STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 26-___-PET

Petition of Green Mountain Power for a Certificate of Public Good, pursuant to 30 V.S.A. § 248, authorizing the relocation and rebuild of the Taftsville Substation and related facilities in the Towns of Woodstock, Hartford, and Hartland, Vermont	

DIRECT TESTIMONY OF WITNESS JOHN R. FISKE ON BEHALF OF GREEN MOUNTAIN POWER

August 18, 2026

Mr. Fiske describes the equipment arrangement proposed for the relocation and rebuild of the Taftsville Substation, reconfiguration of the existing 46 kV transmission lines 105, 107, & 108, and the proposed modification of the existing distribution circuit in the Towns of Woodstock, Hartford, and Hartland, Vermont, He also provides the project construction schedule.

DIRECT TESTIMONY OF JOHN R. FISKE

1. Q. Please state your name, occupation, and business address.

A. My name is John Fiske, and I have been retained by Green Mountain Power (GMP) for Project Manager Services. I am an employee of JRF Engineering, PC located in Rutland, Vermont 05701.

2. Q. Please describe your background and experience.

A. I earned a Bachelor of Science Degree in Electrical Engineering from the University of Vermont and am a Licensed Professional Engineer in the State of Vermont. Prior to my current employment, I held the position of Director of Engineering at Green Mountain Power, Manager of Substation Design/Relay Protection, System Protection Engineer, and Division Engineer at Central Vermont Public Service Corporation (CVPS). I also worked as a Manager of Engineering and System Protection Engineer at Vermont Electric Power Company in Rutland, Vermont.

3. Q. Have you previously testified before the Vermont Public Utility Commission (the "Commission")?

A. Yes, I have provided testimony in numerous matters. Most recently, I have testified in the following case: Docket Nos. 7857 (GMP Randolph 15 Substation), 7887 (GMP Vernon Road Substation Breaker Addition), 8029 (GMP St. Johnsbury Substation 16 Upgrade), 8030 (GMP Woodstock Substation Upgrade), 8205 (GMP Georgia Interconnection Project),

8308 (GMP Waterbury/Duxbury Substation), 2017 GMP rate case (Case No. 17-3112-INV), GMP Airport Substation (Case No. 18-2910-PET), GMP B20, B22 and Lowell Substation upgrade Project (Case No. 19-4464-PET), GMP East St. Albans installation of two SCADA-controlled capacitor banks and other substation upgrades (Case No. 20-0295-PET), GMP North Brattleboro Substation rebuild (Case No. 20-0776-PET), GMP Castleton Substation upgrade (Case No. 20-3966-PET), GMP Putney Substation upgrade (Case No. 21-1559-PET), GMP Pleasant Street Substation upgrade (Case No. 21-4149-PET), GMP Richmond Substation upgrade (Case No. 21-5164-PET), GMP Rebuild 46kV Transmission Line Taftsville substation to the Windsor substation (Case No. 22-3085-PET), GMP Hydeville Substation Upgrade (Case 22-4230-PET), VELCO St. Johnsbury Substation Upgrade (Case No. 23-3761-PET), GMP Upgrades and resupply of the 46kV Transmission Line 60 in the Towns of Salisbury, Middlebury, New Haven, and Weybridge, Vermont (Case No. 24-0636-PET), GMP relocation and rebuild of the Fair Haven Substation (Case No. 25-0593-PET), VELCO Sandbar Advanced Power Flow Controller (Case No. 25-1259-PET), GMP Rebuild of the Irasville #39 Substation (Case No. 25-2468-PET), and GMP Rebuild of the Georgia Substation (Case No. 26-0651-PET).

4. Q. What is the purpose of your testimony?

A. I describe the relocation and rebuild of the proposed Taftsville Substation, the retirement of the existing Taftsville Substation, reconfiguration of the existing 46 kV transmission lines 105, 107, & 108, and the proposed modification of the existing distribution circuit, as well as the construction schedule.

5. Q. Please describe the existing GMP Taftsville Substation.

A. The existing GMP Taftsville Substation Operating Diagram is **Exhibit GMP JRF-1**. The Taftsville Substation equipment is enclosed by three individually fenced-in yards connected with overhead strain bus, located adjacent to a hydroelectric generation facility licensed by the Federal Energy Regulatory Commission ("FERC"), and most of the existing substation facilities are within the FERC project boundary. See Exhibit GMP KAH-1 (FERC Project Boundary Maps). The removal and modifications of the existing GMP Taftsville Substation yards #1 & #2 and associated 46kV overhead strain bus are within the FERC boundary, thus subject to FERC jurisdiction, and therefore, will not be part of the Vermont Public Utility Commission's review under Section 248. See **Exhibit GMP JRF-10** (Existing Substation Site Plan). The existing yard #3 and a portion of the 46kV overhead strain bus between yard #2 and yard #3 are outside of the FERC boundary and will be part of the Vermont Public Utility Commission's review under Section 248. For context and to provide the Vermont Public Utility Commission with a general description of this complete substation removal and relocation project, a brief description of all existing substation facilities is provided below.

The existing GMP Taftsville Substation yard #1 consists of a fenced-in yard (approximately 30' x 50' in size); one (1) 46 kV steel structure; one (1) Gang Operated Air Break (GOAB) disconnect (625); three (3) bus voltage instrument transformers (VT1) with associated single blade disconnects (222); two (2) 46 kV line breakers (B-23 & B-25); four (4) sets of three 46 kV gang operated single blade line breaker disconnect switches (239, 238, 259, 258); two (2) line voltage instrument transformers (VT23 & VT25), and six (6) 46 kV intermediate class lightning arresters.

The existing GMP Taftsville Substation yard #2 consists of a fenced-in yard (approximately 25' x 60' in size), one (1) 46 kV steel structure; one (1) GOAB disconnect switch (624); three (3) 46 kV power fuses for transformer protection (PF-T1); three (3) 1950 vintage 500 kVA 46/4.16 kV Generator Step Up (GSU) transformers (T1); one (1) 1968 vintage 5/7 MVA 46/12.47 kV Power Distribution Transformer (T2); one (1) 12.47 kV steel structure. The electrical connections to the T2 transformer were removed following the transformer failure and are not shown on the exhibit. The existing Taftsville Substation yard #2 facilitates the connection of the Taftsville 624 kVA generator to the 46 kV transmission system via its generator step up transformer.

The existing GMP Taftsville Substation yard #3 consists of a fenced-in yard (approximately 30'x 43' in size) one (1) 46 kV steel structure; one (1) 46 kV line breaker (B-24); two (2) sets of three 46 kV single blade line breaker disconnect switches (249, 248); one (1) GOAB switch (245); one (1) line voltage instrument transformer (VT24), and three (3) 46 kV intermediate class lightning arresters.

6. Q. Please describe the equipment arrangement proposed for the relocated and rebuilt Taftsville Substation.

A. The proposed rebuilt Taftsville Substation Operating Diagram, and Site Plan are provided as **Exhibit GMP JRF-2,** and **Exhibit GMP JRF-3,** respectively. The proposed Taftsville Substation Plan View, North Elevation AA, East Elevation BB, West Elevation CC, & South Elevation DD are attached as **Exhibit GMP JRF-4, Exhibit GMP JRF-5, Exhibit GMP JRF-6, Exhibit GMP JRF-7, and Exhibit GMP JRF-8,** respectively. The proposed oil

containment appears as **Exhibit GMP JRF-9**.

The relocated and rebuilt Taftsville Substation is proposed to be located near the intersection of US Route 4 and VT Route 12 in Hartland, Vermont, where the GMP temporary Taftsville substation currently exists. The plans for the proposed Taftsville Substation construction will consist of:

(1) Installation of a new fence with foundations to create a polygon shaped fenced in yard (approximately 150' x 185' in area, 9' high). Please see Exhibit GMP JRF-4 for the details of the fence layout. The new fence will meet National Electrical Safety Code (NESC) requirements and facilitate access to construction and maintenance vehicles. Substation yard lighting and security cameras will be installed on steel poles inside the substation fence to accommodate maintenance, emergency, and surveillance activities. The steel poles will be approximately 18 feet in height. Additional yard lighting will be installed on the fence. The yard lighting will be operated from a switch located within an enclosure mounted to the substation steel tower leg.

(2) Installation of new equipment foundations, ground grid, and below grade trench and conduit systems.

(3) Installation of four (4) new 46 kV line vacuum circuit breakers (VCB) (B-1, B-2, B-3 & B-4), two (2) 46kV steel dead-end structures (each 26 feet wide, 31 feet 6 inches tall, and 1 foot deep) with associated 16 foot lightning rods, 46 kV bus work and insulators, eight (8) sets of three 46

kV gang operated disconnect switches (019, 018, 029, 028, 039, 038, 049, 048), four (4) Motor Operated Load Break (MOLB) switches (108, 107, 105, 340), four (4) sets of three 46 kV phase to ground line potential transformers (VT1, VT2, VT3 & VT4) with associated fusing (PF-VT1, PF-VT2, PF-VT3 & PF-VT4), and three (3) sets of three 46 kV intermediate class lightning arresters.

(4) Installation of one (1) 10/14 MVA 46/12.5 kV power transformer (T1), three (3) 46 kV station class lightning arresters, three (3) 12.5 kV station class lightning arresters and one (1) pedestal mounted Gang Operated Load Break (GOLB) switch (928). New oil containment will be constructed with a perimeter berm including filter drains to allow rainwater to escape. Please see Exhibit GMP JRF-9 for the details of the proposed oil containment.

(5) Installation of two (2) new 12.47 kV VCBs (12 & 13), two (2) bays of steel structures (each 18 feet wide, 26 feet 2 inches tall, and 5 feet deep) with associated 16 foot lightning rods, 12.47 kV bus work and insulators, four (4) sets of three 12.47 kV single blade line disconnect switches (129, 128, 139, 138), three (3) 12.47 kV phase to ground bus potential transformers (VT5) with associated fusing (PF-VT5), two (2) 12.47 kV phase to ground line potential transformers (VT12 & VT13) with associated fusing (PF-VT12 & PF-VT13), six (6) 12.47 kV intermediate class lightning arresters, and a station service transformer (SS1) with

associated fusing (PF-SS1).

(6) Installation of six (6) new 438 Amp voltage regulators with associated regulator controls.

(7) Installation of a new control building (approximately 18 feet wide, 30 feet long, 15 feet tall with a peaked roof). The control building will house the protection and control switchgear, the communications equipment, the DC battery system, the AC and DC distribution panels, the Supervisory Control and Data Acquisition (SCADA) equipment, and other various control equipment. The substation will utilize fiber optic cable for SCADA communications between the GMP Control Center and the Remote Terminal Unit (RTU) in the substation, voice-grade communications, and engineering access for retrieval of fault records from the microprocessor relays. The fault records are utilized to estimate fault locations and analyze power system events for restoration efforts. The SCADA system will provide control and monitoring of the four (4) new 46 kV line VCBs (B-1, B-2, B-3 & B-4), the four (4) MOLB switches (108, 107, 105, 340), the two (2) 12.47 kV VCBs (12 & 13), and the regulator controls for the two 12.47 kV distribution circuits. A GPS receiver antenna and a "Gatekeeper" antenna (each approximately 12" in height) will be mounted on the side of the control building. The GPS antenna will provide accurate time stamp for the SCADA system and microprocessor relay event records. The "Gatekeeper" antenna is to

collect data from Smart Meters.

(8) Installation of a new security system. The security system will be housed in the new control building.

The proposed Taftsville Substation improves equipment layout and clearances for operational activities and improves system reliability and stability. GMP Witness Kamran Hassan testifies further as to Project need and history.

7. Q. Will an oil containment system be added to the proposed Taftsville Substation?

A. Yes, the proposed oil containment system has a volume of no less than 110% of the proposed power transformer's oil capacity plus 5 inches of freeboard rain. Please see Exhibit GMP JRF-9 for the details of the oil containment design.

8. Q. Please describe the existing transmission line connections to the existing Taftsville Substation.

A. The existing Taftsville Substation is connected to a 46kV networked system via three transmission lines, Transmission Line 105 (TL105), Transmission Line 107 (TL107), and Transmission Line 108 (TL108).

TL105 is an express 10.55 mile long 46 kV networked line between Taftsville and Windsor. There are no tapped loads off from TL105.

TL107 is a 16.91 mile-long 46 kV networked line between Taftsville and Bethel. The line serves the Woodstock distribution substation with a 2.23 mile-long radial tap off from TL107 P4

and the East Barnard Substation with a 0.02 mile-long radial tap off from TL107 P160. There are no automatic sectionalized devices on the TL107 between Taftsville and Bethel substations. There are SCADA controlled MOLBs at the East Barnard Tap providing remote sectionalizing capability for a transmission line fault on either side of the East Barnard Substation tap. There is one (1) SCADA controlled MOLB switch at the Woodstock Substation Tap providing remote sectionalizing capability only for a transmission line fault on the Bethel side of the Woodstock Substation tap and one (1) manually operated GOLB switch at the Woodstock Substation Tap providing manual sectionalizing capability for a transmission line fault on the Taftsville side of the Woodstock Substation tap.

TL108 is a 10.03 mile-long 46 kV networked line between Taftsville and Hartford. The line serves the Quechee distribution substation with a 0.01-mile-long radial tap off from TL108 P61 and the White River Substation with a 2.45 mile-long radial tap off from TL108 P101. There are no automatic sectionalized devices on the TL108 between the Taftsville and Hartford substations. There are SCADA controlled MOLB switches at the White River Tap providing remote sectionalizing capability for a transmission line fault on either side of the White River Substation tap and for the tap to the White River Substation. There is one SCADA controlled MOLB switch at the Quechee Substation Tap providing remote sectionalizing capability only for a transmission line fault on the Hartford side of the Quechee Substation tap. There is a GOAB switch at the tap to sectionalize the 46 kV line between Taftsville Substation and Quechee tap as well as a GOAB switch at the tap to sectionalize the tap to the Quechee Substation.

9. Q. Please describe the Transmission Line modifications associated with the relocated and rebuilt Taftsville Substation.

A. The relocated and rebuilt Taftsville Substation is proposed to be located along the existing TL105 corridor approximately 0.5 line-miles towards the Windsor Substation. The proposed Taftsville Substation maintains its 46kV networked system with modifications of three transmission lines (TL105, TL107 and TL108) that currently supply the existing Taftsville Substation.

TL105 modifications are required at the existing Taftsville Substation yard #1, along the existing TL105 P182 to P193, and at the relocated and rebuilt Taftsville Substation. The TL105 modifications at the existing Taftsville Substation yard #1 are required to accommodate the removal of infrastructure in Taftsville Substation yard #1 and to facilitate connecting the Bethel source into the proposed Taftsville Substation. These modifications involve the installation of approximately 135' of three phase overhead transmission line from TL105 P193 to TL107 P1 in order to connect TL105 to TL107. This connection allows the Bethel 46 kV source connection to the proposed Taftsville Substation tap along existing TL105 P193 to P182. Completion of the Bethel 46kV source into the proposed Taftsville Substation requires the installation of three (3) sections of 46kV line from the new TL105 PX182 to the proposed Taftsville Substation steel structure. The construction of the three (3) sections of 46kV line consists of:

1. Installation of a 55' midspan pole PX182 approximately 168' from the existing TL105 P183X.

2. Installation of one (1) 55’ pole at new P182, one (1) 50’ pole at new P182X and approximately 382’ of three phase overhead transmission line from TL105 PX182 to the proposed Taftsville Substation steel structure.
3. Retirement of approximately 50’ of three phase overhead transmission line from new TL105 PX182 to new TL105 P181X.

Modifications of TL105 to connect the Windsor 46kV source into the proposed Taftsville Substation require the installation of three (3) sections of 46kV line from the TL105 P181X to the proposed Taftsville Substation steel structure. The construction of the three (3) sections of 46kV line consist of:

1. Installation of one (1) 55’ pole at new P181X, one (1) 55’ pole at new P181, one (1) 50’ pole at new PX181 and approximately 412’ of three phase overhead transmission line from TL105 P181X to the proposed Taftsville Substation steel structure.

TL107 is being modified with replacement of P1, P2, and the installation of one (1) SCADA controlled motor operator on the existing 251 GOLB at the Woodstock tap. The existing H-Frame 45’1983 vintage pole at P1 and 50’ 1983 vintage P1A are being replaced with one (1) new 55’ and one (1) new (60’) to improve clearance between the phase conductors and the fiber optic cable. The existing 55’ 1966 vintage P2 is being replaced with a new 55’ for improved clearance and safety while working on P1. The 251 GOLB switch is being retrofitted with a SCADA controlled motor operator to improve sectionalizing capabilities for the radial tap to the Woodstock Substation. New overhead fiber cable and new secondary cable are being

installed from TL107 P5 to TL107 P3 to provide SCADA communications and motor operator power to the 251 switch.

TL108 modifications are required at the existing Taftsville Substation yard #3, along the existing TL108 P2 to P13, and at the relocated and rebuilt Taftsville Substation. The TL108 modifications at the existing Taftsville Substation yard #3 are required to accommodate the removal of infrastructure in Taftsville Substation yard #3. These modifications involve the retirement of two sections of overhead 46kV from the existing Taftsville Substation yard #3 to TL108 P2. TL108 P2 to P9 is a joint transmission line with TL105 P191 to P184. The TL108 conductor and associated hardware is being retired in these sections and TL105 structures are being modified to become a single circuit pole line. Five sections of TL108 46kV overhead transmission line from P10 to P13 will be retired. Connection of the Hartford 46kV source into the proposed Taftsville Substation requires the installation of two (2) sections of 46kV line from the TL108 P12 to the proposed Taftsville Substation steel structure. The construction of these two (2) sections of 46kV line consists of:

1. Installation of approximately 223’ of three phase overhead transmission line from existing TL108 P12 to the proposed Taftsville Substation steel structure.
2. Reconfiguration of existing 60’ 2026 vintage P13 structure type, installation of a new 50’ pole P12, and reconfiguration of existing 65’ 2026 vintage pole P14.

Please see **Exhibit GMP JRF-12A** and **Exhibit GMP JRF-12B** for the details of TL105, TL107, & TL108 modifications.

10. Q. Please describe the fiber optic cable modifications associated with the proposed Taftsville Substation.

A. The existing fiber optic cable on TL108 from P10 to P13 will be removed. The installation of new fiber optic cable consists of:

a. One (1) new overhead fiber optic cable from TL105 P183 to P181X.
b. Two (2) new overhead fiber optic cables from TL105 P181X to PX181. These two overhead fiber optic cables will transition to underground fiber cable as follows:
    i. One (1) new underground fiber optic cable from PX181 to the Taftsville Substation control building.
    ii. One (1) new underground fiber optic cable from TL105 PX181 to TL108 P12-1.
c. New underground fiber optic cable from P12-1 to the proposed Taftsville Substation control building.

11. Q. Please describe the distribution line modifications associated with the retirement of the Taftsville Substation Yard #2.

A. The existing Taftsville Substation yard #2 serves the existing distribution circuit 12 and the Taftsville generation station. The distribution circuit 12 will be served by the relocated and rebuilt Taftsville Substation. The generating station's connection to the 46 kV bus will be retired and the generation will be connected to the distribution line via a new three phase 750 kVA pad-mounted GSU. Two (2) existing distribution poles will be replaced with new 50'

poles, one for the connection of GSU riser (L6 PX2) to the 12.47 kV overhead line and the second for the point of connection recloser (L6 PX1). All retired and new equipment for the connection of the Taftsville generator is within the FERC project boundary. Please see Exhibit GMP JRF-10 for the details of the distribution line design associated with yard #2.

12. Q. Please describe the distribution line modifications associated with the proposed Taftsville Substation.

A. There is one (1) existing 12.47 kV three phase overhead distribution circuit (12) emanating from the existing Taftsville Substation. The distribution substation equipment in the existing Taftsville Substation yard #2 will be retired and the distribution load will be served out of the relocated Taftsville Substation. The proposed relocated Taftsville Substation will be constructed with two 12.47 kV circuits (12 & 13). On the 12 circuit, three new sections of 12.47kV conductors, one (1) 45' pole (L1P1), two (2) 50' poles (L1P2 & L1P3) and associated anchoring will be installed to connect to the existing distribution circuit. On the 13 circuit, three new sections of 12.47kV conductors, one (1) 45' pole (L2P1), two (2) 50' poles (L2P2 & L2P3) and associated anchoring will be installed to connect to the existing distribution circuit. An alternate station service transformer will be installed on L2P1 and the installation of secondary cable from L2P1 to the Taftsville Substation. One (1) set of three in-line single blade disconnects (124) will be installed on the 12 circuit between the substation and L1P1 and one (1) set of three in-line single blade disconnects (134) will be installed on the 13 circuit between the substation and L2P1.

A new (GOLB) switch (1213) will be installed between L1P2 and L2P2 to provide a circuit tie for future maintenance needs.

Please see Exhibits GMP JRF-2 and GMP JRF-3 for the details of the distribution line design.

13. Q. Will a temporary substation be necessary to serve customers during construction?

A. No, the proposed Taftsville Substation can be constructed while the distribution load is being served from the temporary substation installed pursuant to GMP's petition for waiver pursuant to 30 V.S.A § 248(k) for the emergency installation of a temporary substation in Hartland, Vermont to serve as the GMP Taftsville Substation (Case No. 25-1821-PET).

14. Q. Please describe the retirement of the temporary Taftsville Substation.

The fence, oil containment berm and filters, T1 transformer, and regulators associated with the temporary substation will be removed after the construction of the new Taftsville Substation is complete. The two sections of 46kV overhead conductor and associated poles and anchors from TL108 P12 to TL108 P12-2, the one section of 12.47 kV overhead conductor and associated poles and anchors from TP1 to TP2, gravel and ground grid will be retained for future portable installations. Please refer to Exhibit GMP JRF-3 and **Exhibit GMP JRF-11** (Temporary Substation Operating Diagram).

15. Q. Will an outage be necessary for construction of the rebuilt Taftsville Substation?

A. No, the construction of the rebuilt substation will be performed without an outage of the Taftsville Substation.

16. Q. Will lay down areas be utilized during construction?

A. No, lay down areas will not be utilized during construction.

17. Q. Please describe the potential earth disturbance associated with the Project.

A. The total potential for earth disturbance will be less than 1.70-acres (approximately 73,967 square feet), which includes the following:

- Approximately 68,651 square feet for the new substation construction;
- Approximately 3,708 square feet for a gravel access pad to be constructed for transmission pole access;
- Approximately 285 square feet for poles and anchors; and
- Approximately 1,323 square feet for the retirement of the existing substation yard #3.

Excavation depths will range from 2-ft deep in the parking area/access drive to 8-ft deep along the southern portion of the new substation for the structure and control building foundation footers.

18. Q. Will the Project have any adverse effects on the safety of the public or adjoining landowners?

A. The Project will be designed and constructed in accordance with current National Electrical Safety Code requirements. GMP will use quality materials and adhere to careful

construction practices throughout the construction phase. The Project will not unnecessarily or unreasonably endanger the public or adjoining landowners.

19. Q. What is the anticipated construction schedule?

A. Subject to Commission approval, this Project is proposed to commence March 2027 and conclude by September of 2027.

20. Q. What are the anticipated construction hours for the Project?

A. Construction hours for the Project will be from 7:00 a.m. to 7:00 p.m. Monday through Friday, 8:00 a.m. to 5:00 p.m. on Saturday, and shall cease on Sundays and state and federal holidays except where construction activities must be performed during required outages needed to maintain system reliability.

21. Q. Does this conclude your testimony?

A. Yes.

DECLARATION OF JOHN R. FISKE

I declare that the testimony and exhibits that I have sponsored are true and accurate to the best of my knowledge and belief and were prepared by me or under my direct supervision. I understand that if the above statement is false, I may be subject to sanctions by the Commission pursuant to 30 V.S.A. § 30.

08/18/26
Date

/s/ John R. Fiske
John R. Fiske