



ELIAS PEREIRA
Energy Innovator

Direct Dial Number: (802) 353-7384
elias.pereira@greenmountainpower.com

January 5, 2026

Via ePUC

Holly Anderson, Clerk
Vermont Public Utility Commission
112 State Street
Montpelier, VT 05620-2701

Re: Green Mountain Power Notice of Resilient Neighborhood 2.0 Innovative Pilot

Dear Ms. Anderson:

Please accept this as the pilot notice filing for Green Mountain Power's (GMP) Resilient Neighborhood 2.0 Innovative Pilot (the "Pilot" or "Phase 2"), which builds on GMP's existing Resilient Neighborhood Innovative Pilot approved in Case 23A-1487.

Phase 1 of the Resilient Neighborhood Pilot launched the first fully electric neighborhood in Vermont that is resilient to storms and other disruptions, and also a grid asset that provides benefits to all GMP customers. Through that first phase, GMP tested and demonstrated that a coordinated, all-electric neighborhood paired with energy storage creates beneficial load shapes, supports customers through outages, and will provide a net benefit to non-participating customers over 25 years.

Resilient Neighborhood 2.0 expands this work at the same South Burlington neighborhood by updating the Resiliency Package design and extending it to additional homes and testing additional grid use cases for the neighborhood's storage fleet. The goal of this next phase is to arrive at a scalable, whole-home Resiliency Package model that can be deployed with developers and homeowners beyond this neighborhood, while continuing to provide measurable benefits to non-participating customers. GMP will continue to partner with O'Brien Brothers, a longstanding, multi-generation Vermont-based developer of popular neighborhoods—including both market rate and affordable homes—in Chittenden County.

The homes will be constructed to the Energy Star certification standards and the US Department of Energy's Zero Energy Home Ready (ZEHR) certification for energy efficiency. As a part of all home designs heat pumps will be used for heating, cooling, and water heating, and roof space will be utilized for solar panels to generate on-site energy. We will pilot this combined resiliency package that provides the host customer with increased reliability, produces more local generation, and produces benefits for all customers.

Timing and Scope

Phase 2 will extend the Resilient Neighborhood Pilot to at least 40 additional homes in the next phase of construction at the Hillside East Neighborhood. Construction on this phase began in 2025, with the first homes to be occupied in Q1 2026. The total neighborhood of Hillside East will include approximately 155 homes when fully complete. This includes a mix of single-family homes, townhouses, and permanently affordable units.¹

As with the first phase of the Pilot, the Resiliency Package and whole home electrification will be included in every home in the Pilot and is part of how homes will be marketed and sold, leading to complete participation under Phase 2. GMP will continue to work with O'Brien Brothers to ensure each home is fully equipped with the necessary technology.

Depending on the type of structure (single family, duplex, or triplex), each home will be outfitted with a nearly identical suite of technology scaled to the size of the home. A Resiliency Package of solar plus storage will be installed at each home, including smart panels utilizing 200-amp service and Level 2 EV chargers.

Pilot Details

Because the homes built in this community will be entirely electric, the household electric consumption will be higher than other homes that rely on fossil fuel for heating and transportation. Monthly kilowatt-hour usage will fluctuate seasonally, with higher usage in the winter months. To provide a smooth billing experience and more predictable energy statements, this Pilot will automatically enroll customers in these homes in budget billing based on estimated annual kilowatt-hour consumption. Building on what we learned in the first pilot, in Phase 2, we will continue to automate and refine the budget billing process with customer experience and scalability in mind. Customers will have the option to leave budget billing at any time. In addition, when a Resilient Neighborhood customer purchases an EV, they will be auto enrolled in EV Charging Rate 74.

Each customer's monthly GMP energy statement will include a Resiliency Package summarizing their home equipment costs. By ensuring all of the equipment components are included in the home sale or as part of the GMP energy statement, we are offering a package that is fully integrated for customers up front, making the billing process simple and streamlined for homeowners.

Each home will be equipped with a SPAN smart panel. The SPAN panel is certified and functions as a traditional electrical panel with standard circuit breakers but has the added benefits of built-in intelligence, allowing homeowners to see their consumption on an individual circuit level basis and for the entire home, as well as automated load management capabilities. It provides each homeowner with the ability to remotely turn on and off any circuit in the home through the SPAN app should it ever be needed. It includes the ability to automatically switch

¹ Construction of Phase 1 under the first Resilient Neighborhood Pilot began in April 2023, with the first unit occupied in March 2024. As of the date of this filing, approximately 38 homes have been occupied under Phase 1.

off certain non-critical circuits when the home switches into battery backup mode to extend the duration of the battery backup. Because it is the home's main load center, the SPAN panel will be able to ingest data from all necessary feeds such as energy flow to and from the grid, solar generation, battery status and state of charge, and EV charging. This will give homeowners a full picture of their electrified home in one convenient location.

Each home will also be equipped with a SPAN Drive, which is a level 2 EV charger that communicates and functions seamlessly with the SPAN panel. The Drive can deliver 48 amps, or 11.5 kW of power to charge an electric vehicle, which is around one and a half times more powerful than other typical Level 2 EVSEs available today. It can be used with any all-electric vehicle or plug-in hybrid to ensure compatibility for all homeowners.

An important test of this Pilot is to show that we can meet the needs of a fully electric home while still using 200-amp electric service equipment. This is a key element in making the Resilient Neighborhood model scalable to both new and existing homes without requiring more costly service upgrades. Load calculations show the single-family homes would be the closest to possibly being at capacity for the 200-amp service, but the SPAN panel and SPAN drive were designed to work together to manage this possibility seamlessly by curtailing EV charging if total load approaches the service limit and automatically resuming charging when load drops.

Phase 1 results have shown that 200-amp service is sufficient for single-family homes; loads stayed below the 200-amp threshold throughout the observation period. GMP, SPAN, and state electrical and fire safety inspectors recently met at the Hillside East neighborhood to review one year of load data from homes that have been fully occupied through a complete heating season. The data showed that even in fully electrified single-family homes with electric space heating, water heating, and EV charging, the SPAN panels did not need to curtail power to stay within the 200-amp service rating.

These findings are very important and provide real-world evidence that all-electric homes can be reliably served on a 200-amp service, especially when designed and operated with smart controls. Building on this demonstrated performance, a specific goal for Phase 2 is to obtain approval to standardize 200-amp service, rather than 320-amp service, for these fully electric single-family homes. This change would reduce upfront construction costs while preserving safety and reliability.

Solar Deployment

In addition to the importance of resiliency in an all-electric home, pairing solar with storage in a way that produces value for all customers is part of the innovative approach we are testing. The Pilot will deploy solar in a way that reduces out-of-pocket cost for participating customers while lowering the impact to non-participating customers compared to if these homes participated in traditional net metering.

In Phase 1, each single-family home received an 8-kW rooftop solar array and each townhome unit received a 4-kW array. The solar deployment strategy will remain the same in Phase 2;

GMP anticipates that each single-family home will accommodate approximately an 8 kW array and each townhome unit approximately a 4-kW array, depending on roof layout and design constraints.

All solar arrays installed under Phase 2 will be owned and used by GMP. GMP will continue to work with Green Mountain Solar as the primary installer for the rooftop solar and battery storage installations. Each array will serve as a Renewable Energy Standard Tier II resource and paired with storage, will provide the host customer extended resiliency during an outage.

The cost of the solar will be developed in such a way as to cover the difference between the levelized cost and the levelized value of the solar arrays with the power supply value of the storage system, and will appear as part of the customer's Resiliency Package charge, wrapped together with the cost of the battery and the installation and hardware necessary to connect all components.

Energy Storage

GMP will continue to equip single-family homes with three Tesla Powerwalls to provide a whole-home backup solution to support the home. This system will provide enough power to start all loads within the home and energy to ride through any outages. When paired with solar, the system can provide clean backup power for extended periods of time. Two Tesla Powerwalls can accomplish the same goals in the neighborhood's duplex, triplex, and some smaller single-family homes.

This Pilot will deploy Powerwall 3 with DC coupled expansion packs (DCX), which integrates a solar inverter directly into the battery system. Powerwall 3 allows for the use of the Tesla Energy Gateway or the Tesla meter collar backup switch for interconnecting the Powerwall 3 system into the home. When Powerwall 3 is paired with Tesla's meter collar backup switch, the Gateway can be eliminated, making for a simpler, less expensive installation. Tesla has been installing the meter collar backup switch in GMP territory for over a year without issue and in this installation configuration, the Powerwall 3 will become the communication component, while the meter collar will act as the disconnect during grid outages. The Powerwall 3 system will provide seamless, fully integrated backup power to each home in this project. Costs for the Powerwall 3 systems will be included in the overall Resiliency Package which includes the batteries, the solar, and the installation and hardware necessary to connect all components.

Integration with the Grid

In Phase 2, we will continue to operate the neighborhood as a flexible grid resource, including exporting during cold winter peaks, charging batteries during high solar hours to reduce backfeeding, and operating near net zero import/export at the feeder or recloser level when needed. Additionally, we will test other use cases for the battery fleet, including participation in DASI and price arbitrage opportunities across wholesale markets and local system conditions, while maintaining customer resiliency and comfort. The home energy storage systems will continue to be operated to limit peak demand at the home level and will be aggregated with GMP's broader storage portfolio to provide benefits to the local and regional grid and all

customers. The neighborhood's storage fleet will be enrolled in the frequency regulation market as well. Through this Pilot, GMP will pair comprehensive distributed resources with fully electrified homes to test and refine these operating strategies in real-world conditions and demonstrate the potential benefits of scaling the Resilient Neighborhood model across Vermont.

Resiliency Package

In Phase 2 of the Pilot, we are simplifying the customer payment structure by removing the separate \$20/month customer solar payment from the lease agreement and instead folding the cost of solar and storage into one Resiliency Package fee. At the same time, the monthly payment for homes with three batteries increases from \$65 to \$75 to more accurately account for the cost of the larger system. With this structure, the Pilot delivers a positive lifetime net present value of \$7,677 per system while lowering customer costs.

Depending on home type, customers' GMP energy statements will now show a Resiliency Package charge of \$55/month (two batteries) or \$75/month (3 batteries) for ten years, which brings the cost of resiliency for these homes closer to monthly payments in GMP's ESS program. Additionally, as depicted in Appendix A, these all-electric homes provide a greater positive revenue benefit than an average customer, which all flows back as a cost reduction to non-participating customers.

Any permanently affordable homes constructed in Phase 2 will be enrolled in the Energy Storage Access Program, which covers the \$55 per month Resilience Package, delivering solar and storage at no monthly cost to qualifying customers. This does not impact the financial outlook of the program, which remains NPV positive, while creating a more accessible pathway toward a carbon-free lifestyle.

Summary of Projected Costs and Revenues

As with our ESS tariff, GMP will use the energy storage to produce value that is returned to all customers. Because these homes will be operated solely on electricity, their contribution to the marginal cost of energy flows back to lowering costs for all customers. With 40 homes included in this next phase of Pilot, there will be roughly 100 additional batteries installed. This is an additional 1.1 MW of distributed resources available to GMP to manage the grid that will cut carbon and costs for all GMP customers. The expected capital cost of these systems, fully installed, will be approximately \$1,035,340.

GMP will be covering only the incremental cost of the SPAN System over a standard 200-amp panel, which includes the panel and Drive EVSE at a cost of \$2,850. With 40 panels needed, the expected capital investment will be \$114,000.

The Powerwall battery system will be owned by GMP and leased to customers through the Resiliency Package. The solar will be owned by GMP with the above market cost of the solar included in the Resiliency Package cost. The SPAN and SPAN Drive EVSE will be owned by customers.

Appendix A shows the financial outlook of the program, including the costs of the Powerwall systems, software, SPAN equipment, and solar, as well as the corresponding value streams: power supply value from the aggregated batteries, Tier III value, capitalized A&G associated with the Powerwall systems, Resiliency Package payments from customers, the marginal contribution from all-electric customer usage, and the value of solar generation. Taken together, these components show that the overall Pilot produces a positive net present value for non-participating customers.

Over 25 years, the increased benefit of these all-electric homes in this second phase of the project is approximately \$307,076 for all GMP customers.² Note that for the purpose of this analysis we are only including the incremental electrification that is above what the average household uses. If including the full electrification value, this would be higher for all other customers.

The Resilient Neighborhood Pilot Advances State Energy Goals

The Resilient Neighborhood 2.0 Pilot will continue to help advance State energy goals. Most importantly, this entire neighborhood is designed from the ground up without the need for fossil fuels to heat or operate the homes. It will also be EV ready, making it very simple for a customer to transition to an EV and plug in at home. The aggregated fleet of enrolled batteries reduces GMP's power supply costs, thereby directly lowering costs for all customers. This helps maintain the positive differential between the lower cost of electricity and the higher cost of fossil fuels used for heating, transportation, and industrial processes, which is critical for advancing strategic electrification called for under Vermont's Comprehensive Energy Plan.

An objective of this Pilot is to demonstrate that fully electrified homes can be reliably served using 200-amp service equipment. Proving this design approach at neighborhood scale supports sustainable development by reducing the need for larger, more expensive service upgrades for retrofits and new constructions. In turn, this can lower construction and retrofit costs, improving the affordability and accessibility of all-electric homes while accelerating emission reductions across Vermont.

In addition, this Pilot will continue to demonstrate how we can make the transition to fully electric homes while having a positive impact on the grid. The Resilient Neighborhood will be leveraged as a grid resource supporting the surrounding system depending on the need of the day. The South Burlington location is ideal for proving out and learning from coordinated electrification because it is in an area where load is growing through expansion of business, such as Beta Technologies. Deploying a neighborhood-level grid resource there will help us learn not only how to create value day to day through load shaping, but also how such coordination can help reduce the need for other traditional grid upgrades. Both of these use cases can cut costs for

² In the Resilient Neighborhood 1.0 filing, the model incorrectly stated the NPV of the first phase to be \$2.7M. The formula calculating the annual marginal load contribution for these all-electric homes was accidentally multiplied by 12; corrected, the NPV in the first phase was \$344,897. This calculation has been corrected in the Resilient Neighborhood 2.0 financial model.

all GMP customers. The critical transformation demonstrated by this neighborhood will prove that not only can the grid operate successfully for customers in these homes, but it can also provide a positive benefit for all customers and the greater grid we all share. Finally, GMP is using our Tier III program to support the elimination of fossil fuel from this neighborhood.

Objectives & Evaluation

The table below outlines the objectives of this Pilot, with the overarching goal of creating a replicable method to enable this type of project to be used in our service territory and as an example to other utilities.

Objective	Measurement Method	Measure of Success
Standardize 200-amp service, rather than 320-amp service, for these fully electric single-family homes.	Obtain approval from state electrical and fire safety officials that 200-amp service is acceptable for these fully electric single-family homes, and track the installed service size for each Phase 2 home.	Single-family homes in Phase 2 are constructed with a standard 200-amp service.
Show that a fully electric neighborhood can be used as a grid asset as a whole to provide grid and market benefits.	Create and dispatch at least three neighborhood load “shapes” and measure net load at the recloser/feeder, while tracking use of the neighborhood batteries for peak shaving, DASI events, and price arbitrage.	Measured net load follows the targeted shapes within an acceptable tolerance and the neighborhood storage portfolio produces measurable peak and power-supply value for all customers without compromising customer resiliency.
Improve customer experience in enrolling and participating in the streamlined Resiliency Package with storage and solar as an alternative to net metering.	GMP will continue to engage with each customer through the onboarding process to review the first energy statement and over the duration of the Pilot.	Customers find the new Resiliency Package structure more intuitive and straightforward compared to Phase 1.

Objective	Measurement Method	Measure of Success
Develop and refine a scalable model for fully electric residential development.	GMP will continue to test and refine the Resilience Package model with a goal of offering it to developers and homeowners outside of the Hillside East neighborhood.	By the end of the Pilot, GMP has a Resiliency Package that demonstrates a positive net benefit for non-participating customers and is approved internally as a template for future fully electric residential developments.

Efficiency Vermont Non-Conflict Explanation and Collaboration Certification

GMP certifies that we have provided Efficiency Vermont and Renewable Energy Vermont with a copy of this Pilot filing prior to submission and no conflict exists.

Updates

GMP will provide Pilot updates at the 6-month, 12-month, and 18-month periods. Updates will provide information on the installation process, any customer experience or feedback, and distributed resource performance. Should we decide to terminate this Pilot prior to the full 18-month period, GMP will notify the Department and all relevant parties as soon as possible.

Sincerely,



Elias Pereira
Energy Innovator

cc: Jim Porter, DPS (via ePUC)
Peter Walke, Efficiency Vermont (via email)
Jonathan Dowds, Renewable Energy Vermont (via email)

Appendix A

	Year														
	Monthly Customers Year 1	Monthly Customers Year 2	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
			20												
				20											
Costs															
Total Battery & Installation Costs*			(\$74,519)	(\$143,019)	(\$131,040)	(\$120,351)	(\$111,407)	(\$103,293)	(\$96,237)	(\$90,237)	(\$84,577)	(\$78,936)	(\$73,296)	(\$67,675)	(\$62,035)
Software Fees			(\$480)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)
FR Participation credit			(\$1,620)	(\$3,240)	(\$3,240)	(\$3,240)	(\$3,240)	(\$3,240)	(\$3,240)	(\$1,620)	\$0	\$0	\$0	\$0	\$0
Cost of Solar			(\$26,533)	(\$52,801)	(\$52,537)	(\$52,274)	(\$52,013)	(\$51,752)	(\$51,494)	(\$51,236)	(\$50,980)	(\$50,725)	(\$50,472)	(\$50,219)	(\$49,968)
Total Costs			(\$103,152)	(\$200,020)	(\$187,776)	(\$176,825)	(\$167,619)	(\$159,245)	(\$151,930)	(\$144,053)	(\$136,517)	(\$130,621)	(\$124,727)	(\$118,854)	(\$112,963)
Revenues															
Total Battery Value			\$40,027	\$81,121	\$91,202	\$94,220	\$93,187	\$90,956	\$107,052	\$121,432	\$100,640	\$82,266	\$87,284	\$89,942	\$88,586
Tier 3 Value			\$9,700	\$9,700											
End of life removal			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$40)	(\$80)	(\$80)
Capitalized A&G			\$35,400	\$35,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Resiliency Package Payments			\$15,600	\$31,200	\$31,200	\$31,200	\$31,200	\$31,200	\$31,200	\$31,200	\$31,200	\$31,200	\$15,600	\$0	\$0
All Electric Cust. Marginal Contribution			\$11,340	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680
Value of Solar			\$16,028	\$31,895	\$31,735	\$31,577	\$31,419	\$31,262	\$31,105	\$30,950	\$30,795	\$30,641	\$30,488	\$30,335	\$30,184
Total Revenue			\$128,094	\$211,996	\$176,817	\$179,676	\$178,486	\$176,098	\$192,037	\$206,262	\$185,315	\$166,787	\$156,012	\$142,877	\$141,370
Net Benefit			\$24,943	\$11,976	(\$10,959)	\$2,851	\$10,867	\$16,853	\$40,107	\$62,208	\$48,798	\$36,166	\$31,285	\$24,023	\$28,407

*Includes 6.16% A&G allocation for all batteries.

	Year													Lifetime NPV	
	Monthly Customers Year 1	Monthly Customers Year 2	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>		<u>25</u>
Costs															
Total Battery & Installation Costs*			(\$56,374)	(\$50,734)	(\$23,957)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Software Fees			(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$960)	(\$480)	\$0	\$0	\$0	\$0	\$0
FR Participation credit			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cost of Solar			(\$49,718)	(\$49,470)	(\$49,222)	(\$48,976)	(\$48,731)	(\$48,488)	(\$48,245)	(\$48,004)	(\$47,764)	(\$47,525)	(\$47,287)	(\$47,051)	(\$23,408)
Total Costs			(\$107,053)	(\$101,164)	(\$74,139)	(\$49,936)	(\$49,691)	(\$49,448)	(\$49,205)	(\$48,484)	(\$47,764)	(\$47,525)	(\$47,287)	(\$47,051)	(\$23,408)
Revenues															
Total Battery Value			\$86,140	\$81,770	\$76,386	\$68,562	\$55,561	\$37,654	\$16,531	\$2,697	\$0	\$0	\$0	\$0	\$0
Tier 3 Value															
End of life removal			(\$160)	(\$240)	(\$320)	(\$640)	(\$1,240)	(\$1,800)	(\$2,200)	(\$1,200)	\$0	\$0	\$0	\$0	\$0
Capitalized A&G			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Resiliency Package Payments			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
All Electric Cust. Marginal Contribution			\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$22,680	\$11,340
Value of Solar			\$30,033	\$29,883	\$29,733	\$29,585	\$29,437	\$29,289	\$29,143	\$28,997	\$28,852	\$28,708	\$28,565	\$28,422	\$14,140
Total Revenue			\$138,693	\$134,093	\$128,480	\$120,186	\$106,438	\$87,823	\$66,154	\$53,175	\$51,532	\$51,388	\$51,245	\$51,102	\$25,480
Net Benefit			\$31,640	\$32,929	\$54,340	\$70,250	\$56,747	\$38,376	\$16,949	\$4,691	\$3,768	\$3,863	\$3,957	\$4,051	\$2,072
															\$307,076

*Includes 6.16% A&G allocation for all batteries.