STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Tariff filing of Green Mountain Power requesting a 5.45% increase in its base rates effective with bills rendered January 1, 2019, to be fully offset by bill credits through Sept. 30, 2019	))))	Case No. 18-0974-TF

PREFILED REBUTTAL TESTIMONY OF
JOHN FISKE
ON BEHALF OF GREEN MOUNTAIN POWER

September 12, 2018

Summary of Testimony

Mr. Fiske responds to the testimony of Mr. Kevin J. Mara regarding Green Mountain Power's Transmission and Distribution capital projects.

EXHIBIT LIST

Exhibit GMP-JRF-3	GMP Response to DPS Recommended T&D Adjustments
Exhibit GMP-JRF-4	DPS Discovery Response Q.GMP.1-47
Exhibit GMP-JRF-5	Project 141211 Coolidge State Park Capital Folder

Q1. What is your name and business affiliation?

A1. My name is John Fiske, and I am employed by Green Mountain Power ("GMP") as Lead of Engineering.

Q2. Did you previously provide testimony in this matter?

A2. Yes, I submitted prefiled direct testimony in this matter on April 13, 2018.

Q3. What is the purpose of your rebuttal testimony and how is it organized?

A3. I respond to issues raised by Kevin J. Mara regarding transmission and distribution ("T&D") projects. In Section I of my testimony, I address Mr. Mara's overall recommendations regarding T&D specific projects. I dispute certain proposed reductions as well as identify adjustments to which GMP agrees. In Section II, I address Mr. Mara's claims regarding the known and measurable standard with respect to GMP's T&D project documentation and respond to his recommendations that (1) GMP consider using the Interruption Cost Estimate ("ICE") Calculator tool; (2) provide actual costs to date for major substation projects; and (3) provide benchmarking of GMP's estimating program with estimates to actuals and estimates compared to contractor pricing. In Section III, I address Mr. Mara's claims regarding the blankets for equipment purchases and distribution lines. Finally, in Section IV, I respond to the Public Utility Commission's ("Commission" or "PUC") information requests.

Q4. Before turning to Mr. Mara's comments, can you provide an overview of how GMP approaches T&D planning?

A4. Yes. As discussed in my initial testimony, our customers are the focus of everything we do at GMP, including our T&D planning, and this customer obsession is reflected in our

outstanding customer satisfaction scores and SAIFI and CAIDI measures on reliability and outage length, which have steadily improved over the last six years. We believe these high scores demonstrate that the planning and investment activities we engage in on behalf of our customers appropriately balance investments to improve reliability, resiliency and safety with costs. With that balance in mind, we proactively storm-harden our system to make it more reliable and resilient to address the effects of climate change which we are seeing with more frequent storms which seem to last longer, cause more damage and cost more. This involves identifying and replacing aged infrastructure, increasing our use of storm-hardening facilities like spacer cables, installing feeder backup and automating our system as well as protecting lines and substations with animal guards and fences. We need to make these investments especially in rural parts of our system, even though we have fewer customers who directly benefit from these improvements than in the more urban areas of our territory. In fact, most of the twenty worst circuits identified in our Rule 4.900 reports are in the more rural areas of our territory, and these customers must be reliably served just like our other customers. Waiting for problems to occur increases outages, decreases customer satisfaction, and ultimately costs all of our customers money.

After reviewing Mr. Mara's recommendations carefully, I believe they reflect a less customer-focused, more reactive philosophy to T&D planning. That approach is not consistent with the customer-centric planning model we have adopted in Vermont and at GMP, which emphasizes a proactive approach to address issues before they lead to negative consequences for our customers. This approach to seize opportunities and address any immediate issues also allows for additional system benefits. Throughout his

testimony, Mr. Mara seeks to disallow or criticize a project's need on the basis of past performance (e.g., too few outages or customers affected to replace aged facilities) and metrics that do not consider or place any value on enabling future opportunities for safety and reliability improvements, storm-hardening of our system, or interconnection with distributed energy resources, particularly in the face of climate change.

For example, as discussed in more detail below, GMP has been proactively upgrading all of our older, manual gang-operated air brake ("GOAB") switches with modern, remote motor-operated air-brake ("MOAB") switches, which improve worker safety and efficiency and decrease outage times. These switches integrate with our Supervisory Control and Data Acquisition ("SCADA") systems and allow us to more quickly address outages from our centralized control system, thereby reducing the amount of time our customers are without service during each outage event. Given that GMP already has the fiber communication network integrated with the SCADA master system in place, it makes sense to leverage these facilities and further automate the system to reduce outages and increase safety by installing MOABs. Mr. Mara acknowledges the safety and efficiency benefits of these systems in discovery responses, but his testimony places little value on these improvements, instead arguing that the upgrades are not needed because of the low number of recorded outages. We do not believe it is appropriate to wait until more problems occur, which would cause our customers to incur longer outages and less satisfactory resolutions during outages, while exposing our line workers to higher safety risks. We strongly disagree with this approach to T&D planning. This is just one example of this issue; I discuss others below.

Overall, GMP's philosophy provides the proper balance of safe, reliable service at a reasonable cost for our customers. We firmly believe that GMP's identified T&D upgrades in this rate proceeding are necessary for a safer, stronger, more reliable and resilient T&D system for the customers we serve. These upgrades address existing system needs and provide a proactive approach that will allow for increased flexibility, enhance our ability to implement new technologies, and prepare the grid for both the impacts of climate change happening now and the emerging Distributed Energy Resources model of power delivery.

I. RESPONSE TO DPS RECOMMENDATIONS REGARDING T&D PROJECTS

Q5. Can you please summarize your response to the DPS's recommended T&D capital project adjustments?

A5. Yes, as describe further below, I largely disagree with Mr. Mara's recommendations because they would not support a customer-focused approach to capital planning or, in our judgment, operating a safe and reliable system. We have accepted some of Mr. Mara's proposed adjustments for individual distribution line projects, totaling approximately $1,160,418. We have also removed one distribution line project that, based on current schedules, we no longer believe will be completed in the rate period, which reduced capital costs by an additional $273,019. This results in a total adjustment of $1,433,437. I do not believe DPS's other proposed adjustments are appropriate.

Our specific response to each of Mr. Mara's recommendations is summarized in ***Exhibit GMP-JRF-3***, which identifies (1) Mr. Mara's recommended disallowance by

category and project (e.g., Distribution Substation, Transmission Substations, etc.); (2) the DPS proposed adjustment recommendation; (3) GMP's agreement or disagreement with the DPS recommendation; (4) GMP's proposed reduction, if any, and (5) GMP's reasoning.[1] In this testimony, I respond narratively to a few of Mr. Mara's proposed disallowances and address broader issues that impact multiple proposed adjustments. Below is a table showing by category Mr. Mara's final proposed adjustments and GMP's recommended adjustments.

Category	DPS Final Proposed Adjustment	GMP Recommended Adjustment
Distribution Substation	$0	$0
Transmission Line	$1,482,011	$0
Transmission Substation	$0	$0
T&D Blankets	$12,158,446	$0
Distribution Line	$4,595,461	$1,433,437

A. Transmission Lines

Q6. Are there specific Transmission Line projects for which the Department has recommended an adjustment?

A6. Yes. Mr. Mara's testimony and Exhibit PSD-KJM-4 summarize his cost reduction recommendations for Transmission Lines. As shown on ***Exhibit GMP-JRF-3***, Mr. Mara recommends full disallowance of five out of eight MOAB switch projects, to be installed on the 34.5kV and 46 kV subtransmission systems, which total $1,482,011.

[1] ***Exhibit GMP-JRF-3*** only addresses Mr. Mara's final proposed adjustments and not proposed adjustments discussed but not adopted by the Department.

Q7. Do you agree with any of these disallowances for Transmission Lines? If not, please explain.

A7. No. As noted above, all of Mr. Mara's recommended Transmission Line adjustments are based on the same general position that GMP should not be installing SCADA-controlled MOABs on our transmission system. I disagree with this position, and therefore do not support his proposed adjustments in this category of projects. Mr. Mara's testimony fails to recognize the benefits of these important control systems. Mr. Mara testified that MOAB switches only reduce the duration, but not the frequency, of outages (Mara PFT p 14, l.14-16), but the duration of outages matter to our customers, and we are committed to reducing the amount of time our customers go without power– that is core to our responsibility as their service provider. Having an automated SCADA option to address outages allows us to address outages more efficiently. This is also consistent with how Commission rules define an "outage." In Vermont, the duration of an event determines whether an outage occurs. Vermont Rule 4.900 defines an outage as a zero voltage that lasts for more than five minutes and affects one or more customers. By limiting the potential duration of zero voltage, MOABs help reduce outages in Vermont, so there is no question that the addition of these SCADA-controlled switches provides the means to reduce the number of extended or reportable outages. Automation also improves safety for our crews,[2] and allows for faster restoration time and shorter outage durations by providing sectionalization capability during a system disturbance event.

[2] In response to a discovery request, Mr. Mara agrees that "SCADA controls coupled with motor operated switches allow line personnel to stand clear during a switching operation which can provide a measure of increased safety for personnel." (A.GMP.1-55). The SCADA control reduces the need for workers to access the switch location for manually operation of the switch.

Despite these reliability and safety benefits, Mr. Mara suggests GMP should continue to use manual GOAB switches rather than modernizing its systems with MOAB switches (Mara PFT at 16). While GMP considers using GOAB switches for some applications, GMP also prioritizes opportunities to modernize existing infrastructure where we can leverage available technologies, in this case SCADA, to increase reliability and resiliency for our customers. These SCADA-controlled MOAB switches are essential upgrades for the existing T&D infrastructure in our view, to ensure we continue to effectively deliver our commitment to a reliable, safe, efficient, and cost-effective service for our customers.

Q8. On page 16-17 of his testimony, Mr. Mara also supports his recommended disallowance of certain motor operated air break MOAB switches on the 35kV and 46k transmission lines because the justifications for these projects did not identify past reliability/outage problems that theses MOAB switches relieve. What is your response to this suggestion?

A8. Mr. Mara's testimony on this point is perplexing and difficult to understand. He recommends a disallowance because the "justifications for these projects do not identify past reliability/outage problems that these MOAB switches relieve," but then suggests that "these projects be deferred until the next rate period . . . ." His reason for this deferment "is to balance the increase in reliability spending across several years." With regard to Mr. Mara's concern that GMP has not identified past reliability/outage problems, GMP followed the DPS-GMP MOU, Exhibit 2 documentation requirements (see ***Exhibit-GMP-BO-2***) for these projects and explained that installations of MOAB switches are a reliability improvement initiative for the Company (identified in our

annual Rule 4.900 reports).

For example, in documentation for Project 153590, GMP explained why the project was necessary:

> This project is part of an ongoing reliability improvement initiative with like in kind replacement of manually operated air break switches at critical sectionalizing points on the GMP subtransmission system with SCADA-controlled motor-operated load break switches. Motorizing these switches will significantly improve the operability and reliability of the system by facilitating remote fault isolation and sectionalization of the subtransmission system for disturbances and faults. Motorizing these switches increases worker safety by eliminating the need for workers to access the switch location and manually operate the switch. Presently, an outage to Thetford substation results in the loss of one distribution circuit (G16). There are no feeder backup ties to other substation circuits for this substation. This impacts 1,100 customers in the towns of Thetford, Norwich and Strafford. An outage to the Bradford and Ely substations would impact an additional 2,842 customers. This project will improve reliability for the customers on these circuits, many of which are included in the 20 worst circuits identified in the PUC Rule 4.900 Electricity Outage Reporting.

The justification for this and the other MOAB projects meets and even exceeds the requirements set forth in Exhibit 2.

Mr. Mara's suggestion that the projects be deferred until the next rate year to balance the increase in reliability spending across several years would not fit with GMP's current spending trajectory and our proposed multi-year rate plan. As Mr. Otley testified in his direct testimony, GMP's "overall capital spending levels in 2018 and 2019 reflect a meaningful cut in GMP's level of capital spending over the prior several years." (Otley PFT at 12). Moreover, GMP recently filed a multi-year regulatory plan ("MYRP"), under which this rate case will form the base for the three years of capped capital spending (2020, 2021, and 2022). Another traditional rate case will not be filed until 2022 at the end of the MYRP. Deferral of these projects will either displace other

important projects during the multi-year period, delaying the projects until the end of that period, or would defer recovery on any spending on these projects for more than three years if GMP proceeds with the expenditure during this period. As a result, deferring this spending for a year could have a significant impact on customers. GMP's capital spending is going down, and this rate case and the MYRP already propose a delicate, considered balance of reliability spending over the next several years for the benefit of our customers. I do not believe Mr. Mara offers a reasonable basis for delaying the benefits these projects provide for our customers.

Q9. Are there any corrections that need to be made to your previous testimony regarding Transmission Lines?

A9. Yes, I have a correction to my direct testimony, on Page 11, A14. There is a typographical error in the table. For the category "Transmission Lines," the Interim Period dollars should have been $8,099 instead of $8,009. The totals included in the table are correct, as well as the numbers included in ***Exhibit GMP-JRF-2***, therefore, no further corrections are required.

B. Substations

Q10. Are there specific T&D Substation projects for which the Department has recommended an adjustment?

A10. No, the Department has not recommended an adjustment to any T&D Substation projects based on Exhibit PSD-KJM-5, and has confirmed in discovery that they are not seeking individual project adjustments.

Q11. If the Department has not recommended an adjustment for any T&D Substation projects, why is GMP responding to Mr. Mara's claims regarding these projects?

A11. Mr. Mara has provided extensive comments regarding GMP's installation of animal guards and fences. While we understand the DPS has not recommended any adjustments to GMP's installation of these animal guards and fences, we nevertheless believe a response to the Department's substantive critique is appropriate so that the record before the Commission is accurate and complete.

First, Mr. Mara agrees with GMP's proposed use of animal guards to reduce outages in this rate case (see Discovery Response A.GMP.1-47, attached as ***Exhibit GMP-JRF-4***) but testifies that animal guards and fences should not be applied to all 185 substations. GMP has not proposed widespread installation at all of its substations in this rate case and will assess each new proposed animal mitigation project separately and vet future projects through the Capital Management Team when it proposes them.[3] Mr. Mara also levels several criticisms about animal fences including that they are no different than electric fences on farms and require additional O&M expense. In my experience, these criticisms are unfounded. Animal fences are quite different from electric fences on farms, and GMP personnel already do monthly substation inspections that now incorporate inspection of the fences, so no additional maintenance costs are associated with the fences.

[3] Mr. Mara also testified that animal fences do not protect against outages caused by birds and squirrels. GMP agrees that these fences do not prevent outages caused by birds, and in discovery responses, Mr. Mara agreed that animal fences do prevent outages due to squirrels.

Q12. Do you agree with Mr. Mara's recommendation that GMP track substation outages and the effectiveness of these types of deterrents to determine whether the costs will be appropriate in future rate cases?

A12. Mr. Mara recommends that GMP track substation outages and the effectiveness of these types of deterrents to determine whether such costs will be appropriate in future rate cases. We agree and do already track outages at all of our substations. To date, there have not been any outages caused by squirrels in substations where the fences have been installed. Mr. Mara proposed in a discovery response that we should consider further detailed metrics, such as tracking the number of animal carcasses found at or near fencing each year. We do not believe this added layer of tracking would provide substantial value; however we will continue tracking the performance of substations with and without this protective measure.

C. Large Distribution Line Projects – (Outside Blanket, Above $250,000)

Q13. What adjustments does Mr. Mara propose for Distribution Line projects, and how does GMP respond to those adjustments??

A13. Mr. Mara's testimony and Exhibit PSD-KJM-5 summarize his cost reduction recommendations for the large (>$250,000) Distribution Line Projects. Mr. Mara proposes to disallow all or portions of seventeen (17) out of thirty-six (36) individual distribution line projects, totaling $4,595,459. As outlined below and in ***Exhibit GMP-JRF-3***, GMP disagrees with the vast majority of these proposed adjustments. However, we have accepted a small number of them.

Mr. Mara notes an error in the method used to calculate flagging costs for several projects, and we have adjusted the proposed expense to address this calculation error. This results in an adjustment of $799,844. We have also agreed with Mr. Mara that an adjustment is necessary to the Route 7 Brandon URD Project associated with the Town's repayment of undergrounding costs; however, as explained further below, the amount should be $360,574 rather than the $203,176.

In addition, GMP has independently determined that one proposed project (Waterbury URD) will not occur in the rate period, and therefore has removed that project from the rate case. This results in an adjustment of $273,019. Together these three adjustments result in a total reduction of $1,433,437 in the proposed Distribution Line budget.

Q14. Can you start by explaining the Adjustment you have made for flagging estimates?

A14. Yes. As noted above, Mr. Mara identified a number of projects where GMP inadvertently over-estimated the time for flaggers due to a calculation error. In response, GMP reviewed the flagging estimates for all the T&D projects in the interim and rate year and identified an error in a spreadsheet used to calculate flagging for distribution lines. The spreadsheet calculated flaggers on a per flagger basis rather than the required flagger per crew basis. This resulted in a number of distribution line projects having too many hours of flagging time. GMP made appropriate adjustments in ***Exhibit GMP-JRF-3*** to reflect this change. This resulted in adjustments to the following projects:

1. Project 149662 Bennington Tie (reduced by $67,523)
2. Project 149663 Pownal Tie (reduced by $147,147)
3. Project 149811 E Lake Shore Dr (reduced by $78,308)

4. Project 150420 Hydeville Line 4 (reduced by $2,267)
5. Project 153149 Notch Road Tie (reduced by $23,709)
6. Project 153711 Stonehedge (reduced by$ 33,653)
7. Project 155051 Newfane Line 6 to Line 3 (reduced by $37,363)
8. Project 155199 Bethel 28Cir Line 5 (reduced by $257,188)
9. Project 158518 Sheldon 9 - Phase I (reduced by $93,662)
10. Project 159358 Barre Conv -37Cir (reduced by $59,024)

Together, this correction results in a total adjustment of $799,844.

Q15. Will this flagging error impact the blanket estimates?

A15. No, the methodology applied to blankets used a five-year average of actual historical spending. Therefore, the error in the estimating tool noted above has no impact on the T&D blankets interim and rate year dollars.

Q16. Can you next address the adjustment you have made to the Brandon URD Project?

A16. Yes. On page 17 of his testimony, Mr. Mara notes that GMP's estimate for the total project cost of $467,750[4] did not account for the Town of Brandon's reimbursement of costs associated with undergrounding these facilities at the Town's request. Mr. Mara is correct that this total estimate should have been reduced by the amount of the reimbursement. These types of undergrounding requests require the municipality to pay the difference between the normal relocation cost (in this case, rebuilding the overhead line through town) and the actual cost of undergrounding.

[4] In his testimony on page 17, Mr. Mara misidentified the cost of the project as $409,051. The project cost is $467,750. Mr. Mara used the correct number in his Exhibit PSD-KJM-5.

In this case, GMP originally estimated the normal relocation cost at $58,700, which included rebuilding the existing line in a traditional three-phase configuration and calculated the difference in costs associated with undergrounding to be $203,176. Subsequently, GMP updated its normal relocation cost to be $107,176 to incorporate the Hendrix construction method for reliability and storm-hardening purposes. As a result, the difference between the Town's proposed approach and GMP's recommended approach was reduced, thereby reducing the Town's share compared to the prior undergrounding estimate. GMP updated the contract to reflect that the contribution would be $154,699. Unfortunately, we should have updated the undergrounding estimate at the same time we updated the normal relocation costs; if we had done so, we would have reflected an updated underground cost of $467,750 and a total estimated reimbursement from the Town of $360,574, rather than $154,699. This was an oversight, and GMP has adjusted this project by $360,574 to reflect the difference. We will discuss the issue with the Town per the contract that we have, and regardless, this amount will not be reflected in costs passed to other customers. The Commission's Information Requests on how GMP approaches these types of changes in estimates are addressed further below in Question 31.

Q17. Turning to Mr. Mara's other proposed Distribution Line adjustments, can you discuss why you disagree with those adjustments, and provide some relevant examples?

A17. Yes. As noted above, I provide a specific detailed response to each of Mr. Mara's recommended adjustments in ***Exhibit GMP-JRF-3***. There are a few projects that provide good examples of the types of disagreements we have with Mr. Mara's positions,

including Project 141211 – Coolidge State Park; and Projects 149662 – Bennington Tie and 149663 – Pownal Tie. I discuss these projects below.

Mr. Mara proposes to completely disallow the Coolidge State Park project on the basis that GMP purportedly did not identify alternatives in the financial analysis as required by last year's MOU in Case No. 17-3112-INV. Mr. Mara testified that the investment for only six customers was not justified and that we did not consider the alternative of undergrounding the line. First, I want to point out that while Mr. Mara proposes to disallow the entire project, the overwhelming need for the Project is clearly explained in the Financial Analysis section of the Capital Folder:

> The primary purpose is to update and replace aged and highly deteriorated facilities which have an average pole age of 53 years. The existing poles have been clawed and chewed by black bears to such a degree that there now is a serious safety issue for utility crews to work on and climb these off-road facilities for maintenance and outage restoration purposes. Additionally, the bare wire on this line has seen excessive damage from storms and tree contact, and wire splices are present.

With regard to Mr. Mara's next point, that the cost cannot be justified for only six customers, GMP explained in its financial analysis that "[e]very time there is an outage on this line, up to 6 customers may suffer outages. In the past 4 years, we have seen 3 outages affecting 131 customer hours out." To suggest that we should not replace a 53-year-old line that is no longer safe because only six customers will benefit from the Project is not reasonable. Regardless of the number of customers affected by these outages, these customers must be served, and we cannot do so reliably and safely with the existing aged, deteriorated plant.

As to whether GMP considered alternatives to this Project, consistent with Exhibit 2 of the MOU, GMP identified several alternatives and the costs of those alternatives in its financial analysis, including single phase underground. We determined, based on a general cost estimate for undergrounding work for distribution line projects, that undergrounding in this case would be more expensive than the proposed project and therefore did not conduct a more detailed analysis of this option at the time – focusing instead on potential reconductoring and battery storage options, as documented in the financial analysis provided in the project folder (attached as ***Exhibit GMP-JRF-5***). Mr. Mara's estimate for undergrounding of less than $200,000/mile for this project is too low. While Mr. Mara used GMP's Labor Detail spreadsheet to estimate $200,000 for the cost to underground, he did not anticipate the presence of ledge, the inclusion of conduit, tree clearing, or the necessary quantity of underground components in his estimate. All of these factors lead to a higher per-mile estimate than offered by Mr. Mara.

The alternatives that GMP did consider in detail at the time were reconductoring the line in place and a battery storage solution. As explained in the financial analysis, GMP chose the Project because its analysis supported it as the least-cost option that would provide the greatest potential for long-term reliability after considering reasonable alternatives. Given the age, location, and deteriorated condition of the existing plant, reconductoring the line (i.e., putting new wire on the existing aged and unsafe poles) did not make sense.[5]

[5] Mr. Mara noted that GMP was considering the use of solar and storage for a section of this line. The estimate for the project, however, did not include any dollars for battery storage and solar. The estimate was for the entire overhead project. After meeting with representatives from the park, it was decided not to pursue the battery storage/solar project.

This project is clearly needed to address safety for our crews and the public and asset management for reliability. The Project's documentation complies in every way with the requirements of the MOU as described in Exhibit 2 which shows that this Project is the least-cost alternative that will provide the necessary reliability and safety benefits. As a result, all costs for this distribution line project should be allowed.

For Projects 149662 – Bennington Tie and 149663 – Pownal Tie, Mr. Mara recommends a complete disallowance for both projects (with a combined budget of $1,975,251). The Projects consist of rebuilding the aged and deteriorating Bennington tie line between the Pownal and Bennington substations. GMP seized the opportunity to not only replace aging facilities but also to construct a tie line that will greatly improve reliability for our Pownal customers. The Pownal substation is fed from a radial 46 kV transmission line and has no feeder backup. The entire village of Pownal is being fed from a single source radial transmission line. The Pownal tie line provides backup for the Pownal substation from the South Bennington substation and vice versa. This area has experienced numerous outages, and customers have complained directly to the Department (e.g. 2017-CAPI-01310). One of the Pownal circuits was included in the Twenty Worst Circuit list in the Rule 4.900 Electricity Outage Reporting in 2016. This tie line will also allow GMP to complete maintenance on the Pownal substation without having to place a portable installation at an estimated cost of $20,000 per installation.

Despite the clear justification for the Projects, Mr. Mara proposes to disallow them based on his belief that "GMP could construct a loop-feed substation" for a similar cost as the tie line given that "[t]here appears to be a non-radial transmission line north of the Town of Pownal." Mr. Mara is mistaken. The transmission line he refers to is a

higher voltage line (115kV) than the 46 kV Pownal subtransmission feed, so the cost estimated by Mr. Mara to build a substation is significantly understated; it would be much more expensive than the tie line GMP built, and this cost only increases more if we include the cost of the construction and reconfiguration of distribution lines that would be required to tie into a new substation. The Pownal to Bennington tie line has been fully constructed and has already been utilized to reduce outage duration for customers. Mr. Mara's proposed disallowance should be rejected.[6]

Q18. Mr. Mara also objects to GMP customers paying for a Direct Transfer Trip ("DTT") protection to the Ottauquechee Hydro facility. Do you agree with his proposed disallowance?

A18. No. Without the DTT protection scheme, the Ottauquechee Hydro facility has the potential for unintentional islanding, meaning the hydro facility continues to deliver power to our distribution system even when the substation has been disconnected which could cause safety and power quality issues. We believe that Mr. Mara's recommendation is based on two misunderstandings that we wish to clarify: first, GMP, not a third party, owns the Ottauquechee Hydro facility; second, while there are other generators, particularly solar facilities, on this circuit, we do not believe they should share in the cost of the DTT as suggested by Mr. Mara in a discovery response. This islanding condition would be caused by the Ottauquechee Hydro facility alone which is why GMP is responsible to pay for the proposed project.

[6] The adjustment for flagging totaling $92,163 for both Projects as discussed in response to question 15 on page 11 of Mr. Mara's testimony is addressed in ***Exhibit GMP-JRF-3***.

Q19. Beyond Mr. Mara's proposed adjustments, has GMP independently identified any other Distribution Line adjustments to its April 2018 filing?

A19. Yes. We have determined that one Distribution Line Project which was anticipated to be completed in the rate period has been delayed. This project – the Waterbury URD Project – was required to relocate distribution facilities necessitated by construction planned by the State of Vermont Agency of Transportation ("AOT"). The AOT will not be ready to proceed on the anticipated schedule, so we also have removed the $273,019 in capital costs associated with this project from this rate period. Together with the flagging adjustment and the adjustment for the Brandon URD Project, described above, this results in a total reduction of $1,433,437 in the Large Distribution Line Project budget.

II. RESPONSE TO OTHER T&D COMMENTS

Q20. On pages 10-12 of his testimony, Mr. Mara recommends that that GMP consider use of the Interruption Cost Estimate ("ICE") calculator when evaluating future reliability improvement projects. What is your response to Mr. Mara's recommendation?

A20. GMP has reviewed the documentation provided in Exhibit PSD-KJM-2 for the ICE Calculator methodology. We are open to further discussions with the Department about this type of tool, however, we have a number of concerns with the general approach to planning these tools encourage, and we have concerns with the applicability of the information generated by the ICE calculator in particular. First, from a philosophical perspective, we do not believe it is appropriate to make planning decisions based purely

on a numerical calculation of anticipated reliability benefits, like the information generated by the ICE tool. This data may be informative in some circumstances, but it is important to recognize that it can encourage the type of passive, reactive approach to T&D planning that we believe is not in our customers' best interests. We want to make sure that consideration of this data is used properly and does not lead to a systematic rejection of individual projects, which, while qualitatively important for our customer's experience, might otherwise not be viewed as "justified" through the narrow numerical lens this tool provides.

That general concern aside, we also have some specific concerns with the applicability of the ICE tool including:

- The ICE calculator is region-based and has no data for the northeast/mid-Atlantic regions;
- Over half of the data is from surveys that are 15 years and older;
- There are notable fluctuations between 2009 and 2012 cost data;
- There does not appear to be validation that the ICE calculator recommendations were proven to be the best selection based on "actual" realized project reliability benefits;
- This model appears to be focused on costs based on past reliability performance with no consideration of actual customer complaints or future opportunities to implement technology advancements such as automated switching or added system capabilities such as feeder backup ties; and
- The ICE calculator appears to be based on traditional principles and past performance which may not fit with GMP's evolving strategies to prepare

the grid for the emerging Distributed Energy Resource ("DER") model of power delivery. The ICE documentation does not mention distributed resources, storage, automation, or customer satisfaction.

GMP believes our proven reliability performance as indicated by SAIFI and CAIDI and GMP's Overall Customer Satisfaction Index shows that our methodology for identifying and prioritizing T&D projects is very effective. While we have reservations about this tool, GMP will continue to give further consideration to how this type of information might be responsibly incorporated into its project planning process. Based on his discovery responses, Mr. Mara was aware of one utility in the Northeast that has used this tool on one project. GMP has reached out to this utility to acquire a better understanding of its experience using the tool. GMP also has contacted another utility in Connecticut which has done some preliminary exploration of this tool.

Q21. On page 15-16 of his prefiled testimony, Mr. Mara suggests that GMP should file updated actual costs through June 2018 for certain substation projects as the case proceeds, as he believes that a significant portion of the actual costs should be known by now. What is your response to this suggestion?

A21. We do not agree that the proposed updating would be appropriate. The proposal to update costs on projects that are in some stage of construction would be a significant departure from years of practice and PUC precedent, and would also run counter to the clear standards the DPS and GMP agreed to last year in the MOU, as memorialized in Exhibit 2, to satisfy the known and measurable requirements. Mr. Mara himself notes that this treatment would be a departure. The exercise would certainly be burdensome. Adding the data in real time for actuals to-date during a pending rate case would be an

enormous undertaking without clear purpose or meaning given different project completion cycles.

Q22. On pages 30-31, Mr. Mara raises a concern with the use of vendor quotes for cost documentation and recommends GMP provide benchmarking of its estimating program with estimates to actuals and estimates compared to contractor pricing. What is your response?

A22. I disagree with Mr. Mara's comments regarding GMP's use of vendor quotes, also called contractor quotes, and do not fully understand his testimony on this point. Based on his responses to discovery, it appears that Mr. Mara believes that the GMP costs and contractor costs are comparable – they are not. GMP's internal estimating tools are not and were never intended to be directly comparable to contractor pricing. A contractor is a separate entity utilizing different labor sectors with different organizational overheads. Rather, the scope of the contractor's work is project-specific. GMP's costs on Mr. Mara's table include materials, labor, and associated overhead. The vendor quotes are for labor and associated overheads, and generally contractor labor is more expensive than GMP labor. While the contractor quotes are higher, they are and always have been considered known and measurable. We are required to provide them, but we are not required to, nor could we, make contractor costs comparable to GMP costs.

Exhibit 2 of the DPS-GMP MOU on documentation standards (***Exhibit-GMP-BO-2***) specifically states that the financial analysis shall include "project cost summary providing an itemization of the cost elements of the project, including supporting documentation (vendor quotes, resource estimates based on similar projects, etc.)." When GMP anticipated the use of contractors to perform project tasks, GMP input

vendor quotes directly into the project cost estimate summary and provided the appropriate documentation for the vendor information, as required in Exhibit 2. Where GMP anticipated use of GMP labor and material for a task rather than the use of contractors, the estimate was developed with GMP labor and material. Mr. Mara's comments regarding benchmarking of our estimating program with contractor pricing conflicts with the MOU requirements.

III. RESPONSE TO DPS RECOMMENDATIONS REGARDING T&D BLANKETS

Q23. Can you please summarize Mr. Mara's recommendations with respect to the T&D Blankets?

A23. Yes. Mr. Mara's testimony and Exhibit PSD-KJM-10 identify his final cost reduction recommendations for T&D Blanket Work Orders. Mr. Mara recommends disallowing portions of the Regulator and Capacitor, Transformer, and Distribution Line blanket totaling $12,158,446. His recommended adjustments are as follows:

Regulators and Capacitors	$ 338,605
Transformers	$ 887,326
Distribution Line Blanket	$10,932,515
TOTAL	$12,158,446[7]

[7] Mr. Mara's testimony on these disallowances is not consistent. For example, from pages 34-36 of his testimony, Mr. Mara offers significant criticism of GMP's blanket meter costs and recommends complete disallowance, but on page 47, he states that he did an independent estimate for new meters and replacement of failed meters and found GMP's budget to be reasonable and recommended no disallowance.

Q24. Is Mr. Mara's recommendation to disallow significant portions of the T&D blankets consistent with the MOU between the DPS and GMP which resolved the 2017 rate case?

A24. No, and GMP is concerned that adopting Mr. Mara's recommendation would in essence change the standard that was agreed to for this proceeding after the fact. GMP and the DPS entered into an agreement regarding blankets in the last rate case which was memorialized in the MOU approved by the Commission and based upon the same issues regarding blankets that Mr. Mara raises this year.

Last year, the DPS witnesses recommended a cap on larger projects in the blanket. GMP submitted substantial testimony showing that Vermont regulators had traditionally approved the use of blankets, that the costs of blankets were not increasing in relation to the T&D spending, and that blankets met the known and measurable standard. In both this rate case and the last, the DPS witnesses acknowledged that the use of blankets is firmly established in Vermont, and in responses to discovery, Mr. Mara agrees that GMP's blanket spending is not increasing.

After extensive litigation and discussions about blankets in last year's rate case, the MOU resolved the issues surrounding the use of blankets by allowing GMP's blankets, based on 5-year averages of historic costs, into the 2018 cost of service and rate base, and requiring that projects above $250,000 be removed from the blankets and set forth as individual projects in future rate cases, which is precisely what GMP did in this rate case. Paragraph 27 of the MOU states:

> With respect to specific capital projects that are reviewed in conjunction with any future rate adjustment request, GMP agrees that it will create project-specific documentation for any single capital project within a blanket work order that

> exceeds $250,000, including, but not limited to, capital projects within the blanket work orders for distribution lines, distribution substations, generation, transmission lines, transmission substations, information technology, meters, property and structures, and regulators and capacitors.

This agreement was clearly directed at GMP's preparation of future rate filings (such as this one), and clearly contemplated the continued use of blankets (which have always been based on 5-year averages of historic costs). One of the stated purposes of the MOU was to "provide the Commission with appropriate documentation standards for GMP to satisfy the 'known and measurable' requirements for a traditional cost-of-service rate case." MOU, ***Exhibit GMP-BO-2***, ¶ 9. In the MOU, the DPS and GMP acknowledged that they had engaged in a series of discussions that resulted in agreement on definitionally clear documentation standards for GMP to satisfy the "known and measurable" requirement for capital projects or programs that *shall apply* in future traditional cost-of-service rate cases. ***Exhibit GMP-BO-2***, ¶ 14 (Emphasis supplied). GMP followed this MOU carefully, individually documenting distribution line projects above $250,000, and using the agreed-upon blanket approach for projects below this amount, based on the five-year average for such projects.

Q25. Do you agree with any of Mr. Mara's proposed adjustments for the T&D blankets?

A25. No, I do not agree with any of the disallowances for T&D Blankets for a number of reasons. In last year's rebuttal testimony and in my direct testimony in this case, I explained in detail why blankets are needed, showed that the costs of blankets were not increasing in relation to overall T&D spending, and explained how blankets satisfy the known and measurable standard.

In summary, the GMP methodology is based on a five-year average of actual historical spending. Spending can fluctuate from year to year based on varying system needs, equipment failures, lead times, and customer requests. Use of a five-year average addresses these spending fluctuations and smooths out the impact in any given year. The five-year average is then compared to the actual budgeted number for each blanket. In the event the budgeted number is lower, GMP includes the lesser amount in the rate filing which results in a high probability that these dollars will be spent (in fact, since the dollars in a historic average have been spent, they clearly are known and measurable). This methodology also will result in costs consistently lower than the highest actual dollars spent which allows our customers to benefit from the regulatory lag inherent in a five-year averaging of costs. The use of blankets and the discussed methodology has been historically allowed by the PUC in past rate cases, including last year's rate case, as known and measurable costs and is specifically allowed in the MOU. Mr. Mara has provided no evidence that we should deviate from the express provisions of last year's MOU, or the PUC order accepting that MOU, or from years of PUC precedent regarding blankets. He agrees that Vermont regulation traditionally has approved the use of blankets; the costs of GMP's blankets are not increasing; and there is a high probability that these dollars will be spent since GMP includes the lesser of the five-year historic average and the budgeted amount. For all of these reasons, the PUC should reject his recommended disallowance.

Q26. Mr. Mara and Mr. Winn also express concern about the increase in the blanket spending over the years. Is this a valid concern?

A26. No, it is not. As the chart below depicts, annual T&D blanket costs, when compared using adjustments for inflation to 2018 dollars for historical years, as is appropriate, spending for 2018 and 2019 is less than spending for 2016 or 2017.

	2016	2017	2018	2019
Annual T&D Blanket Totals[8]	$40,309,611	$42,804,073	$36,755,124	$37,072,204

The 2019 T&D blanket costs are presented on an annualized basis (12-month, not the 9-month rate period). To provide comparable numbers, we have included in the chart above the individual distribution projects above $250,000, which are now broken out of the distribution blanket consistent with the DPS-GMP MOU (***Exhibit GMP-BO-2***). These projects would have been included in the blankets in prior years, but per the DPS agreement, they are now documented individually with their own capital folders and supporting documentation, consistent with all other capital projects, and are therefore not "blanket" projects. From that perspective, the amount of true blanket spending is even more substantially reduced from prior years, which was the purpose of individual documentation of these projects.

Q27. Do you agree with the partial disallowance of $338,605 for the Regulator and Capacitor Blanket proposed by Mr. Mara?

A27. No. Mr. Mara supports the proposed disallowance by stating that "the historical costs for regulators and capacitors have been very erratic." He is concerned about the increased

[8] The Annual Blanket Totals above include Distribution Line projects greater than $250,000.

spending on regulators and capacitors in 2016 and 2017 compared to 2015. As discussed in last year's rate case, the amount spent for the regulator blanket was much higher in 2016 than in 2015 because a portion of the regulators scheduled to hit the 2015 budget were not received from the vendor until 2016 which accounted for the increase. Rather than supporting disallowance of a portion of the blanket, this spending fluctuation exemplifies one of the main justifications for the blankets: the use of the 5-year average smooths out these fluctuations in costs for necessary, non-discretionary utility equipment purchases for the benefit of our customers.

Q28. Mr. Mara's also states that the capacitor and regulator blanket should be partially disallowed because energy sales are decreasing which lessens the need for these items. Do you agree?

A28. I disagree. Regardless of load increases on the distribution system, regulators and capacitors are not discretionary purchases and provide necessary voltage support to ensure proper system operation, feeder backup, circuit reconfigurations, power quality, and asset maintenance. Mr. Mara's proposed disallowance of $338,605 assumed that no regulators or capacitors were needed for feeder backup, circuit reconfiguration, or power quality complaints. The dollars proposed in this blanket are necessary to cost-effectively ensure adequate system voltages and system operation. The regulator and capacitor blanket expenditures for this rate proceeding are reasonable and costs have not been increasing significantly as Mr. Mara suggests. In actuality, the interim and rate year totals in 2018 dollars are less than the actuals spent in 2013. There should not be any reduction, and this blanket should be completely allowed in this rate proceeding.

Q29. Why do you disagree with the partial disallowance for the Transformer Blanket in the amount of $887,326?

A29. Mr. Mara's testimony is confusing as he initially recommends disallowing all costs for transformers (Mara PFT at 40 Line 15) and then reduces this recommendation to a disallowance of $887,326 (Mara PFT at 47 Line 18). In calculating this disallowance, Mr. Mara made several assumptions (e.g., the number of three-phase units, single-phase units, failed transformers, etc.) that in actuality will differ from year to year. GMP's methodology uses actual historical spending as its basis. The interim and rate year transformer blanket dollars requested in this filing are *less* than the five-year average of actual dollars spent and also *less* than the 2015, 2016, and 2017 actual historical dollars spent. Transformers are fundamental electric infrastructure components that must be acquired for customer service and reliability, and their purchase is not discretionary. The proposed transformer blanket interim and rate year dollars represent a reasonable spending level with a high probability of occurring, firmly meeting the known and measurable requirements.

Q30. Why do you disagree with the partial disallowance for the Distribution Line Blanket of $10,932,515?

A30. As discussed above, I disagree with Mr. Mara's position because it is inconsistent with the prior MOU with DPS on how GMP should approach blanket spending, as well as the Commission's precedent regarding treatment of blankets as known and measurable. I also factually disagree with Mr. Mara's assertion on page 42 of his testimony (lines 15-17) that the Distribution Line Blanket (≤$250,000) costs are not known and measurable. The blanket calculations are based on five-year averages of fiscal years. Both the 2018

and 2019 proposed spending (on a fiscal year basis) is less than the historical actual dollars spent in fiscal years 2016 and 2017 as shown in the table below (we have presented these numbers on a fiscal year basis to allow for comparison).

	Actual $ 2016	Actual $ 2017	FY 2018	FY 2019
Distribution Line Blanket	17,848,791	18,630,511	16,798,224	17,016,601

The Distribution Line Blanket represent a reasonable spending level, documented as required by the DPS-GMP MOU (***Exhibit GMP-BO-2***), and therefore meets the known and measurable definition for blankets. There should not be any reduction to this blanket.

IV. RESPONSES TO COMMISSION INFORMATION REQUESTS

Q31. Responding to PUC Information Request number 13, please refer to Mr. Mara's prefiled testimony at pages 17 through 18. Mr. Mara discusses the Brandon undergrounding project and the fact that the cost of the project has increased from an estimated $203,176 to $409,051. When GMP enters agreements with customers for undergrounding or for line extensions or other work, does GMP include in the agreement that the customer will be responsible for any costs that are above the estimated cost?

A31. The answer depends on the type of project requested. For some tariff-based services, the customer is required to pay actual costs even if above the estimated cost. Likewise, for relocation projects for municipalities or the state, the State's agreement requires that actual costs be paid. Projects where customers are required to pay actual costs include the following:

- Utility Line Relocation (i.e. State or Municipal road job)
- System upgrades and other work associated with Generation Resources as defined in Commission Rule 5.500
- Any work performed by GMP on behalf of a Customer associated with line extension, relocation, upgrades, equipment replacement, or other work, which are not specifically covered by the charges contained in the GMP Electric Line Extension and Relocation Tariff.

For some projects, the customer is not responsible for costs beyond the estimate such as line relocations or extensions that do not have special construction charges as described in the Line Extension and Relocation Tariff.

Q32. Responding to PUC Information Request number 14, please refer to Mr. Mara's prefiled testimony at pages 17 through 18. Please identify any capital projects in this proceeding (in addition to the Brandon undergrounding project) where the cost of the project exceeded the estimate provided to the customer who was responsible for a portion of the project's costs. For each project, please state the difference between the estimated cost of the project and the actual cost of the project and identify who is responsible for paying the extra cost.

A32. GMP reviewed all individual T&D capital project folders in this case for which the customer is responsible for a portion of the project's costs and found none with actual costs exceeding provided estimates other than the Brandon URD project described in response to Question 16, above.

Q33. Does this conclude your rebuttal testimony?

A33. Yes.