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)

Green Mountain Power's Responses to the First Set of Discovery Requests Served by the Department of Public Service

Green Mountain Power ("GMP" or "Petitioner"), by and through the undersigned counsel, hereby responds to the first set of discovery requests served by the Department of Public Service ("DPS," PSD," or "Department") on September 12, 2018.

General Objections

The following General Objections of Petitioner GMP are incorporated by reference into its responses to each Interrogatory, Request to Produce, and Request for Admissions reproduced below, whether or not an objection is stated in any particular response. Any response to one of the Interrogatories, Requests to Produce, or Requests for Admission given below is given without waiver of any objection, whether or not an objection is stated.

1. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission reproduced below to the extent that it is overbroad, irrelevant, unduly burdensome, or not proportional to the needs of the case.

2. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission reproduced below to the extent that it calls for the disclosure of information or production of material privileged under the attorney-client, work-product, or any other applicable privilege.

3. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission reproduced below to the extent that it is unreasonably cumulative or duplicative, or calls for the disclosure of information or production of material that is obtainable from some other source that is more convenient, less burdensome, or less expensive, including, but not limited to, information or material that is publicly available or that has already been disclosed or produced to you in connection with another proceeding.

4. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission reproduced below to the extent that it calls for the disclosure or production of confidential or proprietary information, trade secrets, or material.

5. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission reproduced below to the extent that it is vague, unintelligible, requires speculation as to the information being sought, or is otherwise incapable of a reasonable answer.

6. Petitioner objects to each Instruction and Definition listed in the requesting party's discovery requests to the extent that it exceeds the bounds of permissible discovery or is unduly burdensome.

7. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission to the extent that the request exceeds the scope of Petitioner's testimony and exhibits.

8. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission to the extent that the request would require Petitioner to conduct extensive document review, additional studies, analyses, and/or tests as part of its response.

9. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission to the extent that the request exceeds the scope of the requesting party's intervention.

10. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission to the extent that the request exceeds the scope of the issues on review.

11. Petitioner objects to each Interrogatory, Request to Produce, and Request for Admission to the extent that it calls for a legal conclusion.

INTERROGATORIES AND REQUESTS TO PRODUCE

Q:PSD:GMP.1.1. Please provide copies of any and all work papers and supporting documentation used in the preparation of prefiled direct testimony and exhibits that have not previously been provided to the Department and that are not provided in response to individual request below. Please produce all spreadsheets in native Microsoft Excel format with all cell formulas intact and all exhibits in native spreadsheets formats with cell formulas intact.

Objection: GMP reasserts General Objection 2, to the extent that the request encompasses all material in GMP's possession used in the preparation of prefiled direct testimony and exhibits, including material protected by the attorney-client and work-product privileges. Without limiting or waiving this objection, GMP responds as follows.

A:PSD:GMP.1.1. Please see each witnesses' prefiled testimony and exhibits. In addition to the documents produced elsewhere in this discovery response, please see:

- Coyne - see documents produced in response to Questions 56, 57, 58, 64;
- Otley - see folder in Q1 in GMP's electronic production;
- Ryan - see folder in Q1 in GMP's electronic production;
- Smith - see folder in Q1 in GMP's electronic production;
- Powell - as the overview witnesses, relied upon testimony exhibits and other supporting work papers of other GMP witnesses in this matter, as set forth in the filing and identified here.

Person/s Responsible for Response: Mary Powell, Eddie Ryan, Doug Smith, Brian Otley, Jim Coyne.
Title of Person/s: Chief Executive Officer; Controller; Chief Power Supply Executive; Senior VP and Chief Operations Officer; Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.2. Please provide GMP's CAIDI and SAIFI results annually for the last 10 years. If available, please show these indices with and without major events and explain how the exclusion of major events was handled in the calculations.

Objection: GMP reasserts General Objection 1 & 3. The request for 10 years of data is overbroad, burdensome, and not proportional to the needs of the case. Recent data is also already available to the department as it is prepared and filed as part of GMP's annual filings under Rule 4.900. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.2. With regard to available data from 2012 to 2017, please see below. The Company's Service Quality and Reliability Plan ("SQRP") defines the criteria that is to be met in order for a storm to be deemed a qualifying Major Storm. These qualifying Major Storms have been removed from the "Without Major Storms" data listed below.

With Major Storms

	2012	2013	2014	2015	2016	2017
CAIDI	2.7	3.2	5.7	2.0	3.2	4.9
SAIFI	2.4	2.3	2.2	1.7	2.0	2.5

Without Major Storms

	2012	2013	2014	2015	2016	2017
CAIDI	1.9	2.3	2.4	2.0	2.6	2.2
SAIFI	2.1	1.9	1.6	1.7	1.8	1.9

Person/s Responsible for Response: Steve Costello; Ken Couture
Title of Person/s: VP, Customer Service; Leader of Systems Operations
Date: October 8, 2018

Q:PSD:GMP.1.3. Please provide credit rating agency reports (S&P, Moody's, Fitch) for Green Mountain Power from 2017 – 2018.

A:PSD:GMP.1.3. GMP is only rated by S&P. For the period from 2017–2018, see Attachment GMP.DPS1.Q3, previously produced in Case No. 18-0974-TF as Attachment GMP.DPS1.Q25.a4.

Person/s Responsible for Response: Dawn Bugbee
Title of Person/s: Chief Financial Officer
Date: October 8, 2018

Q:PSD:GMP.1.4. Please refer to the Excel file named "Monthly UI Management Report June 2018 Estimate Financials to DPS," which GMP previously provided to the Department. With respect to this file, please provide copies of all standard UI reports (specifically the cost-of-service or revenue estimate) associated with the forecast included in this file.

A:PSD:GMP.1.4. Please see Attachment GMP.DPS1.Q4.

Person/s Responsible for Response: Rob Bingel
Title of Person/s: Manager, Forecasting & Analytics
Date: October 8, 2018

Q:PSD:GMP.1.5. Please refer to the Excel file named "UI – COS Financials Summary Comparison June 2018 Estimate to DPS.xlsv," which GMP previously provided to the Department for the following requests:

a. Please explain the reasons for any differences between the rate increases from the UI model and the COS model;

b. For years where there were no differences between rate increases from the UI model and COS Model, please confirm that no adjustments were made to the UI model results.

A:PSD:GMP.1.5.

a. Historically, the UI and COS models have served two very different, but complementary purposes. The COS "model" is a regulatory calculation of expected costs and revenues for only the upcoming rate year. This calculation has been filed with both the PUC and the DPS, with the results being reflected in the company's tariffs. Meanwhile, the UI model is intended to be a financial forecasting tool, rather than a formal Cost of Service calculation. When modeling multiple future years, the UI tool provides financial information that the COS model does not, like an income statement, balance sheet, and cash flow statement, as well as financial statistics measuring the company's performance.

In the past, the company has calculated the expected rate change for the upcoming rate year utilizing the COS model, then manually inputted those rates into the UI software. For all years beyond the first, the company has traditionally relied upon the rate change calculation methodology in UI, which, while not as exact as the COS model, has provided reasonable estimates for planning purposes. Given that the MYRP covers the period FY2020 – FY2022, GMP has now modeled those years with the COS model. Since both the COS and UI methodologies contain forecasts for costs for FY2020-FY2022 that will be updated on an annual basis, GMP kept both sets of rate change estimates.

Differences in algorithms explain why the rate changes are different between the two models. The Cost of Service model compiles regulatory costs and ratebase balances via a "bottoms up" approach and calculates a rate change that is based upon the details associated with a formal filing. The UI model operates at a more summarized level. In particular, the UI tool solves for a rate change based upon an expected return on equity within a given fiscal year. GMP historically has achieved an earned ROE that is approximately 90 – 130 bps below the allowed regulatory ROE, excluding synergies associated with the merger. For this reason, the UI model solves for the rate change necessary to achieve the allowed ROE minus 90 bps. Given the two distinct methodologies involved, there will usually be differences in the expected rate changes calculated by the UI software versus the COS models. The COS model is the one upon which GMP relies for purposes

of forecasting the regulation plan in this Commission proceeding. Again, with either COS or UI, these are simply current best estimates for FY 2020-2022.

b. As discussed above, the 2019 rates in UI have been manually adjusted to tie with the 2019 COS filing. In all of the remaining years, there were no adjustments made to the UI model results.

Person/s Responsible for Response: Rob Bingel
Title of Person/s: Manager, Forecasting & Analytics
Date: October 8, 2018

Q:PSD:GMP.1.6. With respect to the rate forecast modeling that was completed by GMP (and previously provided to the Department), please respond to the following requests:

a. Please state or identify the total dollar amount for Investments in Subsidiaries or Affiliates that GMP included for the forecast modeling for each year of the rate plan;

b. Please state whether the forecast modeling includes cloud computing services within capital investments;

c. Please state whether the forecast modeling reflects the impacts of GMP's most recent depreciation study (which is discussed by Mr. Ryan on pages 6–8 of his prefiled direct testimony).

A:PSD:GMP.1.6.

a. Under the proposed multi-year plan, GMP would annually refresh the forecast of both Investment in Affiliates and associated Equity in Earnings. The table below shows what the forecasted 13-month average balances are by year used in the rate modeling that was completed by GMP and previously provided to the DPS. The proposed plan would require GMP to seek approval for any investments in new affiliates (i.e., new JVs or similar ventures, not Transco investments).

Forecasted Investment in Affiliates in $000s

	2020	2021	2022
Generation Vermont Yankee	$939	$939	$939
Generation Maine Yankee	$41	$41	$41
Generation Connecticut Yankee	$36	$36	$36
Generation Yankee Atomic	$53	$53	$53
Green Lantern	$949	$949	$949
Transmission NE Hydro Trans	$211	$211	$211
Transmission NE Hydro Trans Electric	$1,214	$1,214	$1,214
Transmission VELCO - Common	$10,215	$10,215	$10,215
JV Microgrid	$37,799	$38,598	$36,013
JV Solar	$51,056	$48,588	$45,509
Transmission TRANSCO LLC	$621,869	$634,574	$646,680
Total	$724,383	$735,418	$741,860

b. No specific cloud computing investment is included at this point within the capital spending framework. As described in Mr. Otley's prefiled direct testimony, GMP believes it is appropriate to allow cloud computing subscription costs in the future

to be included as a capital expense since these investments are more efficient, upgradable purchases than traditional software/hardware capital projects and the disparate treatment of operating versus capital expenditures for the same function has not been viewed as appropriate, as further described by the Prefiled Direct Testimony of Brian Otley at 38-43. In addition, the forecast modeled capital investments at summarized, rather than project-specific, level.

c. The modeling reflects the depreciation study being implemented in FY2021, as proposed in Eddie Ryan's testimony in this proceeding. See Prefiled Direct Testimony of Edmund Ryan at 7-8.

Person/s Responsible for Response: Rob Bingel
Title of Person/s: Manager, Forecasting & Analytics
Date: October 8, 2018

Q:PSD:GMP.1.7. Please state whether GMP retained any outside consultants, other than Mr. Coyne, to provide guidance or assist in the development of the proposed multi-year rate plan. If yes, please identify those consultants and identify the components of the proposed multi-year rate plan that were informed by guidance or advice from an outside consultant.

Objection: GMP reasserts General Objection 2, as the question calls for the disclosure of experts retained in anticipation of litigation and who are not expected to be called as witnesses, in violation of V.R.C.P. 26(b)(5)(D).

A:PSD:GMP.1.7. Without waiver of the objection, other than Mr. Coyne's firm, the Department is aware that GMP retained Marc Lowry and offered his expertise in the course of the Commission's "Future of Regulation" proceeding (Case No. 17-3142-PET).

Person/s Responsible for Response: Kristin Carlson
Title of Person/s: VP, External, Strategic and Regulatory Affairs
Date: October 8, 2018

Q:PSD:GMP.1.8. Please also identify any multi-year rate plans or identify the reports and orders outlining those plans (including from jurisdictions outside of Vermont) that GMP relied upon in its research that formed the basis for the elements of GMP's proposed multi-year rate plan.

Objection: GMP reasserts General Objections 1, 2, and 5. Identifying all materials researched in anticipation of this proceeding would be unduly burdensome and not proportional to the needs of the case and would require GMP to disclose both material that is not relevant to this proceeding and material that is protected by the attorney-client and work-product doctrine. Moreover, the question is vague and unintelligible. The meaning of the phrases "relied upon in its research" and "formed the basis for the elements" is unclear. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.8. Please see Exhibit GMP-JMC-3 for a summary of the regulatory plans reviewed by Mr. Coyne. In addition, GMP reviewed the extensive material presented in the "Future of Regulation" proceeding by all parties and experts.

Person/s Responsible for Response: Kristin Carlson, Rob Bingel
Title of Person/s: VP, External, Strategic and Regulatory Affairs; Manager, Forecasting & Analytics
Date: October 8, 2018

Questions in Response to Testimony of Brian Otley

Q:PSD:GMP.1.9. Please refer to Exhibit GMP-BO-1 for the following requests:

a. Please state the dollar amount for General Plant, Kingdom Community Wind, and Wind generation investment that was included in the Production category for each year from 2020 through 2022.

b. To the extent that they have been prepared by GMP, please provide copies of supporting, project documentation, folders or templates for specific capital projects referenced in Exhibit GMP-BO-1, including any cost/benefit analyses completed by GMP for projects that are expected to exceed $2.5 million.

A:PSD:GMP.1.9.

a. Please see below for a breakdown of the Production costs

Function	2020	2021	2022
Production	16,918,000	15,958,000	14,963,000
General Plant	400,000	400,000	400,000
Kingdom Community Wind	302,000	227,000	37,000
Wind Generation	80,000	115,000	800,000
	17,700,000	16,700,000	16,200,000

b. Individual project folders have not been completed for the MYRP of 2020 through 2022. Individual project folders and cost/benefit analysis, if applicable, will be prepared and used to identify and prioritize projects during the annual capital planning cycle, consistent with the standards contained in Exhibit 2 of the GMP/DPS MOU in Case No. 17-3112-INV.

Person/s Responsible for Response: (a) Jason Lisai, Matt Haley, Dawn Bugbee; (b) Brian Otley, Matt Haley, Dawn Bugbee
Title of Person/s: Director, Generation Operations; Manager of Fixed Assets and Fleet; Chief Financial Officer; Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.10. Please refer to Exhibit GMP-BO-4. For each of the Customer Service Stretch Goals shown in the exhibit, please provide GMP's actual performance over the last 10 years. If GMP has not tracked performance for that long, or has not retained records for that period, please provide actual performance for each metric for the period available.

Objection: GMP reasserts General Objections 6 and 8. Providing GMP's performance over the last 10 years for its proposed Customer Service Stretch Goals would require GMP to perform additional studies and analyses. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.10. GMP has the data requested going back to 2014, which can be seen in Attachment GMP.DPS1.Q10.

Person/s Responsible for Response: Steve Costello
Title of Person/s: VP, Customer Service
Date: October 8, 2018

Q:PSD:GMP.1.11. Please identify any publications, reports, benchmarking analysis, or other documents that GMP reviewed in support of developing the Customer Service Stretch Goals included in the proposed multi-year rate plan. Please produce copies of any such documents reviewed by GMP. Within your response, please also identify which, if any, documents were prepared internally by GMP staff.

Objection: GMP reasserts General Objection 2. Identifying materials reviewed and producing internally prepared documents would require GMP to disclose material protected by the work-product doctrine. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.11. See answer to PSD:GMP.1.8 above. Other than the material identified, GMP did not review additional documents specific to the Stretch Goals; rather, the company examined its record of strong customer service measure performance compared to the state SQRP measures over the past several years and considered what we believed would be reasonable inducements to perform at a higher level of customer satisfaction as we continue to seek efficiencies for the benefit of customers while delivering strong service to them.

Person/s Responsible for Response: Brian Otley, Steve Costello
Title of Person/s: Senior VP and Chief Operations Officer; VP, Customer Service
Date: October 8, 2018

Q:PSD:GMP.1.12. Please refer to Exhibit GMP-BO-4 and the section that includes innovation measurements.

a. Please describe generally how GMP chose the particular measures that are included in the exhibit.

b. Please state whether GMP considered alternative measures that ultimately were not included in the exhibit? If so, please provide a list of these measures and describe generally why they were not included.

A:PSD:GMP.1.12.

a. The innovation measures are intended to show progress toward the new energy delivery system that we are pursuing on behalf of our customers, just like our current SQRP measures show our performance in delivering strong customer service. The proposed list will measure and track increases in the intelligence of the grid through DER control, the opening of the grid to third parties, the localization of the grid through islanding and micro-grid capabilities, as well as improvements in grid orchestration that can capture value for customers through effective peak management. We also believe, in this digital age, that tracking progress toward establishing the most effective and low-cost relationship with our customers is important in the form of electronic billing, remittance, and self-service. We understand the proposals to be consistent with the areas for innovative performance measures raised in the Commission's "Future of Regulation" docket by the Department and as presented by the various parties.

b. Please see answer to PSD:GMP.1.8 above. Other than the material identified, in developing our recommended list of innovation measures, we also brainstormed several possible measures before deciding on the ones in the Exhibit. We do not have documentation to produce of alternative measures not pursued.

Person/s Responsible for Response: Brian Otley, Josh Castonguay
Title of Person/s: Senior VP and Chief Operations Officer; VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.13. Please refer to page 6 of Mr. Otley's Direct Testimony, where he discusses the "limited exceptions" for "new initiatives investments" for the following requests:

a. Please list the 'new initiatives' that fall into this category, please identify the positive cashflows and benefits to costs ratios or net benefits that assure customers the long-term benefits to customers characterized on line 18.

b. To the extent that these customer benefits cannot be quantified, please characterize the benefits to which you refer on line 18 of page 6.

c. Please identify the potential boundaries that might apply on capital investment relevant to the $85 million cap proposed for capital projects. For example, can $85 million become $90 or $95 million if there is enough demand for these new initiatives?

A:PSD:GMP.1.13.

a. New initiatives in this category would be any of GMP's customer-facing programs that require a unique financial contribution by the participating customers that would in turn provide benefits to non-participating customers – a return, in other words, for our customers. This would include GMP's cold climate heat pump program, heat pump water heater program, battery storage program, and EV charging program. Each of these programs has had a pilot filing submitted to the Department consistent with this provision of our regulatory plan. We expect to develop new programs of this type during the MYRP period but are not able to specifically identify them at this time due to the rapidly changing nature of innovation in clean energy technologies. We have provided our program pilot filings that detail the quantitative benefits to customers of each program. Please see Response to DPS2.Q66 in Case No. 18-0974-TF.

b. With each innovative program, GMP's objective is to deliver value to the participating customer through the terms of the program, as well as deliver value back to all GMP customers through positive impacts from either increased kWh sales or margin. Each program has its specific qualitative benefits. For example, our EV Charging program reduces fossil fuel use and per mile fuel costs of the participant while also increasing kWh sales to that customer which helps to contain rate pressure to all other customers. GMP innovative pilot filings describe the quantitative and qualitative benefits forecasted for each of our programs as they are being tested with our customers within the boundaries of each pilot.

c. Consistent with my original testimony, we are not recommending a specific dollar limit boundary on these kinds of exceptions since they would be designed to bring benefit to our customers and we do not think creating a specific, artificial

restriction on the growth of these programs during the period of the MYRP is in customers' best interest. We have recommended Department review and Commission approval prior to exceeding the capital limits for this category of programs during the term of the MYRP and are confident that this is an appropriate control.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.14. Please refer to page 11, line 7 through page 12, line 16 of Mr. Otley's Direct Testimony, where Mr. Otley discusses the two analytical approaches (top-down and bottom-up) that GMP used to develop its annual capital spending limit. With respect to this portion of Mr. Otley's testimony, please provide copies of the following:

a. All multiyear financial model runs or annual cost of service estimates used to evaluate the various levels of capital spending referred to as the "top-down analysis" in their native format;

b. Any presentations or other analysis pertaining to, or discussing, the appropriate level of annual capital spending by department within GMP;

c. Please identify each department and the appropriate leader within each department within GMP that was required to perform these analyses;

d. The total annual spending requested by each of the various GMP departments in their "bottoms up" analysis using the categories from Exhibit-GMP-BO-1;

e. Please provide copies of or describe in detail any criteria or instructions that were given to GMP department leaders in developing minimum levels of investment required;

Objection: GMP reasserts General Objections 1 and 2. Producing all of the requested model runs, cost of service estimates, presentations, analysis, criteria, and instructions would impose an undue burden not proportional to the needs of the case. Moreover, the request calls for the disclosure of material protected by the work-product doctrine and attorney-client privilege. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.14.

a. For purposes of its top-down analysis, GMP started from the negotiated resolution of capital in the calendar year 2018 traditional rate case of approximately a $20M reduction in capital spending ($20 million reduction in capital spending for CY 2018 equates to approximately $10 million 13-month average change in rate base). GMP then evaluated options for higher or lower spending based on its calculation that increases or decreases of $20 million in capital results in roughly < than $1 million of rate base return. For the initial breakdown of the $85 million target in capital spending, please see Attachment GMP.DPS1.Q14.1. GMP considered historical spending levels, in each category, as outlined in Board presentations on capital spending. See Attachment GMP.DPS1.Q14.2. GMP did not conduct multi-year model runs or full annual cost of service analysis to evaluate capital spending levels.

b. We have attached GMP's working capital plans utilized for purposes of determining the capital spending limits at the time the spending limits were

established for Generation, Transmission Lines and Substations, and Distribution lines as Attachments GMP.DPS1.Q14.3 to 14.5. These capital departments have the longest capital planning time horizons due to the nature of their projects, which tend to be larger, construction in nature. Other capital departments' capital planning is done on a shorter time horizon due to the more dynamic nature of the infrastructure and supply chain involved in their projects.

c. Transmission & Distribution: Michael Burke and John Fiske; Generation: Jason Lisai; Information Technology: Mark Dincecco; Transportation: Matthew Haley; Facilities: Mari McClure; New Initiatives: Josh Castonguay.

d. See subpart (b) above. For departments with longer planning horizons, such as Generation and T & D, the bottoms up analysis was based on the respective capital plans for each department, which are maintained and updated. Those plans, as they existed at the time the capital cap was established, are attached as Attachments GMP.DPS1.Q14.3 and Q14.5.

   For the other departments that have shorter planning horizons due to the nature of their scope and the dynamism of the capital investment projects they manage, formal and detailed multi-year capital plans are not maintained. These departments looked at past years capital investment levels as well as looking forward across the plan period to consider capital project types that were going to be needed to be addressed within that timeframe. With these things in mind the capital leaders of these departments made informed and experienced judgments about the ability to maintain service quality levels while also pursuing innovation on behalf of our customers. This is how the bottoms up assessment was compared to the top down analysis to come to agreement that the capital limits recommended in the plan were appropriate.

e. The primary guidance given was that the quality of our service to our customers cannot diminish and we cannot stop making investments that progress our transformational work to the benefits of our customers in a dramatically changing energy landscape. Departments used their historical capital targets along with this guidance to estimate the impact of various capital limits. The bottoms-up approach was performed off of the 2019 capital planning process and extending it by planned or expected projects within each department. In departments, such as Generation, the multi-year list of named projects is more complete than in other departments where planning is done on shorter cycles. By reviewing and scrutinizing this evaluation by each department, we were able to establish overall capital limits for the MYRP period.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.15. Please describe the timing for placing capital investments made during the plan into rate base and subjecting those investments to appropriate depreciation levels. For example, if GMP spend $86.5 million on capital projects over the course of the 2020 rate year, please describe how and when those investments are reflected in rate base and commence depreciation.

A:PSD:GMP.1.15. The $86.5M represents a 2020 plant in service cap. The fixed annual plant additions for a rate period will be pro-rated by quarter and included in rate base. For example, rate base will be increased for the rate period 2020 plant additions by $21,625,000 in December 2019, March 2020, June 2020 and September 2020. Spreading the rate base plant additions uniformly by quarter within the rate period avoids the front-loading (more plant additions occur in the beginning of the rate period) and back-loading (more plant additions occur in the end of the rate period) of the plant additions. Any separately approved capital projects, as set forth in the plan, will be included in rate base as specified in the Commission Order approving these plant additions.

Depreciation expense will commence as the plant additions are included in rate base based on the weighted average depreciation accrual rate for the respective plant functional categories (i.e., Information Technology, Distribution Lines Large Cap, etc.).

Person/s Responsible for Response: Eddie Ryan
Title of Person/s: Controller
Date: October 8, 2018

Q:PSD:GMP.1.16. Please refer to Page 6 of Mr. Otley's Direct Testimony, where he discusses the benefit of managing heat pumps during peak hours. Please describe how management of heat pumps performs relative to say, periods of cold weather extremes that may coincide with periods of RNS-coincident peak events, high energy prices, and threat to reliable service. Please also describe GMP's experience with managing heat pumps during the coldest periods of the year such as those that existing during the period from about December 27, 2017 to January 7, 2018.

A:PSD:GMP.1.16. During peak periods, including in the winter, GMP shares access with customers and adjusts heat pumps using the Sensibo device by 2 or 3 degrees during peak events. This reduces costs for customers and is done year-round in an attempt to reduce as many RNS peaks as possible along with targeting the annual FCM peak. During any GMP peak event, heat pump customers are sent a notification of the timing of the event at least 8 hours in advance. Once an event starts, customers have two options to opt out of the event and revert their heat pumps to the original set points prior to the event. The two options include making a change to the heat pump setting on the heat pump's native remote or making a change within the Sensibo app on a smartphone. During significant cold periods, we are always balancing customer comfort and safety with peak reducing benefits. In most cases, the customer has a primary (or secondary) heating system in the home. We encourage customers to utilize those systems on the coldest nights, for potentially higher efficiency and greater comfort. During the specific week mentioned in the question, we called the heat pump resources three times and we saw less than 10% opt out from our heat pump customers.

Person/s Responsible for Response: Josh Castonguay
Title of Person/s: VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.17. Please refer to Page 9 of Mr. Otley's Direct Testimony. Please confirm that the capital commitments listed by Mr. Otley are commitments to be "closed to plant" by those amounts in each year. If so, please also confirm that projects closed to plant in 2020 will include projects that were commenced by GMP in 2019. If not, please explain.

A:PSD:GMP.1.17. Confirmed.

Person/s Responsible for Response: Brian Otley, Eddie Ryan
Title of Person/s: Senior VP and Chief Operations Officer; Controller
Date: October 8, 2018

Q:PSD:GMP.1.18. Please refer to Page 10 of Mr. Otley's Direct Testimony.

a. If GMP completes less than the projected $256 million of capital spending by September 30, 2022, does the plan anticipated that the underspent amount will be returned to ratepayers or retained by GMP. Conversely, if GMP overspends the capital limit, will it seek to recover to overage from ratepayers in a future rate case?

b. How are ratepayers to be compensated or relieved of costs in rates, if at all, if GMP fails to complete projects within the timeframes anticipated at the beginning of the plan (i.e., the $86.5 M, $85 M, and $85 M investment targets for each year)?

A:PSD:GMP.1.18.

a. For the term of the Multi-Year Regulation Plan (MYRP), the proposed base plant additions of $256 million total (broken down by year as noted above) included in rates will be fixed. Annual rate period variances between the actual plant additions and the amount reflected in rates would be captured in the annual Earnings Sharing Adjustment Mechanism (ESAM) calculation. If at the end of the MYRP the actual gross base plant in service additions over the term of the MYRP exceed the $256.5 million MYRP gross plant additions cap (excluding any separately approved projects, as set forth in the plan), the excess plant additions will be excluded from recovery in future rate filings. If the actual gross plant in service additions over the term of the MYRP is less than the $256.5 million MYRP gross plant additions cap, these lower plant additions will be reflected in future rate filing. No other adjustments will be made. This regulatory result is why GMP believes its capital proposal is beneficial to customers and an appropriate balance that allows GMP flexibility to manage its capital additions within the three-year period while ensuring it has incentives to not exceed its cap.

b. See response to PSD:GMP.1.18a.

Person/s Responsible for Response: Brian Otley, Eddie Ryan, Karen Young
Title of Person/s: Senior VP and Chief Operations Officer; Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.19. Please refer to page 19 of Mr. Otley's direct testimony. Please state whether you are aware of and/or reviewed alternative regulation plans for other utilities (including those outside of Vermont) that use multi-year regulation plans with limits on capital spending. If yes, please identify those utilities and regulation plans and produce copies of the plans if available to GMP.

A:PSD:GMP.1.19.

Yes, GMP is aware that some jurisdictions have included limits on capital spending in regulation plans or other regulatory methods. In addition to the material presented to all participants in the PUC's "Future of Regulation Plans" proceeding, GMP asked Mr. Coyne to investigate further the use of capital spending limits, which revealed the following:

Florida: The Florida PSC appears to have specified revenue requirement limits for solar investment additions.

Iowa: The Iowa Utilities Board assigns cost caps for construction of new plant to be added to rate base for certain projects.

Minnesota: Legislation enacted in 2015 allows for multi-year regulation plans to include recovery of capital costs by formula, forecast or fixed escalation rate.

Ohio: Duke Energy was authorized to use a distribution capital improvement rider with specified revenue requirement cap.

Virginia: Legislation allows the Virginia State Corporations Commission to approve rider recovery for the replacement of overhead distribution facilities with underground facilities, subject to a cap of 5% of the utility's total distribution rate base determined in the most recent biennial rate review.

GMP does not have copies of the specified plans and, given the nature of state by state regulatory mechanisms does not claim that the above list is exhaustive or complete.

Person/s Responsible for Response: Brian Otley, Jim Coyne
Title of Person/s: Senior VP and Chief Operations Officer; Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.20. Please refer to Page 8, lines 5–8 of Mr. Otley's Direct Testimony. Please describe in detail how GMP determined that FY2019 capital spending is an appropriate amount for establishing the capital spending cap (on average) for each year over the term of the multi-year rate plan.

A:PSD:GMP.1.20. For 2019, while working hard to offset certain rate pressures, some out of utility control, and after considerable collaboration with the Department, GMP adjusted its capital planning process to help contain cost impacts of capital investments. Without sacrificing essential qualities of our planning such as customer and employee safety, service quality and continued progress toward transformation, we worked to constrain capital within each department while continuing to deliver strong operational performance and reducing overall cost.

As part of the 2019 planning process, each department has evaluated and defended a capital plan that balances operational impact for customers with cost. The plan is aggressive and came only after many conversations where assumptions were challenged and best-case/worst-case scenarios were considered. Based on the collective experience of our capital leaders, we believe the capital limits set by the MYRP strike the right balance. They are aggressive limits and will challenge our ability to execute and deliver on our customer commitments. But they will also help mitigate some of the external cost pressures facing our customers right now, including from impacts that GMP cannot directly control.

Limiting the regulation plan to three years, with traditional rate cases bookending the plan, helps give GMP confidence that the capital investment plan it has proposed will be responsible and achievable. As described in testimony, we are concerned at how aggressive the plan is in reducing capital (in that we build off of the reduced capital investment plan for 2019 and do not escalate it for the three-year period) but believe we can manage to the plan within the three years under the terms proposed.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.21. Please refer to Page 8, lines 12–15 of Mr. Otley's Direct Testimony for the following requests:

a. Please describe in detail why GMP believes that investment levels below $85 million per year will "stack cost pressures on customers for future periods."

b. Please describe any "adverse impacts" that GMP customers would expect to face if capital spending were below the proposed limit.

A:PSD:GMP.1.21.

a. The direct testimony states that continued reductions of capital investment below $85 million will "stack cost pressure on customers for future periods." This sentence was intended to convey that while we are accepting the challenge to further constrain capital costs we are balancing that challenge against underinvestment that could cause service challenges in later years for customers if not managed well. The thing about capital investment (or lack of) is that its impact is not always immediately felt. The operational consequences, as felt by customers, of delaying or avoiding regular, appropriate capital investment in the infrastructure necessary to deliver high-quality services will manifest over time as a degradation in the quality of service occurs. Eventually, a pattern of under-investment will result in lower operational performance and lower customer satisfaction. When performance and satisfaction decline to certain levels then the remedy is to try to quickly "catch up" on the capital investments that have been missed over the years to quickly improve performance and satisfaction. Often, the "catch up" costs are higher than would have occurred through regular, appropriate investment. GMP tries to avoid cycles of better and worse performance in order to deliver consistently high-quality service to our customers and avoid spikes caused from sudden needs to remedy neglected investments. The capital plan within the MYRP strikes a balance between performance and cost for our customers, but we will always try to safeguard against the future impacts of underinvestment.

b. Adverse impacts from capital underinvestment can manifest themselves in numerous ways. These impacts can be anything from lower reliability performance to slower call handling times in our call center to increased downtime of our customer self-service environments to missed peak management opportunities, to safety concerns, among many others. GMP delivers a high level of service to our customers and as a result our customers have come to rely upon that level of service being consistently delivered. We remain focused on delivering high levels of service for our customers in a cost-effective manner and we will continue this focus during the multi-year period. Our SQPR provides an important back stop to ensure good customer service during the MYRP period, and we have also proposed certain stretch goals in the MYRP to encourage performance beyond the state-established SQPR standards.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.22. Please refer to page 23, line 16 through page 25, line 21 of Mr. Otley's Direct Testimony and Exhibit GMP-BO-1, where Mr. Otley discusses GMP's innovative investments. With respect to this section of Mr. Otley's testimony, please respond to the following:

a. Please provide details on the types of products GMP is considering including in rate base.

b. Please state whether GMP will include these products in rate base during the 18 month trial period or after a tariff has been filed.

c. Please state whether GMP will commit that all these products will be controllable by GMP in order to operate for the benefit of all rate payers.

d. Please state whether GMP will ensure that non-participating rate payers are not charged for collection, marketing or maintenance expenses associated with these products.

e. Please state whether GMP will ensure that quantifiable benefits exceed the costs to non-participating customers.

f. Please describe how GMP will take the necessary steps or measures to ensure that its status as a regulated monopoly not be used as a competitive advantage.

Objection: GMP reasserts General Objection 5 to subsection (f), as it is vague and unintelligible. The term "necessary steps or measures" is undefined. Moreover, it is unclear what is meant by "using status as a regulated monopoly as a competitive advantage." Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.22.

a. We anticipate providing customer solutions that include, but not are not limited to, EV charging infrastructure, battery storage systems, heating & cooling systems, water heating systems, control systems and control software platforms.

b. To the extent the pilot program is expected to provide a net benefit to all of our customers, and the pilot includes utilizing rate base as a mechanism to deliver benefits to customers, then yes, we anticipate including those costs in rate base during some portion of the pilot period. For example, the pilot may start in the middle of one fiscal year and therefore not be included in rate base until the following year. Note however, that there are also pilots with products that we do not include in rate base.

c. As stated, GMP looks at 3 factors when exploring a program for customers: does it make sense for the host customer; does it provide GMP with a new resource to utilize in managing the grid; and most importantly does it provide a net benefit to

non-participating customers. Therefore, we do anticipate having a control aspect of rate-based products that we offer. If for some reason we believe strongly that there is significant value for all customers even without including a control aspect, these details would be discussed with the DPS prior to putting a pilot in place.

d. With respect to maintenance and collection, those costs are specifically incorporated into monthly fee to participating customers. With respect to billing and marketing costs GMP tracks these costs, which through our cost of service and are then offset by the benefits that the specific product or service delivers. We are proposing to only include in rates programs that provide an overall net positive benefit to all customers.

e. As noted above in subpart (c) & (d), GMP seeks to develop innovative programs that deliver a net positive benefit to all our customers, including non-participating customers. See response to subpart (d) above.

f. While we do not believe that we have a competitive advantage in offering these innovative products and services, in consultation with the Department, we have taken several steps to ameliorate any potential disadvantage. For example, all parties can participate by offering solutions such as Bring Your Own Device. We also engage with third party installers, suppliers and manufacturers for almost all of our innovative pilots. We have a third-party billing tariff so that others who offer energy-related equipment financing may utilize our billing system. We will continue to carefully price our pilots to have participating customers pay the cost associated with the services they receive. Finally, we follow the 8794 Memo Detailing Changes and the Data Collection and Reporting Plan for our pilots.

Person/s Responsible for Response: Josh Castonguay
Title of Person/s: VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.23. Please refer to page 25, lines 2–5 of Mr. Otley's Direct Testimony, where Mr. Otley states that GMP does not want the "pre-set capital amount to restrict the adoption pace or implementation of current or future New Initiative programs that may experience accelerated customer demand." Please state whether GMP has considered offering any New Initiative programs as a "below-the-line" service offering that would be offered independent of the regulation plan. If so, please identify such services. If not, please explain why GMP believes that a "below-the-line" offering would be inappropriate for New Initiative programs.

A:PSD:GMP.1.23. Early in GMP's experience with bringing innovative programs to our customers we learned there was an opportunity, within the regulated business, to deliver benefits to both the customers electing to participate in the program as well as all other customers. Our focus in all of these programs is to structure them such that they deliver value to all customers, by reducing the rate pressures from uncontrollable costs beyond GMP's direct control. These costs include regional transmission costs as well as costs from Vermont energy policies such as net metering. Operating these programs "below-the-line" would remove value derived from that program from flowing to customers. We believe these innovative programs are an important part of the transition to the new energy delivery system that will fulfill Vermont's energy objectives and we fundamentally believe that this is the work of GMP as regulated utility. See the answer to questions REV:GMP.1-13 through -16 provided by GMP in its Responses to the First Set of Discovery Requests Served by Renewable Energy Vermont, filed on October 8, 2018.

Person/s Responsible for Response: Josh Castonguay, Dawn Bugbee, Brian Otley
Title of Person/s: VP & Chief Innovation Executive and Power Supply; Chief Financial Officer; Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.24. Please refer to page 43, lines 5 – 17 of Mr. Otley's Direct Testimony for the following requests regarding cloud-based capital investments:

a. Please provide a forecast from 2019 through 2022 of cloud-based capital investment that GMP plans to include in its multi-year rate plan. Please provide supporting documentation for this forecast.

b. Please provide a detailed description of the exact accounting method, or methods, that GMP is proposing to use to capitalize these costs.

c. Please provide any analysis GMP has performed on the economic impact to rate payers of continuing to treat these costs as an expense verses the proposed method for capitalizing these costs.

d. Please describe generally how the transition to capitalizing cloud-based capital spending benefits ratepayers. Provide all analysis supporting your conclusions.

Objection: GMP reasserts General Objections 6 and 8 to subsection (a). Providing a forecast of cloud-based capital investment exceeds the bounds of permissible discovery, as it would require GMP to conduct additional studies and analyses. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.24.

a. GMP does not have a forecast of transitions to cloud-based delivery models at this time. As described in testimony, over time some of GMP's enterprise software platform suppliers are introducing cloud-based delivery models for their products. As well, new software procurements have a cloud-based delivery model option. Over the term of the MYRP, GMP intends to make decisions about solutions that are in the best interests of our customers from an operational and cost standpoint. In doing these evaluations we believe there should be no difference between the accounting treatment of local and cloud-based solutions, as other regulatory jurisdictions have already established. Based upon our experience with our systems, we would estimate that during the term of the MYRP, GMP may pursue a cloud solution for 10-20% of our software procurements, but that number could change based on emerging trends on the supplier side.

b. GMP would be prepaying the subscription fees for the cloud-based solutions. The prepayment would be considered part of our capital spending/plant in service, included in rate base and count toward our Multi-Year Regulation Plan capital spending/plant in service targets. This ratemaking approach allows cloud-based solutions to be treated similar to in-house software solutions and earn a regulated rate of return. This approach is consistent with the resolution issued by the National Association of Regulatory Utility Commissioners encouraging state utility commissions to consider improving the treatment of cloud-computing arrangements (Resolution Encouraging State Utility Commissions to Consider

Improving the Regulatory Treatment of Cloud Computing Arrangements adopted November 16, 2016).

c. GMP has not done an analysis. The regulation plan requests that the PUC review the emerging trend elsewhere and allow GMP to treat these expenses as a part of capital investments. GMP will still manage its capital investments under the limitations described in the plan.

d. Updating the regulatory treatment of cloud solutions benefits customers in a number of ways. Most importantly, it sets aside any imbalance between the models by which a computing solution that benefits customers can be implemented. There should be no difference in treatment between a local hosted and cloud hosted implementation. The most important consideration should be the value an investment delivers to customers. Other benefits include keeping regulatory treatment current with technology delivery models and providing easier implementation and even replacement paths for utilities to constantly pursue the best solutions.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.25. With respect to GMP's innovative pilots, please provide for the past five years and the projections for the next five years of the revenues and costs for each pilot project currently offered by GMP or expected to be offered by GMP during the term of the proposed multi-year rate plan.

Objection: GMP reasserts General Objections 6 and 8. Providing projections of not-yet-proposed pilot program costs and revenues exceeds the bounds of permissible discovery, as it would require GMP to conduct additional studies and analyses. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.25. Please see Attachment GMP.DPS1.Q25 for the results for the past 5 years for existing pilots. The FY14-FY16 values were submitted last year in response to Discovery for the 2018 traditional cost of service filing. In Attachment GMP.DPS1.Q25, please note that the value used for kWh margin for heat pumps was higher in FY14 – FY16 than in FY17 – FY18, when GMP utilized the DPS-commissioned Cadmus study for the higher retail sales associated with installations.

The table below shows the Energy Innovation Center ("EIC") revenue included in the June 2018 the MYRP forecasts. The MYRP proposes that the EIC revenue be forecasted and updated annually, so these numbers are only estimates, as indicated when they were provided.

EIC Revenues in FY20 - FY22 Forecast			
Sales Revenue (net of expense)			
	FY2020	FY2021	FY2022
Heat Pump	$280,000	$280,000	$280,000
Heat Pump Water Heater	$30,000	$30,000	$30,000
ConnectDER	$18,081	$18,081	$18,081
Level 2 Chargers	$37,800	$50,400	$50,400
Total Sales net of Expense	*$365,881*	*$378,481*	*$378,481*
Lease Revenue			
	FY2020	FY2021	FY2022
Heat Pump	$1,112,138	$1,112,138	$1,112,138
Heat Pump Water Heater	$191,305	$222,643	$253,981
ETS	$7,572	$7,572	$7,572
EVGo	$14,012	$14,012	$14,012
Tesla	$240,660	$240,660	$240,660
Level 2 Chargers	$18,012	$27,243	$36,473
Total Lease Revenue	*$1,583,699*	*$1,624,268*	*$1,664,837*

O&M costs are expected to remain at current levels through the MYRP as described in the plan. Since the majority of heat pumps and heat pump water heaters will be sold within the VSECU framework rather than leased, and the Tesla batteries will be installed by the end of the 2019 rate period, book depreciation for EIC programs is currently expected to remain flat from the end of the 2019 rate period.

Person/s Responsible for Response: Josh Castonguay, Rob Bingel
Title of Person/s: VP & Chief Innovation Executive and Power Supply; Manager, Forecasting & Analytics
Date: October 8, 2018

Q:PSD:GMP.1.26. Please refer to page 5, lines 1–3 of Mr. Otley's Direct Testimony. When Mr. Otley describes the goal of delivering "better results and lower costs for our customers year-over-year," is he referring to measuring improvements in GMP's performance in comparison to its own past performance, or is this general goal directed at measuring GMP's performance in comparison to other utilities (either in Vermont, regionally, or nationally).

A:PSD:GMP.1.26. Page 5, lines 1-3 are referring to improvements against GMP's own past performance.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.27. Please refer to page 22, lines 5–7 of Mr. Otley's Direct Testimony. Please describe generally GMP's rationale for incorporating the SQRP directly into the rate plan. Also, assuming that SQRP is directly integrated into the rate plan, would GMP then consider the SQRP to no longer be a separate regulatory requirement. In other words, to the extent that GMP has any future non-compliance with any component of the SQRP, is GMP's position that any enforcement action in response to that non-compliance would be limited to provisions of the multi-year rate plan.

A:PSD:GMP.1.27. While GMP is recommending incorporating SQRP into the MYRP by reference, SQRP is a separate regulatory requirement that all Vermont distribution utilities report against. In addition, as a part of the performance-based regulation plan, stretch goals above and beyond the SQRP measure targets appear appropriate to GMP, in light of the constrained capital investment plan and other features. These stretch goals stand alone and are separate from the SQRP. We believe SQRP remains a valuable element of regulatory review and oversight and will continue to comply with the existing measures and reporting requirements.

Person/s Responsible for Response: Brian Otley, Steve Costello
Title of Person/s: Senior VP and Chief Operations Officer; VP, Customer Service
Date: October 8, 2018

Q:PSD:GMP.1.28. Please identify any changes that GMP made to its SQRP reporting requirements (including new or modified metrics and performance targets) since 2014. If no such changes have been made since 2014, please identify and describe in detail the most recent changes that GMP made to its SQRP that resulted in new or modified metrics or adjusted any metric thresholds.

A:PSD:GMP.1.28. There have been no changes to GMP's SQRP requirements since 2014. The modification to GMP's SQRP plan made in 2014, was a result of the GMP-CVPS merger. In collaboration with the Department, the SQRPs of both legacy companies were merged and updated. At that time, no new measures were introduced and none were removed. However, many of the SQRP measure targets were made more challenging due to the expectation for operational improvements that would be realized from the merger. A matrix of the measures that were updated is included in Attachment GMP.DPS1.Q28. After several years with this consolidated and more strenuous SQRP, GMP has been meeting or exceeding essentially all of the measure targets for our customers and the customer satisfaction performance within the SQRP is a reflection of the hard work and good result.

Person/s Responsible for Response: Brian Otley, Steve Costello
Title of Person/s: Senior VP and Chief Operations Officer; VP, Customer Service
Date: October 8, 2018

Q:PSD:GMP.1.29. Please refer to page 28 of Mr. Otley's Direct Testimony, where he discusses ROE adjustments if GMP far exceeds minimum required performance levels, for the following requests:

a. Please define "small ROE adjustments" and translate those into actual dollars in a given year for success;

b. Please describe what a 25 basis point addition (the ROE adjustment for meeting all five standards) to the 9.3 percent earnings would translate into on a dollar basis using, for example, the 2018 rate base;

c. Please explain why this subset of performance measures associated with the SQRP was identified for additional dollar incentives over others.

Objection: GMP reasserts General Objections 6 and 8. The requested calculation exceeds the bounds of permissible discovery, as it would require GMP to conduct additional studies and analyses. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.29.

a. The Multi-Year Regulation Plan contains five customer service goals which would result in a 5-basis point adder to the allowed ROE for each goal met (See Section VII.E of the Multi-Year Regulation Plan). 5 basis points equates to approximately $537,460 of additional annual revenue collected from customers assuming GMP's 2019 rebuttal filing ratebase of $1,558,692,468.

b. Assuming GMP's 2019 rebuttal filing ratebase of $1,558,692,468, and a debt to equity ratio of 50.15% to 49.85%, a 25 basis point increase in allowed ROE would translate into an additional annual collection from customers of $2,687,300.

c. This subset of measures was selected because we believe it represents the group that has the most impact on customer satisfaction and for which we have the most control in delivery. For example, we feel the call handling measures' performance is more within GMP's control than the reliability measures, which can fluctuate year over year simply due to the impacts of the severe weather and climate change. We feel measures for which we have less control should not receive the adder and those for which we have more control and directly impact customer satisfaction we should.

Person/s Responsible for Response: (a) Brian Otley, (b) Eddie Ryan, Karen Young, (c) Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer; Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.30. Please refer to page 30, line 21 of Mr. Otley's Direct Testimony. With respect to Mr. Otley's reference to third-party partnerships, please describe in detail and/or provide examples of the type third-party partnerships that GMP's plans, expects, or desires to create during the term of the proposed rate plan.

Objection: GMP reasserts General Objection 5. Describing partnerships that GMP "expects or desires to create" requires speculation. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.30. GMP has been working to de-centralize the electric grid and create opportunities for new participation in the evolving energy system in ways not previously possible. For example, over the past ten years GMP has seen more than 10,000 of its residential customers choose to self-generate some amount of their own energy through their partnership with Vermont's solar companies. When pursuing the potential of new energy technologies, GMP tries to structure programs that encourage third party participation in a cost-effective way for customers. An example of this is our "Bring Your Own Device" (BYOD) program where GMP promotes access to customer-owned battery storage systems that can integrate with GMP's shared access platforms and deliver value to the specific customer as well as all other customers through peak management capabilities. As well, through the fulfillment activities of GMP's innovative programs, we have partnered with Vermont contractors and service providers to deliver the energy solutions to our participating customer in each of our programs. We partner with heat pump installers throughout our service territory to install and service the heat pumps that our participating customers receive in that program. We partner with plumbers throughout our service territory to install and service the water heaters that our participating customers receive in that program. We partner with electricians throughout our service territory to install and service the EV chargers that our participating customers receive in that program. These are a few examples of how the energy transformation work GMP is promoting through our innovative programs is creating opportunities for third parties in Vermont. All of this work must be done with customers at the focus to make sure it does not drive up costs.

It is hard to predict the types of additional partnerships that may develop during the period of the MYRP. We continually look for partners who can deliver high quality products and solutions that deliver value to our customers and the overall energy delivery model as we transform to home, business and community-based system.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.31. Please refer to Page 30, lines 19–20 of Mr. Otley's Direct Testimony regarding customer technology that can reduce GMP's operational costs for the following requests:

a. Please identify examples of such technology;

b. Please describe the operational costs that GMP seeks to avoid;

c. Are flexible loads like water heating loads, battery storage systems, electric vehicles included among them, or is this focused on management systems (or both).

A:PSD:GMP.1.31.

a. There are a number of technologies that GMP is deploying to reduce operational costs of providing services to our customers, including:

- electronic bills
- electronic payments
- customer web self-service portal
- mobile alerts
- automated outage reporting, status and restoration
- outage map

These are examples of customer service capabilities that GMP has implemented that can reduce our overall cost of operations, which in turn lowers our costs to our customers.

b. These customer service capabilities can reduce operational costs through anything from reduced postage costs on bills when customers switch to e-bills, to lower bad debt occurrence from automated payments to the overall reduction in inbound customer service calls due to self- service options, to name just a few.

c. With respect to the phrase "technology that reduces operational costs" our intent was to describe GMP's back office customer service capabilities with an innovative IT focus that have allowed us to positively impact our costs to provide those services to our customers, not our New Initiative programs, which do save customers money, but which are discussed separately in Mr. Otley's testimony.

Person/s Responsible for Response: Brian Otley, Steve Costello.
Title of Person/s: Senior VP and Chief Operations Officer; VP, Customer Service
Date: October 8, 2018

Q:PSD:GMP.1.32. Please refer to the measurements listed by Mr. Otley on page 31, lines 1–8 of his Direct Testimony for the following requests:

a. Please identify the strategic goal that corresponds with each measurement;

b. With respect to DER resource capacity, please provide GMP's intended definition of "distributed energy resource" and identify the resources that qualify for this credit;

c. With respect to third-party installations, is the objective the number of installations, the number of third-party installers, the capacity that they provide, the multiple value-streams and overall value provided, or something else?

A:PSD:GMP.1.32.

a. The strategic goal for each of the listed measures is as follows:

1. The percent of customers that have elected to receive paperless bills, pay through auto-draft, have on-line accounts, and have signed up for text alerts: reducing back-office operating costs by promoting electronic relationships with our customers for recurring, transactional tasks.

2. The total aggregate capacity of connected distributed energy resources ("DER") on our system: managing peak costs as well as balancing customer demand in order to optimize grid performance (reliability, renewables, etc.).

3. The number of third-party installed DER resources per year: same as #2, but delivered through third party players on the energy system as a measure of system access.

4. The percent of load that can be safely and reliably islanded: progress toward a de-centralized and locally resilient grid in order to maintain or improve reliability, use of renewables and cost of service interruptions.

5. The percentage of time GMP accurately forecasts peak events and dispatches peak management resources: managing peak costs.

In addition, each measurement has a connection to state energy policy or legislation. See the answer to question REV:GMP.1-34 provided by GMP in its Responses to the First Set of Discovery Requests Served by Renewable Energy Vermont, filed on October 8, 2018.

b. Distributed Energy Resources (DERs) can be a generation resource or a load, often on the customer side of the meter, whose behavior can be influenced and/or orchestrated by GMP (or other entity) with the intent to optimize some aspect of energy delivery, such as cost, carbon, reliability. Examples of DERs are

intelligent inverters, battery storage systems and intelligent EV chargers. The testimony does not refer to credits related to DERs; this is a measurement only metric in the Plan. The MYRP proposes these as shadow measures to be tracked during the plan period for possible use in the future.

c. We are proposing to measure the number of devices deployed by third parties that have shared access with GMP's control platforms. This measure could be supplemented with a measure of the capacity of those devices, if desired.

Person/s Responsible for Response: Brian Otley, Josh Castonguay
Title of Person/s: Senior VP and Chief Operations Officer; VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.33. Please refer to page 31 of Mr. Otley's Direct Testimony and Exhibit GMP-BO-4. Please clarify whether GMP will be measuring "the total aggregate capacity of connected distributed energy resources" and "the number of third-party installed DER resources per year" or rather "DER Capacity w Shared Access" and "3rd Party DERs w Shared Access."

A:PSD:GMP.1.33. GMP is proposing to measure two things:

1. "The total aggregate capacity of connected distributed energy resources" and then as a subset of this total,

2. "the number of third party installed (distributed energy resources) per year" that are connected to GMP's control platforms.

Person/s Responsible for Response: Brian Otley, Josh Castonguay
Title of Person/s: Senior VP and Chief Operations Officer; VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.34. Please provide a summary of the status of GMP's evaluation of individual distribution circuits, along with a summary of the number of distribution circuits where there is either 1) potential for or 2) probable capital expenditure necessitated by DER development or load growth to resolve grid constraints.

A:PSD:GMP.1.34. GMP has not had any significant load growth on its system in several years and currently has no areas where load growth has triggered the need to resolve grid constraints other than the Hinesburg area where the potential for growth has been identified. In response, GMP filed a reliability report under Docket 7873 October 1, 2016 and continues to monitor growth on this circuit. See Attachment GMP.DPS1.Q34. GMP presents all of its planned projects annually to the Vermont System Planning Committee ("VSPC") Geotargeting Subcommittee for review to determine if there is a need for a reliability plan for an area. There were no other areas identified.

Most potential grid constraints are not caused by load growth but rather by DER interconnections. GMP evaluates individual distribution circuits for DER development when interconnection applications are received under Vermont Public Utility Commission Rule 5.500. GMP also has evaluated all of its distribution circuits based on capacity of the transformer, operating voltage and number of DERs already on or proposed to be connected to the circuit for our Distribution Systems Information Map (the "Solar Map").

In addition, GMP recently agreed to perform similar circuit level analysis for any newly-proposed storage project greater than 1 MW, as a part of its settlement with the DPS in three pending JV Solar Storage projects in Milton, Ferrisburgh, and Essex. *See* Supplemental Prefiled Direct Testimony of Kirk Shields (Case No. 17-5236-PET, Oct. 3, 2018); 4th Supplemental Prefiled Direct Testimony of Kirk Shields (Case No. 17-5003-PET, Sept. 25, 2018).

Regarding circuit evaluations for interconnections, GMP completes necessary analysis pursuant to Rule 5.500 to assure that a DER project can connect to the system with no adverse impacts to safety or reliability. Each study identifies required upgrades that must be completed prior to interconnection. The costs of the required upgrades are generally the responsibility of the developer. In the past three years, GMP has evaluated 86 individual circuits for interconnection. All of these circuits have potential or probable capital expenditures associated with the interconnection (and for many projects, these upgrades have been completed).

GMP decided to do a Solar Map so it can be used by distributed generation developers. The Solar Map displays, for any given location, the distribution circuit that is closest to a proposed development, the amount of generation presently connected to the circuit, and proposed generation queue information for the circuit.

The map depicts areas as red, green and yellow with red being undesirable (likely more costly for the developer) and green more desirable for future DER locations.

Person/s Responsible for Response: Josh Castonguay, John Fiske, Kim Jones
Title of Person/s: VP & Chief Innovation Executive and Power Supply; Leader of Engineering; Planning Manager
Date: October 8, 2018

Q:PSD:GMP.1.35. Please provide a summary of the number of substation transformers that have reached capacity limits for distributed generation, the status of GMP's policy for determining such limits, and any steps GMP is taking to address these limits (including but not limited to upgrading equipment, targeting of flexible loads, exploring tariff solutions, etc.).

A:PSD:GMP.1.35. Currently GMP has 5 substation transformers where the active and proposed distributed generation ("Distributed Generation") has exceeded the top nameplate rating of the substation transformer. Once Distributed Generation on a substation transformer has reached the top nameplate rating of the transformer, GMP advises all future interconnection applicants above 15 kW AC that the transformer has reached capacity and, in addition to any other necessary upgrades identified in the interconnection studies, they will need to design the system so that no power is exported during solar hours or pay to upgrade the substation to increase transformer capacity. This approach allows additional Distributed Generation to proceed without risking adverse impact to system stability and reliability.

Person/s Responsible for Response: Josh Castonguay, John Fiske
Title of Person/s: VP & Chief Innovation Executive and Power Supply; Leader of Engineering
Date: October 8, 2018

Q:PSD:GMP.1.36. Please state whether GMP has performed an assessment of the customer resource potential and related value (in dollars, system benefits, or avoided costs) and their load characteristics on each distribution circuit (using AMI data and relevant SCADA data) to identify the potential for distribution or bulk power relief provided by storage (customer side of the meter) or the use of load management or storage in order to reduce the need for future capital expenditures triggered by DER development or circuit-specific load growth. If yes, please provide copies of any such analysis.

A:PSD:GMP.1.36. We have not analyzed or performed assessments for DER development, but we do review for circuit specific load growth when the need arises. For most circuits, GMP is no longer experiencing any load growth. We recently had one area on the systems, Hinesburg, that had the potential to experience growth. GMP performed an alternatives review and filed this analysis with the PUC showing that the need could be met with energy storage as opposed to a substation. See Attachment GMP.DPS1.Q34. As noted in response to DPS Question 34, GMP recently agreed to perform a circuit level analysis for any newly-proposed storage project greater than 1 MW, as a part of its settlement with the DPS in three pending JV Solar Storage projects in Milton, Ferrisburgh, and Essex. For each such project, GMP has also agreed to perform an individual analysis to evaluate the project's value streams, expected cost, and alternatives. *See* Supplemental Prefiled Direct Testimony of Kirk Shields (Case No. 17-5236-PET, Oct. 3, 2018); 4th Supplemental Prefiled Direct Testimony of Kirk Shields (Case No. 17-5003-PET, Sept. 25, 2018).

Person/s Responsible for Response: Josh Castonguay
Title of Person/s: VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.37. Please state whether GMP has analyzed the combination of avoided energy (including both distribution losses and LMPs) and distribution capacity benefits in coordination as part of its distribution planning efforts. If so, please provide the locations where bulk power and distribution level benefits coexist and describe the methodology for the assessment.

A:PSD:GMP.1.37. GMP's distribution planning efforts utilize avoided energy, avoided demand and avoided T&D to calculate annual distribution transformer loss formulas to purchase transformers with the lowest life-cycle costs. These avoided costs are also utilized when purchasing substation transformer units, sizing conductors on sub-transmission and distribution and evaluating benefits associated with a new substation or circuit reconfiguration project. When GMP evaluates battery storage it considers many factors such as avoided cost benefits (e.g. energy, capacity, transmission, and Frequency Regulation) and, where appropriate, potential T&D deferral benefits related to specific battery locations. In general, unless the storage device is being viewed in the context of a specific T&D need, GMP does not assume any deferral benefits in its analyses. As noted in response to DPS Question 34, GMP has recently agreed to perform a circuit level analysis for any newly-proposed storage project greater than 1 MW, as a part of its settlement with the DPS in three pending JV Solar Storage projects in Milton, Ferrisburgh, and Essex. For each such project, GMP has also agreed to perform an individual analysis to evaluate the project's value streams, expected cost, and alternatives. *See* Supplemental Prefiled Direct Testimony of Kirk Shields (Case No. 17-5236-PET, Oct. 3, 2018); 4th Supplemental Prefiled Direct Testimony of Kirk Shields (Case No. 17-5003-PET, Sept. 25, 2018).

Person/s Responsible for Response: John Fiske, Andrew Quint, Josh Castonguay
Title of Person/s: Leader of Engineering; Power and Markets Analyst; VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Q:PSD:GMP.1.38. Please refer to Page 42 of Mr. Otley's Direct Testimony. Please describe the landscape of software solutions GMP is currently using to manage distributed energy resources and whether GMP anticipates the number of solutions utilized to grow as technologies proliferate – many of which many come bundled with proprietary software. Please describe how GMP intends to manage this potential proliferation, both to simplify operations and reduce costs (near-term subscription and longer-term software integration costs), while not limiting the types of technologies that can participate in the system.

A:PSD:GMP.1.38. Most device manufacturers have already, or are planning to, implement their own proprietary software for their own distributed resources. It became quickly apparent that this DER-specific control model is confusing and inefficient for utility partnerships. For this reason, GMP looked for a system that could manage a variety of DERs and ultimately implemented the Virtual Peaker platform which mitigates much of this inefficiency. Virtual Peaker allows GMP to consolidate several different DERs/device types onto one platform to manage our distributed resources effectively for customers. This includes, battery systems, heat pumps, water heaters, heat pump water heaters, EV chargers, and if/when necessary, smart thermostats. GMP is also utilizing Tesla's Grid Logic platform for the management of the Tesla Powerwall 2.0s. Part of GMP and Tesla's partnership is to utilize, evaluate, and increase functionality of the Grid Logic platform together. GMP manages the potential proliferation of proprietary platforms by choosing partners that are flexible and understand GMP's need to streamline these operations. It should also be noted that there is an entire business segment with the sole purpose of making management of distributed assets easier for utilities. So, while GMP is making strategic decisions based on the flexibility of partners, it is becoming much less an issue than we once thought it would be since the industry is catching up. Because of Virtual Peaker's ability to integrate with any device type utilizing an Application Programming Interface ("API"), GMP is not concerned about there being a limit on the types of technologies that can participate in the system. The platform is designed to be flexible and can manage a variety of DERS making the system quite suitable for utility needs.

Person/s Responsible for Response: Brian Otley, Mark Dincecco
Title of Person/s: Senior VP and Chief Operations Officer; Director, Information and Technology
Date: October 8, 2018

Q:PSD:GMP.1.39. Please refer to pages 33, 35, and 42 of Mr. Otley's direct testimony. Please describe the steps GMP is taking to evaluate and ensure the cybersecurity of shared access devices controlled through cloud software solutions.

A:PSD:GMP.1.39. GMP takes the security of our energy system and our customers' connections to it very seriously. Cyber threats are ever present and evolving and we are humble to the fact that it is not possible to 100% guarantee a security incident won't occur. With that in mind, our goal is to protect against every threat we possibly can, while also being vigilant in identifying, responding to and isolating any threat that may occur as quickly and with as little operational impact as possible.

GMP performs thorough evaluation and testing with any suppliers of DERs that might interact with or connect to our systems before allowing them to connect, including any cloud-to-cloud or cloud-to-data center integrations. As well, GMP makes yearly investments in cybersecurity tools and devices to protect our control infrastructure. We also perform regular audits with private security firms and the US Dept. of Homeland Security to assess and evolve our security postures. As well, we contract with private firms to do penetration testing of our physical and virtual resources in order to identify and repair vulnerabilities in our cybersecurity controls before they get exploited. Cybersecurity is an on-going, never ending, and critical obligation for GMP and our customers.

Person/s Responsible for Response: Mark Dincecco
Title of Person/s: Director, Information Technology
Date: October 8, 2018

Q:PSD:GMP.1.40. Please refer to page 30 of Mr. Otley's Direct Testimony. Please describe if and how GMP is considering innovative metrics related to grid modernization (under broad categories such as reliability, resilience, flexibility, sustainability, affordability, and security) beyond those captured in Exhibit GMP-BO-4 in order to align with state energy policy and create a more modern grid.

A:PSD:GMP.1.40. GMP has been researching, piloting and implementing grid modernization technologies and capabilities for the past several years as a part of our commitment to partner with customers to deliver low cost, low carbon and highly reliable energy today and beyond. For the purposes of the MYRP, we have recommended a limited list of shadow measures related to grid modernization as a starting point to transition the traditional SQRP measures to a new set that might be more relevant to the operational challenges and objectives in the years ahead. As stated in testimony, we are open to discussing these with the Department and other parties.

Person/s Responsible for Response: Brian Otley, John Fiske
Title of Person/s: Senior VP and Chief Operations Officer; Leader of Engineering
Date: October 8, 2018

Q:PSD:GMP.1.41. Please refer to page 29, lines 12–14 of Mr. Otley's Direct Testimony. Please state the total amount of payments to individual customers that GMP has made as a result of the SQRP Service Guarantees for the past three years. If such information is available to GMP, please also provide a breakdown of the individual customer payments that GMP has made by metric from the SQRP.

A:PSD:GMP.1.41. From the beginning of 2015 through Sept. 18, 2018, a total of $55,750 has been paid to customers as a result of SQRP Service Guarantees. Of that figure, $54,300 was due to billing errors, $900 due to payment posting errors, and $550 due to late jobs. Attachment GMP.DPS1.Q41 shows the number of customers affected by year, and breaks down the payments by guarantee type annually. As you can see in the exhibit, in 2016, there were a significantly higher number of payments made than in other years, related to billing. This was due in significant part to a mailing problem with a GMP vendor, affecting hundreds of accounts on one day. The vendor subsequently reimbursed GMP for the resulting guarantee payments (customers were not charged).

Person/s Responsible for Response: Steve Costello
Title of Person/s: VP, Customer Service
Date: October 8, 2018

Q:PSD:GMP.1.42. Please refer to page 34, lines 3–6 of Mr. Otley's Direct Testimony. Please identify the innovative services that GMP has offered to date that "prove out" as that phrase is used by Mr. Otley in his testimony. Please also list all current active pilots and any pilots that did not "prove out."

A:PSD:GMP.1.42. GMP's active pilots include the following: Tesla Powerwall 2.0, eWater, Bring Your Own Device (BYOD), EV Home Charging, Heat Pump – VSECU, Heat Pump Water Heater – VSECU, Heat Pump Water Heater – VSECU. GMP uses the pilot activity to evaluate whether a product or service is successful based on economics, customer feedback, participation controllability, and whether it fits into GMP's overall strategic plan. To date, there are three pilots that are no longer in operation. These include the original Heat Pump and Heat Pump Water Heater pilots as well as the ConnectDER pilot. Each one of these pilots were worthwhile and provided valuable lessons. GMP is now working towards advancing the Heat Pump and Heat Pump Water Heater pilots to tariffs. The ConnectDER pilot expired and GMP will not be pursuing a tariff offering for this program.

Person/s Responsible for Response: Brian Otley, Josh Castonguay, Craig Ferreira
Title of Person/s: Senior VP and Chief Operations Officer; VP & Chief Innovation Executive and Power Supply; Innovation Champion
Date: October 8, 2018

Q:PSD:GMP.1.43. Please refer to pages 34 and 35 of Mr. Otley's direct testimony, where Mr. Otley describes third-party partnerships. Please describe GMP's process for ensuring that any third-party partners have the requisite experience and competence to participate with GMP in an applicable program.

A:PSD:GMP.1.43. GMP assesses potential partners prior to embedding them into any of our programs. For more significant potential partnerships, our assessment begins with research to check on a company's financial and liability standing depth of skill and certifications and reputation in the local market, including any litigation they may have been involved in with customers. Once that is done, we also limit initially the amount of work they receive within our pilot or program in order to monitor actual performance with GMP customers before we consider them a full partner.

Person/s Responsible for Response: Brian Otley
Title of Person/s: Senior VP and Chief Operations Officer
Date: October 8, 2018

Q:PSD:GMP.1.44. Please refer to Exhibit GMP-BO-1, Page 6 of 21, which cites the age of the Lowell 34.5/46 kV transformer as being 43 years and notes that a project involving this, and other substation components will be undertaken at a cost of $2M. With respect to this project will [it]:

a. Include refurbishment, replacement, or other upgrade of the Lowell 15/20 MVA 34.5/46 kV transformer?

b. Involve a higher transformer capacity than 15/20 MVA?

A:PSD:GMP.1.44.

a. and b. Yes. This project will include the replacement of the existing 15/20 MVA transformer with a new 20/26.6/33.2 MVA transformer.

Person/s Responsible for Response: John Fiske
Title of Person/s: Leader of Engineering
Date: October 8, 2018

Q:PSD:GMP.1.45. Please refer to Exhibit GMP-BO-1, Page 8 of 21, which cites a project to reconductor the 34.5 kV line between Johnson and Eden Corners substations, describing it as a reliability project. On pages 8-9 of 21 (FY2022) Mr. Otley cites a project to reconductor the 34.5 kV line between Eden Corners and Lowell substations, describing it too as a reliability project. What is the expected combined effect of these two thermal line upgrades on SHEI generation curtailments?

A:PSD:GMP.1.45. Prior to the Northern Vermont Export Study[1] ("NVES") which studied identified and compared solutions to the Sheffield Highgate Export Interface ("SHEI") constraints, this Project was planned to address asset management and reliability as explained in the Exhibit GMP-BO-1, pages 8-9. According to the NVES for the "all lines in" case reconductoring, the B20 line will increase the SHEI voltage limit by 35 MW. It will increase the SHEI thermal limit by 15MW. The reconductoring also resulted in a positive impact on the SHEI limit under contingency scenarios.

Person/s Responsible for Response: John Fiske
Title of Person/s: Leader of Engineering
Date: October 8, 2018

[1] https://www.vermontspc.com/library/document/download/5995/VELCO_SHEI_Study_FinalReport.pdf

Q:PSD:GMP.1.46. If GMP also plans to increase the Lowell 34.5/46 kV transformer capacity by means of refurbishment, replacement, or other upgrade, what is the expected combined effect of all three of these thermal upgrades on SHEI generation curtailments?

A:PSD:GMP.1.46. The NVES study did not isolate the individual benefits of each of the following projects: Lowell 34.5/46 kV transformer, Johnson to Eden Corner reconductoring, and Eden Corners to Lowell reconductoring. Rather, it identified the combined benefits of the three projects. For the combined benefit of the three identified projects to the SHEI constraint, please see response 45 above.

Person/s Responsible for Response: John Fiske
Title of Person/s: Leader of Engineering
Date: October 8, 2018

Q:PSD:GMP.1.47. For the current MYRP period, what is GMP's anticipated lost energy production and associated revenue loss attributable to SHEI generation curtailment?

Objection: GMP reasserts General Objections 5 and 8. Given the ongoing inquiries by the Public Utility Commission and Vermont System Planning Committee concerning the SHEI, the request for GMP's anticipated lost energy production and revenue calls for speculation. Moreover, calculating those items would require GMP to conduct additional studies and analyses. Without limiting or waiving this objection, GMP responds as follows.

A:PSD:GMP.1.47. GMP has estimated that during the 2019 rate period (January 2019 through September 2019), congestion of the SHEI transmission constraint will cause the loss of about 14,700 MWh of generation (primarily from Kingdom Community Wind; this figure reflects the total plant including VEC's roughly 12.7% share of output), and a reduction of about $1.4 million in energy revenues (through negative congestion) for sources that deliver within the SHEI area (primarily GMP's share of the long-term HQUS PPA, along with the Kingdom Community Wind plant and a PPA for the output of the Sheldon Springs hydro plant). These figures were developed by adjusting historical lost generation estimates and congestion figures to reflect the planned deployment of Automatic Voltage Regulation capability at the Sheldon Springs hydro plant, which is expected to increase the SHEI limits in some conditions. We also assumed that one major transmission outage (Essex Statcom refurbishment in 2017) would not recur in the near future.

Actual lost generation and reduced market revenues associated with SHEI congestion during the MYRP period will depend on outcomes for a range of factors that include (but are not limited to) actual wind and hydroelectric conditions; energy spot market prices during times when SHEI is congested; and the frequency and depth of SHEI limit reductions due to outages of transmission system elements.

GMP has not yet developed a detailed estimate of lost generation and reduced generation revenues associated with congestion of the SHEI for subsequent years. We expect that annual updates of net power costs will be informed by additional experience with SHEI congestion, and potentially the expected deployment of additional cost-effective solutions to increase the SHEI limits.

Person/s Responsible for Response: Doug Smith
Title of Person/s: Chief Power Supply Executive
Date: October 8, 2018

Q:PSD:GMP.1.48. For the current MYRP period, what remedial measures and associated capital costs does GMP anticipate undertaking for the avoidance of future SHEI generation curtailments (including but not limited to increased payments to VELCO for the same purpose)?

Objection: GMP reasserts General Objections 5 and 8. Given the ongoing inquiries by the Public Utility Commission and Vermont System Planning Committee concerning the SHEI, the request for GMP's anticipated mitigation measures and their costs calls for speculation. Moreover, identifying and calculating those items would require GMP to conduct additional studies and analyses. Without limiting or waiving this objection, GMP responds as follows.

A:PSD:GMP.1.48. First, GMP has initiated (in collaboration with plant owner Enel) the deployment of Automatic Voltage Regulation (AVR) at the Sheldon Springs hydro plant. Our current expectation is that this project will be operational by 2019, and will reduce the amount of lost generation and reduced energy revenues that GMP experiences during some conditions during 2019 and future years.

GMP is presently participating in a working group with other Vermont utilities to identify and evaluate potential solution measures – which include (but are not necessarily limited to) those identified in the Northern Vermont Export Study. That study can be found here: (https://www.vermontspc.com/library/document/download/5995/VELCO_SHEI_Study_FinalReport.pdf). The potential solution measures include the installation of specific equipment (e.g., AVR at the Sheffield wind plant; a synchronous condenser or battery storage at Highgate); subtransmission system upgrades like reconductoring the "B-20" and "B-22" lines; building or shifting load; and bulk transmission upgrades such as reconductoring the "K-42" Highgate-St. Albans line. GMP anticipates that one or more additional measures will be deployed; the most appropriate combination of additional measures has not yet been identified.

Person/s Responsible for Response: Doug Smith
Title of Person/s: Chief Power Supply Executive
Date: October 8, 2018

Q:PSD:GMP.1.49. Please refer to Exhibit GMP-BO-1, Page 6 of 21, which cites a project to replace breakers at Richmond substation. How will in-kind breaker replacements provide the cited reliability improvements at Richmond and Bolton substations?

A:PSD:GMP.1.49. These breakers are not "in-kind replacements" rather they are the addition of breakers to the Richmond Substation. While Exhibit GMP-BO-1, Page 6 of 21, stated that the Richmond Substation Project breakers would be replaced, we should have stated that the breakers would be added. In a later sentence, GMP correctly stated that "[t]he upgrades to the substation would be comprised of *adding* two breakers, associated relaying and control house" See Exhibit GMP-BO-1, Page 6 of 12.

Person/s Responsible for Response: John Fiske
Title of Person/s: Leader of Engineering
Date: October 8, 2018

Q:PSD:GMP.1.50. Please refer to Exhibit GMP-BO-1, Page 7 of 21, which cites a project to replace one breaker and add two new breakers at Highbridge substation and describes it as being primarily for reliability. What is the protective function of the two new breakers and how will they improve reliability?

A:PSD:GMP.1.50. The proposed additional two breakers' protective line segments are Highbridge to Lafayette and Highbridge to Ascutney. For the existing system a fault on either of these two-line segments would trip the GMP Ascutney B-20, GMP Lafayette Street B-20 and the VELCO Windsor H22, opening up the existing four terminal 46 kV network at Highbridge. This would result in loss of power to Coy Paper and to over 3,000 customers fed off the Windsor Distribution Substation and could result in power quality impacts to customers fed from the 46kV subtransmission adjacent to the Highbridge bus. These breakers will isolate line faults so the Highbridge 46 kV bus stays energized therefore improving reliability to the customers fed off the Windsor Distribution substation, Coy Paper Generation facility and the 46kV networked subtransmission system.

Person/s Responsible for Response: John Fiske
Title of Person/s: Leader of Engineering
Date: October 8, 2018

Q:PSD:GMP.1.51. Please refer to Exhibit GMP-BO-1, Page 8 of 21, which cites a project to reconductor the Gorge-McNeil 34.5 kV 3309 line due to overloading at existing load levels for loss of the East Avenue 115/34.5 kV transformer and possibly other first contingencies. Given the lack of recent load growth, why is this thermal reliability problem suddenly emerging now?

Objection: GMP reasserts general objection 5. Characterizing the overloading as "suddenly emerging" is argumentative and requires GMP to adopt a premise that lacks support. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.51. The potential reliability issue for the 3309 line McNeil to Gorge is not suddenly emerging. The thermal concern has been identified as a potential reliability issue in the last three Vermont Long-Range Transmission Plans (2012, 2015, and 2018).[2] These thermal overloads are the result of system contingencies and not growth.

Person/s Responsible for Response: John Fiske
Title of Person/s: Leader of Engineering
Date: October 8, 2018

[2] We recognize that Exhibit GMP-BO-1 stated that the issue was identified in the most recent long range plan and did not note that it had been identified in previous long-range plans.

Q:PSD:GMP.1.52. Brian Otley's Exhibit BO-1 cites various planned hydro plant upgrades on pages 10-13 of 21 for fiscal years 2020, 2021, and 2022. Several of these efforts appear to require multiple planned outages of the same hydro facility at different times. For example, Dewey Mills is scheduled to come out of service in FY2020 for electrical upgrades and then again in FY2022 for turbine and surge tank maintenance or repairs. Can GMP perform all planned Dewey Mill operations at the same time to reduce loss of hydro production? Do other planned hydro outages offer similar opportunities?

A:PSD:GMP.1.52. The Dewey's Mills hydro station will require a phased outage due to the unique site access conditions and requirement for overhead (crane) work required for all work for each of the above-referenced projects. This station is located at the toe of the dam, is accessed by stairs, a walkway and a 'submarine' door to enter the plant. Supply and removal all of materials, equipment and tools is provided through a removable roof in the plant utilizing a crane and associated rigging to safely perform the work. Additionally, the internal layout of the plant and working area is extremely limited and includes multiple levels of where work will be performed, tight access, and elevated cabinet locations. These features create safety challenges and limit the work to either large capital mechanical or electrical upgrades at one time.

Due primarily to safety challenges, GMP has proposed completing the electrical upgrades in 2020 and combining the surge tank and mechanical overhaul in 2022. We concur this is not ideal and prefer to complete multiple projects within one extended outage, but site conditions at this hydro station require a phased approach.

Other planned hydro projects can provide opportunities to combine projects to limit loss of hydro production if the work can be safety completed. For example, the recently completed FERC projects in Waterbury and Huntington included electrical, mechanical and structural upgrades, each within one extended outage.

It is important to note that "electrical upgrades" typically encompass several scopes of work. GMP has intentionally layered these scopes to ensure reduced outage durations. In addition, efficiencies are gained in the engineering, procurement and installation when multiple electrical deficiencies are grouped together vs. phased over time. Examples of the electrical scopes include: Station Service, GSU, GSU protection, Turbine Control, Switchgear, AC & DC systems, and excitation upgrades.

Person/s Responsible for Response: Jason Lisai
Title of Person/s: Director, Generation Operations
Date: October 8, 2018

Questions in Response to Testimony of Doug Smith

Q:PSD:GMP.1.53. Please provide all supporting work papers, documentation and spreadsheets utilized by Mr. Smith in the preparation of his Direct Testimony and Exhibits. Please provide all spreadsheets with cell formulas intact.

A:PSD:GMP.1.53. Please see the answer to question PSD:GMP.1.1 above.

Person/s Responsible for Response: Doug Smith
Title of Person/s: Chief Power Supply Executive
Date: October 8, 2018

Q:PSD:GMP.1.54. Please provide the analysis, documentation, and studies performed by Mr. Smith and others at GMP that support the following statement from Mr. Smith's Direct Testimony on page 27:

> **A review of actual Power Supply Adjustor results for the past five years indicates that the cumulative results for GMP and our customers would have been very similar, with less volatility from year to year. While the historical results by definition reflect a finite sample period that may not reflect the range of potential future outcomes, this result supports our view that the proposed design will be a significant improvement over the status quo for both customers and GMP, without a large shift of value between GMP and our customers.**

Provide all supporting spreadsheets with cell formulas intact.

A:PSD:GMP.1.54. Please see Attachment GMP.DPS1.Q54. As shown in the tab "Annual Summary" the estimated net income impacts (associated with changes in revenue, net power supply costs, and power supply adjustor collections/returns) under the current and proposed power adjustor structures during the historical period would have been very similar.

Person/s Responsible for Response: Doug Smith, Rob Bingel
Title of Person/s: Chief Power Supply Executive; Manager, Forecasting & Analytics
Date: October 8, 2018

Q:PSD:GMP.1.55. Please provide all supporting documentation for Mr. Smith's statement on page 36 of his Direct Testimony:

> **Overall the forecast has performed reasonably well. Over the past 10 years GMP's actual annual sales (weather-adjusted) have typically turned out within one percent of the prior year's Itron forecast and have averaged about 0.9 percent below forecast. Much of the under-forecast is attributable to factors that are fairly well understood—most notably the national recession and the loss of a significant industrial customer due to a fire in 2008, and economic growth in Vermont turning out consistently lower than was forecasted by third parties.**

Please provide all analyses, including spreadsheets with cell formulas intact.

A:PSD:GMP.1.55. Please see the answer to question PSD:GMP.1.1 above.

Person/s Responsible for Response: Doug Smith
Title of Person/s: Chief Power Supply Executive
Date: October 8, 2018

Questions in Response to Testimony of James Coyne

Q:PSD:GMP.1.56. Please provide all work papers and supporting documentation used in the preparation of Mr. Coyne's Direct Testimony, Appendices, and Exhibits. Provide all spreadsheets with cell formulas intact. Include the spreadsheet versions of Mr. Coyne's exhibits will cell formulas intact.

A:PSD:GMP.1.56. Appendix B to Mr. Coyne's testimony in this case is based largely on his testimony in Case No. 18-0974-TF. Thus, Mr. Coyne has provided the majority of the requested workpapers and supporting documentation in response to question 24 from DPS's First Set of Discovery Requests in that case. The remainder are provided as Attachments GMP.DPS1.Q56.1 through GMP.DPS1.Q56.6.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.57. Provide all copies of documents cited by Mr. Coyne in his Direct Testimony, including those cited in all footnotes.

Objection: GMP reasserts General Objection 3. Many of the documents cited by Mr. Coyne are publicly available documents and are thus available to the Department from other sources that are more convenient, less burdensome, or less expensive.

A:PSD:GMP.1.57. Mr. Coyne has provided copies of the requested cited documents in Attachments GMP.DPS1.Q57.1 through GMP.DPS1.Q57.42.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.58. Please provide all the supporting materials Mr. Coyne reviewed in the preparation of his Exhibit GMP-JMC-3.

A:PSD:GMP.1.58. Mr. Coyne has provided all the supporting materials reviewed in preparation of his Exhibit GMP-JMC-3 in his response to question PSD:GMP.1.56, Attachments GMP.DPS1.Q56.3 through GMP.DPS1.Q56.6.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.59. To the extent not provided previously, please provide all supporting work papers, documents, and spreadsheets that support the percentages cited by Mr. Coyne in his Direct Testimony on page 16, line 3 through page 17, line 9.

A:PSD:GMP.1.59. The referenced percentages are found on Exhibit JMC-3 (row 82), and are calculated by counting the number of proxy operating companies with the specific attribute and dividing by the total number of proxy operating companies. The source materials for this Exhibit have been provided in response to question PSD:GMP.1.56, Attachments GMP.DPS1.Q56.3 through GMP.DPS1.Q56.6.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.60. To the extent not provided previously, please provide the supporting documentation for the utilities operating with either full or partial revenue decoupling, as referred to by Mr. Coyne on page 16 of his Direct Testimony.

A:PSD:GMP.1.60. The source documentation used to determine whether the proxy group operating utilities operate under either full or partial revenue decoupling has been provided in response to question PSD:GMP.1.56 as Attachment GMP.DPS1.Q56.3.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.61. To the extent not provided previously, please provide the supporting documentation for the 14% of utilities operating with multi-year rate plans, as referred to by Mr. Coyne on page 16 of his Direct Testimony. Please provide documentation containing the actual multi-year rate plans for each company if available to Mr. Coyne or GMP.

Objection: GMP reasserts General Objection 3 to the extent that the documents requested is publicly available and is thus available to the Department from other sources that are more convenient, less burdensome, or less expensive.

A:PSD:GMP.1.61. Mr. Coyne determined that 14% of the proxy group operate under multi-year rate plans, by relying on research conducted by SNL Regulatory Research Associates subscription website and the source documents provided in response to question PSD:GMP.1.56 as Attachments GMP.DPS1.Q56.3 through GMP.DPS1.Q56.6. Mr. Coyne does not have access to and has not reviewed the actual approved multi-year rate plans for the proxy group operating companies.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.62. To the extent not provided previously, please provide the supporting documentation for the 64% of utilities operating with "additional incentives for achieving service quality targets or shared savings", as referred to by Mr. Coyne on page 16 of his Direct Testimony. Please provide documentation containing the service quality plans and targets for each company if available to Mr. Coyne or GMP.

A:PSD:GMP.1.62. Mr. Coyne determined that approximately 64% of the proxy group utilities are operating with either "additional incentives for achieving service quality targets or shared savings", by relying on research conducted by SNL Regulatory Research Associates online subscription service and the source documents provided in response to question PSD:GMP.1.56 as Attachments GMP.DPS1.Q56.3 through GMP.DPS1.Q56.6. Mr. Coyne does not have access to and has not reviewed the actual service quality plans or targets for each operating company.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.63. To the extent not provided previously, please provide the alternative regulation plans in Massachusetts and New York reviewed by Mr. Coyne and referred to on page 19 of his Direct Testimony. Include the Eversource and National Grid plans with source documents, Commission Orders, and other materials reviewed by Mr. Coyne.

Objection: GMP reasserts General Objection 3. The documents requested are publicly available documents and are thus available to the Department from other sources that are more convenient, less burdensome, or less expensive.

A:PSD:GMP.1.63. The requested information pertaining to the alternative regulation plans in Massachusetts and New York to which Mr. Coyne referred on page 19 of his Direct Testimony has been provided in response to question PSD:GMP.1.57, Attachments GMP.DPS1.Q57.6 through GMP.DPS1.Q57.7, and Attachment GMP.DPS1.Q57.41.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.64. To the extent not provided previously, please provide the supporting documents reviewed by Mr. Coyne relating to the ROE adjustment mechanism used by the Ontario Energy Board and referred to on pages 43 and 44 of his Direct Testimony.

Objection: GMP reasserts General Objection 3. The documents requested are publicly available documents and are thus available to the Department from other sources that are more convenient, less burdensome, or less expensive.

A:PSD:GMP.1.64. Mr. Coyne has provided the requested documents that he reviewed and relied upon relating to the ROE adjustment mechanism used by the Ontario Energy Board as Attachments GMP.DPS1.Q64.1 through GMP.DPS1.Q64.3.

Person/s Responsible for Response: Jim Coyne
Title of Person/s: Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Questions in Response to Testimony of Edmund Ryan

Q:PSD:GMP.1.65. Please provide GMP's historical capital structure for the last 10 years. Please show debt and equity components separately.

Objection: GMP reasserts General Objection 1. The request for 10 years of data is overbroad, burdensome, and not proportional to the needs of the case, and it would require extensive effort to prepare this information for periods prior to the GMP and CVPS merger. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.65. See Response DPS1.Q66, below.

Person/s Responsible for Response: Dawn Bugbee
Title of Person/s: Chief Financial Officer
Date: October 8, 2018

Q:PSD:GMP.1.66. Please refer to Page 5 of Mr. Ryan's direct testimony, when Mr. Ryan indicates that a 50/50 debt equity split is needed to maintain a strong equity rating. Please respond to the following requests:

a. How has that capital structure of GMP (and the combination of CVPS and GMP before the consolidation) changed over the last 12 years.

b. Please cite the basis for the statement that "previous Commission decisions, including the merger order in Docket 7770," is in the "middle of the range supported" by previous Commission decisions.

c. Please state whether GMP believes its proposed split between debt and equity is consistent with its peer utilities. If yes, please provide a basis for this assertion. If not, please state why GMP believes a different debt/equity ration from peer utilities is necessary to maintain a strong equity rating.

Objection: GMP reasserts General Objections 1, 6 and 8. The request for 12 years of data is overbroad, burdensome, and not proportional to the needs of the case, and it would require extensive effort to prepare this information for periods prior to the GMP and CVPS merger. Determining the capital structures of peer utilities would require GMP to conduct additional studies and analyses, which exceeds the bounds of permissible discovery. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.66.

a. The table below shows how GMP's 13-month average debt to equity ratio has changed on an annual basis since the merger of CVPS and GMP. Included in the table is the five-year average along with the min, max, and median values for the time period.

	Actual FY 2013	Actual FY 2014	Actual FY 2015	Actual FY 2016	Actual FY 2017	Average	Min	Max	Median
GMP Actual Capital Structure*									
Total Debt	48.2%	49.64%	50.5%	50.2%	49.0%	49.5%	48.2%	50.5%	49.6%
Total Equity	51.8%	50.36%	49.5%	49.8%	51.0%	50.5%	49.5%	51.8%	50.4%
Total	100.0%	100.00%	100.0%	100.0%	100.0%	100.0%			

* 13 month average included in Annual ESAM Filings

b. A number of decisions address this issue. For example, please see the following decisions regarding capitalization ratios. *In re CVPS et al.*, Docket No. 7770, ¶ 316 (Order of June 15, 2012) (requiring GMP to maintain at least 45% equity). *See also Petition of GMP,* Case No. 18-1412-PET, ¶ 17 (Order of July 20, 2018) (approving petition to issue bonds resulting in debt-to-equity ratio of 50.21% / 49.79%) *In re GMP,* Case No. 17-3112-INV, ¶ 14 (Order of Dec. 21, 2017) (approving equity and 51.4 / 48.6 debt to equity ratio); *Petition of Vermont Gas Systems, Inc.*, Docket No. 8759 (Order of June 15, 2016) (approving petition to issue notes resulting in debt/capitalization ratio of 52.3%); *Investigation into*

Cooperative Electric Utilities Accounting Treatment, Docket No. 7554 (Order of Feb. 3, 2011) (noting VEC debt-to-equity ratio of 38.4%, WEC debt-to-equity ratio of 30.2%); *In re Central Vermont Pub. Serv. Corp.*, Docket No. 6946/6988, ¶ 279 (Order of Mar. 29, 2005) ("CVPS's common and preferred equity ratio is 60 percent, approximately 20 percent higher than the equity ratios of other similarly-situated electric utilities."); *In re Vermont Elec. Power Co., Inc.*, Docket No. 6981 (Order of July 21, 2004) (approving petition to issue shares resulting in pro forma debt-to-equity ratio of approximately 1.9 to 1); *In re Citizens Utilities Co.*, Docket No. 5656 (Order of Jan. 26, 1994) (approving 50-50 debt-to-equity ratio).

c. As Mr. Coyne has indicated on page 40, lines 17-19, "the Company's historical common equity ratio of approximately 50 percent is slightly below the mean common equity ratio of 53.0 to 54.0 percent for the proxy group operating companies over [the four quarters ending Q3 2017]." On page 41, lines 3 through 7, Mr. Coyne concludes: "Based on the analysis presented in **Exhibit GMP-JMC-6**, my conclusion is that a capital structure for Green Mountain Power of 53.0 to 54.0 percent would be appropriate, but that a common equity ratio of 50 percent is adequate. Sufficient equity in the capital structure is an important factor for maintaining the Company's financial integrity and an investment grade credit rating." A 50.0 percent equity ratio is within the range of risk-comparable companies in GMP's proxy group, as indicated by Mr. Coyne.

Person/s Responsible for Response: (a)–(b). Eddie Ryan, Karen Young, Dawn Bugbee; (c) Eddie Ryan, Karen Young, Dawn Bugbee, Jim Coyne
Title of Person/s: Controller; Budget/Forecasting Supervisor; Chief Financial Officer; Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.67. Please refer to page 6 of Mr. Ryan's Direct Testimony, where Mr. Ryan discusses debt forecasting, for the following requests:

a. Please state why GMP believes that it is necessary to forecast debt on annual basis;

b. Please state whether debt forecasts can be forecasted upfront for the entire term of the proposed multi-year rate plan;

c. What, if any, would be the consequences of GMP's failure to updated the costs of forecasted debt?;

d. Is GMP aware of any other multi-year rate plans that require an update to forecast of debt costs?

A:PSD:GMP.1.67.

a. Two critical components to forecasting debt are the debt to equity ratio and the weighted average cost of debt. The debt component of the capital structure can fluctuate between 49% and 51% during the term of the Multi-Year Regulation Plan (MYRP) and actual interest rates over the three-year period will differ from most current 3-year forecast of interest rates. Failing to forecast these items on an annual basis would increase the likelihood the interest expense collected from customers through rates would be out of line with GMP's actual interest expense.

b. The debt components can be forecasted upfront for the entire term of the proposed Multi-Year Regulation Plan, but in GMP's view should not be. The longer the forecast horizon, the greater the likelihood there will be variability between the forecasted and actual results. Annual adjustments are appropriate to prevent this.

c. The consequences would be an over or under collection of interest expense from customers. Dependent upon the magnitude of the change, the variance could be captured in the Earnings Sharing Adjustments Mechanism calculation. Based on GMP's 2019 Rebuttal Filing ratebase and capital structure, on an annualized basis a 1% increase or decrease in the debt component of GMP's capital structure would result in an over- or under-collection of $1.27M

d. Yes. The Ontario Energy Board requires an update to forecast debt costs.

Person/s Responsible for Response: (a)–(d): Eddie Ryan, Karen Young, Dawn Bugbee; (d) Jim Coyne
Title of Person/s: Controller; Budget/Forecasting Supervisor; Chief Financial Officer; Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.68. Please refer to page 6 of Mr. Ryan's Direct Testimony regarding capped depreciation expense. Please state whether it is GMP's position that the capped depreciation expense proposed is consistent with the cap on capital expenditures proposed under the plan.

a. If not, please explain why not;

b. If yes, please explain the relationship between the capped depreciation levels and the capital expenditures;

c. Please explain (by way of an example) how a capital spending of $10 million less than the projected $85 million per year will impact the following different components of costs that appear on income statement and determine eligible returns.

i. Depreciation expense levels

ii. Other components of the required cost of service, including

1. Debt costs

2. Property tax levels

3. Income Taxes

4. Any other components of the cost of service

d. Please explain (by way of an example) how a $10 million reduction would affect the following:

i. Equity return before and after taxes (before the ESAM)

ii. Equity rates of return before and after taxes (before the ESAM)

iii. Equity return before and after taxes (after the ESAM)

iv. Equity rates of return before and after taxes (after the ESAM).

A:PSD:GMP.1.68.

Yes, it is GMP's position that the capped depreciation expense proposed will be consistent with the cap on capital expenditures proposed under the plan. See response to PSD.GMP.1.15

a. Not applicable.

b. See response to PSD.GMP.1.15.

c. For the purposes of illustrating the impacts of **actual plant additions** being $10 million less than level of plant additions (approximately $85 million under the Multi-Year Regulation Plan) included in a cost of service filing I will use GMP's approved 2018 base rate filing with the following assumptions:

1. The $10 million of plant additions were uniformly spread over the rate period in the cost of service filing resulting in a plant in service 13-month average impact of $5,000,000 (((($833,333 + $1,666,666 + $2,500,000 ….. + $10,000,000) / 13).

2. The $10 million of plant additions represented a cross section of capital projects resulting in an average depreciation accrual rate of 3% which was calculated from the 2018 filing by dividing the rate period depreciation expense of $55 million by the rate period 13-month average plant in service balance of $1,803 million. The cross-section approach is important to the analysis since different specific additions could have different expected lives and therefore different depreciation schedules and other derivative impacts on the cost of service

3. The accumulated deferred income taxes (ADIT) associated with the $10 million of plant additions was calculated to be 16% of the 13-month average balance or $800,000. The 16% was calculated by dividing the 2018 rate filing rate period ADIT plant related items 13-month average balance ($284 million) by the rate period utility plant in service 13-month average balance ($1,803 million).

4. The effective tax rate is post tax reform rate of 27.715%.

The impacts of **actual plant additions** in a rate period being $10 million less than the plant additions included in the rate period cost of service under these specific assumptions are as follows:

- Depreciation expense is calculated by applying depreciation accrual rates to plant in service balances. This would result in the rate period actual depreciation expense being $150,000 ($5,000,000*3%) less than rate period 2018 cost of service depreciation expense.

- Debt costs are driven by the level of debt incurred to fund plant additions and the interest rate on that debt. If GMP did not have to borrow funds to finance the original/higher amount of debt to cover plant additions, this would result in rate period actual interest expense being less than the rate period 2018 cost of service interest expense. This is estimated to be $122,517 ($5,000,000 (13 month average plant addition)*51.37% (2018 cost of service filing debt component of the capital structure)*4.77% (2018 cost of service filing capital structure average cost of debt).

- Property tax expense is driven by property tax rates and assessed values. Not all plant additions result in an increase in assessed value. See response to PSD.GMP.1.71b. Depending on the plant addition this may result in rate period actual property taxes being less than the rate period

cost of service property taxes. This is estimated to be $81,000 ($5,000,000 (13 month average plant addition)*($29.2 million (rate period property taxes per the 2018 cost of service filing)/$1,803 million (2018 cost of service filing rate period plant in service 13 month average balance).

- Income Taxes are predominately driven by the pre-tax earnings and the effective income tax rate. Since the actual $10 million lower plant addition does not impact the revenue collected from customers but does reduce certain actual expenses, actual pre-tax income would increase income tax expense. The increase in income tax expense is estimated to be $97,977 (($150,000(lower depreciation expense)+$122,517 (lower interest expense)+$81,000(lower property taxes))*27.715% (effective income tax rate))

- Although not an income statement item, return on equity is driven by rate base, the equity component of the capital structure and the return on equity %. Since under the example the actual rate base would be lower than the rate base reflected in the 2018 cost of service, the return on equity collected from customers would be higher than the equity return that would have been collected from customers if the actual lower rate base were included in the 2018 cost of service. This is estimated to be $185,864 (($5,000,000 (13 month average plant addition)-$800,000 (13 month average ADIT))*48.63% (2018 cost of service filing equity component)*9.1% (2018 cost of service filing return on equity)).

d. i & ii. The 2018 cost of service reflected a pre-tax earnings from utility operations of $87,744,009 using the post-tax reform effective tax rate of 27.715% and a net income from utility operations of $63,425,757. Reflecting the impacts of an actual $10 million reduction in plant additions would increase the pre-tax earnings by $353,517 to $88,097,527 and increase the net income by $255.540 to $63,681,297.

The 2018 cost of service reflected a pre-tax return on equity of 12.59% and a post-tax return on equity of 9.10%. Reflecting the impact of an actual $10 million reduction in plant additions would increase the pre-tax return on equity by 0.09% to 12.68% and increase the after-tax return by 0.06% to 9.16%.

iii & iv. The allowed utility net income using the actual rate base and the 2018 cost of service capital structure is $63,239,893. GMP's Multi-Year Regulation Plan proposed ESAM has a 50 basis point dead band above and below the Commission approved ROE net income which equates to plus/minus $3,474.719 of net income. The actual utility net income is $63,681,297 which is $441,404 above the allowed utility net income which would fall within the dead band and there would be no ESAM adjustment.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.69. Please refer to page 6, line 3 through page 8, line 11 of Mr. Ryan's Direct Testimony, where Mr. Ryan discusses GMP's new depreciation study, for the following requests:

a. Please provide a copy of the GMP depreciation study that was completed by GMP in 2013;

b. Please provide the current depreciation study that GMP intends to file in October 2018, if it has been completed;

c. Please provide a summary of the major changes in depreciation rates between the two studies.

d. Please state whether GMP plans to introduce or file the new depreciation rates in a separate proceeding.

A:PSD:GMP.1.69.

a. Please see attachments GMP.DPS1.Q69.1 (2012 Study – Verbiage) and GMP.DPS1.Q69.2 (2012 Study – Curves and Lives) for a copy of the 2012 depreciation study.

b. Although not yet finalized please see attachment GMP.DPS1.Q69.3 (Draft 2017 Depreciation Study) for the current draft of the depreciation study. GMP and their Depreciation Consultant still need to complete internal review of this draft and then consult with the DPS and address any issues and concerns the DPS may have with the draft study. Once this review is completed the Depreciation Study will be finalized and filed with the Commission.

c. Please see below for a summary of the changes between the two studies:

i.	Hydro Generation	$	1,924,596
ii.	Other Generation	$	313,512
iii.	Transmission	$	500,032
iv.	Distribution	$	833,846
v.	General	$	1,927,489
		$	5,499,475

The change in depreciation expense related to the depreciation study was calculated by applying the rates to the asset balances at a point in time. The increase in Hydro Generation is related to the capital investments in our existing fleet as well as planned projects. The increase in General plant is related to

amortization of intangible plant which amortizes certain plant balances over predetermined periods being adjusted to maintain the amortization periods.

d. GMP plans to file the Depreciation study with the Commission by the end of January, 2019 and will propose the new depreciation accrual rates go into effect October 1, 2020, the start of Fiscal Year 2021.

Person/s Responsible for Response: Eddie Ryan, Karen Young, Matt Haley
Title of Person/s: Controller; Budget/Forecasting Supervisor; Manager of Fixed Assets and Fleet
Date: October 8, 2018

Q:PSD:GMP.1.70. Please refer to page 8 of Mr. Ryan's Direct Testimony. Please provide the basis for the forecasted property taxes for 2020, 2021, and 2022. Please provide all supporting documentation and spreadsheets with cell formulas intact.

A:PSD:GMP.1.70. Property tax expenses are forecasted using historical data to determine an inflation factor. Property tax bills from the past six years were analyzed, outliers were removed and an average increase of 5% was determined. That increase was then applied to the last complete fiscal year, which would be FY 2017 and each year after is then increase by an additional 5% to forecast the outer years. Please reference Attachment GMP.DPS1.Q70 for the calculation supporting the change in property tax expense for 2020, 2021, and 2022.

Person/s Responsible for Response: Eddie Ryan, Karen Young, Matt Haley
Title of Person/s: Controller; Budget/Forecasting Supervisor; Manager of Fixed Assets and Fleet
Date: October 8, 2018

Q:PSD:GMP.1.71. With respect to property taxes, please also state the following:

a. GMP's actual property tax levels for the past five years;

b. Describe any increases in property taxes that are attributable to capital investments made by GMP over the past five years.

A:PSD:GMP.1.71.

a. The property tax expense by year is as follows:

FY2013 - $22,227,365

FY2014 - $21,742,057

FY2015 - $23,731,864

FY2016 - $26,410,776

FY2017 - $26,978,880

b. Increases in property taxes could be attributable to capital investments depending on the type of asset. Distribution lines are assessed based on the number of line miles, a value per mile is provided by the State of Vermont, therefore the value would only increase if additional miles of line were added. Hydro-electric facilities are valued using an income approach which incorporates the 10-year average market price and the 10-year average capitalization rate which are provided by the State of Vermont, as a result, a capital investment would not increase the property tax unless the investment increased production output. Capital investments to Distribution Substations, Transmission Lines, and Transmission Substations would result in an increase in property tax assessed value. A capital investment to buildings and structures has the potential to increase the property tax assessed value depending on the change in appraisal by the town assessors.

Person/s Responsible for Response: Matt Haley, Laura Doane
Title of Person/s: Manager of Fixed Assets and Fleet; Financial Accounting & Report Analyst III
Date: October 8, 2018

Q:PSD:GMP.1.72. Please refer to page 10 of Mr. Ryan's Direct Testimony.

a. Please explain why the Company chose inflation and payroll expenses changes to forecast certain O&M costs.

b. Please provide a list of the O&M accounts that the Company will forecast for purposes of its proposed MYRP. For each of these accounts, please provide 10 years of historical data yearly.

c. Please provide the yearly forecast of O&M costs by account that GMP intends to include in its MYRP.

d. Please describe the forecasting methods that the company plans to use in updates to the O&M expenses over the MYRP.

A:PSD:GMP.1.72.

a. The Company increased O&M costs by inflation and payroll expense for certain items based on current practices and access to known and measurable metrics.

   The Platform included in our cost of service is inflated based on the change in Consumer Price Index for all Urban Consumers, Northeast Region ("CPI-U Northeast") as established by the PUC in Docket 7770. This metric is readily available on the internet from the United States Department of Labor – Bureau of Labor Statistics and is updated on a monthly basis. For consistency, GMP proposes to use this metric for certain other O&M non-payroll expense and will inflate our non-base O&M payroll expense by the agreed upon increase in our approved union contract.

b. Please see Attachment GMP.DPS1.Q72.b. The first page of this attachment shows historical actual information for 2013 – 2017 alongside the projections for 2020, 2021 and 2022. The 2020 – 2022 information is an estimate based on June 2018 information. Actual 2020 – 2022 information will be updated based on information available closer to proposed annual submittal dates.

   The second and third page of this file includes the historical FERC Account information in a pivot table format and also in a summary table.

c. Please refer to GMP.DPS1.Q72.b above.

d. Please refer to Exh. GMP-ER-1 Multi-Year Regulation Plan Attachment 1 Revised for method to establish annual forecast.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.73. Please provide the forecasted amounts of taxes that GMP intends to include in its MYRP. Please provide the basis for the forecasts, including documentation and associated spreadsheets.

A:PSD:GMP.1.73. GMP will request recovery for the following different types of taxes in our MYRP:

- Federal and State Income Taxes
- Municipal/Property Taxes
- Other—primarily Vermont—Unemployment and Social Security payroll taxes
- Gross Revenue and Fuel Gross Receipt Taxes

The table below shows the current estimated cost of service runs for fiscal years 2020, 2021 and 2022. Please note these are projections only; they are the Company's best estimates as of June 2018 of the cost of service impacts by year and are subject to change.

GREEN MOUNTAIN POWER CORPORATION
MULTI-YEAR RATE PLAN

Estimates only - Based on June 2018 Projections Subject to Change

$ 000's	**Projected FY 2020**	**Projected FY 2021**	**Projected FY 2022**	**Method to Establish Annual Projection**
Taxes to be requested in MYRP				
Taxes - Federal and State	21,169	21,533	21,560	Annual Forecast - Calculation consistent with current income tax provision in retail rate filings
Municipal/Property Taxes	31,154	32,710	34,345	Fixed by Year unless material change.
Other, excluding Revenue Taxes	2,733	2,733	2,733	Formulaic annual adjustment based on inflation & payroll increases
Gross Revenue & Fuel Gross Receipts Taxes	$ 6,791	$ 6,795	$ 6,987	Formulaic annual calculation based on other COS Components

Calculation for the federal and state income taxes is based on the statutory income tax rate adjusted for permanent differences. Working calculation is included in the Cost of Service files provided to the DPS in June and included as Attachments GMP.DPS1.Q1.Ryan.3 through GMP.DPS1.Q1.Ryan.10.

Please refer to response PSD:GMP.1.70 for basis of property tax forecasts. These amounts are proposed to be fixed for duration of the MYRP.

Changes in Vermont's unemployment payroll tax is calculated by multiplying the test year to rate year change in the taxable wage base times the projected rate year number of regular employees multiplied by the O&M allocation factor. The working calculation is included in the Cost of Service files provided to the DPS in June and included as Attachments GMP.DPS1.Q1.Ryan.3 through GMP.DPS1.Q1.Ryan.10.

Changes in Social Security Taxes is calculated by the test year to rate year percentage change in the estimated number of employees, multiplied by the test year O&M Social Security tax to determine the adjustment to make to test year payroll taxes. The working calculation is included in the Cost of Service Files provided to the DPS in June and included as Attachments GMP.DPS1.Q1.Ryan.3 through GMP.DPS1.Q1.Ryan.10.

The calculation for the Gross Revenue and Fuel Gross Receipts Taxes is based on the gross revenue tax rate of 0.5% and the fuel gross receipts tax rate of 0.5% applied to the forecasted rate year cost of service to ultimate consumers before revenue tax and reduced by estimated merger savings. The working calculation is included in the Cost of Service Files provided to the DPS in June and included as Attachments GMP.DPS1.Q1.Ryan.3 through GMP.DPS1.Q1.Ryan.10.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.74. Please provide the forecasted amounts of "Other Cost of Service Items" (Ryan Direct Testimony, page 13) that GMP intends to include in its MYRP. Please provide the basis for the forecasts, including documentation and associated spreadsheets.

A:PSD:GMP.1.74. GMP will request recovery for the following Other Cost of Service Items.

- Business Development Expense and Revenue
  - Regulatory Amortizations
  - Capital Costs
  - Return on Utility Ratebase

The table below shows the current estimated cost of service runs for fiscal years 2020, 2021 and 2022. Please note these are projections only; they are the Company's best estimates as of June 2018 of the cost of service impacts by year and are subject to change.

GREEN MOUNTAIN POWER CORPORATION
MULTI-YEAR RATE PLAN

Estimates only - Based on June 2018 Projections
Subject to Change

$ 000's	**Projected FY 2020**	**Projected FY 2021**	**Projected FY 2022**	**Methodology to Establish Annual Base Rate**
Other COST OF SERVICE Items				
Business Development	$ 764	$ 781	$ 800	Formulaic annual adjustment based on inflation
Regulatory Amortizations	4,457	4,290	4,099	Annual Forecast
Accretion Expense	281	293	306	Fixed by year (FY 20, FY21, FY22) unless material change
Capital Costs (Credit Facility Fees)	124	124	124	Fixed by year (FY 20, FY21, FY22) unless material change
Return on Utility Rate Base	115,095	116,398	117,028	Cost of Debt % is annual forecast; Cost of Equity % is formulaic annual adjustment based on index applied to Annual Forecasted Ratebase Amount
Credits:				
Business Development	1,101	1,126	1,153	Formulaic annual adjustment based on inflation
Merger savings to customers	(19,200)	(39,000)	(39,900)	

Business Development Revenues and Expenses are test year actual amounts inflated based on inflation.

Regulatory Amortizations includes projected rate year amortization of regulatory assets, deferred debits and regulatory liabilities. See Attachment GMP.DPS1.Q74, page 2 for summary of proposed regulatory assets and/or liabilities to be amortized each year of the MYRP.

Capital Costs (Credit Facility Fees) includes projected rate year fees paid for letters of credit outstanding under the credit facility and unused portion of the $140 million revolving credit facility. See Attachment GMP.DPS1.Q74, page 3 for summary of assumptions and forecasted expense

Return on ratebase is calculated using the weighted average cost of capital (forecasted weighted average cost of debt and indexed return on equity) applied to forecasted rate year 13-month average Rate base.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.75. On page 16, line 5 of his Direct Testimony Mr. Ryan testified that GMP would present its complete financial results for the ESAM "on a regulatory basis." Please a more detailed explanation of definition of what Mr. Ryan means by his use of the phrase "regulatory basis."

A:PSD:GMP.1.75. GMP will use the same methodology we have historically used when preparing an ESAM calculation. We will calculate earnings from utility operations using a cost of service format consistent with the same methodology as the earnings cap calculation reflected in the PUC's Order in Docket Nos. 6946/6988 (exclude GMP's disallowed costs and results from unregulated operations but business services shall be included in cost of service). Actual earnings shall include earnings impact of the Power, Revenue and Exogenous Change Adjustments, but shall not include the earnings impact of shareholder merger-related adjustments to Base O&M Costs.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.76. On page 22, line 16 of Mr. Ryan's Direct Testimony he referred to a $1.2 million deductible. Please confirm that the multi-year plan, as proposed by GMP, includes a deductible for Major Storm events. Please also explain the purpose of the $1.2 million deductible and how it would operate in the MYRP. Please further explain whether the deductible is a per-Major Storm or aggregate deductible (i.e. does a separate deductible apply to each Major Storm that triggers the exogenous cost adjustor or is there only one deductible for each measurement period regardless of the amount of Major Storms).

A:PSD:GMP.1.76. One of the requirements under the Exogenous Storm provision of the proposed Multi-Year Regulation Plan for a storm to be considered a "Major Storm" is that the incremental costs of the storm must exceed $1.2 million. This $1.2 million is a per storm threshold, not a per storm deductible. Storms costing less than $1.2 million cannot be included in the Major Storm category for recovery.

In addition, the Exogenous Storm provision of the MYRP has a $1.2 million measurement period *deductible.* The measurement period incremental storm costs that will be recovered from customers is equal to the total aggregate incremental major storm costs incurred during the measurement period (utilizing the threshold definition), less the $1.2 million deductible for the entire period. For example, if in a measurement period there were 2 major storms (i.e., two storms that individually exceeded $1.2M in costs) and the total incremental costs of those two storms was $5 million, then $3.8 million would be eligible for recovery from customers.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.77. Please state how GMP will account for (or seek ratepayer recovery) of storm recovery costs for storm events that do not meet the Major Storm threshold during the MYRP period. Please also state whether GMP will treat the $1.2 million deductible expense differently than ordinary storm recovery costs.

A:PSD:GMP.1.77. GMP will continue its current approach. That is, non-major storm costs will be charged to O&M platform accounts, just as now, and included in the rate period calculation of synergies. The $1.2 million deductible will be charged to an O&M expense account which will then be excluded when calculating rate period synergies.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.78. On page 25, line 15 of his Direct Testimony Mr. Ryan refers to "a major strategic investment."

a. Please explain what is meant by major strategic investment (or provide potential examples of such investments) and please also explain how such an investment would be defined in the proposed MYRP.

b. Would there be a floor or ceiling amount that would define the limits of a major strategic investment? If so, what are the floor and ceiling amounts?

A:PSD:GMP.1.78.

a. A major strategic investment would be any significant capital opportunity that was not foreseeable at the time of the MYRP and for which it would not be possible to re-arrange our capital priorities to manage within the committed capital limits set within the MYRP. One example of such a strategic investment might be the acquisition of a generating facility offered for sale.

b. We do not foresee a floor or ceiling on a major, strategic investment. This recommended exception to our committed capital limit in the MYRP is intended to provide flexibility for unforeseen and beneficial opportunities that may emerge during the period of the plan. We have described an approval process for such an exception that involves the Department and PUC review and approval for such an exception to be approved. We believe this collaborative and transparent process will ensure any approved project is in the best interest of customers.

Person/s Responsible for Response: Brian Otley, Eddie Ryan
Title of Person/s: Senior VP and Chief Operations Officer; Controller
Date: October 8, 2018

Q:PSD:GMP.1.79. Please refer to page 5 of Mr. Ryan's direct testimony, where Mr. Ryan discusses the ROE adjustor, for the following requests:

a. Please explain why GMP believes that a ROE adjuster is necessary and to the benefit of ratepayers and the company.

b. What other multi-year rate plans are you aware of that rely on such an adjuster (other than the earlier GMP, VGS, and CVPS plans)?

c. In the alternative, would GMP be prepared to accept a fixed ROE level over the three year term? Why or why not?

A:PSD:GMP.1.79.

a. GMP's current ROE of 9.1% is the lowest of any approved ROE for a vertically regulated utility in the country today. An annual adjustor so that GMP's ROE does not fall further out of range within the regulation plan period is reasonable and appropriate. Mr. Coyne's testimony describes the risks of providing too low an ROE, GMP's strong performance for customers, and his opinion that we are in an increasing interest rate environment. The adjustor proposed is moderate and appropriate.

b. As shown in Mr. Coyne's Exhibit JMC-3, proxy group companies on multi-year rate plans that rely on formula-based ROE adjustment mechanisms are: Ameren Illinois and Mississippi Power Company. Mr. Coyne is also aware that the California utilities and the Ontario utilities use automatic adjustment mechanisms with their respective Alternative Regulation Plans. Please refer to Attachment GMP.DPS1.Q56.6, provided in Mr. Coyne's response to question PSD:GMP.1.56, for an indication of additional utilities that have employed such mechanisms in conjunction with Alternative Regulation Plans.

c. GMP has proposed a plan that it believes is just, reasonable, and appropriate.

Person/s Responsible for Response: Dawn Bugbee, Jim Coyne
Title of Person/s: Chief Financial Officer; Senior Vice President, Concentric Energy Advisors, Inc.
Date: October 8, 2018

Q:PSD:GMP.1.80. Please refer to page 12 of Mr. Ryan's Direct testimony for the following requests:

a. On what basis does GMP plan to forecast the other revenues that Mr. Ryan refers to on this page, including those revenues associated with mutual aid, pole attachments, innovative services, contributions in aid of construction tax adder and transmission tariffs;

b. On what basis does GMP propose to forecast Social Security, Federal and State income, Gross Revenue, and Fuel Gross Receipts;

A:PSD:GMP.1.80.

a. Please see Attachment GMP.DPS1.Q80.a to see how GMP proposes to annually forecast the various revenue items that are included in our Other Operating Revenue line in the cost of service.

b. Please see response to PSD.GMP.1.70 and PSD.GMP.1.74 for how GMP will forecast the various tax related items in our annual cost of service filing.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.81. Please refer to Page 14 of Mr. Ryan's Direct Testimony and the discussion of the ESAM. Please explain why GMP does not expect the ESAM to create a significant cost or benefit during the multi-year rate plan.

A:PSD:GMP.1.81. Based on historical results when the prior ESAM was in effect, the continuation of a power supply and an exogenous change adjustor, introduction of a new retail revenue adjustor and being able to incorporate the most current forecasts when establishing certain rate period costs, GMP believes the ESAM will not create a significant cost or benefit during the Multi-Year Regulation Plan.

Although we do not anticipate having an ESAM adjustment routinely, having the ESAM is an important backstop for customers and the company in case there are significant, unforeseen favorable or unfavorable events which could have a significant impact on GMP's operating results.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.82. Please refer to Page 16 of Mr. Ryan's Direct Testimony. Please clarify what is meant by the phrase "shareholder merger-related adjustments to the Base O&M Costs" that are excluded from the ESAM."

A:PSD:GMP.1.82. The "shareholder merger-related adjustments to Base O&M Cost" is referring to the shareholder's share of synergy savings.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.83. With respect to Eddie Ryan's Exhibit GMP-ER-1 Multi-Year Regulation Plan Attachment 7 (Innovation and Performance Metrics table), the PSD has several questions from an engineering perspective:

a. GMP proposes to add "DER Capacity with Shared Access" to the Innovation and Performance Metrics. It is presumed that "shared access" means that GMP can dispatch these resources at the discretion of its operators through SCADA or similar means. GMP further proposes to measure this metric with the quantity "aggregate MW capacity" or "percent growth in aggregate capacity" (presumably based on MW as well). If the DER being considered is storage, does GMP agree that a storage facility's energy capacity in MWhr is another quantity that bears measuring to determine "DER Capacity" scoring?

b. GMP proposes to add "Islanding Ability" to the Innovation and Performance Metrics. It further proposes to measure this metric with the quantity "% of GMP load able to be islanded". It seems apparent that, to count a load as having islanding ability, it would have to meet at least two specific criteria. First, the load in question would have to have the ability to be islanded for some minimum time (e.g. no less than 12 hours). Second, the load in question would have to have the ability to be islanded in advance of some maximum warning time (e.g. no more than 4 hours). The examples given are hypothetical only; what actual time requirements would GMP propose for Islanding Ability credit?

c. GMP proposes to add "Peak Management" to the Innovation and Performance Metrics. It further proposes to measure this metric with the quantity "% of time based on monthly and annual peak". Please explain how GMP intends to make this measurement and how it relates to peak load management. Please also explain if this proposed metric should be measured, as least in part, by a value relating to peak load reduction in MW?

d. Under the "Type of PIM" table heading, it is noted that all of the proposed new metrics are labeled "Measurement Only". Does this mean GMP is proposing to simply monitor these quantifies for a time, to establish a "baseline" of performance for later use as an actionable performance standard? If not, then what is meant by the term "Measurement Only"?

A:PSD:GMP.1.83.

a. Yes, we agree.

b. GMP has proposed measuring the percent of load that could be islanded. We have not proposed a specific time period for this metric but hare happy to discuss this further with the Department.

c. This metric is intended to measure how well we do reducing the actual RNS and FCM peaks based on the number and capacity of resource we have available at

any given time and our ability to accurately predict the peak. We have not proposed a specific measurement method yet and are happy to discuss this further with the Department. This could be measured in a number of ways, including measuring the megawatt-hour reductions in peak load, or in percentage of peak resource capacity deployed during individual peak events.

d. Yes.

Person/s Responsible for Response: Josh Castonguay
Title of Person/s: VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Questions in Response to Testimony of Mary Powell

Q:PSD:GMP.1.84. Please refer to Exhibit GMP-MGP-1 for the following requests:

a. Please provide a summary or outline of the scheduling deadlines for the various filing requirements discussed in this exhibit (i.e. a chronology of the filings that would be expected for the major elements of the plan over the life of the plan);

b. Within your response, please also identify which cost-of-service components will be updated with each filing.

A:PSD:GMP.1.84.

a. Please see Attachment GMP.DPS1.Q84.a (previously filed on August 13, 2018 as Attachment GMP.COMM1.Q1.1.pdf).

b. Please see Attachment GMP.DPS1.Q84.b (previously filed on June 4, 2018 as Exh. GMP-MGP-1).

Person/s Responsible for Response: Eddie Ryan, Karen Young, Kristin Carlson
Title of Person/s: Controller; Budget/Forecasting Supervisor; VP, External, Strategic and Regulatory Affairs
Date: October 8, 2018

Q:PSD:GMP.1.85. Please refer to page 6, lines 4 and 5 of Ms. Powell's Direct Testimony for the following requests:

a. Please describe generally the risks that GMP considers to be unnecessarily created by frequent rate cases;

b. Please also describe generally how GMP's proposed multi-year rate plan mitigates those risks.

A:PSD:GMP.1.85.

a. & b. The primary risk is created by the flat to declining load environment we are in – that means lower overall customer revenue relative to expenses and, therefore, rate increases. While the regulation plan we have proposed allows for annual rate adjustments, it locks in key areas – including most importantly capital investments – and creates a greater level of revenue decoupling for power supply than has occurred in our regulation plan. None of that would be the case if we were in a strictly traditional rate case environment, leading to frequent, likely yearly, rate cases that would certainly create rate increases for customers. In addition, using more frequent adjustors for power supply and a level Major Storm collection will help smooth the "bumps" that can be created from traditional rate case collections annually or at periods utilities may elect. Please see also answer to PSD:GMP.1.76 and 77, above.

Person/s Responsible for Response: Mary Powell, Kristin Carlson
Title of Person/s: Chief Executive Officer; VP, External, Strategic and Regulatory Affairs
Date: October 8, 2018

Q:PSD:GMP.1.86. Please refer to pages 8, line 22 through page 9, lines 1–2 of Ms. Powell's Direct Testimony, which discusses GMP's commitment to fix capital spending at approximately $85 million per year under the plan for the following requests.

a. Please state whether the $85 million capital spending limit includes investments in GMP affiliates or subsidiaries. If not, please explain why this limit will not apply to such investments.

b. Please state or describe any known or anticipated investments in affiliates that GMP plans to make over the term of the proposed multi-year rate plan;

c. Please also describe generally any direction given to GMP management as to how to prioritize capital spending within the anticipated $85 million annual capital spending limit.

Objection: GMP reasserts General Objection 5. The phrase "any direction given to GMP management" is vague and unclear. Without waiving this objection, GMP responds as follows.

A:PSD:GMP.1.86.

a. No, it does not. Investments in GMP affiliates have never been part of GMP's capital project planning and budgeting. See GMP's Responses to the Third Set of Discovery Requests Served by the DPS, Answer 18 (Case No. 18-0974-TF, Sept. 28, 2018); Ryan Rebuttal Testimony at 13 (Case No. 18-0974-TF, Sept. 12, 2018).

b. As noted in Mr. Ryan's prefiled direct testimony, any proposal to invest in new affiliates during the term of the MYRP will require specific PUC approval. See Ryan Prefiled Direct Testimony at 10 (Case No. 18-1633-PET, June 4, 2018). Based on the most current Velco forecast, GMP anticipates making the following Transco investments/(return of capital) during the Plan period:

November 2019	$ 6.8M
December 2019	$ 1.2M
December 2020	($ 1.7M)
December 2021	$ 1.0M

c. No external direction was given to GMP management about how to prioritize capital spending within the proposed $85 million annual limit. The primary internal guidance given by GMP management to our capital management leaders was that the quality of our service to our customers cannot diminish and we cannot stop making investments that progress our transformational work to evolve

to a new energy delivery model.

Person/s Responsible for Response: (a), (c) Brian Otley, Kristin Carlson; (b) Eddie Ryan, Karen Young
Title of Person/s: Senior VP and Chief Operations Officer; VP, External, Strategic and Regulatory Affairs; Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.87. Please refer to page 10, line 12 through page 11, line 3 of Ms. Powell's Direct Testimony, which discusses savings from the merger between GMP and CVPS. Please provide the following:

a. Please provide a list of the savings that GMP has achieved to date by year that details have the savings have been shared between GMP and its ratepayers;

b. Please provide GMP's most recent forecast for merger savings that will be provided to GMP and ratepayers over the term of the proposed multi-year rate plan;

c. Please provide copies of any analyses completed by GMP, in native file format, that depict the expected trajectory of O&M spending that were used to generate forecasted merger savings over the term of the proposed plan.

A:PSD:GMP.1.87.

a. See Attachment GMP.DPS1.Q87.a.

b. See Attachment GMP.DPS1.Q87.a.

c. Please see Attachment GMP.DPS1.Q87.a for summary of estimated 2020 – 2022 merger savings. Annual savings are based on June 2018 projects and are subject to change.

Person/s Responsible for Response: Eddie Ryan, Karen Young, Dawn Bugbee, Kristin Carlson
Title of Person/s: Controller; Budget/Forecasting Supervisor; Chief Financial Officer; VP, External, Strategic and Regulatory Affairs
Date: October 8, 2018

Q:PSD:GMP.1.88. Please refer to page 13, lines 17–21 of Ms. Powell's Direct Testimony, where she addresses concerns with the perceived lack of transparency in the yearly "mini rate cases" that were conducted under GMP's former alternative regulation plans. Please describe generally how GMP's proposed multi-year plan mitigates the transparency concerns that are associated with the former alternative regulation plans.

A:PSD:GMP.1.88. GMP's proposal for a multi-year regulation plan, bookended with traditional cost of service rate cases, will be more efficient and transparent. Leading into this multi-year regulation plan, GMP has filed back to back traditional rate cases reflecting rigorous and transparent review (meaning the filed 2019 Rate Case would proceed the Plan, and another traditional rate case would occur for Fiscal Year 2023).

As part of the Plan, GMP is proposing to cap spending on capital each year to the level of approximately $85 million, with limited opportunities for exceptions benefitting customers. This is new, mitigates rate impacts, is transparent, and also provides stability over the length of the plan.

There will also be annual reviews, where regulators will look at the forecasts each year to ensure rates are adjusted correctly. Many of the costs which GMP cannot control will be set by adjustors, which are allowed to change during the year, reflecting the benefit and cost in a transparent way to customers. This includes a true retail revenue adjustor, and a power cost variance adjustor that holds GMP accountable if we do not properly manage our power purchases. These true ups with customers between the variance of our forecasts and actual power costs and retail revenue will reflect more real time what is happening in the market. All of this maintains transparency and allows GMP to dedicate more energy towards innovation and customer service than we might otherwise if we were to be in traditional cases in perpetuity.

Person/s Responsible for Response: Mary Powell, Kristin Carlson
Title of Person/s: Chief Executive Officer; VP, External, Strategic and Regulatory Affairs
Date: October 8, 2018

Q:PSD:GMP.1.89. Please refer to page 18, line 21 through page 19, line 20 of Ms. Powell's Direct Testimony where Ms. Powell discusses external costs that GMP cannot control. With respect to this section of testimony, please respond to the following requests for the period 2013 through 2017:

a. Please provide GMP's annual transmission O&M expenses;

b. Please provide the annual costs to support the rate base investment (Taxes, interest return, etc.) in transmission affiliates (VELCO and Transco).

c. Please provide the annual equity in earnings from affiliates provided by the transmission investments (VELCO and Transco).

d. Please provide details on the annual investments GMP made in transmission affiliates (by transaction by year).

e. Please provide, to the extent available, contemporaneous cost and benefits analyses conducted by GMP for each of the investments made in the transmission affiliates.

f. Please identify the total number of positions or seats that GMP controls on VELCO's Board of Directors and whether and/or how GMP's control over a portion of VELCO's Board of Directors allows GMP to influence VELCO's capital spending or O&M expenses.

Objection: GMP reasserts General Objection 5. Subpart (f) is argumentative and requires GMP to adopt the premise, without support, that its Commission-approved seats on VELCO's Board of Directors allows GMP to exercise influence over VELCO's capital spending or O&M expenses. Nevertheless, without waiving its objection, GMP provides the following response.

A:PSD:GMP.1.89.

a. Please see Line 1 on the summary tab in Attachment GMP.DPS1.Q89 for annual transmission expense by others.

b. Please see Line 2 on the summary tab in Attachment GMP.DPS1.Q89 for return, income tax and interest expense costs associated with transmission affiliates included in ratebase.

c. Please see Line 3 on the summary tab in Attachment GMP.DPS1.Q89 for equity-in-earnings of Velco and Transco.

d. Please see Line 4 on the summary tab in Attachment GMP.DPS1.Q89 for annual capital investments made in Transco.

e. With the exception of the Transco investment that was funded from the proceeds from GMP's sale of Highgate to Transco, GMP does not prepare a cost-benefit analysis for each investment opportunity based on the fact that each additional

investment in Transco results in a lower cost of service to our customers because the equity-in-earnings credit earned on that investment is returned 100% to customers which exceeds the return collected from customers from including the investment in rate base. *See* GMP's Responses to the Third Set of Discovery Requests Served by the DPS, Answers 17, 18, 26 (Case No. 18-0974-TF, Sept. 28, 2018); Ryan Rebuttal Testimony at 4, 13 (Case No. 18-0974-TF, Sept. 12, 2018).

f. GMP designates four of VELCO's thirteen Board Directors, consistent with the Public Utility Commission's June 15, 2012 Order in Docket No. 7770 which required VELCO to restructure its Board to reduce GMP's Board seats and introduce independent directors selected by a nonprofit (VLITE) whose Board includes no GMP-appointed members. Each member of VELCO's Board of Directors has equal influence over VELCO's Board decisions.

Person/s Responsible for Response: Eddie Ryan, Karen Young
Title of Person/s: Controller; Budget/Forecasting Supervisor
Date: October 8, 2018

Q:PSD:GMP.1.90. Please refer to page 20, line 10 through page 22, line 16 of Ms. Powell's Direct Testimony regarding the impact of energy storage on GMP for the following requests:

a. Please state which, if any, of GMP's current battery storage sites are currently capable (i.e. the necessary equipment is installed and functioning) of islanding a circuit;

b. Please state whether GMP has successfully operated any micro-grid island relying primarily on inverter-based power sources and not on rotating power sources;

c. Please provide copies of any documentation or analyses in native file format used by GMP to calculate the customer savings discussed by Ms. Powell on page 21, lines 8–12 of her Direct Testimony (specifically, the reference to saving $180,000 in a single hour and $150,000 of value through participation in other ISO New England ancillary markets).

A:PSD:GMP.1.90.

a. GMP Powerwalls and Stafford Hill can island customers, not entire circuits. We do not currently have a storage system installed with the necessary protection equipment to island a circuit.

b. Yes, the PowerWalls have performed this on an individual home basis.

c. See Attachments GMP.DPS1.Q90.c.1 and GMP.DPS1.Q90.c.2 for the $180,000 savings from the 2016 peak as well as the regulation revenue summary through May of 2018 for the $150K value.

Person/s Responsible for Response: Josh Castonguay
Title of Person/s: VP & Chief Innovation Executive and Power Supply
Date: October 8, 2018

Dated at Burlington, Vermont this 8th day of October, 2018.

As to Objections:

Geoffrey H. Hand, Esq.
Elizabeth Miller, Esq.
Alex "Sash" Lewis, Esq.
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emiller@dunkielsaunders.com
alewis@dunkielsaunders.com
Attorneys for Green Mountain Power

Dated at Colchester, Vermont this 8 day of October, 2018.

Respondent Signature

By: 
Mary Powell
Green Mountain Power

Subscribed and sworn before me this 8th day of October, 2018.


Notary Public

Name of Notary: Penny Collins

Commission Expires: 2-10-19

Dated at Rutland, Vermont this 5th day of October, 2018.

Respondent Signature

By: Andrew R. Clit
Andrew Quint
Green Mountain Power

Subscribed and sworn before me this 5th day of October, 2018.

Notary Public
Name of Notary: BONNIE L. O'ROURKE
Commission Expires: 2-10-19

Dated at September, Vermont this 24 day of September, 2018.

Respondent Signature

By: _____
Rob Bingel
Green Mountain Power

Subscribed and sworn before me this 24 day of September, 2018.

_____
Notary Public
Name of Notary: Penny Collins
Commission Expires: 2-10-19

Dated at Colchester, Vermont this 20th day of September, 2018.

Respondent Signature

By: _____
Dawn Bugbee
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

_____
Notary Public
Name of Notary: Penny J. Collins
Commission Expires: 2-10-19

Dated at Colchester, Vermont this 21st day of September, 2018.

Respondent Signature

By: _____
Kristin Carlson
Green Mountain Power

Subscribed and sworn before me this 21st day of September, 2018.

_____
Notary Public
Name of Notary: Penny Collins
Commission Expires: 2-10-19

Dated at Swanton, Vermont this 24 day of September, 2018.

Respondent Signature

By: _____
Josh Castonguay
Green Mountain Power

Subscribed and sworn before me this 24 day of September, 2018.

_____
Notary Public
Name of Notary: Penny Collins
Commission Expires: 2-10-19

Dated at Rutland, Vermont this 20th day of September, 2018.

Respondent Signature

By: _____
Steve Costello
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

_____
Notary Public
Name of Notary: BONNIE L ORourke
Commission Expires: 2-10-19

Dated at Rutland, Vermont this 20th day of September, 2018.

Respondent Signature

By: _____
Ken Couture
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

_____
Notary Public
Name of Notary: Melissa Stevens
Commission Expires: 2-10-19

Dated at Marlborough, MASSACHUSETTS this 21st day of September, 2018.

Respondent Signature

By: _____
James Coyne
Green Mountain Power

Subscribed and sworn before me this 21st day of September, 2018.

_____
Notary Public
Name of Notary: DEBORAH-JEAN McGONIGAL
Commission Expires: 11-2-2023

DEBORAH-JEAN MCGONIGAL
Notary Public
Commonwealth of Massachusetts
My Commission Expires
November 2, 2023

Dated at September, Vermont this 24 day of September, 2018.

Respondent Signature

By: _____
Mark Dincecco
Green Mountain Power

Subscribed and sworn before me this 24 day of September, 2018.

_____
Notary Public
Name of Notary: Penny Collins
Commission Expires: 2-10-19

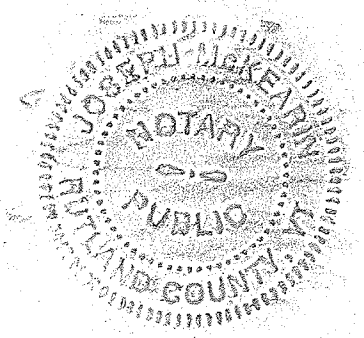
Dated at Rutland, Vermont this 20th day of September, 2018.

Respondent Signature

By: Laura Doane
Laura Doane
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

Joseph McKearin
Notary Public
Name of Notary: Joseph McKearin
Commission Expires: 2-10-19



Dated at Rutland, Vermont this 20 day of September, 2018.

Respondent Signature

By: _____
Craig Ferreira
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

_____
Notary Public
Name of Notary: BONNIE LOROURKE
Commission Expires: 2-10-19

Dated at Rutland, Vermont this 20th day of September, 2018.

Respondent Signature

By: John R. Fiske
John Fiske
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

Notary Public
Name of Notary: Joseph McKeavin
Commission Expires: 2-10-19

JOSEPH McKEAVIN NOTARY PUBLIC RUTLAND COUNTY VT

Dated at Rutland, Vermont this 20 day of September, 2018.

Respondent Signature

By: _____
Matthew Haley
Green Mountain Power

Subscribed and sworn before me this 20 day of September, 2018.

_____
Notary Public
Name of Notary: Joseph McKearin
Commission Expires: 2-10-19

JOSEPH McKEARIN NOTARY PUBLIC RUTLAND COUNTY, VT

Dated at RUTLAND, Vermont this 20th day of September, 2018.

Respondent Signature

By: _____
Kim Jones
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

_____
Notary Public
Name of Notary: Joseph McKeanin
Commission Expires: 2-10-19

Dated at Montpelier, Vermont this 20th day of September, 2018.

Respondent Signature

By: _____
Jason Lisai
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

_____
Notary Public
Name of Notary: Starr P. LeCompte
Commission Expires: 2-10-19

Dated at Colchester, Vermont this 21st day of September, 2018.

Respondent Signature

By: _____
Brian Otley
Green Mountain Power

Subscribed and sworn before me this 21st day of September, 2018.

_____
Notary Public
Name of Notary: Penny C. Ellis
Commission Expires: 2-10-19

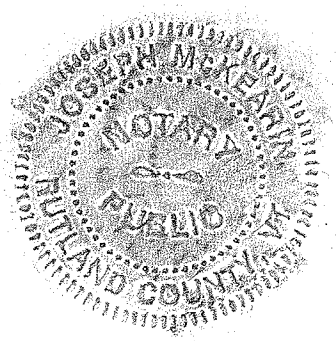
Dated at Rutland, Vermont this 21st day of September, 2018.

Respondent Signature

By: Eddie Ryan
Eddie Ryan
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

Notary Public
Name of Notary: Joseph McKearin
Commission Expires: 2-10-19



Dated at Colchester, Vermont this 20th day of September, 2018.

Respondent Signature

By: Douglas Smith
Doug Smith
Green Mountain Power

Subscribed and sworn before me this 20th day of September, 2018.

Penny J. Collins
Notary Public
Name of Notary: Penny J. Collins
Commission Expires: 2-10-19

Dated at Rutland, Vermont this 25th day of September, 2018.

Respondent Signature

By: Karen Young
Karen Young
Green Mountain Power

Subscribed and sworn before me this 25th day of September, 2018.

Melissa Stevens
Notary Public
Name of Notary: Melissa Stevens
Commission Expires: 2-10-19