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 rebuild of the Georgia Substation located at 2066 Ballard Road in the Town of Georgia, Vermont	

DIRECT TESTIMONY OF WITNESS KAMRAN A. HASSAN ON BEHALF OF GREEN MOUNTAIN POWER

April 8, 2026

In this testimony, Witness Hassan provides evidence in support of the issuance of a Certificate of Public Good authorizing the rebuild of the Georgia 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 Leader of Engineering. 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 the engineering and planning of GMP's electrical system. 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 have been focused on the design, engineering, and planning of substation and transmission line projects. I am also GMP's primary representative to the Vermont System Planning Committee (VSPC). 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.

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 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 VTrans Lowell Bridge Project, Case No. 26-0178-PET, and the GMP 2027 Rate Case, Case No. 26-0096-TF.

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 rebuilding of the Georgia Substation in the Town of Georgia, 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 the reconstructing of the Georgia Substation. 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 three 34.5 kV circuit breakers, a new 10/14 MVA, 34.5 kV/12.47 kV transformer, two 12.47 kV distribution breakers, six 438-amp circuit regulators, communication and relay control equipment, a battery bank, control building, and other standard equipment to upgrade the existing Georgia Substation with modern substation equipment.

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 upgrades to the Georgia Substation replace equipment at the end of its useful life to improve substation safety and reliability for Georgia and West Milton. The existing Georgia Substation provides service to approximately 1,630 customers by serving two circuits (G70 and G71), at a voltage of 12.47 kV. The existing 10/14 MVA transformer is 52 years old

and will be replaced with a 10/14 MVA unit. This unit is sufficiently sized to allow for improved backup capacity for the West Milton G91 feeder. The existing 12.47 kV circuit breakers will be replaced with two new 12.47 kV circuit breaker to address asset management and accommodate the transition from 48VDC control to 125VDC. Two 34.5 kV circuit breakers will be installed to accommodate the reconfiguration of the substation's 34.5 kV bus from a radial supplied station to looped transmission bus design, which will improve reliability by sectionalizing an approximately 7-mile transmission line between the GMP Ballard Road and GMP Nason Street Substations in the Towns of Georgia and Saint Albans.

The current circuit regulators have limited capacity to backup other area substations (referred to as feeder backup) during an outage situation. The Georgia Substation has a circuit tie with the West Milton G91 feeder. In addition to replacing the existing transformer, the three 328-amp G71 circuit regulators will be changed to 438-amp regulators to enhance feeder backup capability for customers. The increased capacity of the regulators will also provide additional capability for distributed energy resource interconnections and increased electrification. These upgrades will provide greater operating flexibility thereby improving reliability to the customers fed from the Georgia Substation.

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

A. As discussed in Mr. Fiske's testimony, the project replaces one 1974 vintage 10/14 MVA transformer, two 12.47 kV circuit breakers, a 2009 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 in 1974 to 2023.

Therefore, there are asset management benefits with the replacement of aging and deteriorated plant. These replacements provide reliability and resiliency improvements.

9. Q. Please describe the existing loading, interconnected DER and customer base for the area normally served from the Georgia Substation.

A. The existing Georgia Substation serves 1,630 customers in the Town of Georgia. The 2024-2026 year-to-date peak load at the Georgia Substation was 7,003 kW and occurred on April 22, 2025. There are 8,086 kW of DER connected and 0 kW of DER proposed for interconnection on this substation.

10. Q. How is feeder backup supported by the substation upgrade?

A. The Georgia Substation has existing circuit ties with the West Milton G91 feeder. The non-coincident peak load of the combined Georgia and West Milton G91feeder is 3.312 MVA. The transformer for the Georgia Substation was sized to ensure that the substation would have the capacity to provide full feeder backup to the West Milton G91 feeder 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.

11. 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.

12. Q. Please describe any other benefits associated with the proposed Project.

A. Installation of the new 34.5 kV vacuum circuit breakers improves reliability and power quality to the transmission supply for the Georgia Substation. These breakers provide automatic selective fault isolation eliminating the need for momentary outages. The Georgia Substation is in between the Nason Street substation and the Ballard Road substation making it the optimum location for sectionalization. After the addition of the new breakers, if a contingency occurred between the Ballard Road substation and the Georgia Substation, the Georgia Substation's 1,630 customers as well as customers fed from the Wyeth substation would remain energized. Similarly, if a contingency occurred between the Georgia Substation and the Nason Street substation, customers fed from the Ben & Jerry's substation, and the Georgia Substation would also remain energized. These breaker additions also eliminate miles of exposure on given protective devices, thereby shortening the miles of line to be patrolled following faults and reducing repair times.

13. 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. Feeding the substation with the existing radial tap rather than updating it to an in-and-out configuration
2. Installing a smaller (7.5/10.5MVA) transformer, and
3. Installing 328 amp regulators rather than the proposed 438 amp regulators;

GMP is not proposing the alternatives listed above for these reasons. First, GMP chose to reconfigure the substation to an in-and-out design in order to improve the reliability of the customers fed from this substation by adding equipment to decrease outage duration times. Second, GMP chose a 10/14 MVA transformer over a 7.5/10.5 MVA transformer because under present-day feeder backup conditions, the 7.5/10.5 MVA transformer could not allow for full feeder backup between the Georgia and West Milton substations while maintaining capacity for future electrification from cold climate heat pumps and electric vehicles. Third, while installing 328 amp feeder regulators, rather than the proposed 438 amp regulators, would result in Project cost savings, under present-day feeder backup conditions, the 328 regulators would be overloaded to 115% of their rating. Similarly, 328 amp regulators limit the ability to utilize the 10/14 MVA transformer's full capacity. For these reasons, GMP proposes installing 438 amp regulators.

14. Q. Is this Project being completed for growth in load or growth in Distributed Energy Resources (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 West Milton G91 feeder loads.

15. 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. DSM and DG cannot address the reliability exposure that is mitigated with the proposed 34.5kV vacuum circuit breakers.

16. 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.

17. 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 and enhancing transmission fault isolation.

18. 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 Georgia 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 Franklin County residents.

19. 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 Integrated Resource Plan (IRP) because it specifically enhances several of the improvement criteria outlined in the IRP: specifically, service reliability and safety.

As discussed, the Project proposes to add two 34.5 kV transmission line circuit breakers which will enhance service reliability by significantly decreasing reliability exposure for customers fed from the Georgia Substation. 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.

20. 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.

21. 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 for the area's 34.5 kV transmission network thereby benefiting the customers that are served in Franklin County.

22. 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 $6,695,781 which includes a 20% contingency. A copy of the Project's cost estimate is appended to my testimony as **Exhibit GMP-KAH-1**. The total Project costs can be broken down as follows:

Material	$2,516,458
Labor	$757,969
Contractor	$1,238,429
Indirects	$703,065
AFUDC	$363,897
Contingency (20%)	$1,115,964
Total Project Cost	$6,695,781

23. 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 Georgia, adjoining landowners, the regional planning commission, and others as required by Commission Rule 5.402. I also attended a Northwest Regional Planning Commission (NRPC) meeting to discuss the Project. That discussion focused primarily on aesthetic impacts, including the proposed aesthetic mitigation plan, which is discussed in Witness Adam Crary's prefiled testimony. There were also some questions about the proposed substation electric components, including whether a larger transformer had been considered. In Q.13 above, I describe the alternatives GMP considered and why the particular transformer was selected for this Project.

24. 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 Georgia, adjoining landowners, or the regional planning commission. I noted above the general topics discussed at the NRPC meeting. GMP did receive preliminary comments from the Agency of Natural Resources regarding wetlands, the removal of hazardous materials, and spill controls and monitoring of oil and gas containing equipment. Those topics are discussed in Witness Adam Crary's prefiled testimony.

25. 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.

April 8, 2026
Date

/s/ Kamran Hassan
KAMRAN A. HASSAN
GMP Leader of Engineering