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

KIRK SHIELDS

ON BEHALF OF GREEN MOUNTAIN POWER

September 12, 2018

Summary of Testimony

Mr. Shields responds to Department of Public Service ("Department" or "DPS") witnesses Dawson, McNamara and Winn with respect to the following topics: the need for the JV Projects and their benefits and risks; the Projects' roles in Green Mountain Power's ("GMP") compliance with the Renewable Energy Standards ("RES"); and the Department's recommendation that a financial guarantee should be required as a condition of including the projects in rate base.

Q1. Please state your name and position.

A1. My name is Kirk Shields and I am the Director of Development and Risk Management at Green Mountain Power.

Q2. Have you previously submitted testimony in this proceeding?

A2. Yes, I previously provided prefiled direct testimony in this proceeding dated April 13, 2018.

Q3. What is the purpose of your testimony?

A3. I respond to the issues raised by Department of Public Service witnesses Mr. Dawson, Mr. McNamara, and Mr. Winn regarding the JV Solar/Battery Storage Projects ("JV Projects").

Q4. How is your testimony organized?

A4. First, I respond to the Department's questions regarding the need for the JV Projects and the benefits and risks of pursuing the projects. I also address the role the projects will play in GMP's compliance with the Renewable Energy Standards ("RES") and outline how the projects provide greater benefits than potential alternatives. Finally, I address Mr. McNamara and Mr. Winn's recommendation that the Public Utility Commission ("Commission" or "PUC") require a financial guarantee as a condition of including the projects in rate base.

Q5. Mr. McNamara and Mr. Dawson raise questions regarding the need for the JV Solar/Storage projects. Can you start by explaining the need for these Projects?

A5. Yes. These projects will fulfill several real and physical needs with respect to GMP's power supply portfolio. First, they will contribute towards satisfying GMP's energy and capacity needs and promoting stable rates for customers, and second, they will reduce costs of buying transmission and ancillary service costs by reducing peak loads. I address each in turn below, and Mr. Smith also discusses the need for these projects in his rebuttal testimony.

With respect to GMP's energy and capacity needs, GMP forecasts shortages of energy and capacity in its near- and long-term planning horizons. GMP expects to have a short energy position beginning in 2020 and is currently short capacity, both of which are projected to continue over the long-term planning horizon. The specifics of the forecasts are discussed in more detail in Mr. Smith's testimony where he describes forecasted loads and power supply resources further. As a result, in order to meet energy and capacity requirements, GMP will need to buy energy and capacity through direct generation ownership or through Power Purchase Agreements with other generation facilities. Although GMP could also satisfy its requirements through spot market purchases, there is an increased risk of price uncertainty and volatility with this option, which GMP is seeking to mitigate through price-certain options like these projects, and translating into increased rate stability over time for our customers.

Additionally, regional transmission and ancillary costs are a significant component of overall power costs, over which GMP has little influence and control since those costs are allocated among regional participants based on the amount of load served.

For these transmission and ancillary service costs (e.g. regulation, reserves), GMP has limited means to hedge against these costs other than to reduce customer load. The JV Projects provide both capacity and the ability to reduce loads during peak periods as part of GMP's portfolio of peak load management assets.

More specifically, GMP's peak load management strategy is to develop a portfolio of assets that can be deployed simultaneously against peak load events in order to reduce costs for customers. We strongly believe that such a portfolio approach is an effective strategy for load management and achieving cost reductions in today's changing energy future while at the same time enhancing reliability of the system. GMP's proposed portfolio includes a combination of grid-connected battery storage (owned and PPAs), behind the meter resources (owned, PPA, and directly provided by customers), and curtailable load and demand response programs (actions by customers), with a diverse set of resources that are complementary and allow GMP to manage peaks of varying frequency and duration. As significant contributors within the load management and power supply portfolio, the JV Projects have an important role in reducing load-based obligations and avoiding ancillary market and regional transmission charges.

Finally, as discussed below and in more detail in the rebuttal testimony of Doug Smith, the JV Projects also have an important role in GMP's strategy for cost-effectively meeting its RES compliance requirements for Tier II resources and represent a valuable hedge against meeting Tier III requirements.

Q6. Can you explain in more detail how these projects relate to GMP's hedging strategy with respect to power supply purchases?

A6. Yes. The projects will be commissioned in mid-2019, just a few months prior to when GMP will be short energy in 2020. In addition, the annual net position projections obscure the fact that GMP will have intra-period (hours, months) supply shortages for meeting customer demand. This means that on average, GMP will be fully hedged for the next three years, but in the normal course of business will still frequently need to purchase energy during some portion of the hours each day to meet customer demand. More importantly, after the first several years GMP's open energy position expands, by design, in order to take advantage of short-term price opportunities that may present themselves. This gap between supply and load, allows GMP to balance its energy needs with current market prices to ensure that the portfolio does not get highly disconnected from the then-current market context. Over time, GMP will also add new renewable resources to ensure that its portfolio is consistent with RES, Vermont's Comprehensive Energy Plan ("CEP") and GMP's Integrated Resource Plan ("IRP"), all of which challenge Vermonters to meet energy needs with an increasingly renewable portfolio. System power purchases inherit the ISO-NE Residual Mix (including coal, oil, and natural gas) which do not contribute toward meeting GMP's renewable obligations under Vermont's RES or Vermont goals under the CES. Mr. Smith's testimony provides more specific details as to GMP's power purchasing strategy.

In addition, by pairing solar generation with battery storage, these projects will better enable GMP to deliver a flexible supply of capacity during the annual coincident peak events that are the basis for determining GMP's capacity market obligations.

Annual regional peaks are shifting to later afternoon hours when solar output is in decline, so the addition of battery storage will allow GMP to shift solar production into later in the day, reducing peak loads and the associated capacity obligation. One of the key benefits of battery storage is its flexibility, as it does not have ramping or minimum runtime constraints. The battery can be discharged for one or more hours during each event, and the hours of discharge do not need to be contiguous. For example, battery storage could be discharged for hours 17:00 through 18:00 and then again for hours 20:00 through 21:00 to shoot at both an annual ISO-NE peak and a monthly RNS peak on the same day.

In the context of our current understanding of future market conditions, these Projects make sense based on the products and value that they will provide to GMP's customers. The underlying goal of the JV Projects is to meet customers' demand by producing tangible products—energy, capacity, frequency regulation, and RECs—while decreasing requirements and costs for procuring regional transmission and ancillary market services. These Projects thus help meet our customers' demand, lower costs, and improve cost stability. As we face increasing frequencies of severe weather events influenced by climate change, the distributed generation and storage Projects are also expected to contribute to improved reliability.

Q7. Can you please explain in more detail the role that the JV Projects will play in GMP's compliance with the Tier III requirements under the RES?

A7. Yes. As further discussed in Mr. Smith's testimony, the projects will qualify as Tier II resources, and importantly, Project RECs may also be used to help GMP meet its Tier III

requirements in the event that Tier III obligations cannot otherwise be met and GMP and customers would be exposed to expensive alternative compliance payments. Under the RES, Tier III energy transformation targets to cut carbon grow significantly from year to year and lifetime project benefits are only eligible in one compliance year. In other words, the compliance value of a Tier III project that is claimed in the project completion year is based on its *lifetime* impacts, and the benefits do not carry over into the following year, making it a one-time qualifying resource. In contrast, Tier II RECs are produced every year, so a renewable generation project is able to contribute toward Tier II requirements year after year. So, unlike the goals for Tier II, there is no ability to use multiple years' projects to meet an annual obligation.

GMP anticipates being able to meet early Tier III requirements with cost-effective projects, but as the requirement rapidly grows, new projects will become scarce and more expensive. The cost to acquire new Tier III projects will then most likely exceed the value of a Tier II REC. If this occurs then GMP's customers would benefit from retiring Tier II RECs to meet Tier III compliance, in the interest of economic efficiency.

A further challenge for meeting Tier III obligations is that many of the largest energy transformation opportunities are driven by commercial and industrial customer projects that have a significant lead time and are subject to corporate governance and budget cycles. In addition, customer payback for some electrification projects may not be as compelling in the current moderately-priced fossil fuel environment, as compared to prior years when oil prices were higher.

Q8. Is this an appropriate time to pursue these projects if they are not necessarily needed for immediate compliance with Tier III requirements?

A8. Yes, this is an appropriate time to procure this combination of battery storage and solar capacity, considering its limited scale and the favorable cost/benefit profile for the Projects. The lead times for projects such as these are long and measured in years, so incremental development will be spread out naturally for other potential projects that might meet this need. For example, by the time the Projects are completed in 2019, they will have been under development (siting, planning, permitting, construction) for nearly 2 years. For reasons discussed in Mr. Smith's rebuttal testimony, GMP's Tier II compliance strategy is to procure more compliance resources than the annual Tier II requirement in order to hedge against production shortfalls and to maintain flexibility to retire the RECs against its Tier III requirements if needed. Thus, regardless of whether the JV Project RECs are ultimately retired, sold, or banked, they will be used for the benefit of GMP customers to meet Vermont RES requirements or to lower net power costs and retail electric rates.

Q9. Mr. Dawson argues that GMP does not need these projects to meet its RES obligations. Do you agree with this assessment?

A9. No, I do not. Although GMP agrees that based on current projections, its Tier II obligations are generally expected to be met through a combination of qualifying net-metering, Standard Offer, and existing renewable projects, GMP still maintains a significant requirement with respect to Tier III, as discussed above and in Mr. Smith's testimony.

While GMP highly prefers to meet Tier III requirements with actual completed electrification projects, GMP is finding the Tier III project pipeline to be more challenging to fill than initially expected. After a very successful 2017 where the requirement was exceeded, 2018 is proving more difficult and there is risk to acquiring enough Tier III resources to meet the obligation, despite vigorous efforts. As noted in Mr. Smith's testimony, the Alternative Compliance Price ("ACP") for failing to meet Tier III requirements is $60/MWh, which would add significant cost for compliance with the RES. As Tier II resources are also eligible to satisfy Tier III requirements, the Project RECs thus represent a valuable hedge against the Tier III ACP.

Q10. Mr. Dawson argues that there is regulatory risk associated with capacity and transmission peak shaving activity that should be accounted for in GMP's modeling for these projects. What is your response?

A10. My response to this concern is two-fold. First, future changes in regulations are a risk for any long-term project, including these Projects. Regulatory risks are one of several types of risks that GMP takes into account when evaluating a project, as discussed in more detail in response to Question 11, below. The possibility that administratively determined markets and/or cost allocation structures (e.g., Renewable Portfolio Standard requirements in compliance states; market rule changes by ISO-NE) could evolve to be structured differently than what we have estimated is a risk that is always present in power supply decisions and is very difficult to predict and plan for. The regulatory risks for the JV Projects are not significantly greater than any other long-term generation asset in GMP's portfolio. It is true that customers ultimately inherit the risks or benefits of

those future unpredictable outcomes, but contrary to Mr. Dawson's suggestion, these are not foreseeable or even quantifiable risks – and relying on an assumption that such drastic regulatory changes will occur at some unknown point in time is not realistic for planning purposes. GMP has a responsibility to plan for meeting future customer needs based on what is reasonably foreseeable in the future.

Second, as discussed in more detail in Mr. Smith's testimony, the modeling that GMP has performed for the Projects includes a number of sensitivity scenarios that are intended to account for a range of potential outcomes. The sensitivities include changes in capacity and regional transmission costs for a more conservative analysis to anticipate and mitigate risks.

Q11. What other risks has GMP evaluated for these projects?

A11. In addition to regulatory risks discussed above, as with all long-term generation and utility assets, GMP considers the following types of risks in evaluating the Projects:

- Financing
- Asset Performance
- Operational Execution
- Market Price

Financing risk includes several significant items such as: whether the IRS will impose a recapture of the ITC; whether GMP's estimates of the Day 1 Gain and Developer Fees will be fully realized at financing; and whether any subsequent recapitalization of the Project entity will be required if revenues are insufficient to pay its obligations. All of these risks are GMP's, meaning that if they occur GMP will bear the costs without the potential of recovery or relief from customers. Meanwhile, the full

amount of the benefits expected from each of these are proposed to flow directly through to customers in 2019 rates.

Asset Performance, Operational Execution, and Market Price risks are unrelated to the Project financing structure and are shared between GMP and customers. These are generally characterized as follows: (i) the Project performs lower/higher relative to forecasted production/battery performance; (ii) GMP dispatches the battery in order to hit peak loads with higher/lower accuracy than the assumed precision; or (iii) future market prices are higher/lower than forecasted. Should one or more of these circumstances come to pass, customers would share with GMP in those risks and benefits through a Power Supply Adjustor ("PSA") mechanism.[1] For capacity, transmission and ancillary services, the PSA would allow for 100% pass-through to customers of actual positive or negative deviations from forecast, similar to other power supply resources. For energy, the PSA would provide for sharing of any higher/lower outcomes from those forecasted between customers and GMP. It is important to note that this would be true of any other project or power purchase of a similar type GMP may make.

Here, any potential performance risks shared by customers and GMP will be mitigated by active Project management. GMP monitors the performance of all of its projects, and will actively manage these Projects to keep its performance on track. These Projects will have its own set of performance metrics that will be tracked including operating and financial metrics. Monthly internal reporting will provide leading indicators of actual performance relative to predicted performance and remediation

[1] A Power Supply Adjustor mechanism has been proposed in GMP's multi-year rate plan. Though it has not yet been approved by the PUC, GMP makes reference to it due to its relevance to this discussion.

measures taken if needed. As a strategic asset, the Project is not a build-and-forget asset. It is part of a greater initiative to actively manage load and reduce costs for customers that will have very high focus and attention on it from throughout GMP.

Q12. The Department argues that there is significant risk that the JV projects will not realize the projected economic benefits. What is your response?

A12. While I do not agree that these projects present any unique or unusual risks with respect to realizing projected benefits, GMP is working through the risk discussion with the Department and hopes to achieve a reasonable compromise. To explain the perception of risk a little further though, the Project risks are typical for what we would encounter for any PPA or generation projects. In every power supply project we undertake there is risk of future market outcomes differing from forecast market outcomes, GMP analyzes all of its projects and PPAs based on our current market expectations and realizes that the actual results will likely vary from the projection, an expected and unsurprising attribute of a forecast. To mitigate forecasting variance, these Projects have been evaluated consistent with this practice by leveraging the forecasts and assumptions used in modeling for the projects, similar to the way we model for a rate case and other project CPG proceedings. In other words, the Projects have not been treated any more or less favorably than modeling for other similar uses. As discussed in Mr. Smith's testimony, GMP conscientiously provides what it believes are reasonable market views and reasonable assumptions for such factors as: reserve margins, capacity prices, peak coincidence for solar, regulation market prices, ability to shave peaks, and energy prices, as examples. GMP's outlook for energy and capacity prices remains consistent based on

the methodology used in previous dockets and filings, and considers guidance and intelligence from expert consultants to help understand the ISO-NE market context.

As structured, the Project is anticipated to break even on a cash flow basis in year eleven and then to achieve a positive NPV for the entire Project in year fifteen. This could be considered to be a reasonably long timeframe but is common for projects that feature flat, levelized PPA pricing rather than escalating pricing. Although a flat, levelized PPA price is higher in the early years than a PPA with an escalation factor, it ends up being less expensive nominally in the later years than a PPA featuring an escalation factor and contributes to stabilized retail rates. In addition, the estimated value of the Project's output over its life exceeds the estimated costs by a significant margin, such that it is highly likely the Project would still provide a benefit for customers even if actual outcomes turn out less favorably relative to current assumptions.

It is also worth noting that, while planners focus primarily on risk factors and often lean toward "down the middle" forecasts, upside potential also exists for these Projects and actual outcomes could turn out more favorably and produce higher value for customers.

Finally, GMP has developed a proven track record of hitting peaks. Out of the last 27 months, GMP has missed only three RNS peaks; and for FCM, GMP has correctly deployed our peak demand resources three out of four annual peak hours, which GMP expects will continue to improve over time as our forecasting capabilities are further honed. The operational flexibility of batteries in terms of dispatch frequency, duration, and volume will greatly enhance that capability and are examples of ways that project risks are mitigated for customers over time.

Q13. In your opinion, are the project risks proportionally balanced between GMP and ratepayers?

A13. Yes. Contrary to the Department's assessment, these projects do not present any new level of risk to customers. GMP has structured project financing to take on substantial investor side risk that is not passed on to customers, and creates more value for customers, through tax equity financing. Performance, execution, and market price risks are present in most of the power supply transactions that GMP, or any other Vermont distribution utility, enters into, whether for physical assets (e.g., hydro acquisition, new renewable generation build) or financial hedging instruments (e.g., PPA, contract for differences, swaps, options). Thus, the Project risks do not constitute unusual or unreasonable business risks in and of themselves, can be managed effectively, and do not appreciably raise the risk profile of the power supply portfolio used to serve customers.

Q14. Do you agree with Mr. Winn's characterization of these projects as "speculative"?

A14. GMP disagrees strongly with that conclusion on this topic. GMP is concerned that Mr. Winn's testimony does not fully account for how the New England power markets operate under the New England Regional Transmission Organization ("RTO") and how bi-lateral transactions (power purchases and sales) are settled by ISO-NE. All power supply transactions, physical asset acquisitions, and new asset builds constitute necessary procurement and hedging activities in order to protect customers from volatility in the power markets and underlying commodities markets (fuel). The Projects produce energy for GMP's retail customers, provide capacity and frequency regulation services to the region, reduce ancillary market charges, and reduce the costs of procuring regional

transmission services. These products and services produced and provided by the Projects illustrate real obligations that GMP must satisfy in order to serve its customers.

GMP's purpose in pursuing the Projects are not "speculative," as Mr. Winn claims, which Merriam Webster defines as "assumption of unusual business risk in hopes of obtaining commensurate gain."[2] The business risks associated with the Projects are not unusual at all and GMP faces many of the same risks with similar procurement, hedging and load serving transactions in the power markets and in its supply portfolio management activities to reduce volatility and mitigate risk. GMP seeks to hedge exposures in the power markets in order to exchange price *volatility* for price *certainty*, which translates into stable rates for customers over time. Rate stability has long been one of the goals of Vermont energy policy, and its positive effect can be seen when viewing Vermont's retail electricity prices over the last two decades compared to neighboring New England states. Hedging strategies do not necessarily, as measured in perfect hindsight, always produce the absolute cheapest outcomes, but they do remove much of the uncertainty of future prices and their impacts on future retail electricity rates. The Projects will hedge energy, capacity, regional transmission and ancillary costs by either producing these services directly from a physical asset, or by reducing obligations in the markets that are allocated based on load. These are real operational benefits on par with investments in generating assets or wholesale power purchases, and they are not pursued by GMP as a speculative venture. With these reasons in mind, the Projects are clearly not speculative, and they provide specific operational benefits for customers.

[2] https://www.merriam-webster.com/dictionary/speculation, August 14, 2018.

Q15. What alternatives did GMP consider to these Projects?

A15. As Mr. Castonguay also discusses, GMP prepared an analysis of the cost-effectiveness of load management alternatives (curtailable load, load response, residential batteries, water heating, etc.) and the Projects compare favorably against many of the alternatives. GMP has also received multiple battery service proposals from other developers (see Table 1 below) and the JV Projects continue to be the lowest-cost option.

First, GMP considered whether energy conservation and energy-efficiency could more cost-effectively fulfill the demand for services that these Projects will meet. The long-term gap between energy resources and forecast customer demand grows to over 250,000 MWhs of energy in Fiscal Year 2021 and over 150 MWs of capacity by Fiscal Year 2023, far exceeding the potential benefits that energy-efficiency can provide. To the extent that GMP is responsible for procuring sufficient energy and capacity to serve its customers, these Projects will help meet those needs while also furthering Vermont's goal of increased in-state renewable generation.

GMP also actively seeks load management measures through its various load management and innovative programs; GMP believes that rather than choosing a single approach to load management it is beneficial to develop a suite of complementary tools to help control costs. GMP continuously seeks to add new load management resources and is working to understand and harness the opportunities presented by a rapidly evolving marketplace. Load management is one of GMP's highest priorities as peak loads drive significant costs in the form of regional transmission and capacity supply obligations. To the extent that GMP is able to decrease its peak loads under specific conditions, it is able to provide real value and savings to our customers. Mr. Castonguay discusses GMP's

load management portfolio in more detail including the costs and benefits for comparison.

As I noted above, GMP's load management strategy rests on the belief that a portfolio approach is the best path forward for effective load management and achieving cost reductions for customers in this dynamic and new energy future of distributed generation. A portfolio model includes combinations of grid-connected battery storage (owned and PPAs), behind the meter resources (owned, via PPA, and directly provided by customers), and other distributed resources, with a diverse set of resources providing benefits at various cost/benefit ratios that are complementary and allow us to manage peaks of various durations. Curtailable load programs do not scale up easily or quickly since it is disruptive to manufacturing operations, which in turn reduces GMP's ability to attract significantly higher participation.

In addition to considering the JV Projects in comparison to demand resource alternatives, GMP has also considered third-party alternative battery providers to Tesla, which is the manufacturer of the battery proposed for use in the JV Projects. As shown in Table 1 below, the battery proposals provided to GMP by third-party developers feature a range of costs and possible services. With respect to cost, the proposals vary from a unit cost of $170/kW-year to $210/kW-year to provide peak shaving, and in some cases frequency regulation beginning in year six (at the end of the project sponsor's ITC recapture period). While the JV Projects feature a slightly higher levelized cost for battery storage, they provide significantly more customer value by providing frequency regulation beginning in year one and the value of the capacity maintenance agreement

(CMA), which guarantees the battery's rated nameplate output for the first twenty years of the project.

Table 1

Project	MW	Hours	Price kW-year	Levelized Avoided Costs $/kW-year	Net Benefit	Term	CMA	Paired with Solar	Services
Proposal1	1.880	4	$170.40	$202.00	$31.60	20	No	Yes	FCM, RNS, Reg. years 6 - 20
Proposal 2	2.000	4	$206.64	$240.36	$33.72	20	No	Yes	FCM, RNS, Reg. years 6 - 20
Proposal 3	4.999	4	$210.00	$235.00	$25.00	20	Yes	No	FCM, RNS
Essex Project	2.000	4	$222.39	$285.85	$63.46	25	Yes	Yes	FCM, RNS, Reg., Arbitrage

As illustrated above, the Projects' net benefits compare favorably against alternative projects of similar types.

Q16. Has the Department recommended an adjustment for the JV Projects?

A16. No, the Department (through Mr. Winn and Mr. McNamara) supports the inclusion of the JV projects in rate base, subject to GMP providing financial guarantees of the benefits to ratepayers.

Q17. Does GMP agree that such a guarantee is necessary or appropriate?

A17. While GMP does not believe that requiring a full financial guarantee of the benefits of these projects is either necessary or appropriate, it is engaged in good faith with the Department to seek a reasonable compromise. GMP originally interpreted the Department's comments to require a full guarantee of all benefits forecasted in the projects be conveyed to customers regardless of actual results. Such a result would have a substantial impact on GMP's decision to pursue these projects, and would go beyond precedent. The Department has since clarified they do not seek a full guarantee of the

forecasted benefits, but rather that there is an allocation of risks between customers and GMP. It is GMP's goal that all of the projects we undertake for our customers deliver value to them, so we are aligned with the Department's intent. The distinction GMP makes is that any discussion about guarantees should reasonably include GMP's performance of the aspects of the Projects that it can directly control rather than only blanket guarantees on market-price-related outcomes over which GMP has no control.

To explain GMP's perspective, while Mr. Dawson raises some concerns about some of the assumptions used in GMP's cost benefit modeling, it is important to recognize that the Department has not directly challenged GMP's analysis of these projects, or put forth any affirmative evidence showing a likelihood that the projects will not meet the projected economic benefits. As noted above, the risks presented by the projects do not require performance or financial assurance on top of the existing traditional regulatory framework that is applicable to similar investments made by utilities on behalf of customers. The Department seems to suggest that these Projects are unique financial instruments, and therefore require an unusual financial assurance for customers. In fact, the Projects are not that unique with solar installations having become commonplace across Vermont and globally, and storage solutions increasingly common. Like other GMP resources, these projects are generating facilities that will be jointly-owned by the utility, and which will self-supply GMP's customers with cost-effective sources of energy and capacity and reduce physical and financial obligations to obtain and pay for ancillary services and transmission services from the region. These projects thus represent real services and operational savings for customers that should not require the addition of a burdensome financial assurance.

To the extent that the Department's concern is that customers may end up paying more for the project than benefits received, GMP is aware that the existing regulatory principles of prudency and used-and-useful would continue to provide protection for investments of this type. More specifically, in the unlikely event that the projects turn out to be uneconomic for customers, a future economic usefulness challenge could be brought that, if successful, would likely result in GMP sharing the loss with customers. As the Commission stated in its Final Order in Docket No. 6596, the economic usefulness test "furthers the purpose of regulation as a substitute for competitive markets, by assigning some (but not all) of the risk of uneconomic decisions to companies. The test produces equitable results; although regulation may limit the upside for investors should a utility's decision prove to be especially beneficial, the economic usefulness test symmetrically limits their downside risk by sharing the financial consequences of uneconomic decisions."[3] Nevertheless, GMP is willing to provide assurances of its own performance regarding these Projects and also to discuss further with the Department appropriate financial backstops in the unlikely event these Projects turn out to be uneconomic despite our forecasts and projections showing benefit.

[3] *In re Citizens Comm. Co.*, Docket No. 6596 (Jul. 15, 2002) ePUC Document No. 116068/52516.

Q18. Regarding PUC Information Request #15, can you please address whether, in your opinion, the JV Projects should be included in rates if the Commission has not yet ruled on all of GMP's petitions for certificates of public good prior to the resolution of this case. Please state what GMP's cost of service would be if these projects are not included in rates.

A18. Yes, the JV Projects should be included in rates even though the Section 248 proceedings for one or more of these projects may still be ongoing at the time the Commission issues a decision in this proceeding.

It is my understanding of the Commission's case law that it appropriately adjusts a utility's actual expenses to include capital expenses that will be incurred during the period when rates will be in effect, provided the projected expenses meet the "known and measurable test." As the Commission stated in Docket No. 7060, utilities may "begin to collect from ratepayers the cost of plant additions before they are used, if the utility can demonstrate that such additions meet the known and measurable standard," meaning that the new additions are "measurable with a reasonable degree of accuracy and have a high probability of being in effect in the adjusted rate year." *In re Mountain Water Co.*, Docket No. 7060 (Jan. 20, 2006) ePUC Document No. 114349/52130 (citing *In re Green Mountain Power*, 162 Vt. 378, 381 (1994)). In prior GMP rate cases, the Commission has approved a cost of service that included expenses for projects that had not yet received a CPG. For example, in last year's rate case, Case No. 17-3112-INV, the Panton Battery Project was included in rate base even though a CPG was not issued for the Project until January of 2018, approximately one month after the date of the final order in the rate case. Title 30 V.S.A. § 218(f)(1) supports recovery of costs for projects that do

not yet have permits, authorizing an electric utility to "recover in its rates its prudently incurred costs in applying for and seeking any certificate, permit, or other regulatory approval issued *or to be issued* by federal, State, or local government for the construction of new renewable energy to be sited in Vermont, regardless of whether the certificate, permit, or other regulatory approval ultimately is granted" (emphasis added).

Thus, although the three JV Projects are still in the process of CPG review, they are appropriately included in rates if they meet the known and measurable standard. All three JV Projects do. GMP has provided a full cost benefit analysis for each project, in accordance with the standards for "known and measurable costs" of proposed capital projects agreed to by GMP and the Department in the MOU to last year's rate case. *See Exhibit GMP-BO-2.* Though the Department's witnesses have raised some concerns regarding certain assumptions included in these analyses, they have not suggested that the proposed costs for the project are unsupported or unreasonable, or that the projects are unlikely to go into operation during the rate period. In fact, Mr. Winn and Mr. McNamara have both stated the Department's support for including these projects in rate base, subject to their request for a financial guarantee of the projected benefits, which I discussed above. Furthermore, there is ample time available for issuance of a CPG and construction for all three of these projects. The most recently filed project, located in Essex, raises the same issues that have been the subject of the other two proceedings, on a former sand pit location that is expected to pose no environmental objections and has community support. Under the same type of schedule as has been adopted in the other proceedings, that matter is expected to be ripe for Commission order by March 2019.

Construction for all three Projects would be best undertaken simultaneously for efficiency and financing reasons and will take only four months to construct.

If the JV projects are not included in rate base, it would have a significant impact on the rate need and customers, increasing GMP's rebuttal rate request of 5.45% by 2.3%, for a total rate need increase of 7.74%.

Q19. Does that conclude your testimony?

A19. Yes, it does.