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STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 18-1633-PET

Petition of Green Mountain Power for	)
approval of a multi-year regulation plan	)
pursuant to 30 V.S.A. §§ 209, 218, and 218d	)

PREFILED TESTIMONY OF NATHAN PHELPS ON BEHALF OF RENEWABLE ENERGY VERMONT

December 14, 2018

Table of Contents

List of Charts

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I. Introduction

Q1. Mr. Phelps, please state your name and business address.

A1. My name is Nathan Phelps. My address is 745 Atlantic Ave., 7th Floor, Boston, Massachusetts 02111.

Q2. By whom are you employed and in what capacity?

A2. I serve as the Regulatory Director for Vote Solar. In this capacity, I work on initiatives, development, and implementation of policy related to distributed generation ("DG")[1] and distributed energy resources ("DER")[2] more broadly. I also review regulatory filings, perform technical analyses, and testify in commission proceedings relating to DG.

Q3. Please describe your experience and qualifications.

A3. My primary focus at Vote Solar is utility regulatory issues related to DG. These regulatory issues include the billing arrangement commonly known as net metering, rate design, rate

[1] DG resources include, but are not limited to, (a) photovoltaics (*a.k.a.* solar or solar electric), (b) wind, (c) micro-hydro, and (d) combined heat and power (*a.k.a.* cogeneration). DG are located closer to load than central power plants, and are mostly interconnected with the distribution system.

[2] DER technologies include, but are not limited to, (a) DG, (b) energy efficiency, (c) energy storage, (d) demand response, and (e) load shifting. DER are located on (*e.g.*, connected to) the distribution system.

recovery, performance-based regulation ("PBR"), and decoupling, primarily within electricity markets in the Northeast. Prior to joining Vote Solar, I was a Senior Economist at the Massachusetts Department of Public Utilities for five years. While at the Massachusetts Department of Public Utilities, I was the primary staff person who worked on issues related to DG and renewable energy, including net metering, interconnection, long-term contracts for renewable energy, and rate-related issues relevant to DG. Prior to joining the DPU, I was a Policy Intern with the Massachusetts Renewable Energy Trust.

I received my undergraduate degree from Willamette University in both Environmental Studies and Politics, and I attended Tufts University for graduate studies in Urban and Environmental Policy and Planning.

Q4. Have you previously testified before the Commission?

A4. No, I have not. I have submitted comments and worked in front of the Commission, but I have not testified.

Q5. Have you previously testified in other states?

A5. Yes. I have testified before the Massachusetts Department of Public Utilities, New Hampshire Public Utilities Commission, Rhode Island Public Utilities Commission, and the Maryland Public Service Commission. In Massachusetts, I testified in: (a) docket D.P.U. 15-155, the general rate case for the Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid; (b) docket D.P.U. 17-05, the most recent general rate case for NSTAR Electric Company and Western Massachusetts Electric Company, each d/b/a Eversource Energy; and (c) docket D.P.U. 17-140, the implementation of the Solar Massachusetts Renewable Target tariff. In New Hampshire, I

testified in the Commission's proceeding to evaluate net metering, docket DE 16-576. In Rhode Island, I testified in (a) docket No. 4770, the most recent general rate case for Narragansett Electric Company d/b/a National Grid; and (b) docket No. 4780, the implementation of the Power Sector Transformation plan. In Maryland, I testified in the proceeding concerning the proposed merger between Exelon Corporation and Pepco Holdings, and the general rate case of Southern Maryland Electric Cooperative, case No. 9361 and 9396 respectively. In addition to testimony, I have provided public comments in commission proceedings in Iowa, Maryland, Massachusetts, New Hampshire, New York, Oregon, and Vermont.

Q6. Please describe Vote Solar.

A6. Vote Solar is a non-profit grassroots organization working to foster economic opportunity, promote energy independence, and fight climate change by making solar a mainstream energy resource across the United States. Since 2002, Vote Solar has engaged in state, local, and federal advocacy campaigns to remove regulatory barriers and implement key policies needed to bring solar to scale. Vote Solar is not a trade group and does not have corporate members.

Q7. On whose behalf are you submitting testimony?

A7. I am submitting testimony on behalf of Renewable Energy Vermont ("REV").

II. Purpose of Testimony and Summary of Recommendations

Q8. What is the purpose of your testimony in this case?

A8. The primary focus of my testimony is to address Green Mountain Power Corporation's ("GMP" or "Company") proposed Multi-Year Regulation Plan ("MYRP"). Specifically, I

reviewed the Company's PBR proposal in the context of the energy and environmental goals of the state, ratepayers, and stakeholders, and whether the filing is in the public interest.

Q9. What are GMP's goals for the proposed MYRP?

A9. According to the Company, the goals of the MYRP are to:

(1) support GMP's work to lower costs for customers while achieving robust carbon reduction goals laid out by statute;

(2) encourage the evolution and transformation of our Vermont energy system into one that is highly distributed and based increasingly on home-, business-, and community-based energy solutions, while focusing on the fact that this evolution will also make grid management more complex, requiring appropriate investment and management;

(3) encourage implementation of transformative energy programs that bring benefits to both the customers who directly participate in the program offerings, as well as to all other customers from peak shaving, grid resiliency, and other advantages these programs create in helping drive down costs;

(4) reduce financial costs and unnecessary risk created by frequent traditional rate cases, instead enabling low, stable, and predictable costs for customers, and eliminating the disincentives to support efficiency and innovation inherent in traditional rate regulation by decoupling revenue from sales in ways that protect customers while providing more stability for the utility; and

(5) support a transparent and efficient process of multi-year rate setting, bounded by thorough, traditional cost of service rate filings.[3]

Q10. Are the goals of the proposed MYRP consistent with the expected benefits of PBR?

A10. Yes. The goals are very good and consistent with the benefits that PBR can provide to the state and all customers. In addition, I note support for Mary Powell's call for continued innovation both within GMP and in Vermont's regulatory system to turn the challenges facing the energy industry into opportunities.[4] I think the goals listed by GMP are commendable goals for GMP, regulators, and stakeholders.

Q11. Please provide an overview of GMP's filing.

A11. Exhibit GMP-MGP-1 provides a nice overview of the proposed MYRP. Specifically, the proposed MYRP includes the following elements:

(1) Infrastructure costs;

(2) Power Supply, Transmission, Revenue;

(3) Financing Costs;

(4) Other Costs;

(5) Refresh & Adjustors; and

(6) Other.[5]

Q12. Does your testimony address all of these topics?

A12. No. My testimony addresses: (1) Performance-Based Ratemaking in general; (2) Performance Metrics, which are part of the "other" category of elements listed above; (3)

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[3] Prefiled Testimony of Mary G. Powell at 5-6.
[4] Prefiled Testimony of Mary G. Powell at 3.
[5] Exhibit GMP-MGP-1.

the Earnings Sharing Adjustment Mechanism, which is part of the "Refresh & Adjustors" category of elements listed above; and (4) comments in Ms. Powell's testimony regarding the costs of net-metering. My testimony is organized by these topics.

Q13. Have you reviewed the testimony and other supporting documents submitted by the Company relevant to performance-based ratemaking, performance metrics, and the Earnings Sharing Adjustment Mechanism?

A13. Yes, I have.

Q14. Do you believe that the current structure of the proposed MYRP is aligned with the goals for the MYRP?

A14. Unfortunately, no. REV has concerns about the current structure of the MYRP.

Q15. How will the Company's MYRP impact the deployment of distributed energy resources in Vermont?

A15. The deployment of DER in Vermont is extremely sensitive to how performance-based regulation evolves in Vermont, and necessarily by extension the MYRP. The provisions in the MYRP will greatly affect the future deployment of DER in Vermont.

Q16. What concerns does REV have with the filing?

A16. REV has concerns with: (1) the structure of the performance incentives; (2) the structure of the performance metrics; (3) the scope of the performance metrics; (4) the Earnings Sharing Adjustment Mechanism.

Q17. Please summarize your recommendations.

A17. REV recommends the Commission require the following: (1) target earnings for each year of the MYRP that include the target performance for performance incentives; (2)

performance incentives that have a known value and are not based on return on equity adjustments; (3) Customer Service Stretch Goals that are symmetrical, not based on basis points, and quadratic (or at least linear); (4) development of performance metrics to address DER adoption and carbon emissions reductions; (5) add the following Innovation Measurements: (a) pre-interconnection information, (b) processing of interconnection applications, (c) system upgrades pursuant to interconnection services agreements, (d) energy mix, (e) emissions, and (f) electric vehicles; and (6) a fully reconciling revenue decoupling mechanism instead of the Earnings Sharing Adjustment Mechanism.

III. Goal of Performance-Based Ratemaking

A. Introduction

Q18. Please explain your understanding of performance-based regulation?

A18. Performance-based regulation (*a.k.a.*, incentive regulation) is an alternative to cost-of-service regulation. The fundamental premise of PBR is a shift away from compensating utilities for services based on the costs to provide the services to an outcome-based approach. Stated differently, PBR is an output-based framework compared to the input-based framework of cost-of-service regulation. The outcome-based approach of PBR places a heavy emphasis on rewarding the utility based on pre-determined objectives, which allows regulators to ultimately determine what they want the utility to achieve.

As the Company explained, there are several serious flaws to cost-of-service regulation. Perhaps the most obvious flaw of traditional cost-of-service regulation is a perverse incentive for utilities to expend the most capital possible in order to maximize their return on equity ("ROE"). This perverse incentive is commonly referred to as *capital bias*. This

has placed a responsibility on regulators to make sure that utilities are only expending the capital needed to provide the desired level of service.

Q19. Does performance-based regulation also place a responsibility on regulators?

A19. Absolutely. PBR should not be viewed as an abdication of responsibility by the regulators. PBR places an equal responsibility on regulators. Regulators must determine the outcomes that they want the utility to achieve, and ultimately how much to compensate the utility for those outcomes.

From a regulatory perspective, the real difference is a shift in perspective. Under PBR, the regulators have the opportunity to answer two very important questions: (1) what should the utility achieve that is most appropriate for – and by extension desired by – customers; and (2) what should the utility achieve in order to meet the public policy goals of the state. Ultimately, PBR allows regulators to determine the desired outcomes of the utility, and provides the flexibility to the utility to achieve the outcomes in new and innovative ways. PBR thereby provides an opportunity to allow for innovation in a sector that, at least historically, is not known for innovation.

Q20. Are there risks in performance-based regulation?

A20. Yes. Regulators must be comfortable that the performance-based regulation is designed in such a way that the utility does not neglect certain functions (*e.g.*, service quality) in order to focus on other desired functions. As such, the totality of the regulation plan is just as important as any individual components.

B. Shift from Cost-of-Service Regulation to Performance Regulation

Q21. How should regulators, utilities, and other stakeholders shift from cost-of-service regulation to performance-based regulation?

A21. This is a very difficult question to answer. Regulators around the world are trying to answer this question. In my opinion, regulators need to view target earnings potential as inclusive of target performance. The utilities only earn additional revenue if they exceed target performance. Specifically, PBR should *not* be layered onto cost-of-service regulation and implemented as an opportunity for utilities to expand their total earning potential. Instead, performance incentives (as a key component of PBR) should be calculated as part of the target earnings potential of the utility. Over time, the regulators can shift the proportion of the earnings potential of the utility earned from cost-of-service regulation to performance metrics. The speed of the shift from cost-of-service regulation to PBR should be determined by the regulators in a case-by-case basis after consideration of all stakeholders' (including the regulators, the utility, and other parties) comfort level with performance metrics and the ability of the utility to achieve the desired outcomes of the performance metrics. Ideally, as all parties' familiarity with performance metrics grows over time, the utility's recovery of target earnings potential will increasingly shift from cost-of-service regulation to performance-based regulation.

Q22. Do regulators have enough experience with performance-based regulation to start the transition away from cost-of-service regulation?

A22. Regulators have a lot of experience with PBR, albeit in specific areas. Specifically, regulators have experience with PBR for energy efficiency and service quality. While

performance incentives are not necessary in Vermont for energy efficiency, Vermont's experience with service quality performance metrics provides an excellent starting point for the use of performance metrics in other areas.

Q23. How does a regulator determine the total earnings potential without a cost-of-service review?

A23. Just like with cost-of-service regulation, the regulators must balance the financial health of the utility and ratepayer impacts. However, instead of indexing the total earnings potential to costs, the regulators index the total earnings potential to other factors (*e.g.*, inflation and productivity). Nonetheless, the Commission does not need to determine the method for determining future earnings potential in the immediate proceeding; the Company's proposal includes target earnings during the MYRP.

Q24. Do you take a position on the amount of target earnings in the MYRP?

A24. No. I do not address the amount of the target earnings in this testimony.

Q25. What do you recommend in the immediate MYRP?

A25. The Commission should set the target earnings for each year of the MYRP inclusive of baseline performance (*a.k.a.*, target performance) in the performance incentives, and other performance mechanisms. GMP should only be able to exceed the target earnings if the Company exceeds performance expectations and thereby earns additional revenue from the performance metrics.[6]

[6] For additional information on the structure of performance metrics, please see Section IV.

C. Movement away from Capital Bias

Q26. How does a regulator address capital bias?

A26. Fundamentally, the only way to truly address capital bias is to reduce the revenue that a utility receives as a result of expending capital.

Q27. Is expending capital bad for ratepayers?

A27. No. For the foreseeable future, utilities will need infrastructure in order to provide reliable electricity services to customers. However, utility-owned infrastructure may not always be the least-cost or best option for all customers, which is why tying utilities' earning potential to capital expenditures may not always be in the public interest. If regulators reduce the financial motivation for utilities to expend capital in order to earn revenues, then the utilities become less biased toward utility-owned infrastructure. Stated differently, the problem with capital bias is not expending capital on utility infrastructure. The problem with capital bias is a financial motivation for utility infrastructure *at the expense of alternative options*.

Q28. Does Green Mountain Power's MYRP reduce capital bias?

A28. Unfortunately, no. The performance incentives included in the MYRP, including the performance metrics and the Earnings Sharing Adjustment Mechanism, are based on adjusting the return on equity. Adjusting the ROE via performance incentives does nothing to address capital bias.

Q29. What do you recommend?

A29. All performance incentives in the MYRP should have a known monetary value before the start of the regulation plan. Once the appropriate monetary value is determined, Green

Mountain Power will know exactly how much revenue it can earn through the performance incentives over the course of the MYRP.

Q30. Does that mean return on equity should not be a consideration in setting the monetary value of performance incentives?

A30. Not necessarily. In order to provide all parties some perspective on the approximate financial value of a performance incentive, GMP should include the basis point equivalent as a point of reference. However, the basis point adders to the ROE should not be the factor by which GMP earns the performance incentive. As such, before the start of the MYRP, the Commission should require that any performance incentives have a predetermined value, and not a value tied to the ROE.

IV. Performance Metrics

A. Introduction

Q31. Please describe performance metrics.

A31. My view of performance metrics is very similar to GMP's witness Brian Otley (*see* Prefiled Testimony of Brian Otley at 27). Performance metrics are a means to motivate utilities to achieve desired outcomes. The outcomes could vary dramatically depending on the desires of customers and regulators and the public policy goals of a state.

Q32. Are there resources on the design of performance metrics?

A32. Yes. A very valuable resource is a joint effort from the Regulatory Assistance Project and the National Renewable Energy Laboratory called *Next-Generation Performance-Based Regulation: Emphasizing Utility Performance to Unleash Power Sector Innovation*

("RAP-NREL Handbook").[7] Most notably, the RAP-NREL Handbook lists the following best practices:

> 1. **Clear Goal Setting** — If the goal is not clearly set, the metrics, incentives and outputs will likewise not be clear, and can lead to an unsuccessful mechanism.
>
> 2. **Identification of Clear and Measurable Metrics** — Metrics should be able to be clearly identified, with measurable data that provides objective information.
>
> 3. **Establish Transparency at Each Step** — Transparency at each step of the process, including the development of goals, metrics and incentives often improves the quality of the final goals.
>
> 4. **Make Value to the Public Clear** — The public values understanding what utility services they are paying for.
>
> 5. **Align Benefits and Rewards** — When rewards and penalties are applied closely in time with utility performance, the relationship of incentive to performance is easier to assess.
>
> 6. **Learn from Experience** — Modifying PBRs to address operational observations is a good management practice.
>
> 7. **Compared to What?** — The simple question that looks for improvement in regulatory mechanisms along a continuous improvement pathway.
>
> 8. **Simple Designs are Good** — To minimize the risk of gaming, the best bulwark is to design a clear and well-defined incentive and metric(s).
>
> 9. **Evaluation and Verification** — Evaluation and verification of the outputs is an essential element of a successful PBR program.[8]

The framework and guidance provided in the RAP-NREL Handbook serves as an excellent resource for the Commission. REV recommends that the Commission carefully consider the MYRP in the context of the RAP-NREL Handbook.

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[7] See Exhibit REV-Joint-6.

[8] See Exhibit REV-Joing-6, Volume 2, at 7.

Q33. How does a performance metric function?

A33. In order to establish a performance metric, there has to be a known baseline of past performance to which future performance will be measured. Once a baseline is established, a performance metric can be designed in order to incent utility behavior.

A well-designed performance metric should include a target for what the utility is expected to achieve. The target could be a stretch goal or the status quo, depending on the performance metric. After the target performance is identified, the next step is to determine poor and exceptional performance. As GMP witness Brian Otley recognizes, performance metrics can include both rewards (*i.e.*, incentives) and penalties (*i.e.*, disincentives) depending on actual performance. The level of the reward and penalties should be determined on a case-by-case basis depending on the difficulty of achieving the desired outcome and providing the utility with enough financial motivation to change its behavior.

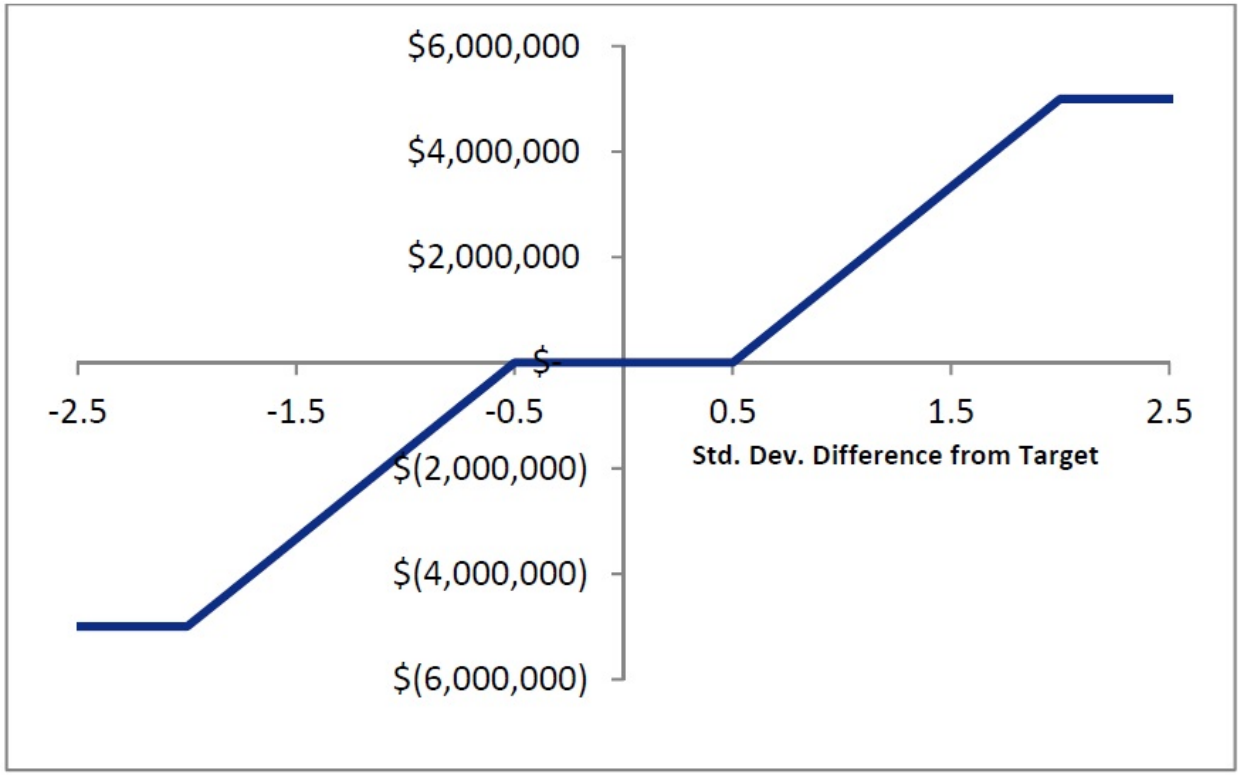
Q34. Do you recommend performance metrics that include both rewards and penalties?

A34. Yes. A reward-only performance metric does not appropriately balance the risk and reward for the utility *and the customers*. In the absence of penalties, a utility could decide that it will only focus on a few of the metrics because they can achieve the most financial gain with the least effort, thereby selectively choosing which performance areas are worth their effort. In order to balance the interest of the utility and the customers, performance metrics should include a penalty for poor performance. A symmetrical performance metric thereby provides the utility with a financial motivation to actively work on the Company's performance in all of the metric areas.

Q35. How should the rewards and penalties be structured?

A35. As I mentioned above, the metrics should be determined on a case-by-case basis. Nonetheless, I do have some general recommendations. First, rewards and penalties should include a deadband with no financial impacts. For instance, half a standard deviation above or below the target performance should include no financial ramifications. The deadband can be thought of as the margin for error in order to account for uncertainty and variability. Figure 1 below provides an example of a linear performance metric with a deadband.

Figure 1: Hypothetical Linear Formula with a Deadband[9]



[9] "Hypothetical Linear Formula with Deadband." Whited, Woolf, and Napoleon, *Utility Performance Incentive Mechanisms: A Handbook for Regulators* (2015), at 43. Available at: http://www.synapse-energy.com/sites/default/files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf

Second, performance metrics should include a cap (*a.k.a.*, collar) on rewards and penalties. A collar mitigates the risk of runaway rewards or penalties, thereby protecting ratepayers and the utility respectively.

Third, quadratic performance metrics can provide an even greater financial motivation when compared to linear performance metrics. Essentially, a quadratic performance metric can provide a greater financial motivation for the next unit of performance, thereby incenting the utility to push harder for better performance (or avoid poor performance).

B. Green Mountain Power's Proposed Performance Metrics

Q36. Please describe the Company's proposal for performance metrics.

A36. GMP proposes both Customer Service Stretch Goals and Innovation Measurements.[10] The Customer Service Stretch Goals have financial value associated with the Company's performance, whereas the Innovation Measurements do not.

Q37. Please describe the Customer Service Stretch Goals.

A37. The Customer Service Stretch Goals are not symmetrical (*i.e.*, there is no penalty for poor performance), and the reward is a 5 basis point adder to the allowed ROE for each metric. Furthermore, the performance metrics are binary (GMP would either meet the criteria of the performance metric or they would not) and do not account for gradations of success. As the name implies, the metrics all center on customer service. Specifically, the Customer Service Stretch Goals are: (1) non-outage calls answered; (2) outage calls not answered;

[10] Exhibit GMP-BO-4. The performance metrics are also included in Exhibit GMP-ER-1 – Multi-Year Regulation Plan Attachment 7. For ease of reference, I will only refer to Exhibit GMP-BO-4.

(3) quarterly customer satisfaction rate; (4) annual customer satisfaction rate; and (5) percentage of customer complaints to Vermont Department of Public Service.[11]

Q38. Are the metrics of Customer Service Stretch Goals appropriate?

A38. I do not see a problem with the topic areas proposed by the Company in the performance metrics. Customer service is an area well-suited for performance metrics. Nonetheless, I note that there might be additional customer service metrics that could address customer service performance, but I defer to the Vermont Department of Public Service due to their first-hand knowledge of customer complaints.

Q39. Do you agree with the structure of the Customer Service Stretch Goals?

A39. I do not. As I described above, performance metrics should be symmetrical, not based on basis points, and quadratic (or at least linear) in nature.

Q40. Do you have any comments on the scope of GMP's proposed performance metrics?

A40. Yes. In its *Order re Vermont Utility Regulatory Structure: Challenges and Opportunities*, the Commission emphasized the importance that any alternative regulation plan must be designed to further Vermont energy policies, stating:

> In today's Order we provide guiding principles that are intended to serve as considerations for any future electric or natural gas utility rate regulation plans filed pursuant to 30 V.S.A. § 218d. In particular, we note the importance of any such proposed plan in advancing State energy policy, as required by Section 218d(4).[12]

Section 218d(a)(4) provides that as a condition of approving an alternative regulation plan, the Commission must first conclude that the plan will:

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[11] Exhibit GMP-BO-4.

[12] *Vermont Department of Public Service request for workshop on utility rate regulation*, Case No. 17-3142-PET, Order of 7/23/18 at 1.

> offer incentives for innovations and improved performance ***that advance state energy policy such as increasing reliance on Vermont-based renewable energy*** and decreasing the extent to which the financial success of distribution utilities between rate cases is linked to increased sales to end use customers and may be threatened by decreases in those sales.[13]

The reference to increasing reliance on Vermont-based renewable energy is tied to 30 V.S.A. § 8001(a). Section 8001(a) of Title 30 lists Vermont's renewable energy goals, the very first of which provides:

> (a) The General Assembly finds it in the interest of the people of the State to promote the State energy policy established in section 202a of this title by:
>
> (1) Balancing the benefits, lifetime costs, and rates of the State's overall energy portfolio **to ensure that to the greatest extent possible the economic benefits of renewable energy in the State flow to the Vermont economy in general, and to the rate-paying citizens of the State in particular**. (emphasis added).

Ms. Powell's testimony at page 5 identifies the goals of the MYRP and the second MYRP goal. As she articulates, it is very similar to the above goals. She states in relevant part:

> As we described during the Commission's Future of Regulation proceeding, we believe a well-designed regulation plan should accomplish a number of connected goals:
>
> > Second, the plan should encourage the evolution and transformation of our Vermont energy system into one that is highly distributed and based increasingly on home-, business-, and community-based energy solutions, while focusing on the fact that this evolution will also make grid management more complex, requiring appropriate investment and management.[14]

There is nothing in the GMP MYRP or the performance incentives proposed by the Company that addresses how GMP will advance the goal of having a highly distributed

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[13] 30 V.S.A. § 218d(a)(4)(emphasis added).
[14] Prefiled Testimony of Mary G. Powell at 5.

Vermont grid, or the state energy goal that GMP develop an "energy portfolio to ensure that to the greatest extent possible the economic benefits of local renewable energy in the State flow to the Vermont economy in general, and to rate-paying citizens of the State in particular." There are no performance metrics included in the plan to address these GMP and statutory goals. Vermont imports the majority of its energy – about 60% from out-of--state and out- of- country generation.[15]

GMP's power portfolio planning should be addressed within the framework of the MYRP because critical and significant procurement decisions could take place over the next three years. The performance metrics should be structured to incent GMP to make investments and procurement decisions that advance Vermont policy.

Q41. Do you have any additional concerns?

A41. Yes. The MYRP and performance metrics also are not specifically identified to address Vermont's clean energy policy. Vermont has enacted numerous statutes with goals, policies and standards expected to motivate utility behavior to take actions to meet the goals, policies and standards. These statutes include 30 V.S.A. § 202a (State energy policy), 30 V.S.A. § 218c (least-cost integrated planning), and 10 V.S.A. § 578 (greenhouse gas ("GHG") emission reduction goals). These statutes are set forth below:

30 V.S.A. § 202a. State energy policy

It is the general policy of the State of Vermont:

[15] "Vermont State Profile and Energy Estimates." U.S. Energy Information Administration, *Independent Statistics & Analysis*. Accessed on December 5, 2018. Available at: https://www.eia.gov/state/data.php?sid=VT#ConsumptionExpenditures

(1) To assure, to the greatest extent practicable, that Vermont can meet its energy service needs in a manner that is adequate, reliable, secure, and sustainable; that assures affordability and encourages the State's economic vitality, the efficient use of energy resources, and cost-effective demand-side management; and that is environmentally sound.

(2) To identify and evaluate, on an ongoing basis, resources that will meet Vermont's energy service needs in accordance with the principles of least-cost integrated planning; including efficiency, conservation, and load management alternatives, wise use of renewable resources, and environmentally sound energy supply.

30 V.S.A. § 218c. Least-cost integrated planning

(a)(1) A "least-cost integrated plan" for a regulated electric or gas utility is a plan for meeting the public's need for energy services, after safety concerns are addressed, at the lowest present value life cycle cost, including environmental and economic costs, through a strategy combining investments and expenditures on energy supply, transmission, and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs. Economic costs shall be assessed with due regard to:

(A) the greenhouse gas inventory developed under the provisions of 10 V.S.A. § 582;

(B) the State's progress in meeting its greenhouse gas reduction goals;

(C) the value of the financial risks associated with greenhouse gas emissions from various power sources; and

(D) consistency with section 8001 (renewable energy goals) of this title.

10 V.S.A. § 578. Greenhouse gas reduction goals

(a) General goal of greenhouse gas reduction. It is the goal of the State to reduce emissions of greenhouse gases from within the geographical boundaries of the State and those emissions outside the boundaries of the State that are caused by the use of energy in Vermont in order to make an appropriate contribution to achieving the regional goals of reducing emissions of greenhouse gases from the 1990 baseline by:

(1) 25 percent by January 1, 2012;

(2) 50 percent by January 1, 2028;

(3) if practicable using reasonable efforts, 75 percent by January 1, 2050.

Q42. Is the Company's plan consistent with the aforementioned statutes and requirements?

A42. As noted above, Ms. Powell's prefiled testimony claims that GMP's MYRP was designed to achieve a number of "connected goals," including "achieving robust carbon reduction goals laid out by statute."[16] The general themes on the surface appear to suggest that GMP's performance metrics are tied to Vermont's clean energy goals. However, upon closer examination, GMP's proposed Innovation Measurements and Performance Metrics have no explicit linkage to Vermont's clean energy or DER goals and policies. In fact, as illustrated by GMP's response to REV's discovery question 34, none of GMP's performance metrics were designed to achieve Vermont's clean energy and climate goals.

REV:GMP.1-34.e

> Q: Identify which if any of the performance metrics is intended to promote the 10 V.S.A. § 580(a) "25 by 25" state air quality goal, which calls for Vermont to generate by 2025, 25% of the electric energy consumed within the State through the use of renewable energy sources, particularly from Vermont's farms and forests? Explain how the metric advances this goal, and produce all documents relating to same. If no metric addresses this goal, explain why not.
>
> A: No metric is being specifically recommended to address this goal.

REV:GMP.1-34.f

> Q: Identify which if any of the performance metrics is intended to promote GHG reduction goals in the law (10. V.S.A. § 578 that call for a 50% reduction in emissions from the 1990 level of 8.1 million tons by 2028 and a 75% reduction by 2050. Explain how the metric advances this goal,

[16] Prefiled Testimony of Mary G. Powell at 5.

and produce all documents supporting same. If no metric addresses this goal, explain why not.

A: No metric is being specifically recommended to address this goal.

REV:GMP.1-34.g

Q: Identify which of the metrics is intended for consistency with Vermont's Comprehensive Energy Plan for 90% total renewable energy by 2050. Explain how the metric advances the plan goal, and produce all documents relating to same.

A: No metric is being specifically recommended to address this goal.

REV:GMP.1-34.h

Q: In May 2015, Vermont was one of the initial 12 signatories of the Under 2 MOU, committing to limit emissions to less than 80-95% below 1990 levels by 2050. Explain whether any of the performance metrics advance this legal commitment and how. Please produce all documents relating to same. If a metric does not advance this goal, why not?

A: No metric is being specifically recommended to address this goal.

Q43. What do you recommend?

A43. GMP should be required to develop specific metrics – applying best practices – to address DER adoption and carbon emissions reductions consistent with statute and policy goals.

Q44. Do you have any other comments regarding potential features for performance metrics?

A44. Shared savings mechanisms can reward the utility for reducing expenditures from a baseline or projection by allowing it to retain some savings as profit while returning the remaining cost savings to ratepayers. As such, the utility can be rewarded for spending less money, and customers benefit from overall lower costs. Shared savings mechanisms can be combined with performance metrics to share benefits between the utility and customers.

A reward-only shared-savings performance metric does not appropriately balance the risk and reward for the utility and the customers. As noted above, in the absence of penalties, a utility could decide that it will only focus on a few of the metrics because they can achieve the most financial gain with the least effort, thereby selectively choosing which performance areas are worth their effort.

C. Green Mountain Power's Proposed Innovation Measurements

Q45. Please describe the Innovation Measurements.

A45. The Innovation Measurements are to establish baselines of performance over the term of the plan.[17] The Innovation Measurements can therefore be used to design future performance metrics. As such, the Innovation Measurements are not actually performance metrics for the current MYRP. Specifically, the Innovation Measurements are: (1) DER capacity with shared access; (2) 3rd party DERs with shared access; (3) islanding ability; (4) peak management; and (5) customer relationship automation.

Q46. Are the Innovation Measurements appropriate?

A46. Yes, but they do not go far enough. In order to design performance incentives in the forthcoming MYRPs, the Company needs to gather baseline information in the current MYRP. I am concerned that the Innovation Measurements do not go far enough in gathering information for the forthcoming MYRPs.

[17] Prefiled Testimony of Brian Otley at 28.

Q47. What information do you propose the Company gather in the Innovation Measurements?

A47. Notably, there are six areas absent from the Innovation Measurements: (1) pre-interconnection information; (2) processing of interconnection applications; (3) system upgrades pursuant to interconnection services agreements; (4) energy mix; (5) emissions; and (6) electric vehicles. These areas are worthy of additional information gathering for the benefit of future MYRPs.

Q48. Please describe information gathering relevant to pre-interconnection information.

A48. The information that is available to customers and DG developers prior to filing an interconnection application is critical to determining the viability of a potential project. The availability of this information can save time and resources for customers, developers, and GMP if a preliminary screen of the viability of a potential project yields a result that alleviates the need to submit an interconnection application. I recommend that GMP start tracking the frequency that it updates the heat map, and the DG penetration levels of each substation over time (such as every six months).

Q49. Please describe information gathering relevant to the processing of interconnection applications.

A49. GMP should be closely tracking the interconnection process. Each step in the interconnection tariff should be tracked separately, starting from the moment that a customer or developer files an interconnection application. I also note that GMP should track the details of each interconnection application – including customer type, type of

project, and size of project – in order to collect a complete data set for future consideration in the development of performance metrics around interconnection applications.

Q50. Please describe information gathering relevant to system upgrades pursuant to interconnection services agreements.

A50. For the interconnecting projects that require system upgrades, the Company should track: (a) interconnection upgrade costs, and (b) the time from customer payment for system upgrades to the completion of system upgrades. GMP should also include in the data tracking the original estimate for the required time for system upgrades.

Q51. Please describe information gathering relevant to the Company's energy mix.

A51. In order to better understand the origins of the energy for GMP's customers, the Company should track, over time, the details of each contract (*a.k.a.*, power purchase agreement) and other resources over which GMP has direct control. The details should include: (1) fuel source; (2) location, such as state or province; (3) vintage of the facility; (4) execution date of contract; (5) length of contract, and (6) the amount of electricity purchased from the ISO-NE markets.

Q52. Please describe information gathering relevant to emissions.

A52. For emissions, there is currently no proposal for measuring the total emissions associated with usage in the GMP service territory, or for the emissions reductions as a result of the deployment of DER. This information is directly related to the energy mix, but there is a key difference. The energy mix information focuses on contracts, while the emissions information focuses on total usage. Ultimately, this information could be used in the future to design performance metrics with the goal of reducing overall emissions in Vermont.

Q53. Please describe information gathering relevant to electric vehicles.

A53. For electric vehicles, there is no measurement of charging stations, electric vehicle miles traveled in the GMP service territory, or total incremental load and energy that electric vehicles place on GMP's system. This information could be invaluable in the future as more and more vehicles use electricity as their fuel source.

D. Conclusion

Q54. What do you recommend in regard to performance metrics?

A54. I have three recommendations: First, the Customer Service Stretch Goals should be symmetrical, not based on basis points, and quadratic (or at least linear) in nature. Second, the Company should be required to develop performance metrics to address DER adoption and carbon emissions reductions. Third, the list of Innovation Measurements should be expanded to include the following: (1) pre-interconnection information; (2) processing of interconnection applications; (3) system upgrades pursuant to interconnection services agreements; (4) energy mix; (5) emissions; (6) electric vehicles.

V. <u>Earnings Sharing Adjustment Mechanism</u>

Q55. Please describe the Earnings Sharing Adjustment Mechanism proposed by GMP.

A55. According to GMP witness Edmund Ryan, the Earnings Sharing Adjustment Mechanism ("ESAM") is:

> [E]ssentially a mechanism for distributing the risk that GMP's actual ROE varies significantly from the Commission-approved ROE during the term of its regulation plan. It does so by sharing some over- or under-recoveries between GMP and its customers. Utilizing an ESAM ensures that rates will remain just and reasonable because it prevents GMP from significantly

> over-earning its allowed return on equity by flowing significant over-earnings back to customers.[18]

The ESAM works by adjusting rates in order to account for any over- or under-recoveries associated from the approved ROE. Any over- or under-recoveries between 50 and 100 basis points are equally split between the Company and customers. Any over- or under-recoveries beyond 100 basis points flows to customers.[19]

Q56. Do you agree with the structure of the ESAM?

A56. I do not. In my opinion, the ESAM is unnecessary and is inconsistent with full decoupling. Full decoupling severs the link between sales and revenue. Furthermore, the ESAM – since it's indexed to ROE – does not address the capital bias implicit in cost-of-service regulation.

Q57. Do you have any alternative?

A57. Yes. Just like other states with full decoupling, once the Commission has approved target revenue for each year of the MYRP, any over- or under-recoveries in comparison to the approved target revenue can be collected in the following year. This approach is a fully reconciling revenue decoupling mechanism. Under this approach, there is no risk to the Company or customers that GMP will over- or under-recover the approved yearly target revenue.

Q58. What do you recommend?

A58. I recommend that the Commission approve a fully reconciling revenue decoupling mechanism instead of the ESAM.

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[18] Prefiled Testimony of Edmund F. Ryan at 14.
[19] Prefiled Testimony of Edmund F. Ryan at 15.

VI. Net Metering

Q59. Do you have any concerns about the characterization of net metering by the Company?

A59. I do. Although the testimony of REV in this case goes into much greater depth on this subject, I have a few thoughts. In Ms. Powell's testimony there are a lot of references to the costs of net metering, but never any discussion of the benefits of net metering. As the REV testimony points out, and based upon the sworn testimony put forth by the Vermont Department of Public Service in the 2018 GMP rate case, over the past 5 years when net-metering in Vermont saw significant growth, GMP's power costs decreased by over $33 million.[20] This fact alone undercuts claims that net-metering is driving up GMP electric rates. In the 2019 Base Rate Case, GMP reported that "total net-metered production (the vast majority of which is solar PV)" was 125,000 MWh for the test year, compared to its total load of 4,400,000 MWh.[21] This represents only 3% of the total generation portfolio. Even if net metering increased 60%, to 207,000 MWH, during the 2019 rate year, as Mr. Smith's testimony in the Base Rate Case predicts, that would still only amount to 4% of the power supply portfolio. Given that overall power costs decreased by $33 million over the last five years, and given the small fraction that net meter generation represents in terms of GMP's total electric load, it is clear that net-metering is not a significant driver of customer electric rates.

[20] Case No. 18-0974-TF, GMP Rate Case, PSD Direct Testimony of Brian E. Winn, August 10, 2018, at 11-12.
[21] Case No. 18-0974-TF, GMP Rate Case, GMP Direct Testimony of Douglas Smith, April 13, 2018, at 7, 18.

If the focus of any investment was purely the cost without any consideration of the benefits, then no investments would ever be made by the Company or any other party. The obvious difference between net metering facilities and GMP investments is the owner. Net-metering customers self-generate clean, renewable power to meet their own electrical needs instead of buying electricity from GMP. GMP's "loss" of electric sales to these customers is not a "cost", but a reflection of customer choice. Customers who invest in net-metering bear the capital cost of the generation investment and also must pay for the full cost of the interconnection.

Q60. Do you have any additional thoughts on the Company's characterization of net metering?

A60. I do. I think the context of any discussions of net metering is important. Specifically, over the past several years the Commission has taken steps to adjust the structure of net metering. As a result of significant changes to the Vermont net meter program in 2017, new net metering projects, particularly larger projects greater than 150 kW, are now compensated at a significantly lower rate than previous net metering facilities.[22] As a result, according to the Vermont Clean Energy Development Fund ("CEDF") *2018 Vermont Clean Energy Industry Report*, "[b]etween 2017 and 2018, the solar industry in Vermont shed roughly 215 jobs, or nine percent of the state's solar workforce. At the same time, solar installations across the state declined by about 9 percent."[23] The CEDF concluded that "[t]hese shifts follow significant policy reforms to the state's net metering

[22] Exhibit REV- Joint-10.
[23] Exhibit REV-Joint-10 at 7.

program, which made the siting of new renewable energy projects—especially larger installations—more difficult, leading to an almost 20 percent decline in applications."[24] As such, the costs of net metering on a per kilowatt-hour basis will decrease over time. Using the historical costs of net metering as an illustration of increasing costs is akin to using the historical costs of the distribution system as a demonstration of increasing costs. Any previous investments must take into account the situation when the investments were made.

Q61. Do you have any final thoughts on net metering?

A61. I think net metering is very consistent with the goals of the MYRP enumerated by Ms. Powell.[25] I also believe the future of the energy system is "highly distributed and based increasingly on home-, business, and community-based energy solutions…."[26] I also believe that customer investments in DER provide extensive benefits to all ratepayers, not just themselves. Ultimately, net metering is one of the important tools to enable customers to become active participants in the energy system of the future. This is particularly important in a vertically integrated state like Vermont, where customers have no other choice but to be served by the monopoly utility that has the exclusive franchise to sell electricity at retail to customers.

VII. Conclusion and Recommendations

Q62. Please summarize your recommendations.

A62. After review of the MYRP and the Company's testimony, REV recommends the Commission require the following: (1) target earnings for each year of the MYRP that

[24] Exhibit REV-Joint-10 at 3.
[25] Prefiled Testimony of Mary G. Powell at 5-6.
[26] Prefiled Testimony of Mary G. Powell at 5.

include the target performance for performance incentives; (2) performance incentives that have a known value and are not based on ROE adjustments; (3) Customer Service Stretch Goals that are symmetrical, not based on basis points, and quadratic (or at least linear); (4) development of performance metrics to address DER adoption and carbon emissions reductions; (5) add the following Innovation Measurements (a) pre-interconnection information, (b) processing of interconnection applications, (c) system upgrades pursuant to interconnection services agreements, (d) energy mix, (e) emissions, and (f) electric vehicles; and (6) a fully reconciling revenue decoupling mechanism instead of the Earnings Sharing Adjustment Mechanism.

Q63. q. Does this conclude your testimony?

A63. A. Yes, it does.

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