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 KAMRAN A. HASSAN ON BEHALF OF GREEN MOUNTAIN POWER

August 18, 2026

In this testimony, Witness Hassan provides evidence in support of the issuance of a Certificate of Public Good authorizing the relocation and rebuilding of the Taftsville Substation. Witness Hassan's testimony addresses issues associated with need, system stability and reliability, economic benefit, least-cost planning, consistency with Vermont's electric energy plan, and impacts on existing or planned transmission facilities. Witness Hassan also sponsors GMP's project cost estimate.

DIRECT TESTIMONY OF KAMRAN A. HASSAN

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

A. My name is Kamran A. Hassan, and I am employed by Green Mountain Power ("GMP") as Director of Substation Operations. My business address is 163 Acorn Lane, Colchester, Vermont 05446.

2. Q. What are your current job responsibilities at GMP?

A. In my current role I oversee and direct GMP's Substation Operations Team, which consists of substation electricians (Substation Electrical Maintenance and Construction (EMAC)), and Substation Relay Technicians, as well as the Procurement Team. In my new role, I continue to participate in the engineering and planning of GMP's electrical system, and I am also GMP's primary representative to the Vermont System Planning Committee (VSPC).

3. Q. Please describe your background and experience.

A. I have been employed with GMP since 2017 as an Electrical Engineer. In this role my primary responsibilities were focused on the design, engineering, and planning of substation and transmission line projects. I was promoted to Leader of Engineering in 2022, where my responsibilities expanded to the oversight and direction of the planning and engineering of our T&D system. In 2026, I was promoted to Director of Substation Operations.

Prior to my time with GMP, I was a distribution engineer with Baltimore Gas & Electric in Baltimore, MD. I have also worked as an engineer in the aviation field both on Active Duty with United States Air Force and as a contractor with Northrup Grumman Corporation. I have

received a Bachelor of Science degree in Electrical Engineering from George Mason University in Fairfax, VA and a Master of Science degree in Electrical Engineering from the University of Maryland in College Park, MD.

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

A. Yes. I have provided prefiled testimony in the following cases: Taftsville to Windsor (Line 105) rebuild, Case No. 22-3085-PET; Fair Haven Uprate Declaratory Ruling Petition, Case No. 22-4530-PET; Pownal Center substation 248(k) Petition, Case No. 23-0300-PET; Berlin #40 substation upgrade, Case No. 23-0937-PET; Bolton #41 substation upgrade, Case No. 23-3496-PET; Pownal Center substation 248(j) Petition, Case No. 23-4034-PET; TL60 line upgrade in Salisbury, Middlebury, New Haven, and Weybridge, VT, Case No. 24-0636-PET; GMP's Fair Haven Substation relocation and rebuild, Case No. 25-0593-PET; GMP's Temporary Taftsville Substation 248(k) Petition, Case No. 25-1821-PET; GMP's Irasville Substation upgrade, Case No. 25-2468-PET; GMP's VTrans Lowell Bridge Project, Case No. 26-0178-PET, GMP's 2027 Rate Case, Case No. 26-0096-TF, and the Georgia Substation upgrade, Case No. 26-0651-PET.

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

A. The purpose of my testimony is to provide evidence in support of the issuance of a Certificate of Public Good authorizing the relocation and rebuilding of the Taftsville Substation

and related facilities in the Towns of Woodstock, Hartland, and Hartford, Vermont (the "Project"). I conclude that the Project:

- is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures, energy-efficiency and load management measures or the introduction of distributed generation;
- will not adversely affect system stability and reliability;
- will result in an economic benefit to the state and its residents;
- is consistent with the principles for resource selection expressed in GMP's last approved least-cost integrated plan;
- is in compliance with the relevant requirements of the 2022 Vermont Comprehensive Energy Plan, which serves as the electric plan pursuant to 30 V.S.A. § 202; and
- can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers.

6. Q. Please summarize the proposed work needed for this Project.

A. In summary, GMP proposes removing the existing Taftsville Substation from its current location at 2693 East Woodstock Road, in Woodstock, and rebuilding it at a new location, approximately 0.6 miles to the east, at the intersection of US Route 4 and VT Route 12 in Hartland, Vermont, where a temporary substation currently exists. The substation relocation requires transmission line modifications, including limited line work in Hartford, Vermont. The Project includes installing new substation equipment together with the installation of a new fence, oil containment system, security, lights, animal fence, surface material, and ground grid. New equipment includes, but is not limited to, the installation of four new 46 kV transmission line breakers, a new 10/14 MVA 46 kV/12.47 kV transformer, two 12.47 kV distribution breakers, six new circuit regulators, remote terminal unit, switches, a battery bank for protection and control, new control building, and other standard equipment necessary for modern substation construction.

The existing substation, including steel structures and foundations will be retired from service and removed from the existing Taftsville Substation site. The hydro generation facility interconnection at the existing Taftsville Substation site will be transferred from the 46kV bus to the TA-G12 12.47 kV distribution feeder, and several spans of transmission conductor will be removed, thus modifying these facilities from a double circuit configuration to a single circuit configuration.

GMP witness John R. Fiske provides a detailed description of the work needed for this Project.

7. Q. Why is the proposed Project needed at this time?

A. The retirement of the existing Taftsville Substation removes from service equipment at the end of its useful life to improve substation safety and reliability for Woodstock and the surrounding Towns of Hartland and Quechee. The new Taftsville Substation transmission breakers and the associated ring bus design will continue to allow for automatic sectionalizing of the transmission system during faulted conditions, which improves service reliability. The upgrade of the transmission bus design will also enhance maintenance capabilities, precluding the need for bus outages and/or the installation of a portable substation to repair, maintain, or replace most substation equipment. The new 10/14 MVA transformer, which will replace the 1968 vintage power transformer, will contain bushing mounted current transformers to enhance reliability through the implementation of advanced protection schemes.

On August 13, 2025, the existing Taftsville Substation transformer suffered a catastrophic fault, and on August 19, 2025, GMP petitioned the Commission in Case No. 25-

1821-PET for the emergency installation of a temporary substation to serve the Taftsville load while permanent plans could be developed. Subsequent to Commission approval, the temporary substation was constructed at the location proposed for the new substation, and the temporary substation has been carrying the Taftsville customer load since September 30, 2025.

8. Q. Are certain aspects of this Project subject to review by the Federal Energy Regulatory Commission (FERC)?

A. Yes. The existing Taftsville Substation is located adjacent to GMP's Taftsville Hydroelectric Project, which is regulated by FERC. The majority of the transmission and distribution assets at the existing Taftsville Substation site are within the FERC Project Boundary for the hydroelectric generation facility, and therefore, subject to the jurisdiction of FERC. GMP will separately seek FERC review of the removal and modification of assets within the FERC Taftsville Project Boundary, which is shown on the FERC project maps included in **Exhibit GMP KAH-1**. The only transmission infrastructure at the existing Taftsville Substation, which is not within the FERC Project Boundary, are the assets within the fenced yard southeast of the dam and on the opposite side of Covered Bridge Road from the dam and powerhouse (referred to as yard #3 on the site plan), along with a portion of the 46kV overhead strain bus between substation yards #2 and #3. See Exhibit GMP JRF-10 (Existing Substation Site Plan).

To provide a general understanding of this complete project, GMP has provided in this petition filing information on the plans for removal and modification of all existing facilities at the existing Taftsville Substation site. However, GMP is requesting that the Vermont Public

Utility Commission's review of the decommissioning of the existing substation be limited to the proposed removal of yard #3 and related section of overhead 46kV strain bus, and GMP will seek FERC review of the removal and modifications to the remaining facilities, all of which are within the FERC Project Boundary.

9. Q. Does the Project provide any asset management benefits?

A. As discussed in Mr. Fiske's testimony, all substation equipment located at the existing site will be removed including but not limited to three transmission line circuit breakers, one 1968 vintage 5/7 MVA transformer, one 12.47 kV circuit recloser, a 2011 vintage battery charging infrastructure and battery bank, as well as lighting, insulators, switches, potential transformers, foundations, and supports ranging from the substation's initial construction. These assets will be replaced with new facilities at the proposed rebuilt substation. Therefore, there are asset management benefits with the replacement of aging and deteriorated plant. These replacements provide reliability and resiliency improvements.

10. Q. Please describe the existing loading, interconnected Distributed Energy Resources (DER) and customer base for the area normally served from the Taftsville Substation.

A. The existing Taftsville Substation serves 1,119 customers in the Town of Woodstock. The 2024-2026 year-to-date peak load at the Taftsville Substation was 2,860 kW and occurred on January 25, 2026. There are 1,076 kW of DER connected and 17 kW of DER proposed for interconnection on this substation.

11. Q. How is feeder backup supported by the rebuilt substation ?

A. The Taftsville Substation has existing circuit ties with the Quechee Substation. The non-coincident peak load of the combined Taftsville and Quechee is 5,653 kW and occurred on January 22, 2025. The Quechee substation's loading peaked above 5,000 kW for the months of December, January and February in both 2025 and 2026. The transformer for the new Taftsville Substation was sized to ensure that the substation would have the capacity to provide full feeder backup to the Quechee Substation under both present loads and loads that could be realized with future electrification. The circuit regulators were sized to 438 amps for the same reasons.

12. Q. What is the forecasted 2035 loading of the Taftsville and Quechee substations?

A. In GMP's 2024 Integrated Resource Plan (IRP) the 2035 forecasted summer and winter loading for both the Taftsville and Quechee substations are shown below:

	Summer		Winter	
	MW	MVAR	MW	MVAR
Taftsville	2.0	0.4	5.5	1.7
Quechee	3.6	0.2	6.4	1.0
Total	**5.6**	**0.6**	**11.9**	**2.7**

13. Q. Are there loss benefits associated with the proposed Project?

A. Yes, the new 10/14 MVA transformer for this Project will be purchased utilizing a transformer purchase formula called for under GMP's Integrated Resource Plan to maximize efficiency for least cost.

14. Q. Please describe the alternatives to this Project and discuss why GMP selected this Project over the alternatives.

A. GMP considered various alternatives for this Project. These alternatives include the following:

1. Rebuilding the substation at its existing location
2. Rebuilding the substation in a radial bus configuration, and
3. Installing a 7.5/10.5 MVA transformer rather than the proposed 10/14 MVA transformer.

GMP is not proposing the alternatives listed above for the following reasons. First, GMP chose not to rebuild the substation at the existing location because the existing location is space constrained and does not afford adequate space to improve safe working clearances, or to install additional aesthetic screening. The Taftsville hydro generation facility and dam, along with the adjacent covered bridge are frequently visited by the public, and removal of the electrical infrastructure at this location should improve views. Although a public safety hazard does not exist, this location is not desirable because of the change in grade from the US Route 4 down to the hydro generation facility. This location also suffered severe flooding during Hurricane Irene, and the proposed removal and relocation of the substation will ensure that customer reliability is

maintained in the event of another severe flood.

Second, a radial bus design was not selected because of the convergence of three transmission terminals and given the location of these lines within the electrical system. Constructing the proposed substation in a ring configuration will allow for more dynamic switching and preclude the need for bus or line outages when performing repairs, maintenance, or equipment replacements. Both transmission line outages and substation bus outages pre-position the system in an N-1 condition. Because of this, planned maintenance can only be scheduled during good weather conditions, which are hard to predict or count on, and against other competing system outages. All of which create a narrow window for performing preventative maintenance. To perform breaker maintenance at the existing substation a transmission line outage is required to achieve the appropriate safe working clearances. TL107 and 108 have customer load serving substations fed from them, and when maintenance is required on the B25 and B24 breakers, respectively, the segment of transmission line that terminates at the substation is taken out of service. When we do this, we single source the customers fed from these substations. Similarly, when a bus outage at the existing substation is required, all three transmission lines which terminate at the substation must be deenergized, widening the area of the pre-positioned contingency and putting more customer's reliability at risk. In selecting the ring bus design, GMP also considered the location of these lines within the State's transmission system and the related need to limit outages. Recently, GMP completed the reconductoring of TL105, which terminates at the B23 circuit breaker in the Taftsville substation, in support of VELCO's Connecticut River Valley Project (CVRP). The need for that upgrade, as well as several other GMP subtransmission line sections, was identified in Docket

8605, the VELCO CVRP. The VELCO study done in connection with the CRVP stated that the Taftsville to Windsor overload would cause the line to fail, which may result in the cascading failure of other 46 kV lines, and disconnect about 85 MW of load, assuming failure stops at Middlebury.

Third, while installing a 7.5/10.5 MVA transformer, rather than the proposed 10/14 MVA transformer, would result in Project cost savings, the 7.5/10.5 MVA transformer would not be capable of carrying feeder backup forecasted load of both the Taftsville and Quechee substations.

15. Q. Is this Project being completed for growth in load or growth in DER interconnections?

A. This Project is not being completed to accommodate growth in load or growth in DER. As discussed above, this Project is proposed to address aging assets and improve reliability. An ancillary benefit is the enhancement of feeder backup to the Quechee Substation loads.

16. Q. Can the introduction of demand side management ("DSM") or distributed generation ("DG") alleviate the need for the Project?

A. No, the introduction of DSM or DG would not alleviate the need for the Project. These measures cannot address the issues related to aged infrastructure or improved feeder backup.

17. Q. Is the proposed Project required to meet the need for present and future demand for service that could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures, energy-efficiency and load management measures or distributed generation, including but not limited to those developed pursuant to the provisions of 30 V.S.A. §§ 209(d), 218c, and 218(b) (30 V.S.A. § 248(b)(2))?

A. Yes, as detailed above, the proposed Project is the most cost-effective option to meet present and projected future demand for service within the affected area. Application of DSM and DER's cannot cost effectively address asset conditions or deliver reliability improvements.

18. Q. Will the Project adversely affect system stability and reliability (30 V.S.A. § 248(b)(3))?

A. No, the Project will not adversely affect system stability or reliability. As explained above, the proposed Project will improve system reliability by replacing aged equipment.

19. Q. Will the implementation of the Project result in economic benefits to the State and its residents (30 V.S.A. § 248(b)(4))?

A. Yes. The improved reliability from this proposed Project is a benefit to the State and its residents. The Project will allow GMP's electric system to provide increased operating flexibility and feeder backup capabilities to the Taftsville area loads in the event of planned and

emergency outages. The Project will reduce the likelihood of lost load due to equipment failure and maintain future load serving capability, which will provide economic benefit to the State and Windsor County residents.

20. Q. Is the proposed Project consistent with the principles for resource selection expressed in GMP's most recently approved least cost integrated plan (30 V.S.A. § 248(b)(6))?

A. Yes. GMP seeks to serve projected customer loads in a reliable and efficient manner as outlined in its Integrated Resource Plans.

The proposed Project is consistent with GMP's approved IRP because it specifically enhances several of the improvement criteria outlined in the IRP: specifically, service reliability and safety. Above, GMP provided the 2035 forecasted summer and winter loading for both the Taftsville and Quechee substations as detailed in GMP's 2024 Integrated Resource Plan. The transformer for the new Taftsville Substation was sized to ensure that the substation would have the capacity to provide full feeder backup to the Quechee Substation under both present loads and loads that could be realized with future electrification.

The Project will also enhance public safety by ensuring that the substation and transmission line components are designed and built to the current National Electrical Safety Code Standards.

21. Q. Is this Project consistent with the 2022 Vermont Comprehensive Energy Plan, which also serves as the Vermont Electric Plan (30 V.S.A. § 248(b)(7))?

A. Yes. The Vermont Electric Plan identifies the basic objectives that must be satisfied in serving the public interest. The 2022 Vermont Comprehensive Energy Plan contains strategies that can facilitate the electric system to meet increased demands in a manner that encourages increased electrification while ensuring that electric bills remain affordable. The Plan states, "The concept of least-cost planning is a central component to the decision making of Vermont electric utilities and regulatory policies." Utilities are required to serve their customers reliably at least cost while meeting Vermont's renewable and environmental requirements and goals. The Project will help GMP to manage its electric network to further the objectives outlined in the Vermont Electric Plan by improving the reliability of its transmission and distribution systems in the affected area at least cost.

22. Q. Can the Project be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers (30 V.S.A. § 248(b)(10))?

A. Yes, the Project can be served economically by existing or planned transmission facilities. The Project will not have an adverse effect on other Vermont utilities or customers. As noted above, the Project will help GMP to improve distribution feeder backup capability and improve reliability thereby benefiting the customers that are served in Windsor County.

23. Q. What is your estimate of the capital costs of the Project?

A. GMP estimates that the capital costs of the Project will be approximately $9,455,675, which includes a 20% contingency. A copy of the Project's cost estimate is appended to my testimony as **Exhibit GMP KAH-2**. The total Project costs can be broken down as follows:

Material	$	4,139,042
Labor	$	818,632
Contractor	$	1,872,727
Indirects	$	1,000,289
AFUDC	$	49,038
Contingency (20%)	$	1,575,946
Total Project Cost	$	9,455,675

24. Q. What community outreach efforts did GMP undertake regarding this GMP Project in advance of filing the petition submitted in this Case?

A. GMP provided the 45-day advance notice to Town officials in Woodstock, Hartford, and Hartland, adjoining landowners, the regional planning commission, and others as required by Commission Rule 5.402. Afterwards, I spoke with the Town of Woodstock's Fire Chief, David Green, and confirmed that the existing dry hydrant located at the Taftsville Hydroelectric Station was to remain and that Fire personnel would retain access to it.

25. Q. Did GMP receive comments in response to the 45-day notice?

A. GMP has not received any written comments in response to the 45-day notice from Town officials in Woodstock, Hartland or Hartford, adjoining landowners, or the regional planning commission, other than the communication with the Woodstock Fire Chief that I noted above.

26. Q. Does this conclude your testimony?

A. Yes.

DECLARATION OF KAMRAN A. HASSAN

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.

August 18, 2026
Date

/s/ Kamran Hassan
KAMRAN A. HASSAN
GMP Director of Substation Operations