STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Tariff filing of Green Mountain Power Corporation requesting a change in rates, effective October 1, 2022	)))	Case No. 21-____-TF
Petition of Green Mountain Power for approval of its new multi-year regulation plan pursuant to 30 V.S.A. §§ 209, 218, and 218d	)))	Case No. 21-3707-PET

PREFILED DIRECT & SUPPLEMENTAL TESTIMONY OF JOSHUA CASTONGUAY ON BEHALF OF GREEN MOUNTAIN POWER

January 18, 2022

Summary of Testimony

Mr. Castonguay covers several topics in this testimony, beginning by summarizing Green Mountain Power's ("GMP") innovative New Initiative work and capital investments during the Rate Year. Mr. Castonguay then describes the forecasted power output from GMP's owned generation resources in the Rate Year, the Rate Year O&M expense associated with these resources, the capital investments included in this filing for GMP-owned generation, and GMP's compliance plan to meet Tier III of Vermont's Renewable Energy Standard ("RES"). Mr. Castonguay also presents the transportation fleet's capital and expenses. Finally, he reports on GMP's customer service, which continues to exceed internal and external benchmarks.

EXHIBIT LIST

Exhibit GMP-JC-1	New Initiatives Capital Planning Framework
Exhibit GMP-JC-2	New Initiatives Capital Additions (2022–23)
Exhibit GMP-JC-3	GMP Generation from Owned and Joint Ownership Projects (2023)
Exhibit GMP-JC-4	Generation Capital Planning Framework
Exhibit GMP-JC-5	Generation Capital Additions (incl. Joint Ownership) (2022–23)
Exhibit GMP-JC-6	Transportation Capital Planning Framework
Exhibit GMP-JC-7	Fleet Lease NPV Analysis
Exhibit GMP-JC-8	Transportation Capital Additions (2022–23)
Exhibit GMP-JC-9	GMP Service Quality Monitoring and Report Plan (2014)
Exhibit GMP-JC-10	J.D. Power & Associates Survey Results Press Release (2021)
Exhibit GMP-JC-11	Quarterly Transactional Report (Research America) (4th Quarter 2021)
Exhibit GMP-JC-12	Annual Customer Satisfaction Survey Results (Research America) (2021)
Exhibit GMP-JC-13	Vermont Service Quality Performance Index (2020)
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OF JOSHUA CASTONGUAY
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I. Introduction

Q1. Please state your name and occupation.

A1. My name is Joshua Castonguay. I am employed by GMP as Vice President, Chief Innovation Executive.

Q2. Please describe your educational and business background.

A2. I have been employed by GMP since 2003, working in engineering until 2009, and then moving into various leadership positions throughout the organization, including the control center and the transmission and distribution ("T&D") line department, among other responsibilities. In 2017, I became Vice President, Chief Innovation Executive, leading generation, engineering, and the team working on our innovative technology and service. I graduated from the University of Maine in 2003 with a Bachelor of Science in Electrical Engineering Technology.

Q3. Have you previously testified before the Public Utility Commission ("PUC" or the "Commission")?

A3. Yes. I have provided testimony on behalf of GMP in numerous proceedings, including GMP's 2019 Rate Case (Case No. 18-0974-TF), GMP's Multi-Year Regulation Plan (the "Current Plan") proceeding (Case No. 18-1633-PET), GMP's Bring your Own Device ("BYOD") & Energy Storage System ("ESS") joint tariff proceeding (Case Nos. 19-3167-TF & 19-3537-TF), GMP's Climate Plan proceeding (Case No. 20-0276-PET),

GMP's petition to modify its service territory in support of GLOBALFOUNDRIES U.S. 2 LLC's request to operate a self-managed utility (Case Nos. 21-1109-PET & 21-1107-PET), and GMP's petition to modify the Current Plan Case No. 21-1965-PET). I submitted prefiled direct testimony in support of this petition for a New Regulation Plan (the "New Plan") (Case No. 21-3707-PET), which I am now supplementing.

Q4. What is the purpose of your testimony?

A4. I provide testimony on several topics in this rate filing. In Section II, I describe GMP's Innovation and New Initiatives work—partnering with customers to create a closer, connected, and empowered two-way grid that supports electrification and other state energy goals, cuts carbon, and generates resiliency for Vermont communities. I detail the capital projects we have underway during the Interim Year (Fiscal Year 2022, or "FY22," October 1, 2021–September 30, 2022) and are planning in the Rate Year (Fiscal Year 2023, or "FY23," October 1, 2022–September 30, 2023) to support these innovative efforts to benefit customers

Sections III–V provide an overview of GMP's power production portfolio and the capital projects associated with our generation assets. I detail the projected generation from GMP's wholly owned and jointly owned facilities, and the operation and maintenance ("O&M") expenses associated with generation facilities during the Rate Year. I also identify and describe the Interim Year and Rate Year capital costs associated with generation projects.

In Section VI, I describe the steps GMP is taking to comply with Vermont's Renewable Energy Standard Tier III requirements and advance state energy policy during the Rate Year.

Section VII summarizes fleet investments and maintenance for the Rate Year, and specifically explains how GMP will begin implementing its Fleet transformation plan to further electrify and update the vehicles supporting critical field response and customer service crews.

Lastly, in Section VIII, I report on GMP's customer satisfaction metrics, and our Service Quality & Reliability Performance, Monitoring & Reporting Plan ("SQRP"). GMP continues to exceed our SQRP metrics and maintain very high customer satisfaction outcomes as reported in independent surveys.

II. Innovation and New Initiatives Programs

Q5. Can you please provide an overview of your testimony on GMP's innovative work?

A5. Yes. In my opening testimony in support of GMP's New Plan I detailed the energy transformation work GMP is currently focused on to create choice, value, resiliency, and reduce carbon emissions for our customers, while creating a closer, connected, empowered, and more equitable energy system. I also discussed how the New Plan will continue to center innovation in our work, and carries forward the successful New Initiatives framework with small changes based on the maturing of pilot programs and our developing experience.

This testimony focuses on the implementation of that framework, summarizing the innovative projects GMP plans to undertake during the Rate Year and introducing the supporting exhibits for these projects.

Q6. What priorities drive selection of innovative projects?

A6. **Exh. GMP-JC-1** sets out the planning framework we apply to Innovation and New Initiatives projects. Three key pillars determine whether a project is pursued: 1) whether it makes sense, economically or otherwise, for the participating customer; 2) whether it produces value for all nonparticipating customers; and 3) whether it provides us with new resources to better manage a distributed and connected two-way grid. Each is tied to our need to increase resiliency while reducing the cost and carbon of operating the energy system. These pilot projects provide invaluable data from real-world performance and customer experiences that we can carry into a full tariff offering or a modified pilot offering. They also can help us determine that a program is not the right fit to move forward.

We are continuously evaluating ideas that leverage smart technology and innovating compensation models to align load with renewable generation and achieve these goals. At the same time, as our innovative programs proliferate on a more distributed grid where electricity increasingly flows in both directions, it is imperative to design for a connected and coordinated electric system. Many of our innovative programs help facilitate or coordinate other innovative customer offerings, and we evaluate new offerings based on their ability to interface with and complement our ongoing energy transformation work.

Q7. What specific energy transformation projects are included in this rate filing?

A7. The filing includes continued investment in important, ongoing innovation work such as our residential battery storage programs and electric vehicle ("EV") fast chargers, as well as new programs for larger storage and Resiliency Zones. **Exh. GMP-JC-2** provides the detail and the anticipated capital investment by year for the following energy transformation programs and projects:

- ESS Tariff: $7.36M FY22; $6.25M FY23
- SPAN Pilot: $0.52M FY22
- DCFCs: $0.55M FY22; $1.10M FY23
- Enphase Battery Pilot: $1.07M FY22
- V2G Chargers: $0.11M FY22
- North Troy Battery: $1.55M FY23
- Grafton Resiliency Zone: $1.07M FY23

Q8. You described the request for an extension of the ESS battery storage tariff. How has that tariff been received by customers under the Current Plan?

A8. The ESS Tariff has seen full enrollment over the first two years of its operation for a total of 1,000 customers. We anticipate fulfilling the 500-customer limit again in 2022 and are signing customers up, first utilizing the waitlist from prior years.

By the end of 2021, we completed approximately 450 customers installations. As with many types of technology, the pandemic has caused supply chain issues with the Powerwall equipment and delayed the completion of the installations over the first few

years of the program. Through frequent and ongoing communications by our team, Tesla has informed us that these supply issues are improving, and we anticipate that between Tesla and our partner installers in Vermont, we will see an increased rate of installations in 2022.[1]

Q9. How did GMP determine the investment level for the ESS program during the Rate Year, FY23?

A9. On December 15, 2021, GMP filed with the Commission a tariff extension request to continue the highly successful ESS and Bring Your Own Device ("BYOD") programs through the end of the New Plan term. The extended tariffs substantively continue the terms and scale of the existing tariff. The level of investment in this filing represents 350 ESS customer installations during the Rate Year, a pace of installation consistent with our observed rate of installed and closed systems per year prior to the pandemic slowdown. Although we continue to expect full enrollment of 500 ESS customers in this program, actual closed installations trail behind enrollments as invoicing and financial processes take place only after installations have been completed. As noted above, an increase in installation pace is expected as supply chain constraints ease up, and we will manage that within our overall capital program as described by Mr. Burke.

[1] GMP's FY22 Annual Base Rate filing included capital costs of $8.7M for this project. The variance between this number and the $7.36M capital spend included in the Interim Year is the result of a delay in invoicing from Tesla. Tesla invoices are generally sent one to two months after installs are complete, leading to this difference in capital closings in the FY22 period. GMP continues to manage all of its New Initiative investments under the approved capital limitations in the Current Plan.

Q10. You list two other battery storage projects; first can you briefly describe the Enphase Battery Pilot?

A10. The Enphase Battery Pilot is designed to test a new battery solution for residential use. Building upon our ESS tariff, we will be partnering with Enphase to enroll a total of 100 participating customers, who will lease two Enphase Encharge 10 batteries at $65 per month for ten years. The fully integrated system provides a total of 20 kWh of backup energy to the whole home. As we drive forward to a goal of a storage system in nearly every home, it is important to evaluate and leverage as many technologies as we can to ensure they perform as needed for customers, and we plan to continue to piloting new storage solutions as they become available.

Q11. Please describe the North Troy Battery project.

A11. GMP is working with Vermont Electric Coop ("VEC"), Sandia National Labs and the Department of Energy ("DOE") to deploy and test an energy storage system located in the SHEI region of Vermont. This project includes a grant provided by the DOE and will be a test case to determine how the storage system can be used to reduce transmission congestion in this area. GMP and VEC will jointly own the storage system, each contributing to the balance of cost that is not covered by the grant. This project is anticipated to produce a total NPV benefit of $2.5M over its lifetime, half of which will be attributed to GMP customers and half to VEC customers.

Q12. The next project on your list is the SPAN Pilot. Can you briefly describe the investment associated with that project?

A12. This pilot will work with a small set of customers to provide and install SPAN Smart Panels at no cost to the customers. SPAN panels replace a traditional electrical panel, providing all the safety features of a standard panel with added connectivity and functionality, including the ability for whole-home metering and load management by circuit. This pilot will test the load management and metering capabilities, and integrate the SPAN panel with distributed resources like storage, EV chargers, and solar panels, many of which GMP has deployed in partnership with customers over the past several years. Participating customers will benefit from circuit-level data that will empower them to make smart energy choices in the home, while GMP and all customers will benefit through connecting and controlling additional resources available for grid needs. We will also evaluate how this new technology can be further leveraged in the utility space to provide more benefits for customers and the grid.

Q13. Please describe the Project for DC Fast Charger ("DCFC") Replacements and new fast charger installations.

A13. GMP owns and operates a fleet of 14 fast-charging stations that can currently charge at a rate up to 50kW and have a single port to charge one vehicle at a time. The fleet has been the backbone of Vermont's growing fast-charging network for more than five years, and these early stations are now reaching the end of their lives. With the introduction of long-range EVs that can charge much faster than earlier models, we will use existing infrastructure and install high-powered stations at several locations capable of charging

two EVs at once with double the maximum charging capacity of the existing equipment. Ensuring that drivers can receive a fast charge throughout the state is critical to accelerating EV adoption.

In addition to this project, we will expand our fast-charging network in less-traveled locations in Vermont, to support our own fleet during storm response and promote equitable access to charging infrastructure for EV drivers in rural areas not frequently in highly traveled corridors.

Q14. Can you describe GMP's Resiliency Zone work included in this rate filing?

A14. Building on our experience implementing a cutting-edge microgrid in Panton, in 2021 GMP will pilot Resiliency Zones in several Vermont towns. We selected initial towns through analysis of outage, connectivity, communications, and social vulnerability indicators that helped our team identify 15 high-priority towns. After outreach and coordination with the towns and the Department of Public Service ("DPS"), for the first year of this pilot, we are working with Brattleboro, Grafton, Rochester, and Strafford.

GMP recently awarded an RFP for a Resiliency Zone project in the town of Rochester. This will provide a turnkey power purchase agreement ("PPA") for solar generation and storage capabilities that will be leveraged to provide the benefits of these resources with a microgrid to electrically isolate downtown Rochester—an area significantly impacted during Tropical Storm Irene.

The Grafton Resiliency Zone will pilot a residential solution that offers home battery storage and rooftop solar, where feasible, to customers that experienced over 20 outages between 2018 and 2020. In December 2021, GMP issued an RFP to provide this

storage and solar solution to approximately 70 homes in the identified zone in Grafton. Through this project, a concentrated group of customers—partnering with solar and storage providers—can create a much more cost-effective solution than if each home were done on an individual basis. The facilities developed under this RFP will also be used to provide peak reduction and other grid and market benefits in a similar fashion to GMP's existing battery programs. This pilot would be an example of a resiliency project for customers in lieu of a traditional poles-and-wires solution. Our team reviewed what would be required to achieve a similar reduction in outages and what it would cost to complete that distribution project. The distribution project would cost over $450,000, while the net cost of the storage solution in every home would be approximately $100,000 after accounting for the benefits that the storage would provide and assuming no contribution from the impacted customers. Notably, while the poles-and-wires solution would be a substantial improvement to the service compared to the status quo, it would still be susceptible to storm outages compared to the storage solution. It could eliminate outages for these customers in all but the longest-duration events. We expect this pilot to provide an alternative model that produces an increase in customer reliability and resiliency in some of the most hard-to-serve locations in our territory.

We are also working with the towns of Strafford and Brattleboro. In Brattleboro we have been working with the Tripark Cooperative Housing Association mobile home community. This location has approximately 250 mobile homes, some of which were impacted by a nearby brook during previous flood events. The focus here is the installation of a storage solution and microgrid to isolate the entire mobile park during a

system event. This is an excellent way to assure equitable access to these innovative solutions and provide a substantial increase in resiliency to a significant number of customers in a small area. We anticipate this project to begin in the Rate Year but not be completed until the following year.

And lastly is our work with the town of Strafford and the owner/operator of the Elizabeth Copper Mine solar facility. In this project we are working with the owner of the existing 5-MW solar project located on the copper mine just outside of downtown Strafford. The goal here will be to add storage to the existing solar facility and provide a microgrid and the ability to island downtown Strafford, including community facilities, shelters, and goods and services that would be important in the event of a major disturbance on the system. We anticipate this project to be structured similarly to Rochester through a PPA with the facility owner and with GMP installing necessary equipment on the distribution system. We anticipate beginning this work in the Rate Year with completion targeted for 2024.

Our goal in developing these Resiliency Zones is to come up with innovative ways to improve customer and community resiliency, and reach more customers of varying means, in locations where traditional poles-and-wires solutions may not be feasible, or less effective due to the effects of climate change.

Q15. Describe the partnerships GMP has pursued with energy services companies to develop and deploy innovative programs.

A15. An important part of this energy transformation is providing value to customers while expanding opportunities for Vermonters to participate in the transformation and

identifying strategic partnerships to accelerate the pace of the work. With most of the innovative pilots, GMP does not directly supply or install the equipment. This requires partnerships to perform the installations and coordinate with customers to complete this work, providing jobs and greater opportunities in Vermont in this energy innovation space. GMP is creating new platforms that allow multiple parties to independently participate and help lower the cost of energy in Vermont.

A great example is our ESS and BYOD tariffs, each of which began as a pilot. In both offerings, installers are necessary to supply and install the battery storage solution for the customer. This includes many Vermont energy companies, who can also market the sale of solar installations at the same time.

Strategic partnerships are critical to our Resiliency Zone work. In each of these solutions we will require partnerships to deliver on the customer-facing solution needed to improve the resiliency of the community. In our Rochester and Grafton projects, we began with an RFP that was provided to many Vermont companies and others outside Vermont. We have selected the project for the Rochester Resiliency Zone after conducting an RFP; the Vermont developer will install and operate a solar and storage facility delivered to GMP on a PPA basis. Partnerships like these allow us to realize these innovative offerings for customers.

It is important to note that GMP is ultimately responsible for ensuring effective, safe, and reliable integration of energy services across our distribution system. It is for this reason that we continue to pilot and test, in real-world scenarios, the innovative tools and technologies we offer, which then can be scaled up and offered more broadly. Our

BYOD program is a great example of how we have been able to learn about and test various battery systems to work toward adding additional battery systems over time. If they perform well, we can offer them out to the marketplace for partners to sell directly to customers, leveraging our platforms to extract value, even where we had not anticipated value initially, such as the frequency regulation market, while ensuring we provide value to all non-participating customers as well.

Q16. Can you please summarize how GMP approaches and evaluates the benefits of these projects for customers?

A16. Our New Initiative programs strive to promote equity and create value for participants and nonparticipants, while also working toward the goals of decarbonization and increased resilience and reliability. Each program is designed to maximize as many of these factors as possible, by stacking different benefits, and ensuring that the program serves *all* GMP customers. The benefits are measured in various ways, such as reducing power supply costs, generating new revenue through customer lease payments, or participation in markets like ISO New England's ("ISO-NE") Frequency Regulation Market.

An important aspect of stacking benefits is the flexibility of shared access in the programs we are developing. This allows GMP to strategically manage resources during peak times and realize the benefits mentioned above for customers (reduced power costs through reduced peak load costs, energy arbitrage, and frequency regulation services). GMP is able to use an array of distributed resource types to maximize the realized benefits by managing and leveraging each resource's capabilities. For example,

curtailing water heating or charging activities through residential Level 2 charging stations can be done for longer durations than other devices, thereby increasing the chances that we reduce our monthly and annual peak demand. On the other hand, we can manage energy storage systems to avoid peak energy consumption, or to provide power back to the grid during peak periods, to avoid or even benefit from expensive energy prices. Our ability to separately manage these devices assures our ability to capture these benefits.

III. Owned Generation – Rate Year Power Production

Q17. Please describe projected energy output for GMP-owned generation for the Rate Year.

A17. GMP's owned generation for the Rate Year is projected to produce 872,203 megawatt-hours (MWh) of energy, as shown on **Exh. GMP-JC-3**. This includes projected output from the following categories of projects:

- Wind (including Kingdom Community Wind and Searsburg Wind)
- Hydro
- Solar
- Other wholly owned generation projects
- Jointly Owned Generation Projects

Wind Projects

The Kingdom Community Wind project ("KCW"), located in Vermont's Northeast Kingdom, is a 64.5-MW power plant consisting of 21 VESTAS V112 turbines

rated at just over 3 MW each. The four-year annual average for power production from the KCW project from 2017–2020 was 166,973 MWh. In 2022, we will complete the final portion of the B20/B22 transmission line upgrades, which are anticipated to increase annual production to a total annual output of 181,274 MWh. GMP resells approximately 12.7% of the total site output to Vermont Electric Cooperative ("VEC"), resulting in a net GMP forecasted output for the Rate Year of approximately 158,252 MWh.

The first utility-scale wind facility installed in the Northeast, Searsburg wind facility has been operating for almost 25 years and consists of 11 550-kW turbines, for a total nameplate capacity of 6.05 MW. Due to a recent regulatory change at ISO-NE, the operational maximum capacity of the site is 4.99 MW, which is managed through software controls. While Searsburg has operated reliably, we are quickly approaching the end of its anticipated 25-year service life and are analyzing options for the site, including repowering with modern turbines. We anticipate that we will propose a plan for PUC review toward the end of the next regulation plan period. The projected output from this facility for the Rate Year, based on historical production is 11,934 MWh.

The projected output of GMP's wind projects for the Rate Year, net of resale to VEC, is 170,186 MWh.

Hydro Projects

GMP owns and operates 38 hydroelectric stations with total capacity of 116 MWs. The plant sizes range from the 200-kW Pierce Mills station to the 10.60-MW Proctor station. As described by GMP witness Maria Fischer, we have reviewed the long-term 20-year historical production data, unit availability, planned system outages,

upcoming enhancement projects, and operational changes required by Federal Energy Regulatory Commission ("FERC") relicensing or Vermont Agency of Natural Resources ("ANR") Water Quality Certifications to forecast the monthly and annual production for our hydro facilities. Based on this data, our forecast for hydro production is 375,889 MWh in the Rate Year.

Solar Projects

GMP owns and operates numerous distributed solar projects in Vermont. These range from small projects located on GMP facilities to 5-MW solar projects in various locations that were originally part of a joint-venture structure and became GMP's wholly owned resources at the end of 2021. There are five projects that make up this group, located in Hartford, Williston, Richmond, Williamstown, and Panton. These five projects are forecasted to produce 39,029 MWh annually.[2] At our Panton facility, we also commissioned a 1-MW, 4-MWh battery system that supports a first-of-its-kind, inverter-based microgrid, leveraging the resiliency benefits of solar generation and storage for nearby customers in the community and informing future pioneering renewable microgrid efforts.

[2] In addition to our existing fleet of wholly owned solar generation, three jointly owned projects were installed in 2019 in Milton, Essex, and Ferrisburgh, each accompanied by 2-MW, 8-MWh battery storage systems. The battery storage is primarily used for peak reduction value as well as providing frequency regulation services to ISO-NE, producing additional revenue for GMP customers. The three sites are forecasted to produce 24,913 MWh annually. Because these projects were developed through a GMP affiliate, the power produced by the facilities is purchased by GMP through a PPA structure with each project's affiliate company. These are not accounted for in my analysis as generation from GMP-owned facilities. Instead, power generated by the facilities is captured in the purchased power costs incorporated into GMP's power supply costs, which are addressed by GMP witness Maria Fischer.

Other Storage Resources

GMP's battery storage resources include not only our larger storage resources, but importantly also our growing fleet of residential and small-scale battery storage. In total, all our battery resources saved customers over $3M in avoided power supply costs in 2020. After several residential battery storage pilot programs resulted in the successful rollout of our tariffed ESS and BYOD offerings, GMP now has over 17 MWs of small-scale battery storage capacity, providing backup service at customers' residences and businesses. This capacity can also reduce peak loads, cut carbon and costs during peak periods for all customers, and is currently providing additional revenue through 2 MWs of aggregated frequency regulation, an amount we intend to increase. This sharing energy system is critical to growing resiliency for customers in the face of climate change.

GMP has PPAs for larger, multi-MW battery projects, such as the 5-MW solar/battery storage facility commissioned in Barre in 2020. An additional 17 MWs, 38 MWhs of larger-scale battery storage capacity is planned for 2023, not including our residential battery programs or resiliency zone work.

All combined, these storage resources fill the role of traditional quick-starting peaking generation, allowing us to plan for the retirement of existing fossil-fueled facilities while maintaining the peak-reduction, load control, and revenue streams to benefit customers of our peaking resources. Developing this storage capacity and peak-reduction ability is necessary to support our 100% carbon-free power supply as it transitions to 100% renewable by 2030.

Other Wholly Owned Generation

In addition to the wind, hydro, solar, and storage facilities discussed above, GMP owns a fleet of five thermal peaker plants in service and one in the retirement process: Gorge Gas Turbine, Essex Diesels, Vergennes Diesels, Berlin Gas Turbine, Ascutney Gas Turbine, and the Rutland Gas Turbine. The Vergennes plant has been retired and the Rutland facility is pending retirement, planned for 2025. We continue to evaluate further retirements as we transition to a fully renewable power supply portfolio and replace peaking needs with battery storage and other flexible load resources. Currently, these peaking plants typically operate at an annual capacity factor of less than 1%, but provide value for customers on the capacity and reserve markets beyond their energy value. Based on a six-year average of production from these facilities, updated to account for retirements and recent plant upgrades, we forecast approximately 1,879 MWh will be produced by our thermal peaker facilities in the Rate Year.

Jointly Owned Generation Projects

Lastly, GMP is a joint owner in four other power generation facilities that we do not manage:

1. The 50-MW McNeil Biomass Plant, located in Burlington and managed by Burlington Electric Department, in which GMP has a 31% ownership stake;
2. The Stonybrook Combined Cycle plant, located in Stonybrook, Massachusetts, in which GMP has an 8.80% ownership share;
3. The Wyman 4 oil-fired facility in Yarmouth, Maine, in which GMP has a 2.92% ownership share; and

4. The Millstone 3 Nuclear facility, located in Waterford, Connecticut, in which GMP has a 1.73% ownership stake.

Based on historical production from these facilities, we forecast our shares to include 262,198 MWh in the Rate Year.

Summary

Based on the above, GMP forecasts overall production from our wholly owned units to be 610,005 MWh in the Rate Year, and 262,198 MWh from jointly owned facilities, for a total production of 872,203 MWh (excluding JV Solar/Battery Storage projects). *See* **Exh. GMP-JC-3.** This information is used by Ms. Fischer in developing GMP's Rate Year power costs, which are discussed in her testimony.

IV. Generation O&M Expense

Q18. Please describe the Rate Year O&M expense for GMP-owned generation.

A18. The generation O&M budget covers all ongoing necessary upkeep and repair expenses for GMP's 52 wholly-owned generation plants including wind, hydro, solar, and thermal. This includes the payroll costs for the generation team employees, all outside consultants, FERC licensing costs, permitting and compliance, safety requirements, and smaller items that are not part of a capital project used at the various generation stations. The GMP generation team is always focused on keeping our fleet of power generation infrastructure operating optimally and as safely and reliably as possible at the lowest cost for our customers. This includes work to maintain all levels of compliance at our sites along with enhancements to maintain safe, compliant, and reliable operations. In addition to these generation facilities, the GMP team inspects and maintains the Jay Synchronous

Condenser, which supports the KCW and nearly a dozen other small-scale wind and solar facilities.

GMP's power generation team employees directly conduct necessary safety, maintenance, and reliability work, unless specialized skills or equipment are needed to assist (for example, engineering, concrete and civil work, and/or heavy equipment handling). Examples of these O&M activities include raking racks that gather debris at hydro facilities, planned and unplanned repairs on various generation components, and preventative maintenance such as changing oil, filters, and lubricants. The GMP power generation team focuses on performing as much of the work as we can, and we use outside resources only when necessary. GMP also relies on outside resources for their expertise in FERC and state environmental compliance and permitting obligations.

The generation O&M budget is based on spending in the Test Year and adjustments for known upcoming major expenditure requirements, such as large annual FERC- or PUC-required dam inspections and any potential O&M cost reductions due to improvements made in the prior year. These adjustments and the Rate Year generation O&M budget are reflected in the cost of service at **Exh. GMP-ER-RB-4, Schedule C2-c**.

Q19. What are the relevant Rate Year O&M costs for the jointly owned facilities in GMP's power portfolio and how are these costs developed?

A19. The Rate Year power costs for GMP's ownership interest in our jointly owned facilities reflect an inflation-adjusted five-year average of actual, historical non-fuel O&M annual costs from 2017-2021, totaling about $7.9M. Each of our jointly owned facilities is managed by a lead participant (e.g., Burlington Electric Department, for the McNeil

plant) that is responsible for leading the operation of the facility on behalf of all its owners. The lead owner tracks the expenses and revenues, along with capital expenditures, which are recovered pro-rata from the remaining joint owners. In this way, each joint owner shares in the costs and accounts for their share of O&M and capital associated with the plant on its own books. For FY23, GMP's pro-rata share based on the five-year average noted above is as follows for each facility: Millstone $4.4M, McNeil $2.2M, Stonybrook $1.0M, and Wyman $0.3M for a total of $7.9M. For comparison, the Test Year costs for these facilities totaled about $7.2M. These costs are reflected in the cost of service at **Exh. GMP-ER-RB-4, Schedule C2-b**, and incorporated in Ms. Fischer's calculation of Rate Year power supply costs.

V. Generation Capital Expenditures

Q20. What criteria does GMP use to select capital projects relating to owned generation?

A20. Overall, GMP's power generation capital planning is focused on improving the performance of hydro, wind, solar, thermal generation, and battery storage assets in one of several programmatic categories: safety, environmental and regulatory compliance, resiliency, plant reliability and operating efficiency, and production output. The power generation planning process looks at best practices and emerging technologies as a way to achieve these goals, whenever possible. The generation team's capital planning philosophy is set forth in detail in **Exh. GMP-JC-4**. As with any capital improvement that GMP makes on behalf of our customers, the review begins with the same questions: 1) what value will this project provide to our customers, the environment, and the safety of our team; and 2) how does it compare to the many other customer priorities we are

managing to balance costs? The generation team maintains a 10-year capital-improvement forecast that is regularly updated based on the need to keep all of our facilities running safely, reliably, efficiently, while meeting regulatory and environmental obligations.

The team assesses how to optimize each facility's output in the most cost-effective and safest way possible to benefit customers. This can include complete electrical upgrades to automate a facility, a hydro runner replacement or generator rewind, concrete resurfacing, or small projects like replacing the lighting in a plant facility. In addition, these projects may include improving the required responsiveness of generation units to ISO-NE operating commands, such as improved Supervisory Control and Data Acquisition ("SCADA") and electrical upgrades to automate the power production facilities. In the face of climate change, the safety of our dams and facilities remains the top priority. This is also something that the FERC is focused on and that will continue to drive the need for safety upgrades and FERC compliance projects at our hydro facilities.

Q21. How are projects identified and selected to be included in the generation capital plan?

A21. The GMP power generation team's 10-year project list of necessary capital improvements is updated annually. We weigh the value and necessity of each project based on the factors described above, which in turn affects the prioritization of each project. Projects involving safety and compliance are the highest priority, with plant resiliency, reliability, and production output following as the next priority.

The Generation Team uses this 10-year plan to recommend individual projects in each year, working with the Capital Management Team ("CMT") to ensure alignment of priorities and available resources between generation capital and that of other teams, as described in Mr. Burke's testimony. For each project included in the capital budget in any given year, a more detailed estimate and capital folder is developed, which includes quotes from contractors, suppliers, or consultants as well as information on GMP internal costs.

Q22. How does GMP develop the cost and anticipated in-service dates of generation projects?

A22. The estimation process goes through stages similar to the development of the project described above. We begin with a planning-grade estimate. This stage also includes the initial development of a project team and schedule for regulatory approvals, engineering and design, construction, and commissioning. A project moves through three phases of design: planning/conceptual design, schematic design, and construction design/documentation. At the completion of each phase, the overall project schedule, scope, and project cost are evaluated and project requirements are aligned with the original goals of the project. Further detailed estimates, competitive equipment quotes, and construction bids are obtained for major components of the project to create the overall project plan. This includes a detailed estimate and schedule and also identifies major risks, permits, and compliance requirements. Smaller projects are grouped into blankets and the related costs are developed, in part, based on the historical average for a given blanket category. The in-service date takes into account the entire project schedule

and an allowance for time to close out the project, including closing contracts, posting to GMP's fixed asset system, and completing any compliance obligations.

Q23. Please summarize the generation projects included in this rate filing.

A23. The project categories and projected closed-to-plant totals are summarized in **Exh. GMP-JC-5**.

The primary driver of the difference between Interim Year and Rate Year costs is the timing for when several larger projects, spanning multiple years of planning, permitting, and work, will finally be completed and closed. One project in particular, the Goshen Dam Intake discussed below, is a substantial project with a total cost of about $12.6M. While most spending has occurred or will occur in FY21 and FY22, it will not be completed and closed until the Rate Year. More detailed information about projects in each of these categories, including project description, plant addition amounts, in-service dates, and project criteria are contained in **Exh. GMP-JC-5** and further summarized below.

Q24. Can you please identify and describe some of the major projects included in the Owned Generation category for the rate filing?

A24. Yes. The planned capital expenditures on Owned Generation for this filing include numerous projects. I have identified several of the larger projects, by year, below.

Goshen Dam Intake (FY23) – $12,609,879. GMP is modifying the intake structure at the Goshen Dam with an intake on the upstream side of the dam. The work

requires major capital improvements to comply with the FERC's dam safety standards and GMP's license obligations.

The project includes the design, hydraulic analysis, and construction of a new intake structure including access bridge, a gatehouse structure, 24-inch valves with actuators, and intake racks. This project also includes the design and installation of an early warning detection and alert system and upgrades to the outlet structure into Sucker Brook.

The Goshen Dam is a FERC-regulated, high-hazard dam. The earth embankment dam impounds the Sugar Hill Reservoir and is located in Goshen, 4.1 miles upstream along Sucker Brook from GMP's 2.2-MW Silver Lake Hydroelectric Facility. The flow of water from Sucker Brook to Silver Lake is mostly regulated by Goshen Dam through a four-foot by four-foot, 260-foot-long concrete conduit located at the base of the earthen dam. Under normal operations, the entire length of the conduit through the dam is charged with full head pressure matching the impoundment elevation. In a July 2, 2019 letter, FERC stated that routine inspections could no longer guarantee Goshen's safe operation because the conduit cannot be depressurized easily from the impoundment side.

This project started in May 2021 and remains in process. In Spring 2021, a combination of unforeseen reservoir conditions, including several significant precipitation events, required considerable re-engineering of the water control plan. This included expanding the limits of disturbance, relocating the proposed intake further into the reservoir, and constructing a more robust cofferdam structure to ensure project safety, environmental soundness, and meet ANR requirements. This required specific project re-

engineering, FERC review, and significant additional onsite activity. As part of ongoing environmental compliance connected to this work, GMP, in consultation with and as required by ANR, paused construction during the winter to refill the reservoir. Work on the project will begin again after the spring runoff. All of these conditions expanded the project scope, schedule, and cost, and added an unexpected second year to construction. The project is expected to be completed before next winter.

Marshfield Emergency Spillway (FY23) – $7,141,193. This project involves a complete reconstruction of an emergency spillway at our Marshfield Hydro Facility, a non-FERC high-hazard dam. This project was recommended in the 2018 Independent Safety Inspection Report ("2018 SIR") and includes the construction of a new concrete chute spillway with an underdrain system, upgrades to the wing walls and abutment walls, and various security and personnel safety improvements. The emergency spillway is located adjacent to the service spillway and penstock on Molly's Pond, a reservoir upstream of the Marshfield Hydro Station. Completion of the project requires significant excavation, access improvements, and water control during construction. Since issuance of the 2018 SIR, the project team has been engaged to complete the design and flood analyses, and obtain the appropriate regulatory approvals through a PUC Chapter 43 proceeding.[3]

To meet obligations with respect to fisheries habitat as set forth in two memoranda of understanding between GMP and ANR during the Chapter 43

[3] *See Petition of Green Mountain Power Corporation under 10 V.S.A. Chapter 43 for authorization to make changes to the Molly's Falls Hydroelectric Facility in Cabot, Marshfield, and Peacham, Vermont*, Case No. 18-2549-PET.

proceedings, GMP revised the construction sequencing and schedule to install a minimum flow bypass pipe prior to completing the emergency spillway project. GMP and the project team worked diligently to complete a site-specific probable maximum precipitation analysis as recommended by the Commission's consultant, GZA GeoEnvironmental, Inc. This necessitated revisions to the project design plans, and a related delay in contractor bidding and award. Supplemental geotechnical investigations, required to finalize the construction drawing set, were delayed due to a shift in the schedule of related penstock bypass work. The project has PUC approval and construction is planned for 2022, with a targeted December 2022 completion date.

Cavendish Electrical Modernization (FY23) – $3,611,266. This project involves a full upgrade of the electrical and protection components of the plant to bring it to current industry electrical standards, including arc-flash protection. Safety is the primary reason for completing this project as the project provides much needed improvements to the antiquated electrical system at the plant. We have been planning to complete this project for several years now but other even more pressing generation projects and other delays have caused schedule shifts each year. We aim to systematically improve safety at our facilities by minimizing the potential for arc flash and electrical exposure. An arc-flash study for Cavendish identified the need for this improvement to allow our field employees to safely operate the plant, and we have since worked with our consultant to ensure safe operating procedures until these upgrades can be made. This work requires transitioning from older, open-air, electric buses—sometimes insulated with asbestos—to modern, fully-enclosed, and protected electrical

gear. We are also improving the operations of the facility, including the ability to maintain remote control of the site and increase operational resiliency. Lastly, the Cavendish hydro facility is relicensing with FERC, and this modernization will address numerous operational changes that are expected from the revised FERC license, including environmental flows and remote operation.

Gage Obermeyer System $3,253,741. This project will replace the manually hinged flashboard system with an Obermeyer rubber-dam-operated, hinged flashboard system. The current trolley system is not an acceptable means to access the dam to reposition the flashboards, based on findings from a site visit performed by Vermont Occupational Safety and Health Administration ("VOSHA"). This automated system will allow the plant to be operated safely, effectively, and in compliance with operating permits. Furthermore, without being able to manually reinstall the hinged flashboards, the pond elevation has been reduced and the facility is out of service. Completion of this project will restore the site's ability to generate power safely and increase overall output by approximately 151 MWh annually.

Q25. Can you please explain what the generation blanket is used for?

A25. The generation blanket category is established to cover miscellaneous smaller projects that arise throughout the year due to equipment failure, replacement of damaged equipment from high-water or other weather-related events, updated regulatory requirements, and safety priorities, among other factors. Typically, projects that fall within this category are relatively low cost and are completed quickly. These projects are generally needed immediately and are unplanned or unexpected. The total budget

amount is developed based on a five-year historical spending average in these categories and includes hydro, wind, solar, and thermal projects, and stands at $928,566.

Q26. Can you provide some examples of the types of projects that have historically been covered under the blanket?

A26. Yes. In September 2021, we purchased a new battery charger at our Passumpsic Hydro plant upon a failure of the existing system. Critical hydro turbine control and turbine protection devices are run by DC power fed from a battery bank comprised of batteries and a charger. This device is critical to maintain plant operations by ensuring all devices work in the event of a power outage. A new charger was therefore purchased immediately for $1,111.

Another example is the replacement of a failed Hydraulic Power Unit ("HPU") pump for Unit #2 at our Smith Hydro Station, also in September 2021. The HPU is a hydraulic system used to control the turbine to generate power. The unit was out of service due to a mechanical failure and this project, at a cost of $2,699, was needed to safely restore generation to the site.

An example of a larger blanket project is our upgrades to the bascule gate system at GMP's East Barnet Hydro site during the summer of 2020. The bascule gate is critical infrastructure to manage water through the site. Immediate repairs were performed using the blanket to rebuild the large hydraulic cylinders that operate the gate. This project, at a cost of $44,247, was needed to maintain water flow control at the site, assuring continued compliant operation of the East Barnet facility.

VI. Renewable Energy Standard Tier III Compliance

Q27. Please identify the Rate Year expenses included in this filing for complying with Vermont's RES for Tier III.

A27. Tier III of the RES establishes annual targets of fossil-fuel reductions based on a percentage of GMP's total retail sales expressed in MWHs. In calendar year 2022, GMP's Tier III target is based on 5.33% of our retail sales, which equates to about 216,940 MWh of equivalent fossil-fuel reductions. Each year, the Tier III target escalates by 0.67%. In 2023 GMP's target will be 6% of retail sales, which will equate to about 246,311 MWh of additional fossil-fuel-equivalent reductions.

Included in this rate filing is $6.4 million of forecasted power supply costs related to Tier III incentives to customers during the Rate Year. GMP has banked significant Tier III credits by aggressively proposing and pursuing energy transformation programs covered under Tier III. Therefore, our Tier III compliance cost is based on the average cost of these banked credits, which is currently $27 per MWh. GMP intends to continue to propose and pursue cost-effective Tier III projects and programs in excess of these requirements to be used for compliance in future years (or if the requirements increase in light of decarbonization goals to help address climate change). Credits are added to power supply costs within the year incurred. The FY23 forecast is incorporated in Ms. Fischer's testimony and calculation of overall power supply costs.

Q28. How do Tier III programs fit into GMP's energy transformation work?

A28. GMP started offering our customers energy transformation programs even before the RES legislation and the Tier III targets. While we are focused on our Tier III goals, they

are not the only motivation behind our expanding portfolio of customer transformation programs. The landscape of energy delivery is constantly and rapidly changing. New technologies emerge each year that further enable the transformation of the traditional energy system, and help support a connected two-way grid that provides greater benefits to customers. A recent example is the SPAN smart electric panel that enables the efficient and coordinated use of devices and technologies in a home (including solar, storage and electric charging), and may help us get beyond the traditional electric meter. GMP is a leader in embracing these types of innovative technologies and offering them to our customers to test their abilities to help accelerate the transformation of our energy system to a home-, business-, and community-based model. Many of the New Initiative and Innovative Pilot projects described in my testimony will produce Tier III value for customers.

Our Tier III programs complement these efforts and provide our customers ways to improve the cost, carbon impacts and reliability of their energy use across home heating/cooling, hot water, transportation, and backup power applications. Tier III is an important enabling policy to help support the transformation that customers are seeking and that GMP is delivering. Moreover, Tier III incentives help GMP make the opportunities and benefits of this energy transformation available to all our customers. Equity requires us to address access to these programs and the tools driving the energy transformation, and also the realization of the benefits for all customers. Allocating percentages of incentives to different income-levels or classes of customers is not enough; we are striving to design our programs and their benefits with equity as a central

goal. In implementing Tier III, we work to deliver in each program value to both the participating customer and all other customers so that the transformation benefits everyone.

Q29. Besides creating programs designed to benefit everyone, what specifically is GMP doing to ensure transformation projects and programs are accessible to lower-income Vermonters?

A29. GMP offers programs to all customers in our territory, including low- and moderate-income customers. In residential programs, we have specifically allocated program availability to including low- and moderate-income customers through various mechanisms. For example, we received a Vermont Low-Income Trust for Electricity ("VLITE") grant to provide 100 Tesla Powerwalls to customers who qualified for GMP's Energy Assistance Program (EAP) or were eligible for 3Squares VT and could experience a hardship from a health and safety perspective when the power goes out for an extended period of time. Another example is reserving a certain number of program spots in our SPAN pilot that will be filled by EAP-qualified customers only. Additionally, we provide EV incentives to customers purchasing or leasing an EV as part of our Tier III program, and provide added incentives for customers meeting an income threshold to increase accessibility to EVs for all customers. The same is true with GMP's heat pump rebates.

We have learned that simply increasing incentives or providing goods or services at no cost is not always enough to ensure participation by all of our customers. Our cost-savings approach in our EV rates, our Powerwall program, and, as discussed further

below, our resiliency zone program, is a strategy to ensure all customers take part in the direct benefits of these programs beyond just the cost and carbon savings they get as non-participating customers.

VII. Fleet Expenditures and Electrification

Q30. Can you please provide an overview of your testimony on fleet capital and other expenditures and GMP's plans for electrification?

A30. GMP's transportation fleet is key for performing all of the company's critical operations and storm restoration for customers. All GMP vehicles, from line trucks to pickup trucks, are driven and used extensively every workday, often in challenging weather conditions and unpaved and off-road environments. Daily use, salt and brine used to reduce road ice, and extreme weather conditions all take their toll on our vehicles. The fleet mechanics properly service all vehicles and ensure they are in safe operating condition, but the aging fleet is requiring more than typical services, and in many cases, complete frame restoration and rebuilds due to age and high mileage. GMP's fleet plan proposes to accelerate the addition of newer vehicles into the fleet, reduce the average age of the fleet over time, and electrify vehicles in the car and pickup truck categories where there are now economic offerings available from manufacturers. GMP's Transportation Capital Planning Framework is provided in **Exh. GMP-JC-6**.

In my direct testimony supporting GMP's New Plan filing, I explained GMP's focus on the transportation fleet to improve fleet efficiency (uptime, maintenance, and reliability) and to begin the transformation away from fossil fuels with strategic vehicle electrification. That testimony further details the need for this transformation and why

the electrification of our fleet is such an important goal. In this testimony I further explain how we plan to transform our fleet during the Interim and Rate Years, including employing a new leasing structure for heavy-duty vehicles rather than an outright purchase and the conversion to electric for our small- and medium-duty fleet.

Q31. Can you expand further on GMP's Fleet electrification priorities?

A31. GMP currently operates approximately 160 cars, SUVs and light pickup trucks. The fleet plan converts 100% of cars/SUVs to full EV by 2025 and 25% of light trucks to EV by 2025. The rest of our light-duty vehicles will be replaced by EVs through 2029. EVs will be fueled by electricity at an overall more stable and favorable price than the fossil fuel vehicles they replace and don't require oil changes, transmission services, and coolant flushes. Customers will benefit from this transformation economically, and with significantly lower tailpipe emissions.

Q32. Can you elaborate on GMP's decision to enter into leases for your heavy-duty truck replacements?

A32. Yes. GMP recently completed an extensive analysis of options for procuring heavy-duty trucks (bucket and digger derrick trucks), which are the most expensive category of vehicles that GMP operates. Currently there are 107 of these heavy-duty line trucks in the fleet. The fleet plan proposes to shift our replacement schedule of many of these assets over time with annual replacement of 15 line trucks. We are targeting an approximate seven-to-eight-year replacement cycle for these vehicles, which is similar to replacement schedules of other large vehicle fleets like the State of Vermont fleet. To

make sure that we could facilitate these replacements cost-effectively for customers, both purchase and lease options were evaluated.

Two lease options were evaluated and compared against outright GMP ownership: a terminal rental adjustment clause ("TRAC") lease and a fair market value ("FMV") lease. Each features an eight-year term at fixed monthly prices and an extended warranty for the full term of the lease. The TRAC lease features a slightly lower monthly payment but with a 20% balloon payment due at the end of the term. GMP would then own the vehicle and could continue using it or sell it and replace it. The FMV lease is a straight lease. At the end of the term GMP would return the vehicle without further obligation.

Our cost-benefit analysis is set forth in **Exh. GMP-JC-7**. As a result of the analysis, GMP concluded that both lease options outperformed outright ownership on a cash and NPV basis and are better for customers financially. We concluded that although the TRAC lease was slightly less expensive on a cash and NPV basis, it incurred a greater financial risk, as we would receive an uncertain price at resale that the FMV lease does not impose. Receiving a lower price for the vehicle at resale would negatively skew the economics against customers for the TRAC lease and favor the FMV lease. The potential upside of receiving a higher price in the market for the TRAC lease option is not considered to be a likely offset against the increase in risk due, in part, to expected vehicle condition among other factors. Lastly, the administrative costs and expertise needed to manage TRAC leases make them less appealing for GMP and our customers.

Q33. Please identify the capital expenditures on fleet projects during the Rate Year and Interim Year.

A33. GMP is proposing $3.21M in fleet-related capital projects during the Rate Year. This includes the purchase of four forklifts, 19 small electric vehicles and six small electric pickup trucks to replace internal combustion vehicles that are at retirement age in our fleet. This also includes the purchase of four cable reel trailers for line work and the replacement of 19 medium-duty utility vehicles. Heavy-duty line trucks will be leased starting in FY23, and therefore are not included in Rate Year capital costs.

Interim year Transportation capital projects total $6.33M. As noted in Mr. Burke's testimony, all Interim Year capital projects, including these fleet investments, are made under GMP's Current Plan, subject to the capital limitations under that plan. They are included here for the purpose of confirming rate base balances at the start of the rate year. A detailed list of all fleet-related Rate Year and Interim Year capital projects, including project descriptions, estimated costs, in-service date, and applicable project criteria, is contained in **Exh. GMP-JC-8**.

Q34. Please identify the Rate Year O&M Fleet expenses, relative to the Test Year.

A34. For the Rate Year, total transportation-related O&M costs are approximately $4.7M, an increase of about $0.2M from the Test Year. Further detail of this cost-of-service adjustment is provided at **Exh. GMP ER-RB-4, Schedule C15**.

Q35. Given that lease costs can change year to year, how will GMP manage its fleet expense for customers over the New Plan?

A35. While the FMV lease is currently more cost effective for customers than GMP ownership on both a cash and an NPV basis, if ownership proves more cost effective in later years, GMP is not locked into lease choices in future years and would choose to purchase and own new vehicle additions again, pending Commission review of any additional capital expenditures if needed. GMP's goal is to cost-effectively maintain safe, reliable, efficient vehicles for employees, and we will continue to pursue the model best for customers when it comes to fleet replacement.

VIII. Customer Service

Q36. Can you provide a brief overview of GMP's customer service philosophy?

A36. Yes. GMP has a strong culture across all teams that is focused on putting the customer first in everything we do. As we continue to emerge from the pandemic, never before has the team at GMP been more motivated to serve our customers in new ways, and we are continuously improving and leveraging transformative innovations. The pandemic also provided some powerful lessons in how to best empathetically help and support customers. During the pandemic, we have worked tirelessly to connect people to federal and state assistance to get back on strong financial footing, including direct calls, emails and personal visits across several teams. All of this was unprecedented, and the work was gratifying when we were able to help secure aid for Vermonters who are struggling.

We also continue to provide more options for customers to interact with GMP, including text, emails, web self service, a mobile app, live web chat, social media, live

customer service representatives ("CSRs"), and an automated phone system. Our goal is to continuously exceed customer expectations, quickly providing the information they want in a way that works best for them.

Though we routinely exceed state service quality standards, we constantly work to achieve even better service quality, and to do so, we track our performance and communicate about it with employees constantly.

Q37. Can you expand on the various ways GMP communicates with its customers?

A37. Yes. GMP employs numerous platforms to communicate with customers to give them opportunities to connect with us. Our integrated voice response ("IVR") phone system allows customers to transact much of their business with us using the IVR or by speaking with a customer care representative. We also offer self-service functions on multiple platforms, including text, our app, and the GMP website, including a live web chat function. On the GMP app, customers can examine their usage, get updates on estimated outage restoration times, and set up convenient payment methods. Our online Outage Center, which loads easily on smartphones and computers, is an interactive resource for customers to easily report and learn about outages. We also routinely communicate with customers, including individually, through email and social media, including Facebook, Twitter, and Front Porch Forum. In advance of storm events, we use text alerts, emails, social media, press releases, and updates to our website to ensure customers are well informed before a storm hits. During major storm events, we also make outbound calls and employ door-to-door outreach.

GMP recently began to offer a new service from Telelanguage to ensure that virtually any customer can effectively communicate with us. Telelanguage offers an incredible array of translators with a simple phone call—allowing us to communicate with native speakers of nearly 300 languages. We are proud to offer this service to the growing number of Vermonters who might benefit from it and have had a positive response since we implemented it in the fall of 2020.

Q38. What measures or metrics do you use to gauge customers' satisfaction with GMP?

A38. We use a variety of measurements, from how our customers rank us on national utility surveys, to our performance under our state reporting plan, to quarterly and annual satisfaction surveys that we hire an independent service provider to conduct.

First, J.D. Power and Associates conducts an annual survey of mid-sized utilities across the country based on customer information, and GMP has been included among mid-sized utilities in the East since 2013.

In addition, we regularly report on our performance under the 2014 Service Quality & Reliability Performance, Monitoring & Reporting Plan (SQRP). The standards set forth in the SQRP were developed in conjunction with the DPS and approved by the PUC to establish and track performance standards for GMP.[4]

The SQRP, which is included as **Exh. GMP-JC-9**, incorporates service quality baselines, which are minimum standards for key service measures linked to customer satisfaction. The GMP standards cover a wide variety of important performance areas,

[4] *Investigation into Proposed Revisions to GMP's SQRP*, Case No. 8231, Final Order of July 23, 2014.

from call answering and meter reading to billing, reliability, safety, on-time performance, and as noted above, customer satisfaction.

We also set internal goals and standards that are higher than those included in the SQRP and conduct quarterly and annual customer surveys to evaluate GMP's overall performance and satisfaction. These surveys are conducted through Research America, formerly known as Metrix Matrix, which is an independent survey service provider. These are invaluable tools to help us find patterns or problems, tweak training when necessary, and address any concerns raised by customers. The SQRP results and Research America data are reported quarterly to the DPS and PUC, except reliability and worker safety performance measures, which are reported annually (with predicted results reported quarterly)

In addition, as part of the MYRP, we report on a wide range of performance metrics that capture parts of the customer experience, and our pilot filings also require customer surveys that help decide how to update the pilot, tariff it, or not move forward.

All of these various feedback tools help us continue to stay close with customers and are reviewed regularly at GMP to inform and continue to drive progress in these areas for customers.

Q39. How has GMP performed under each of the measurement tools you mentioned above?

A39. I'll address each of the measurement tools mentioned in turn.

J.D. Power Satisfaction Survey

In recent years, GMP has ranked in the top three among midsized utilities in the East and has steadily increased its J.D. score. In 2012, prior to the merger, CVPS's J.D. Power satisfaction score was 602. GMP was not included in the survey prior to 2013 because it did not meet J.D. Power's minimum size requirements for inclusion. Since it has been included in the survey, GMP's score has grown dramatically higher over the past decade, from 619 in 2013, to 626 in 2014, 656 in 2015, 681 in 2016, 707 in 2017, 722 in 2018, 710 in 2019, 750 in 2020, and 752 in 2021. This is an increase of 25% from CVPS's 2012 score to GMP's 2021 score, and ranks GMP third highest in the East for utilities of its size. **Exh. GMP-JC-10.** We are very proud of this significant acknowledgement of our customers' highly positive and improving view of the service our team provides every day.

Research America Quarterly and Annual Surveys

As I mentioned above, we have set internal goals that are higher than the state standards, and which we measure our performance against on a quarterly and annual basis. The quarterly survey only includes customers who have recently had an interaction with GMP's customer service team or a field employee, while the annual survey includes a randomly selected group of GMP customers. In these surveys, we routinely meet our stretch goals of 92% satisfaction. In 2021, our quarterly surveys showed an average transactional satisfaction score of 92.2 percent, finishing the year in Q4 with a strong 95.3% customer satisfaction, as shown in **Exh. GMP-JC-11**. As a point of comparison, the state standard is 82.5%. Moreover, we have received our 2021 annual survey results

which measured customer overall satisfaction of 96%, as can be seen in **Exh. GMP-JC-12.**

SQRP

Because of our focus on customer needs and process improvement, GMP has met the State's SQRP standard without exception on a quarterly basis since the start of 2015. In many cases, we continue to exceed, or beat, the SQRP standards by significant margins. Details of our performance for calendar years 2020 and 2021[5] are contained in the attached **Exh. GMP-JC-13** and **Exh. GMP-JC-14**.

Q40. Is there any specific project in this rate filing that provides an example of capital projects you will pursue to will help GMP maintain or improve its customer service?

A40. Yes, one FY22 project provides a great example of how we look to improve the customer experience through our capital work. IT Project number 176783 will upgrade and enhance the website for customers, including the My Accounts portal, a wizard-style interface to help guide customers through budget billing arrangements, including payment plans for those in arrears, plus updates to the outage maps and several other enhancements that will better serve customers. Additional work to enhance the GMP website and mobile app is planned for the Rate Year, as part of our ongoing work to improve the functionality and security of these portals for customers.

[5] GMP is still awaiting year-end data to compile its 4th Quarter 2021 SQRP report, therefore we are including in this filing the most recent SQRP report for the 3rd Quarter of 2021.

Another similar example in development is IT Project 170920, closing in FY22. This project enhances and builds out GMP's customer real-time messaging and notification platform. Following this phase of the project, customers can receive a wide range of notifications about their electricity use, accounts, and storms or outages, on a number of channels now including Facebook Messenger, Amazon Alexa, and Google Home (a related IT project, Project 176766, will provide further enhancement of Alexa and Google Home devices for GMP customers). As mentioned above, the IT Team plans many of these projects on an accelerated timeline, and will roll out appropriate customer-facing investments as new technology is developed.

As these projects show, we are continuously providing new and better options for communicating in a variety of formats that empower customers and improve their experience.

Q41. Does this conclude your testimony?

A41. Yes.