

**STATE OF VERMONT  
PUBLIC UTILITY COMMISSION**

Case No. \_\_\_\_\_

Tariff filing of Green Mountain Power requesting an )  
increase in its base rates starting January 1, 2019, to be )  
fully offset by bill credits through September 30, 2019 )

**PREFILED TESTIMONY OF  
BRIAN OTLEY  
ON BEHALF OF GREEN MOUNTAIN POWER**

**April 13, 2018**

**Summary of Testimony**

Mr. Otley describes GMP's overarching customer-focused philosophy when planning and executing capital projects and the importance of these projects for safety and reliability. He also details GMP's process for selecting, reviewing, and approving capital projects that benefit customers while GMP delivers low-cost, low-carbon and highly reliable power along with new innovations to provide better outcomes for customers. Mr. Otley describes capital investments for customers relating to Information Technology, Communications, Smart Grid, Facilities and Transportation projects for 2019.

**EXHIBIT LIST**

Exhibit GMP-BO-1	Flow Chart of GMP's Capital Project Selection Process
Exhibit GMP-BO-2	Exhibit 2 of Memorandum of Understanding (MOU) between GMP and DPS, Case No. 17-3112-INV
Exhibit GMP-BO-3	Example Capital Folder Documentation
Exhibit GMP-BO-4	Information Technology Department Capital Planning Philosophy
Exhibit GMP-BO-5	Facilities Department Capital Planning Philosophy
Exhibit GMP-BO-6	Transportation Department Capital Planning Philosophy
Exhibit GMP-BO-7	IT, Facilities, and Transportation Additions (2018-2019)

**PREFILED TESTIMONY OF  
BRIAN OTLEY  
ON BEHALF OF GREEN MOUNTAIN POWER**

**I. INTRODUCTION**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21

**Q1. What is your name and business affiliation?**

A1. My name is Brian Otley, and I am a Senior Vice President and the Chief Operating Officer for Green Mountain Power (“GMP”).

**Q2. Please describe your educational background and business experience.**

A2. I have a BA degree from Dartmouth College. For the first 20 years of my career, I worked in the healthcare Information Technology (“IT”) sector. I held numerous functional and executive leadership roles with several healthcare software and services companies. In 2008, I joined GMP as Leader of Information and Innovation. In this role, I was responsible for the IT infrastructure and capabilities of GMP, while also driving positive change into GMP’s use of technology across all aspects of its operation and customer service. Beginning in April 2009, I led GMP’s Smart Grid (“SG”) activities, including participating in the successful eEnergy Vermont application to the U.S. Department of Energy (the “DOE”) for Vermont’s Smart Grid Incentive Grant (“SGIG”) award. In February 2011, I became Vice President of Operations for GMP. In June 2012, I became Chief Information Officer for GMP, concurrent with the approval of the merger with Central Vermont Public Service (CVPS). In November 2013, I became Senior Vice President and Chief Operating Officer of GMP. In this role, I am responsible for all field and customer-related operating activities of the Company.

1 **Q3. Have you previously testified before the Vermont Public Utility Commission**  
2 **(“Commission”)?**

3 A3. Yes. I filed testimony in Docket No. 7770 and in GMP’s 2017 rate proceeding in Case  
4 No. 17-3112-INV.

5  
6 **Q4. What is the purpose of your testimony?**

7 A4. I provide an overview of GMP’s customer-focused philosophy in capital planning and the  
8 importance of these projects to operate the grid safely and reliably. I describe GMP’s  
9 capital planning process and explain our approach to identifying, assessing, prioritizing  
10 and selecting the capital investments we propose to make on behalf of our customers. I  
11 also identify the other capital witnesses who will be testifying in this case, and provide a  
12 detailed description of specific capital project investments we’re undertaking for our  
13 customers in certain operating areas of the company including Information Technology  
14 (IT), Facilities, and Transportation. Finally, I address GMP’s Tier III performance under  
15 Vermont’s Renewable Energy Standards (“RES”), in which we exceeded our targets for  
16 fossil fuel reductions in 2017. GMP is similarly on track to exceed our 2018 targets. I  
17 also provide an update on non-base O&M savings associated with our Smart Grid/Smart  
18 Power program.

19

20 **II. GMP’S CUSTOMER FOCUSED APPROACH TO CAPITAL INVESTMENTS**

21 **Q5. Can you explain GMP’s philosophy around capital investments?**

22 A5. GMP is customer obsessed, and we evaluate each capital investment based on the  
23 benefits it can deliver to our customers and to our workforce that delivers service to our

1 customers in a safe and reliable way. Overall, GMP is driving the shift from a traditional,  
2 centralized energy delivery model to one that is home-, business- and community-based.  
3 We are adopting new, clean, distributed-energy technologies on both sides of the meter  
4 and in conjunction with our customers to change the way energy delivery happens. GMP  
5 is investing in energy delivery models that seek transformation in the following ways:

- 6 • Reducing the distance between generation and consumption, to lower losses and  
7 reliance upon the bulk electrical delivery system, which will ultimately result in a  
8 lower cost and dramatically more reliable local energy system that is greener and  
9 more resilient in the face of significant climate change impacts;
- 10 • Establishing communities of distributed energy resources that are  
11 communications-enabled to optimize the operating cost of the electrical system  
12 and the use of renewable and non-emitting generating sources; and
- 13 • Offering a diverse portfolio of innovative energy programs that promote measures  
14 consistent with Vermont energy policy and appeal to the personal goals of each  
15 customer.

16 All of this work is based on GMP's mission to deliver low-cost, low-carbon and highly  
17 reliable energy to our customers. This work is not easy, but it is necessary to deliver  
18 what our customers tell us they want, by evolving from a traditional electric distribution  
19 operator to an energy transformation and services provider. Our laser focus on our  
20 customers delivers positive financial outcomes, as described here and in the testimony of  
21 Mr. Castonguay, Mr. Shields, Mr. Lisai, and Mr. Ryan. Importantly, as explained further  
22 by Mr. Costello, our customers are also highly satisfied by the services we provide, with  
23 them ranking GMP incredibly high at 95.6%.

1  
2 **Q6. Can you explain why GMP's operations require capital investments, and explain the**  
3 **types of projects GMP invests in on behalf of its customers?**

4 A6. GMP is a vertically integrated electric distribution company, which means that we own  
5 and manage, for our customers' benefit, both generating assets and the sub-transmission  
6 and distribution network that delivers power to our customers. We are the state's largest  
7 electric utility, serving over 265,000 customers. We presently own over 60 power  
8 generation facilities in Vermont and more than 22,000 miles of transmission and  
9 distribution lines, connected to 185 electric substations. It is our responsibility to  
10 maintain and operate these facilities and infrastructure safely and effectively to ensure  
11 that they provide our customers safe and reliable service. Delivering on this  
12 responsibility requires capital investment.

13 Our investment in these facilities and related systems are planned and executed  
14 for one purpose only - to meet our customers' needs through our delivery of energy and  
15 energy services. To meet these needs, ongoing capital investment is required to repair  
16 and maintain GMP's existing generation assets to produce as much low-cost, low-carbon  
17 electricity as possible, while meeting the important environmental and regulatory  
18 obligations associated with the operation of these facilities. Capital is also required to  
19 maintain, and where necessary upgrade, our transmission and distribution infrastructure  
20 to ensure the safe and reliable delivery of power to each customer, even as the grid  
21 becomes more decentralized and more complex, including the resiliency needed to  
22 withstand the effects of climate change. It is important to note that when GMP acquired  
23 Central Vermont Public Service (CVPS) in 2013, much of the CVPS service territory was

1 suffering from the effects of capital underinvestment in the distribution system over the  
2 prior ten years or so. This period of under-investment created additional pressure on  
3 capital investment since the acquisition, as GMP has had to make substantial capital  
4 improvements in order to raise the level of service in the combined GMP/CVPS service  
5 territory closer to GMP expectations. For example, immediately after the merger, in  
6 2013, legacy CVPS circuits represented all 20 of the 20 worst circuits on our outage  
7 reporting under PUC Rule 4.900.

8 Meeting our customers' needs also requires an investment in the technology and  
9 tools that are essential to the quick and efficient management of outages when they occur,  
10 while also protecting grid operations from cyber events and other threats of operational  
11 disruption. It also requires us to identify and pursue, with our customers' assistance,  
12 innovative investments that accelerate the transition to a home-, business-, and  
13 community-based energy delivery system that our customers tell us they want.

14 Providing these positive outcomes for customers requires coordinated capital  
15 investment across our six core operating areas, which include: Generation (also called  
16 Production), Transmission & Distribution (T&D), Information Technology (IT)  
17 (including Communications, Computer Software, and Computer Hardware), Facilities  
18 (also called Property & Structures), Transportation, and Energy Transformation (also  
19 called New Initiatives). The investment needed in each of these areas can vary from year  
20 to year, and it is our responsibility to identify and properly manage these investments  
21 each year to provide the maximum benefits possible while controlling the overall costs  
22 for our customers.

1 **Q7. Can you provide some examples of how GMP has achieved successful outcomes for**  
2 **customers in the last year?**

3 A7. Sure. In 2017, our capital investments resulted in numerous successful outcomes for  
4 customers in all these core areas. Here are a few examples.

5 Our generation team completed important improvements at many of our hydro  
6 generation facilities, including the Silver Lake Diversion Project. This project was  
7 executed to replace end-of-life assets, while also allowing GMP to capture as much hydro  
8 generation in the impacted facilities as possible to directly benefit customers. The project  
9 consisted of work at Silver Lake, Goshen Reservoir and the Diversion Dam. The original  
10 intake racks were replaced at end of life as part of regular asset lifecycle management.  
11 This project also improved worker safety conditions and improved the capture of water  
12 for our hydro generation facilities, which benefits our customers.

13 Our T&D team successfully completed several important reliability projects,  
14 including, for example, the rebuild of Line 7 in Lincoln. In 2017, GMP completed the re-  
15 build of this circuit, which was originally set in the 1950s and 1960s, and which had a  
16 poor history of reliability due to the age of the infrastructure, the physical terrain the  
17 circuit was constructed on, and the weather patterns in that part of the service territory.  
18 109 poles were replaced over a 3.25-mile length of road, with ~50% of that length  
19 brought roadside from its original off-road, cross-country location. The conductor was  
20 replaced with hardened 336-tree wire to provide additional resiliency. Customers served  
21 by Line 7 have seen dramatic improvement to their power reliability as a result of this  
22 project. Prior to the project, one customer served by Line 7 experienced thirteen outage  
23 events between January 2015 and December 2016. Since the completion of the project

1 that same customer has experienced just one outage in the past year, which occurred  
2 during the late October 2017 wind event that saw 80mph winds in the Champlain Valley  
3 and peak gusts of 115mph on Mt. Mansfield.

4 Our IT group completed a range of key projects that improved the safety and  
5 security of our networks, the efficiency of our employees, and the overall customer  
6 service experience for our customers. For example, GMP completed a refresh of our  
7 Outage Center as part of the 2017 website redesign project. The overhaul consolidated  
8 all outage and incident reporting into one location and provided several improvements to  
9 the customers' experience. This project improved GMP's internal operations  
10 performance, as well as delivering a better experience to our customers when they  
11 interact with GMP's outage center, which is a key information hub for customers and  
12 other stakeholders during severe weather events.

13 GMP's Facilities and Transportation teams delivered on a number of capital  
14 investments that ensure the reliability and availability of our facilities, fleet and  
15 equipment so we can deliver services in the manner our customers expect. For example,  
16 the Facilities team completed construction of a standalone storage building at our St.  
17 Johnsbury district office to store and secure a variety of vehicles, trailers, construction  
18 equipment, and materials that are difficult to access and use in a timely fashion when  
19 stored outside during inclement weather months and are essential for both routine work  
20 and service restoration. Our line and other workers are called upon to work not only  
21 during busy day-to-day operations, but also at all hours of the day and night during  
22 emergency call-outs and service restoration events, whether during a storm or individual  
23 restoration event during the week. Keeping certain materials and equipment under cover



1 and out of the inclement Vermont weather allows us to work safely, quickly and  
2 efficiently during both daily operations and emergency storm restoration. It also ensures  
3 that our equipment is ready to go when we need it, at all hours of the day and night, while  
4 also enabling us to get the most out of this important equipment, limiting down-time and  
5 maintenance. At the same time, GMP's Transportation team replaced a variety of  
6 vehicles that had reached the end of their productive lives, including eight (8) buckets  
7 trucks, two (2) digger trucks and 25 light vehicles, ensuring that when these vehicles are  
8 needed, we have safe and reliable transportation and equipment to get repairs done on  
9 behalf of customers in a timely and efficient manner.

10 Finally, our New Initiatives and Energy Transformation team delivered the initial  
11 aggregation of residential, level 2 electric vehicle chargers for customers as part of our  
12 EV Home Charging Program. GMP's plug-in-electric-vehicle-owning customers have  
13 the opportunity to increase the convenience of charging their vehicles through our EV  
14 Home Charging Program. This program places level 2 charging stations in participating  
15 customers' homes and connects them, through the customer's broadband, to GMP's  
16 Virtual Peaker management platform, providing both the customer (through a mobile  
17 app) and GMP with shared access to manage the EV's home charging activity. By  
18 aggregating the management of participating customers' EV chargers thru our Virtual  
19 Peaker platform, GMP can use them during peak events and during other grid conditions  
20 that can lower grid costs. In 2017, GMP had over 30 EV home chargers under managed  
21 aggregation, and we expect this population of smart devices to grow significantly in the  
22 years ahead as more customers adopt plug-in vehicles. Another benefit of GMP's  
23 partnership with Virtual Peaker is the economic development it supported in Vermont

1 through our Inspire Space “co-laboratory” at our Colchester office. Virtual Peaker is an  
2 energy sector start-up attracted to Vermont through GMP’s launch of that co-working  
3 space and program. The company has just completed its first round of funding, including  
4 investment by a Vermont venture capital fund, and is now poised to grow its success by  
5 selling services to other utilities that are pursuing energy innovation around the country.

6 As described further below, GMP will continue to pursue other critical projects in  
7 2018 and 2019 to meet and exceed our customers’ expectations and needs to improve  
8 reliability and safety.

9  
10 **Q8. Can you please identify the proposed capital additions and capital retirements in the**  
11 **2019 rate period? Please provide a brief summary.**

12 A8. Yes, this filing identifies both the capital additions and capital retirements in the 2019  
13 rate period for each of our capital departments (Generation, T&D, IT, Transportation,  
14 Facilities, and Energy Transformation). Capital additions represent the capital projects  
15 that will be completed and added to GMP’s overall rate base in the rate period.  
16 Retirements, on the other hand, represent capital assets that will be removed from GMP’s  
17 overall rate base. These two amounts are netted out to determine the overall “net plant  
18 additions,” or the overall increase in GMP’s rate base for the 2019 period.

19 The total capital additions across all departments in the 2019 rate period are \$52.5  
20 million. Total capital retirements in the rate period equal \$15.6 million, for a net increase  
21 to our rate base of \$36.9 million during this period. As explained further below, this level  
22 of capital additions may not be sufficient in future years (after the 2019 rate period) for us  
23 to continue to meet our obligations to customers. Rather, this level of investment reflects

1 our desire to meet the request of the Department of Public Service to ramp down capital  
 2 investment after significant projects were undertaken in recent years. GMP believes this  
 3 rate filing meets this request in a way that balances customer safety, system reliability,  
 4 and our other core operating needs, but it is likely that in future years we may need to  
 5 increase our capital investments to ensure system reliability and to meet the needs and  
 6 expectations of our customers as the grid continues to evolve.

7 Our proposed capital additions are generally broken down by functional area and  
 8 the appropriate period — rate period and interim period (which is the period between the  
 9 end of the test year and the beginning of the rate year) as shown in the chart below. The  
 10 interim period spending is discussed further in Question 9.

<b>Department<sup>1</sup></b>	<b>Interim Period (10/1/2017-12/31/2018) (\$000)</b>	<b>Rate Period (1/1/2019- 9/30/2019) (\$000)</b>
Transmission & Distribution	\$63,680	\$33,612
Generation	\$30,065	\$6,025
Information Technology	\$9,008	\$4,549
Facilities	\$1,287	-
Transportation	\$4,524	\$2,214
New Initiatives	\$11,363	\$6,087
Total Capital Additions:	\$119,927	\$52,488
Retirements:	\$24,186	\$15,602
<b>Net Plant Additions</b>	<b>\$95,741</b>	<b>\$36,886</b>

<sup>1</sup> The data from this table is supported by Exhibit GMP-ER-12, which provides the overall plant additions by functional category in GMP’s budget. The functional categories identified in that exhibit fall into the following departments: Transmission & Distribution (includes Transmission Lines, Transmission Substations, Transformers, Regulators and Capacitors, Meter, Distribution Lines, Distributions Substations, and General Plant), Generation (includes Production, Vermont Marble Hydro, Kingdom Community Wind, Joint Ownership functions), IT (includes Communications, Computer Hardware, Computer Software functions), Facilities (Property & Structures function), Transportation, and New Initiatives.

1           Specific projects in each of the capital departments are addressed by the witness  
2 for that department. I sponsor IT, Facilities, and Transportation projects, and discuss  
3 specific examples of proposed projects from these areas that are included in this filing.  
4 Jason Lisai discusses Generation projects further in his testimony, John Fiske discusses  
5 T&D projects, and Joshua Castonguay discusses Energy Transformation projects.

6  
7 **Q9. The table above identifies rate-period and interim-period additions and retirements.**  
8 **Can you please explain the difference between these two periods, and why interim**  
9 **period additions are identified here?**

10 A9. Yes. Identifying the interim-year capital additions and retirements is a necessary part of  
11 building a traditional cost of service model, but it is important to understand what these  
12 amounts represents. As described in Mr. Ryan’s testimony, GMP’s overall cost of  
13 service for the 2019 rate period is built off a comparison to the test year period, which in  
14 this case is January 1, 2017 to September 30, 2017. The revenue requirement for the rate  
15 period is then established by adjusting the test period for known and measurable changes  
16 in between the test period and the rate year, including changes in overall rate base. With  
17 respect to capital, you must include the overall net change in capital (additions minus  
18 retirements) between the end of the test year and the end of the rate year so that you  
19 properly account for all of the changes in the total rate base, or plant in service. This  
20 includes not only the rate year investments, but also the investments in the gap between  
21 the end of the test year and the beginning of the rate year, otherwise described as the  
22 “interim period.” In this case, the interim period is a 15-month term between October 1,  
23 2017 (end of the test year) and December 31, 2018 (beginning of the rate period). The

1 interim year and rate period are then totaled to identify the overall change in rate base  
2 between the test period and the end of the rate period.

3 It should be noted that although the capital additions for this interim period are  
4 identified in this case, the projects that make up those additions have largely already been  
5 reviewed by the PUC, because most of the interim-year period in this case also overlaps  
6 with the calendar 2018 rate period, which was the subject of last year's traditional rate  
7 case. As a result, most projects in the interim period will look familiar because those  
8 projects were previously submitted and approved by the PUC in the previous case. This  
9 dynamic is simply the function of having two traditional rate cases in a row. There are  
10 modifications in some projects between last year and this year due to updated budget  
11 items, budget items becoming actuals, or a change in supplier, but for the most part the  
12 projects will not have changed substantially. It is also important to note, for clarity, that  
13 the interim period in this case is 15 months, and therefore does not align perfectly with  
14 the 12-month rate period from last year, so the total numbers in the interim period are not  
15 directly comparable to the 2018 rate year period. However, overall spending in the 2018  
16 period is consistent with the PUC's order in the prior rate case, Docket No. 17-3112-INV.

17  
18 **Q10. How does the proposed level of capital spending compare to GMP's historical trend**  
19 **for capital spending?**

20 A10. The overall capital spending levels in 2018 and 2019 reflect a meaningful cut in GMP's  
21 level of capital spending over the prior several years. As noted above, this reduced level  
22 is the result of feedback from DPS, through our most recent rate proceeding, and trying to  
23 balance that feedback with the pressures we face to maintain our system consistent with

1 the performance that our customers expect from us. While we have always been  
2 committed to disciplined spending on behalf of our customers, we aim for the right level  
3 of investment – neither too high nor too low – and we are concerned that the level of  
4 investment in the 2018 and 2019 rate periods may need to increase in future years. Given  
5 the age and condition of the grid infrastructure in Vermont, the impacts we are seeing  
6 from climate change, even beyond major storms, and our need to maintain a disciplined  
7 course of investment to avoid a backlog of deferred projects that come back to harm  
8 customers in future years, it is likely that additional capital investment may be required to  
9 fulfill our responsibilities to our customers going forward.

10 In recent years, GMP's capital spending increased for several reasons, including:

- 11 • The implementation of GMP's Smart Grid program under Vermont's ARRA  
12 Smart Grid Incentive Grant;
- 13 • The expansion of our communications and mobile computing capabilities  
14 throughout our field organization;
- 15 • The construction and commissioning of GMP's Kingdom Community Wind  
16 facility;
- 17 • The integration of GMP and CVPS operational systems and processes to  
18 create a unified workforce and deliver substantial cost savings for our  
19 customers.

20 Each of these investments, as well as the normal capital investment in our  
21 operating infrastructure, is important to deliver services to our customers in a high-  
22 quality and contemporary manner. In the recent past, GMP has successfully implemented  
23 many necessary systematic improvements and investments in major operational areas,

1 including capital investments associated with the successful merger with CVPS. While  
2 the merger required strategic capital investment to address outdated systems and  
3 infrastructure in certain areas, the merger has resulted in significant cost savings to  
4 customers, with GMP returning millions of dollars in the form of operational synergy  
5 savings. Going forward, while there is a possibility that the level of capital investment  
6 represented in the 2018 and 2019 rate periods may be sufficient in the years beyond, there  
7 is at least an equal possibility that additional investment will be required. If our  
8 customers, the State's energy objectives, or the energy sector at large were telling us that  
9 maintaining status quo in our operations and services to customers was acceptable, then I  
10 would feel more certain that this reduced level of capital investment could be maintained.  
11 But status quo is not the reality I see ahead, as the pace of change in the energy sector  
12 continues to accelerate and the needs of our customers evolve in response. We will keep a  
13 close eye on the proper level of capital investment to meet our customers' needs and  
14 always pursue the projects that we feel are essential to serving our customers' best  
15 interest.

16  
17 **III. GMP'S CAPITAL PROJECT REVIEW AND APPROVAL PROCESS.**

18 **Q11. Before we turn to specific capital projects in the case, can you please explain GMP's**  
19 **overall capital planning process?**

20 A11. GMP uses a sequenced planning process to identify and screen proposed capital projects  
21 to ensure that the projects we pursue in any given year are cost-effective and valuable for  
22 customers. The core purpose of our capital investments is to improve outcomes for  
23 customers. For a project to be included in our capital plan, its proposed investment must

1 deliver meaningful qualitative and/or quantitative benefits to GMP customers. These  
2 benefits can manifest themselves in one or more ways, including but not limited to:  
3 reduced operating costs, improved customer services, improved reliability or safety, or  
4 advancing innovation and delivering transformative opportunities. These benefits are  
5 fundamental to delivering overall customer value and satisfaction.

6 To achieve these outcomes, we use a four-part process which consists of: (1)  
7 long-term strategic alignment; (2) annual capital project planning; (3) annual capital  
8 project budget preparation; and (4) capital project tracking and monitoring. I explain each  
9 of these components further below.

10  
11 (1) GMP's Long Term Strategic Alignment: We plan in 3- to 20-year horizons via  
12 GMP's Commission-approved Integrated Resource Plan ("IRP"), the Long-Range T&D  
13 Plan, and the 10-Year Generation Capital Plan. We also work with VELCO and other  
14 parties with which GMP has joint-ownership of various facilities that do long-term  
15 planning to ensure alignment. As part of these longer-term efforts, we plan for:

- 16 • Maintaining and improving our current infrastructure for customers;
- 17 • Engaging in long-term energy transformation activities that can allow us to  
18 transition from a centralized energy delivery system to a distributed one;
- 19 • Preparing the organization to be adaptable to change across all operating  
20 aspects of the company; and
- 21 • Exploring new generation opportunities for customers that will save them  
22 money over the long term.

23



1           (2)    Annual Capital Planning: Each year, based on our long-term alignment activities  
2           and the ongoing service needs of our customers, each GMP department (T&D,  
3           Generation, IT, Transportation, Facilities, and Energy Transformation) refreshes its list of  
4           potential projects for the upcoming 12 months, based on a review of current needs and  
5           opportunities in their area. After doing an initial refresh of these potential projects and  
6           identifying the more necessary candidates for the upcoming cycle, projects are then  
7           assessed on their ability to deliver strong operational performance for customers in the  
8           coming year and beyond. Each team vets their proposed projects among their team  
9           members, evaluating the priority and exigency of each one. For projects that are judged  
10          to meet the current needs and priorities of the department, team members begin to  
11          develop a more specific scope and design including: establishing project identification  
12          numbers in GMP's enterprise financial system; obtaining external estimates and quotes;  
13          and evaluating alternative solutions (looking at both cost and functionality) for  
14          accomplishing the objectives of the project. All budgeting information and  
15          documentation is put into GMP's capital project budgeting software and assigned a  
16          preliminary designation for the priority and justification type on each project. The leader  
17          of each team reviews all the project documentation to ensure he or she agrees with the  
18          priority and justifications within the group of projects they are recommending.

19  
20          (3)    Annual Capital Budget: After considering the long-term context and developing  
21          appropriate initial documentation for each recommended capital project, a proposed  
22          capital budget is developed for the coming year. GMP's capital management team  
23          (CMT), which includes leaders from each capital department and other senior leaders,

1 reviews and assesses project recommendations made by each capital department, after the  
2 departments have performed their own review and made their first-pass selections. The  
3 CMT challenges the rationale and basis for each project and assesses project need,  
4 proposed scope of work, alternatives considered, availability of resources, and available  
5 capital. Candidate projects are evaluated against general criteria that raise or lower their  
6 likelihood for being included in GMP's capital plan. GMP does not develop a strict "1  
7 through n" ranking of projects. The criteria are many, but end up being simplified down  
8 to a rating of whether the project is Required, Recommended or Strategic. "Required"  
9 indicates there is a regulatory, safety, certification, or other element to them that makes  
10 their completion urgent, if not mandatory. These projects are deemed to be the most  
11 important to deliver. "Recommended" indicates there are operating improvement  
12 opportunities that will deliver benefits to customers in the form of lower operating costs  
13 or risks, improved service quality, better customer experience, or some other benefit.  
14 These projects are deemed to be important, but not as important as Required projects.  
15 "Strategic" indicates the project will advance a capability for GMP and our customers  
16 that improves our service delivery in some way but may not have as much urgency or  
17 financial justification as Required or Recommended projects. These projects are deemed  
18 to be more discretionary than Required or Recommended projects. The justifications for  
19 how each project's benefits will manifest are also identified, including improved safety,  
20 improved reliability, regulatory compliance, improved operational efficiency, and  
21 improved customer service. Most projects have multiple purposes (safety and reliability,  
22 for example).

1           Once the CMT has completed its review and filtered the capital project portfolio  
2 down to the pre-final list of projects, the capital departments review their respective  
3 projects, assess how the projects fit together in the context of a year's work, aligning  
4 resources, schedules, seasonal weather considerations and dependencies with other  
5 departments or outside agencies. The departments also prepare any further  
6 documentation necessary to assemble the final capital folder for each project, which is  
7 used to document what is known and measurable about the project. Final adjustments are  
8 then made by the CMT based on the departmental reviews, and the final capital projects  
9 are approved and incorporated into a final capital budget recommendation for the coming  
10 year. This budget is reviewed and approved at the executive level, and ultimately is  
11 presented to and approved by the GMP Board.

12           In addition, in each of the last ten years, GMP's capital plan and documentation  
13 has also been reviewed by the DPS and its independent consultant, either under GMP's  
14 prior regulation plan, or as part of a traditional rate case. **Exhibit GMP-BO-1** is a flow  
15 chart that summarizes the steps in our capital review process, described above.

16  
17       (4)   Tracking & Monitoring: Throughout the rate period, we track and monitor the  
18 status of our capital projects at the department level, at the CMT level, and, when  
19 required, at a companywide level. On at least a monthly basis (and as frequently as  
20 weekly, depending upon the department, project intensity, and time of year), each  
21 department conducts meetings to review the status of all its capital projects. Monthly, at  
22 GMP's CMT meeting, the status of each department's capital work to-date is reviewed to  
23 ensure alignment to the plan and to discuss any variances that are emerging. We perform

1 that review to ensure we execute the amount of capital projects for customers that our  
2 rates reflect. We do not want customer rates to include costs for capital projects that we  
3 are not able to deliver. If we find that a planned project is no longer feasible to complete  
4 by the end of the rate year, as had been planned, we replace it with another cost-effective,  
5 high-value capital project that is in the interests of customers and has gone through the  
6 same rigorous process used to develop a project it may replace.

7  
8 **Q12. Has GMP made any changes to its capital planning and documentation process**  
9 **since last year’s rate case, which was Docket 17-3112-INV. If so, can you explain**  
10 **those changes?**

11 A12. Yes. As part of the resolution of last year’s rate case, we came to an agreement with DPS  
12 on some changes to our capital planning and documentation methods, and accordingly  
13 have updated and revised our capital documentation process in several ways. The  
14 agreement reached between GMP and DPS in Case No. 17-3112-INV establishes the  
15 parties’ agreement on the type of documentation that is necessary to meet the  
16 Commission’s “known and measurable” standard for capital expenditures. These  
17 standards are outlined in Exhibit 2 to the Memorandum of Understanding (MOU)  
18 between GMP and DPS, a copy of which is attached as **Exhibit-GMP-BO- 2**.

19 The primary changes from last year include a revised financial analysis form for  
20 individual capital projects, describing the justification, costs, benefits, and alternatives to  
21 each capital project. This information was evaluated for all projects in the past by GMP,  
22 but the format and substance has been clarified on the new form, which has been  
23 prepared for each capital project in this case.

1           We have also reduced the threshold for “major projects” that require a full  
 2           quantitative cost-benefit analysis. In prior years, major projects included all projects  
 3           above \$3 million in the budget; this threshold has now been reduced to \$2 million. All  
 4           projects above \$2 million now either have a full cost-benefit analysis or clearly meet one  
 5           of the defined exceptions to the cost-benefit requirement agreed to by DPS and GMP,  
 6           which include that the project is designed to address an immediate safety hazard, replace  
 7           in-kind equipment that is damaged or no longer usable, address a regulatory requirement,  
 8           or is a reliability project with no reasonably available alternative.

9           Finally, we have limited the projects included in our capital blankets to projects  
 10          that are below \$250,000. Any individual project above that amount that otherwise might  
 11          qualify for inclusion in the blanket has been pulled out and documented as a stand-alone  
 12          capital project this year. This updated information has all been incorporated, as  
 13          appropriate, into the capital folders for each project.

14  
 15   **Q13. Can you please provide a brief explanation of the information that is contained in**  
 16   **each capital folder?**

17   A13. Yes. For each project in the case, GMP prepares a “capital folder.” This folder contains  
 18   all the information necessary to support the proposed expenditure, following the PUC’s  
 19   “known and measurable” standard for capital expenditures, as agreed to by GMP and  
 20   DPS in the MOU from Case No. 17-3112-INV referenced above. GMP has followed the  
 21   documentation standards outlined in Exhibit 2 to the MOU in developing the capital  
 22   folders for the projects proposed in this case. In summary, each capital folder will  
 23   contain the following six types of documents:

1           (1)    Work Order/Financial Analysis - This document provides an overview that  
2                   summarizes the project, explains the purpose of the project, why it is justified  
3                   now, and identifies the relevant costs and associated qualitative and quantitative  
4                   customer benefits. The Work Order/Financial Analysis document also identifies  
5                   the alternatives GMP considered, outlines the cost of those alternatives where that  
6                   information is reasonably available, and explains why the alternative GMP  
7                   selected is in our customers' best interest.

8           (2)    Capital Summary - This is a spreadsheet that summarizes all the capital  
9                   expenditures for each project. This information is maintained in GMP's Utilities  
10                  International budgeting and financial software (often referred to as "UI") which  
11                  generates the summary spreadsheet. This document summarizes and has  
12                  individual tabs for: (a) Actual Costs to Date (a printout from our financial system,  
13                  Oracle, is provided to support these charges; any external costs of greater than  
14                  \$5,000 are supported by a vendor invoice); (b) Internal Labor (GMP estimates the  
15                  hours required to complete a project based on previous like-kind projects or  
16                  estimates from field employees to complete the work; these hours are entered  
17                  based on the employee type and are calculated using an average labor rate for that  
18                  type of work); (c) Contractor Costs (supported by a vendor quote); (d) Materials  
19                  Purchased Direct (supported by vendor quotes for the materials needed); (e)  
20                  Materials from Stock (users identify the stock items required for the project and  
21                  the amount is calculated based on the exported cost multiplied by the quantity  
22                  estimated; costs are exported from our Oracle financial system); and (f)  
23                  Overheads (calculations of all overhead rates are supported by the cost

1 calculations for each as well as a writeup as to how the overhead is applied; the  
2 calculation is built into the budget tool so that all overheads are applied  
3 consistently).

4 (3) Quantifiable Costs and Benefits not in UI Spreadsheet - This document quantifies  
5 the other project costs that are not capital expenses (primarily estimated increases  
6 in O&M or other annual carrying costs that are not captured in the UI capital tool)  
7 and also summarizes the quantifiable benefits of each project, such as avoided  
8 costs, to the extent those benefits are reasonably quantifiable.

9 (4) Copies of invoices - Documentation of actual expenditures already incurred are  
10 provided (which supports the summary of actual expenses in the Capital  
11 Summary Spreadsheet);

12 (5) Quotes or estimates - Documentation for work that has not yet been performed  
13 (which also supports the summary of contractor and direct costs including the  
14 Capital Summary Spreadsheet); and

15 (6) other appropriate supporting information unique to each project.

16 In addition to this documentation, all major projects with capital budgets greater  
17 than \$2 million will contain either a full, quantitative cost-benefit analysis evaluating the  
18 net present value of each project, or an explanation for why the project meets one of the  
19 identified exemptions for this cost-benefit requirement. I have provided an example of  
20 documents in a capital folder in **Exhibit GMP-BO-3**. This example project is our Grid  
21 Transformation/Tesla Powerwall 2.0 Pilot project (#159740), which is described further  
22 in Mr. Castonguay's testimony. The documents are provided in PDF form, with

1 screenshots of cost/benefit analyses and other spreadsheets. These documents can be  
2 provided in their native format upon request.

3 Prior to filing this case, GMP shared several examples of our revised capital  
4 documentation folders and examples of our cost-benefit analysis with DPS. We also met  
5 with DPS staff several times to review and discuss these materials to ensure that the  
6 information provided is consistent with the parties' agreement regarding documentation  
7 standards, and we have incorporated comments and suggestions into the final materials.  
8 All of the final capital folders are provided to DPS informally in conjunction with this  
9 filing to facilitate the Department's review of the proposed projects, and the full set of  
10 folders, or a relevant subset of the folders, can be provided to the Commission following  
11 DPS's review, if needed.

12  
13 **Q14. Are capital folders prepared for all capital projects?**

14 A14. Yes. Every individual capital project in the capital budget has a capital folder supporting  
15 the project. GMP also has several capital blankets, which cover spending on categories  
16 of smaller projects in each department that cannot be specifically identified in advance of  
17 the rate period, but which we know based on past experience will be required to provide  
18 reliable service to our customers. We typically have a higher volume of these projects  
19 and they have smaller budgets relative to the individual named projects included on our  
20 capital plan. Blanket projects occur every year, such as, repairing or replacing critical  
21 utility equipment that has failed. An example of a project that would fall underneath the  
22 blanket is a repair to a distribution line that has failed unexpectedly and is necessary to  
23 provide reliable service to the customers served by it.



1           We determine the amount of budget in each of our capital blankets based on a  
2 five-year average of historical blanket spending in that operational area. We prepare  
3 capital folders for each overall capital blanket, like individual capital projects, but for  
4 blankets, a spreadsheet is used to calculate the five-year average by taking the actual  
5 amount spent by year and inflating that amount by the corresponding Consumer Price  
6 Index (“CPI”) to get all amounts into current dollars. The same methodology is used for  
7 each capital blanket for each operating department. As noted above, we have changed  
8 our approach to some blanket projects this year, and now prepare individual capital  
9 folders for any project that would otherwise qualify for coverage inside a blanket but is  
10 over \$250,000.

11  
12                                   **IV. INFORMATION TECHNOLOGY,**  
13                                   **FACILITIES AND TRANSPORTATION CAPITAL PROJECTS**

14 **Q15. What specific type of capital projects does your testimony address?**

15 A15. I address capital projects within the IT, Facilities, and Transportation departments. IT  
16 relates to GMP’s Communications, Computer Software, and Computer Hardware  
17 infrastructure, upon which more and more of our operation relies for information and  
18 automation. Facility projects relate to maintenance of GMP’s buildings and workspaces.  
19 Transportation projects relate to GMP’s vehicle fleet that helps us deliver services  
20 throughout Vermont.

21  
22 **Q16. How are IT, Facilities and Transportation capital projects identified and selected?**

23 A16. Each capital department has a set of guiding principles that are used as a framework to  
24 identify, assess and evaluate capital project candidates for recommendation into a given

1 capital plan. As can be expected, the priorities for IT, Facilities, and Transportation  
 2 projects are slightly different. We have attached the description of each capital  
 3 department’s philosophy here as **Exhibits GMP-BO-4 (IT), BO-5 (Facilities), and BO-**  
 4 **6 (Transportation)**. These principles are enduring over time and outline the  
 5 departmental objectives and specific contribution that department makes to GMP’s  
 6 operating performance and thus, its capital investments for our customers.

7 Each Capital Department is constantly assessing its operational performance and  
 8 its opportunities for improvement. Out of this continuous assessment, capital project  
 9 candidates are identified by the workforce and developed within the department. GMP’s  
 10 culture, as described in the 2018 rate proceeding testimony, prioritizes spontaneous  
 11 communication and collaboration among its workforce that facilitates the exchange of  
 12 ideas and the identification of performance-improvement opportunities across the  
 13 operation. Identified opportunities may arise from something as simple as the end of life  
 14 of a piece of equipment to as complex as automating a feeder backup scheme to minimize  
 15 or eliminate customer outage impacts under certain conditions.

16

17 **Q17. Please identify the capital expenditures on IT, Facilities, and Transportation**  
 18 **projects included in the interim year (2018) and the rate year (2019).**

19 A17. As noted above, GMP is proposing the following amount of capital investment for IT,  
 20 Facilities, and Transportation projects.

<b>Project Category</b>	<b>Interim Year (10/1/2017-12/31/2018) (\$000)</b>	<b>Rate Year (1/1/2019- 9/30/2019) (\$000)</b>	<b>Total (\$000)</b>
Information Technology	\$9,008	\$4,549	\$13,557
Facilities	\$1,287	\$0	\$1,287
Transportation	\$4,524	\$2,214	\$6,738

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

A detailed list of all capital projects in each of these categories, including project description, estimated costs, in-service date, and applicable project criteria, is contained in **Exhibit GMP-BO-7**.

**Q18. Can you please describe some of the priorities for IT, Transportation, and Facilities projects proposed for the 2019 rate period?**

A18. Yes. GMP’s IT projects are essential to supporting our transformation from an electric utility to an energy services provider that is accelerating the transition to new energy delivery solutions for customers and needs to be positioned to operate as a platform. The investments are also a critical part of maintaining the safety and security of our grid network and ensuring the efficiency of our workforce. For 2019, we have a number of priorities that are evident in the capital projects proposed for IT. First, we continue to be focused on a number of safety enhancements to GMP’s facilities and networks. For example, Project 159554 will implement a centralized, server-based digital key and lock management system that will significantly improve the auditability and security of plant and substation assets. In addition to the server infrastructure, the project includes incrementally replacing existing substation and plant key/lock systems with a digital padlock infrastructure. Another example is Project 158850 for the purchase of Oracle’s Advanced Security licensing, which is an add-on option to GMP’s existing Oracle database that will address privacy and regulatory requirements. More specifically, Oracle Advanced Security provides data encryption and strong authentication services to the Oracle database, safeguarding sensitive data against unauthorized access from the

1 network and the operating system. It also protects against theft, loss, and improper  
2 decommissioning of storage media and database backups to ensure the highest level of  
3 security available in the industry for Oracle databases.

4 Other priorities for IT include improving operational efficiency through new and  
5 upgraded software. A good example is Project 159555, which will improve GMP's  
6 meter-to-billing process to ensure accurate meter reading and billing by building a Meter-  
7 to-Revenue management tool (MET2REV) that will continuously monitor for signature  
8 patterns that indicate defective or improperly configured meters. Increased screening and  
9 monitoring will protect against lost or inaccurate data, and GMP will be able to reduce  
10 meter operations costs while improving billing accuracy for customers.

11 Priorities for Transportation projects in 2019 continue to be vehicle reliability and  
12 safety so that when a storm hits, our line workers have safe, reliable vehicles to respond  
13 and restore service as quickly as possible. For example, we are replacing four bucket  
14 trucks in 2019 that are in poor condition. Bucket trucks are the primary vehicles our line  
15 crews use to respond to trouble calls and outages during storms, so replacement of these  
16 vehicles will ensure GMP is ready and able to make necessary repairs and maintain  
17 reliable service.

18 There are no Facilities projects closing in the 2019 rate period, although several  
19 important Facilities projects closed toward the end of the interim period. The priorities  
20 for these projects were also safety related. For example, GMP replaced a number of unit  
21 heaters that were over 20 years old and had begun to fail. When these heat exchangers  
22 fail, it creates an unsafe level of carbon monoxide, putting GMP employees at risk. The  
23 gas unit heaters were replaced with infrared tube heaters.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

**V. TIER III COMPLIANCE**

**Q19. Can you speak to the steps GMP is taking to meet its obligations under Vermont’s Renewable Energy Standards for Tier III Projects?**

A19. Yes. Under Tier III of Vermont’s Renewable Energy Standards, GMP is required to partner with our customers to deliver fossil-fuel reduction measures. Tier III establishes annual targets of fossil-fuel reductions based on a percentage of GMP’s total retail sales expressed in MWHs. In calendar year 2018, GMP’s Tier III target is based on 2.67% of our retail sales, which equates to about 112,000 MWHs of equivalent fossil-fuel reductions. Each year, the Tier III target escalates by 0.67%. In 2019 GMP’s target will be 3.34% of retail sales, which will equate to about 140,000 MWHs of additional fossil-fuel-equivalent reductions. To give a sense of perspective on the scale of these targets, if GMP were to meet its 2018 Tier III target of 112,000 MWHs of fossil fuel equivalent reductions solely through its all-electric vehicle (AEV) purchasing incentives, we would need to motivate more than 4,000 customer adoptions this year. At the end of 2017, Vermont had approximately 500 AEVs registered.

Included in this rate filing is \$825,000 of forecasted power supply costs related to Tier III incentives to customers during the nine-month rate period. We forecasted this amount off of our actual Tier III performance in calendar year 2017, which was the first year of RES Tier III compliance for GMP. During 2017, our blended per MWH incentive cost was around \$7.85 across all of our Tier III programs. We applied this per MWH incentive cost to our forecasted 2019 Tier III target of approximately 140,000

1 MWHs and then factored it for the nine-month rate period. This is the basis for our  
2 forecasted \$825,000 of Tier III incentive in our power supply cost.

3 While the Tier III targets, and their annual growth, are aggressive, we are very  
4 bullish to pursue them. Tier III helps GMP (and the other Vermont distribution utilities)  
5 to pursue exactly the kind of energy transformations that our customers are asking for and  
6 that the State's energy objectives require. GMP exceeded its 2017 Tier III target and is  
7 on track to exceed our 2018 target. Our Tier III programs and results are described in our  
8 annual Tier III filings to the PUC each year.

9 GMP had the foresight to begin offering our customers energy transformation  
10 programs well in advance of the RES legislation and the Tier III targets. While we are  
11 focused on our Tier III goals, they are not the motivation behind our expanding portfolio  
12 of customer transformation programs. Quite simply, and it seems obvious to say, the  
13 landscape of energy delivery is changing. New technologies emerge each year that  
14 further enable the disruption of the traditional energy system. GMP is a leader in  
15 embracing these disruptive technologies and promoting them to our customers as a way  
16 of accelerating the transformation of our energy system to a home-, business- and  
17 community-based model. Our Tier III programs provide our customers ways to improve  
18 the cost, carbon impacts and reliability of their energy use across home heating/cooling,  
19 hot water, transportation, and backup power applications. Each of our programs seek to  
20 deliver value to both the participating customer and all other customers so that the change  
21 we seek brings value to all members of GMP's system. We view Tier III as important  
22 enabling policy to help support the transformation that customers are seeking and that  
23 GMP has been leading.

1

2

3 **VI. SMART GRID/SMART POWER NON-BASE O&M COSTS & SAVINGS**

4 **Q20. Can you please identify the Non-Base O&M Smart Grid costs and savings in the**  
 5 **2019 rate period?**

6 A20. Since 2013, GMP has submitted an annual update to our Smart Grid costs and savings  
 7 plan to the Department and then the Commission through a filing updating Smart Grid  
 8 benefits and costs against the original business case. The 2018 report will be filed  
 9 shortly. As identified in Mr. Ryan’s testimony, this Smart Grid work has resulted in a  
 10 reduction of non-base O&M costs in the 2019 rate period of approximately \$1.3 million.

11 I would also note that as more time has passed since the initial implementation of  
 12 our smart grid technologies during Vermont’s ARRA-funded Smart Grid Investment  
 13 Grant project, the costs to maintain and operate this infrastructure have lessened and  
 14 become more predictable. Also, the notion of “smart grid” as being unique and separate  
 15 from GMP’s other operating capabilities is gone now. As we have used the various  
 16 technologies to automate and digitize our processes and controls, the distinction between  
 17 Smart Grid operations and traditional operations is gone because our grid operations are  
 18 smart and getting smarter each year. This is the new normal. This is a good thing for  
 19 customers, as it results in reduced costs across the company from capabilities such as  
 20 automated meter reading, better usage data and analytics, better outage tracking and  
 21 communications, better load flow data for planning, and other benefits.

1

2 **Q21. Does this conclude your testimony?**

3 A21. Yes.