manufacturer's Association (NEMA).

Q9. Does VELCO plan on making any changes to the existing St. Johnsbury substation access driveway? If yes, please describe.

A9. Yes. The existing access road to the substation is 10-12 feet wide and has some minor rutting and vegetation. VELCO's standard width for substation access roads

is 20 feet to facilitate access for large moving equipment should a transformer replacement be needed in a planned or emergency scenario. VELCO proposes to widen the primary entrance drive path to the substation to 20 feet and will make provisions for a vehicular turnround outside of the primary gate entrance. Exhibit Petitioner EJM-5 (Site Grading Plan).

Q10. Will VELCO need to perform any grading for the substation upgrades?

A10. Yes, VELCO will adjust the grading on the perimeter fence sections planned for expansion on the north, east, and south side of the property. Please see Exhibit Petitioner EJM-5 for details on the proposed grading plan.

Q11. In your opinion, have the Project elements included in the VELCO St. Johnsbury substation proposals, as described in the exhibits you have sponsored, reached a design level of detail?

A11. Yes. The plans and elevations that VELCO has included as exhibits to this testimony reflect the locations and heights of the equipment proposed for construction of the St. Johnsbury substation.

3. <u>Need for Present and Future Demand for Service [30 V.S.A. § 248(b)(2)]</u>

Q12. Are you aware that the Commission sent a memo to VELCO in August 2023 with some questions about how VELCO analyzes asset condition projects in its Long Range Transmission Plan?

A12. Yes. I have reviewed that memo. Although it is directed only at VELCO's Long Range Transmission Plan, we thought it prudent to provide some additional testimony in our current petitions for asset condition projects, such as this Project. The following three questions and answers provide that testimony here.

Q13. What analysis did VELCO perform to determine what specific work was necessary and timely as part of the Project?

A13. A cross-functional team performs VELCO's substation condition assessments and includes personnel from the following departments: System Planning, System Operations, Engineering, Asset Maintenance, Telecommunications, and Environmental. These assessments include a review of projected load growth, substation equipment design margins, operational and maintenance history, physical condition, technology obsolescence, and present design standard needs to determine if each asset has at least 20 years of remaining useful life. The assessment also evaluates the existing bus topology in terms of operational and maintenance flexibility, station expandability in anticipation of future needs, and modes of failure to determine if a revised bus arrangement is warranted.

Q14. Did VELCO look at whether the Project is appropriately sized and whether the Project is the best option for handling future additional load that may arise (e.g., from decarbonization efforts to electrify transportation, heating, and cooling)?

A14. Yes. VELCO's System Planning department studies a variety of scenarios to ensure system reliability as part of a 20-year transmission plan. These

simulations include all lines in service and scenarios where one or more network elements are out of service. These simulations also include scenarios where summer and winter loads increase due in part to electrification from decarbonization efforts. VELCO monitors all VELCO transmission and Vermont subtransmission equipment for thermal and voltage violations in each case. The solutions that VELCO considers as part of the analysis include equipment replacement, relay setting adjustments, and System Operations management in real time to avoid or reduce the impact of the event that would cause the violation. Here, a review of the 2021 20-year transmission plan indicates that there are no capacity concerns with respect to serving local load based on information available at this time.

Q15. What evaluations, if any, of extreme weather trends that may affect the substation did VELCO perform in considering the Project's scope and design?

A15. The substation components are assessed as outlined above in answer 13. VELCO designs substation components that are recommended for replacement per the latest industry standards which include environmental factors, such as wind speed, ice accretion, and snow loads, for example. In terms of site conditions, VELCO evaluates the substation location relative to the most current floodplain data. VELCO restores and improves site drainage system conditions where necessary with these extreme weather events in mind as part of the design process.

4. Public Health and Safety [30 V.S.A. § 248(b)(5)]

Q16. Will the substation upgrades have any adverse effects on the health, safety, or welfare of the public or adjoining landowners?

A16. No. The substation is an existing facility and not accessible to the general public. VELCO has designed and will construct the Project in accordance with industry safety standards, including the National Electric Safety Code requirements. VELCO will adhere to prudent utility construction practices throughout the construction phase and the Project will not endanger the public or adjoining landowners. The substation will be fenced in at all times during and after construction to protect against unauthorized access. VELCO will operate and maintain the upgraded substation in the same, safe manner that the company operates and maintains all its facilities.

Q17. Does this conclude your testimony at this time?

A17. Yes, it does.

DECLARATION OF ED MCGANN

I, Ed McGann, over 18 years of age, and competent to testify on these matters, declare that on behalf of Vermont Electric Power Company, Inc., I prepared my direct prefiled testimony and exhibits in the above captioned matter and I have the necessary expertise to testify to the same information. I declare that my testimony and exhibits are true and accurate to the best of my knowledge and belief. I understand that if such information is false, I may be subject to sanctions by the Commission pursuant to 30 V.S.A. § 30.

Dated at Rutland , Vermont, this 26th day of October, 2023

Ed McGann
Affiant