STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 23-3501-PET

Petition of Green Mountain Power for approval of its zero outages initiative as a strategic opportunity pursuant to 30 V.S.A. § 218d and GMP's multi-year regulation plan	

FIRST SET OF INFORMATION REQUESTS
SERVED UPON GREEN MOUNTAIN POWER CORPORATION
BY THE VERMONT DEPARTMENT OF PUBLIC SERVICE

The Vermont Department of Public Service ("Department" or "DPS"), by its counsel, Erin C. Brennan and Alex Wing, hereby serves this First Set of Information Requests on Green Mountain Power Corporation ("GMP"), in accordance with Vermont Public Utility Commission ("Commission" or "PUC") Rule 2.214 and 2.230, in the above-referenced matter. The Department requests that GMP answer the requests herein, conforming to Commission Rule 2.230, and deliver its answers and all requested documents and materials to the Department's offices in Montpelier no later than January 5, 2024. Please provide GMP's answers in electronic format (i.e. word document or other standard file form readable by the Department) and please provide any spreadsheets in an electronic format.

INSTRUCTIONS

1. Reproduce the request being answered above your response thereto, pursuant to Commission Rule 2.230(M).

2. Responses to any and all Department requests, either contained herein or filed subsequently, should be submitted to the Department as soon as GMP is able to provide an answer or production. In other words, GMP should not withhold a response to any requests for which it has responsive data, documents, etc. until GMP is able to fully answer all pending requests when a reply is forthcoming for some questions.

3. Commission Rule 2.230(M)(3) requires that the response to each request is to be made under oath by a person competent to testify concerning the response, as well as all documents and exhibits produced as part of said response. When responding to each request please state: (1) the name(s) and title(s) of the person(s) responsible for preparing the response; (2) the

administrative unit which maintains the records being produced or the data from which an answer was derived; and (3) the date upon which the question was answered.

4. Where requested information is unavailable in the exact format requested in the question, or is not available for the entire range (e.g. a span of time, such as years, or other periods and classifications) requested in a series, please provide all available information that is responsive to the subject matter of the question.

5. These requests shall be considered continuing and shall be supplemented and updated as provided for in Commission Rule 2.230(D). GMP must supplement, update, correct, and change its answers to be consistent with all relevant information as it becomes available to GMP. For example, actual data must be substituted for estimated data. Responses to requests for information regarding a period of time not entirely in the past (or for which complete actual data is yet to be available) should include all actual data available when requested and be supplemented with the remaining actual data as it becomes obtainable.

6. Whenever and wherever responses include estimated information please include an explanation, or reference to a previous explanation, of the methodology and calculations used to derive the estimates.

7. Some of the Department's requests may reference a particular portion of GMP's filing. Notwithstanding the specific citation, all such requests should be understood to seek all available information that is responsive to the question.

8. With respect to each document produced by GMP, please identify the person who prepared the document and the date on which it was prepared.

9. If any interrogatory or request necessitates a response that GMP believes is totally or partially privileged, please state the complete legal and factual basis for the claim of privilege as described in Commission Rule 2.230(A)(6) and respond to all parts of the interrogatory or request of which no claim of privilege is asserted.

10. If any interrogatory or request is objected to in whole or in part, please describe the complete legal and factual basis for the objection and respond to all parts of the interrogatory or request to the extent to which it is not objected. If an objection is made regarding any requested document(s), please identify the document by author, title, date, recipient(s), and generally describe the nature and subject matter of the document(s) in addition to providing the complete legal and factual basis for the objection.

11. To expedite the discovery process and the resolution of this case, if GMP wishes to have clarification on any of these information requests it should contact the Department as soon as possible and before the deadline for response indicated above.

12. The Department reserves the right to submit additional information requests to GMP.

DEFINITIONS

13. "Identify," when used in reference to natural person(s) or legal entities shall be interpreted to request the full name and current business address of said person(s) or entities.

14. "GMP," as used herein, shall refer to Green Mountain Power Corporation.

15. "Document," as used herein, shall be construed as broadly as possible to encompass any and all means and media by which information can be recorded, transmitted, stored, retrieved, or memorialized in any form. "Document" shall also include all drafts, copies, or versions which differ in any respect from the original. All spreadsheets submitted must have all formulae accessible and intact.

16. "Petition" shall mean GMP's Petition and associated attachments, including prefiled testimony and exhibits, filed in the above captioned docket with the Vermont Public Utility Commission, unless context indicates otherwise.

17. "FY" means Fiscal Year.

18. "COS" means Cost of Service.

19. "ROW" means right of way.

20. "ZOI" means GMP's Zero Outages Initiative.

21. "SAIDI" means System Average Interruption Duration Index.

22. "CAIDI" means Customer Average Interruption Duration Index.

23. "SAIFI" means System Average Interruption Frequency Index.

24. "MYRP" means GMP's Multi-Year Regulation Plan.

25. "IRP" means an Integrated Resource Plans under 30 V.S.A. § 218c.

26. "BESS" means Battery Energy Storage System.

27. "ESS" means Energy Storage Systems.

28. "Bring Your Own Device" means GMP's Bring Your Own Device tariff.

29. "RZ" means both a GMP Resiliency Zone.

30. "EV" means electric vehicle.

31. "GRIP" means Grid Resilience and Innovation Partnership under the U.S. Department of Energy's Grid Deployment Office.

32. "DOE" means the United States Department of Energy.

33. "OCED" means the DOE's Office of Clean Energy Demonstrations.

34. "NOMAD" means Nomad Transportable Power Systems.

35. "O&M" means Operations and Maintenance.

36. "FERC" means the Federal Energy Regulatory Commission.

37. "IBR" means inverter-based resources.

38. "T&D" means Transmission and Distribution.

39. "AMI" means Advanced Metering Infrastructure.

FIRST SET OF INTERROGATORIES AND REQUESTS TO PRODUCE SERVED UPON GREEN MOUNTAIN POWER CORPORATION

Questions regarding the Prefiled Direct Testimony and Exhibits of Michael Burke:

Q.DPS.GMP.1-1. Please provide System Average Interruption Duration Index ("SAIDI"), System Average Interruption Frequency Index ("SAIFI"), and Customer Average Interruption Duration Index ("CAIDI") values for GMP's transmission and distribution system for the past ten (10) years with and without:

a. Major Storm as defined in GMP's SQRP; and
b. Major Event as defined in IEEE Standard 1366.

Q.DPS.GMP.1-2. Please provide the raw data from GMP's Outage Management System for the past ten (10) years, including the following information for each outage:

a. Start time of an event;
b. End time of an event;
c. Duration of the event;
d. Number of customers affected (without power);
e. Cause of event (animal, cable cut, equipment failure, scheduled, tree right-of-way ("ROW"), tree outside ROW, lightning, flood, etc.);
f. Weather Conditions (rain, snow, ice, clear, etc.);
g. Class of Equipment that failed (distribution overhead, distribution underground, substation, transmission, etc.);
h. Device(es) that failed(fuse, breaker, recloser, pole, elbow, cable, spacer cable, etc.);
i. Feeder(s) that failed;
j. Substation failures; and
k. Location of customers affected, as seen, for example, in Exhibit GMP-MB-9.

Q.DPS.GMP.1-3. Please provide circuit-level SAIDI, SAIFI, and CAIDI data for the last ten (10) years, including:

a. A breakdown of the outage data as defined in Commission Rule 4.903(B)(2); and
b. For each circuit, please provide a map of the area served.

Q.DPS.GMP.1-4. Please provide copies of GMP's ROW Management Plan for distribution lines and transmission lines, including:

a. Budgeted costs for ROW Management for the last ten (10) years; and
b. Actual costs for ROW Management for the last ten (10) years.

Q.DPS.GMP.1-5. Please provide annual costs for underground locates for the last five (5) years. Please include:

a. Cost per locate by year;
b. Number of locates by year;
c. Number of miles of undergrounded lines by year; and

d. Number of dig-ins/cable cuts per year.

Q.DPS.GMP.1-6. Regarding Customers Experiencing Multiple Interruptions ("CEMI") performance:

a. Please provide all analyses performed by GMP in the last five (5) years regarding CEMI performance; and
b. Please provide a heat map in GIS format depicting CEMI performance.

Q.DPS.GMP.1-7. Please provide design criteria for overhead power lines, including:

a. Transmission weather-loading criteria, including load factors and strength factors; and
b. Distribution weather-loading criteria, including load factors and strength factors.

Q.DPS.GMP.1-8. For the design of the spacer cables, please provide weather-loading criteria, load factors, and strength factors used for design.

Q.DPS.GMP.1-9. Does GMP use American Society of Civil Engineers ("ASCE") Guidelines for Electrical Transmission Line Structural Loading, Manual of Practice 74 for design of transmission lines?

Q.DPS.GMP.1-10. Does GMP use extreme wind or extreme ice loading for distribution line design?

Q.DPS.GMP.1-11. For extreme winding per National Electric Safety Code ("NESC"), since Vermont is in a special wind region, what wind speed does GMP use for structures or supported facilities?

Q.DPS.GMP.1-12. Please provide the following regarding pole-age data for all distribution poles:

a. birthmark wood that may be contained in GIS mapping;
b. GPS coordinates of wood poles; and
c. average number of wood poles replaced annually for the past (10) years.

Q.DPS.GMP.1-13. For each named storm in Exhibit GMP-MB-4 since 2020:

a. Please provide the number of wood poles replaced; and
b. Please provide the GPS location of each wood pole replaced.

Q.DPS.GMP.1-14. With regards to this petition, and the entire ZOI, please:

a. Provide all plans and budgets for modifications to transmission lines;
b. Provide all plans and budgets for undergrounding service drops to residential homes or businesses; and
c. Provide all plans and budgets for underground secondary conductors.

Q.DPS.GMP.1-15.
a. Provide information regarding all customer complaints related to service outages and reliability concerns for the last five (5) years; and
b. To the extent able, provide the relative location of each customer's premises (for example, town, circuit, road, etc.) that filed a complaint with GMP regarding electric service outage.

Q.DPS.GMP.1-16. Regarding the spacer cable proposed for Zone 1 on pages 28-29 of Mr. Burke's direct testimony, please:
a. Confirm that spacer cable is insulated, but not safe for humans to touch;
b. Explain how GMP plans to protect the public when the spacer cable falls to the ground where humans may contact the cable;
c. Explain the overcurrent protection scheme GMP is deploying to sense and clear high impedance faults;
d. Provide any scientific studies reviewed by GMP that address how ultraviolet light affects spacer cable insulation/covering;
e. Provide the manufacturer's warranty for the cable service life; and
f. The standard pole height and class to be used for tangent poles with spacer cable in Zone 1.

Q.DPS.GMP.1-17. Regarding the spacer cable construction for the VH4A line referenced in Mr. Burke's direct testimony on page 24:
a. What is the budgeted cost for the construction of the spacer cable in Zone 1?
b. Please provide any actual costs for similar spacer cable construction projects, either completed or planned; and
c. Please provide the design drawings for the project(s) referenced.

Q.DPS.GMP.1-18. Regarding page 24 of Mr. Burke's direct testimony, please:
a. Explain how spacer cables reduce outages from pole/car accidents;
b. Provide any changes to GMP ROW maintenance programs for distribution lines equipped with spacer cable(s);
c. Provide the data to support the statement that spacer cable projects will "avoid outage response costs."

Q.DPS.GMP.1-19. Please provide GMP's average annual repair costs for non-major storm outages for the past five (5) years.

Q.DPS.GMP.1-20. With respect to operating spacer-cable systems:
a. When replacing poles equipped with spacer cables, will a planned outage be necessary?
b. To add a transformer or single-phase tap to a spacer cable, the three-layer insulation must be removed. Can this work be performed with the spacer cable energized, or will a planned outage be required?

c. If a spacer cable has fallen to ground, is it necessary to de-energize the cable to re-install the cable on pole?
d. Please provide any known instances when scheduled outages may be required for operating/maintaining the spacer cable systems.

Q.DPS.GMP.1-21. Regarding the 20 worst circuits criterion reference on page 25 of Mr. Burke's Direct Prefiled testimony please:
a. Provide a summary of the 20 worst feeders over the last five (5) years;
b. Provide a list/description of upgrades or corrective actions for each of these feeders;
c. Provide the actual cost for upgrades and corrective actions; and
d. Provide the SAIFI/SAIDI/CAIDI for each feeders, including and excluding major storms, for each of the last five (5) years.

Q.DPS.GMP.1-22. GMP has a self-healing system in place at the Burlington International Airport.
a. Please confirm the distribution lines serving the airport are spacer cables;
b. Please provide a list of all sustained outages at the airport since the spacer cable and self-healing system was installed;
c. Please explain why self-healing systems also known as Fault Location, Isolation, and Service Restoration ("FLISR") program are not being deployed within the ZOI; and
d. Does the age of GMP's existing distribution system impact the decision not to use an advanced automation system like FLISR in the ZOI to improve system reliability? If so, please explain.

Q.DPS.GMP.1-23. Please explain how the health and safety of the public and GMP's employees fits into the prioritization of projects for the ZOI.

Q.DPS.GMP.1-24. Regarding page 7 of Mr. Burke's direct testimony and his statement on a "dynamic, decentralized, technologically advance two-way system," please:
a. Explain the two-way system;
b. Provide who owns, operates, and maintains the communication system;
c. Explain the residential BESS to be controlled with the system referenced; and
d. Does the customer have any responsibility for the communication system and, if so, what is GMP's responsibility?

Q.DPS.GMP.1-25. Regarding page 7 of Mr. Burke's direct testimony and his statement that Vermont's recent weather changes "create intense storm systems that hit more frequently and with more ferocity," please provide a 50-year history of storm frequency and ferocity for GMP's service territory.

Q.DPS.GMP.1-26. Has GMP projected the frequency of major storms for the next ten (10) years? If so, please provide the projections and all references, supporting documentation, and calculations relied upon by GMP in making such projections.

Q.DPS.GMP.1-27. Regarding Mr. Burke's direct testimony and his descriptions on pages 10-12 that some Vermonters have already experienced the benefits of the type of work planned under the ZOI:

a. Please provide a list of feeders that already have facilities in service similar to the type of work planned under the ZOI; and
b. Please provide the SAIDI, SAIFI, and CAIDI for each of these feeders since these initiatives have been deployed by GMP.

Q.DPS.GMP.1-28. With regards to undergrounding distribution lines, please:

a. Provide the cost/benefit analysis performed by GMP showing the cost-effectiveness of undergrounding distribution lines;
b. Provide all assumptions used in the analysis; and
c. Provide data in spreadsheet format.

Q.DPS.GMP.1-29. With regard to underground distribution cables in conduit ("CIC"), please:

a. Provide GMP's specification for underground primary cable;
b. Provide the manufacturer's warranty for the cable;
c. Provide any statement from the manufacturer on the longevity of the service life of the cable; and
d. Provide GMP's expectation of the service life of the primary underground cable and the basis for that opinion.

Q.DPS.GMP.1-30. CIC has an expected advantage of allowing for the replacement of the primary cable if, and when, the cable fails.

a. Please provide the specification for the CIC that GMP intends to deploy in this ZOI;
b. What is GMP's expectation of the service life of the conduit?
c. Has GMP attempted to use CIC for cable replacement in the last five (5) years?
d. Was 100% of the conduit usable for replacement of the cable, or did the conduit need to be replaced as well?

Q.DPS.GMP.1-31. On page 11 of Mr. Burke's direct testimony, Mr. Burke stated that "3,000 of our customers have connected storage systems or owned through our Energy Storage System tariff."

a. Understanding that GMP has communication with these battery systems, please provide hourly energy outflow from each of the batteries during system outages since the batteries were installed.
b. Please provide the hourly outflows from each of the battery systems since the systems were installed.
c. Please provide outage data for each battery customer since the batteries were installed, including the date, time, and duration of each outage by customer.

Q.DPS.GMP.1-32. Regarding service drops to homes:

a. Please provide the number of overhead service drops to homes that have required repairs to restore power to the home in each of the last 5 years.
b. For each major storm listed in Exhibit GMP-MB-4, please provide the number of overhead service drops that had to be repaired prior to restoring service to the home.

Q.DPS.GMP.1-33. Regarding page 20 of Mr. Burke's direct testimony concerning the cost of storm repairs:

a. Please explain why undergrounding 50 miles of line (*see* the Direct Prefiled Testimony of Mr. Burke at page 11) has not reduced these repair costs;
b. Please provide the total miles of spacer cable currently in use on GMP's system; and
c. Please explain why deployment of spacer cable has not significantly reduced the cost of storm restoration.

Q.DPS.GMP.1-34. Regarding Mr. Burke's direct testimony on page 22 and the improvements made to the Bristol and Lincoln, Vermont area, please:

a. Provide outage data for the feeders in this area for the last six (6) years;
b. Provide the outage data since the storm hardening was complete;
c. Provide detail information regarding the storm hardening work deployed; and
d. Provide a detailed circuit map showing specific system upgrades;
e. Mr. Burke noted that the frequency of outages for this feeder (SAIFI) went from 7 down to a SAIFI of 2.0. Is the goal of the ZOI to achieve a SAIFI of 2.0? If not, what is the goal of SAIFI for this initiative?

Q.DPS.GMP.1-35. Regarding Mr. Burke's direct testimony on page 23, please explain what "automated controls" will be deployed.

a. Please provide a description of the automation;
b. Please provide the cost of the automation; and
c. Please provide a defined benefit of this proposed automation.

Q.DPS.GMP.1-36. Regarding the selection of projects described on page 25 of Mr. Burke's direct testimony, please:

a. Provide work papers used to select projects;
b. Provide any internal presentations at GMP showing the selection process;
c. Provide all supporting data including the type, age, and condition of assets; and
d. Provide any social or economic criteria used to prioritize projects.

Q.DPS.GMP.1-37. Regarding Resiliency Zone solutions in Guilford and Rockingham mentioned by Mr. Burke in his direct testimony on page 27:

a. Please provide a detailed description of these improvements within these Zones;
b. How were these Zones selected?; and

c. Are the improvements within these Zones included in the MYRP, Climate Plan, or the ZOI?

Q.DPS.GMP.1-38. Please provide any data or documents that demonstrate how long a customer's battery will last when powering up the entire home during an outage.

a. In general, with the BESS deployed by GMP, does the battery system power the entire home or a portion of the home?;
b. What portions of the homes are fed by a battery system during an outage?; and
c. With the return of utility power, is there a short outage to transfer from the battery backup system to the utility grid? If so, how long is the outage during the transfer?

Q.DPS.GMP.1-39. Regarding page 20 of Mr. Burke's direct testimony and his reference to rural customers:

a. Does GMP have an estimate of the percentage of customers on a feeder that are in Zone 4? If so, what is that percentage?;
b. A three-pole single phase tap of a main line (Zone 1) serving a single customer, is this an example of a Zone 4 customer?; and
c. For the analysis of the East Jamacia Circuit (GMP-MB-8), please provide the total number of customers by Zone.

Q.DPS.GMP.1-40. Regarding page 30 of Mr. Burke's direct testimony, referencing the ½ inch steel cable messenger:

a. Please provide the exact specifications of the messenger;
b. Please confirm that the messenger will serve as the system neutral;
c. What is the impedance of the neutral conductor typing used for Zone 1 compared to the neutral impedance envisioned for the spacer cable?;
d. Regarding the photo on page 31 of Mr. Burke's direct testimony, please explain why the ½ inch steel messenger is covered on one side of the pole; and
e. Please provide the framing specification/construction specification for the spacer cable showing spacing of the poles, through bolt spacing, grounding details, how single-phase taps are connected to the spacer cable, and how transformers are connected to the spacer cable.

Q.DPS.GMP.1-41. Regarding page 31 of Mr. Burke's direct testimony and referencing the use of tree wire and spacer cables:

a. Please explain the difference between tree wire and spacer cable; and
b. What is GMP's outage experience for tree wire compared to spacer cable?

Q.DPS.GMP.1-42. Undergrounding single-phase lines as referenced by Mr. Burke in his direct testimony on page 32:

a. What is the cost per mile for undergrounding single-phase lines using the CIC method?;
b. How do these costs change if there are significant conflicts with other underground utilities?;

c. What is the total expenditure that GMP is proposing for undergrounding the single-phase lines?;
d. Does this cost include replacement of overhead transformer with pad-mounted transformers?;
e. How many overhead transformers will need to be replaced and at what cost?; and
f. Mr. Burke suggested that 3,500 miles of single-phase lines will need to be addressed by 2030. Please provide the number of customers served by these 3,500 miles of line.

Q.DPS.GMP.1-43. Please explain what the costs for undergrounding or otherwise addressing other utility lines (such as telecommunications lines) on shared poles will be.
a. Who will bear these costs?
b. How will such costs be handled or allocated?
c. How will lost pole rental revenue impact GMP's rates and the costs of the ZOI?
d. Please provide any and all documentation and calculations to support responses to this question and its subparts.

Q.DPS.GMP.1-44. Regarding page 33 of Mr. Burke's direct testimony, he references the Grafton pilot:
a. Please provide a detailed description of the Grafton Pilot;
b. Please provide the cost for the pilot
c. Please provide the number of homes with BESS systems installed.
d. Please provide the number of homes with BESS paired with solar systems installed.
e. Please provide outage data for this area for the last five (5) years.

Q.DPS.GMP.1-45. Please refer to the Direct Testimony of Michael Burke at page 33. GMP proposes that BESS systems for rural areas will be the preferred solution for the ZOI. Please explain how BESS will reduce storm restoration costs.

Q.DPS.GMP.1-46.
a. What impacts will more frequent rain and flooding events have on undergrounding both primary and distribution lines?
b. How can these and existing underground lines be made more resilient to withstand highly saturated surrounding soils and other subsurface materials, as well as faster growth of vegetative roots?

Q.DPS.GMP.1-47.
a. How many miles, and where, of lines will be undergrounded, and how many miles, and where, will be kept overhead with spacer cable or tree wire?"
b. What is the cost differential per mile between these two treatments?

Q.DPS.GMP.1-48. On page 6 of Mr. Burke's direct testimony, he states "but it also allows us to incorporate … federal funds and incentives that will lower the overall cost of these important investments." What are GMP's expectations of how much it is likely to receive in federal funds and incentives, and any other funding sources, and over what period of time, to help pay for the costs of this initiative?

Q.DPS.GMP.1-49. Please refer to page 7 of Mr. Burke's direct testimony where it states "[t]his will help customers weather any storm, and also better prepare Vermont to withstand any physical, **cyber**, or other threat from the regional grid." How will the proposed work to accomplish the ZOI help withstand cyber threats to the grid?

Q.DPS.GMP.1-50. Page 8 of Mr. Burke's direct testimony states "[a]dditionally, the longer growing season is resulting in ROW that will require much more expensive and frequent trimming. This will increase costs to an unsustainable level." Has GMP performed any studies or calculations of the ROW trimming costs that will be avoided by implementing the strategies proposed (undergrounding and storm-hardening)? If so, please provide.

Q.DPS.GMP.1-51. Page 11 of Mr. Burke's direct testimony states "[t]he [ZOI] will ramp up delivery of customer storage systems directly to those neighbors … so that they … stay on." How does the customer know how much longer the storage system will provide power during an outage?

Q.DPS.GMP.1-52. Page 18 of Mr. Burke's direct testimony states "[w]e must expect to see these types of extreme events here more frequently too, even events like tornadoes and fires that typically have not been impactful in Vermont." Aside from undergrounding lines, how will implementation of GMP's ZOI reduce or alleviate the impacts of fires on the grid?

Q.DPS.GMP.1-53. Page 21 of Mr. Burke's direct testimony states "[e]ven with the smoothing under our regulation plan, the FY23 storms alone will add approximately 2.3% to rates over the next three years. Meanwhile, that same level of investment in T&D capital projects for undergrounding distribution lines and storm hardening main line feeders is spread over 45+ year life of these assets **and creates a one-year rate impact that is many multiples lower than the cost of repair."** Does this statement depend on how quickly the undergrounding and storm hardening of the main line feeders can occur? Please explain.

Q.DPS.GMP.1-54. Page 21 of Mr. Burke's direct testimony states "[t]he investment we are seeking approval for in this filing—up to $250M for additional T&D projects and up to $30M for additional energy storage between now and the end of FY26—would not exceed an annual 2% rate impact."

a. For what period of time will the investment require an approximately 2% rate impact?; and
b. What would the rate impacts be after that period of time? Please provide the calculations GMP used to make this determination.

Q.DPS.GMP.1-55. Page 30 of Mr. Burke's direct testimony states "[i]n the future, when Zone 4 areas that are not storm hardened are due for replacement due to age, we will storm harden then with undergrounding preferred."

a. What is the useful life expectancy of Zone 4 infrastructure? Please provide the number of Zone 4 areas in GMP's service territory that will require replacement in the next 1-5 years, 5-10 years, 10-15 years, 15-20 years, and beyond 20 years.;
b. What is the useful life expectancy of storage devices that GMP will provide in Zone 4 areas where storm-hardening is not cost-effective or feasible?;
c. What will happen with those storage devices when they reach the end of their useful life-expectancy and/or are removed because lines will be underground?;
d. Who will pay disposal costs, and how will they be paid?;
e. What will those disposal costs be? In the event a battery storage device catches fire, who will pay the costs of disposal, and for battery replacement?; and
f. Has GMP determined what these costs are?

Q.DPS.GMP.1-56. Page 32 of Mr. Burke's direct testimony states "[w]e know that for many of these customers, individual residential storage solutions will be more cost effective now than the available storm hardening techniques, particularly when the multiple benefits of storage for those customers and the grid are considered."

a. What is the estimated number of Zone 4 customers who would receive individual storage units, and over what period of time?;
b. How will these customers be given guidance/instruction, and who will do so, on how to use the storage units and how to determine how much power remains during an outage?;
c. Has GMP performed any analyses regarding where Zone 4 customers do not receive broadband service adequate or reliable enough to be able to accommodate battery storage?;
d. If so, how many potential Zone 4 customers fall into this category?; and,
e. How will GMP address this deficiency, and over what period of time?

Q.DPS.GMP.1-57.
a. Please provide a description of GMP's twenty worst performing circuits and where they are located.; and
b. How is worst-performing circuit defined?

Q.DPS.GMP.1-58. Please provide GMP's vegetation management plan for each of the past five (5) years.

Q.DPS.GMP.1-59. Please explain in detail any deviations from GMP's vegetation management plan each year for the past five (5) years explaining whether or not the planned activities were carried out, and why.

Q.DPS.GMP.1-60. The transcript of 12/7/23 workshop in this proceeding, page 50, lines 17-22, Michael Burke stated "[j]ust to finish that scenario we have also built standards where we can do emergency repairs with this type of underground where if we are not able to dig, there is still ways that we can get things reenergized without it being a long duration outage."

a. Please explain the ways the underground CIC can be repaired if GMP is unable to dig; and
b. Please explain how GMP is able to reenergize without repairing the CIC.

Q.DPS.GMP.1-61. The prefiled testimony of Michael Burke, at page 32, states "[i]t is important to note that this underground work will focus on the primary lines, not the service lines, to individual homes." Over the period 2020-2023:

a. What percentage of total outage events were on service lines?; and
b. What percentage of total customer outages were due to events on service lines?

Q.DPS.GMP.1-62. Please provide GMP's definition of "resiliency" and "reliability" as used in this Petition and supporting testimony.

Q.DPS.GMP.1-63. Mr. Burke's direct testimony on page 7, lines 6-7 describes building on GMP's success in proactive undergrounding and storm hardening lines.

a. Please describe the 330 miles of distribution line in GMP's territory where GMP has already storm hardened and 50 miles where GMP has already undergrounded lines;
b. What the cost of this storm hardening and undergrounding was; and
c. Whether customers served by those lines experienced any outages since December of 2022 (and if so, the frequency and duration of those outages).

Q.DPS.GMP.1-64. On pages 22-23 of Mr. Burke's direct testimony, Mr. Burke describes projects in the Bristol and Lincoln area, showing benefits from storm hardening and also indicating that outages are still occurring.

a. What is the cost of reaching zero outages in these two areas?;
b. Is there a cost beyond which GMP would be unwilling to pay to achieve zero outages in these areas (or anywhere in the service territory)?; and
c. Assuming GMP's willingness to pay for zero outages is not unlimited, what is the cost beyond which it no longer makes sense to continue to make these ratepayer investments?

Q.DPS.GMP.1-65. On page 25 of Mr. Burke's direct testimony, Mr. Burke describes criteria used to select recent grid investments. Does GMP plan to incorporate status as disadvantaged communities or otherwise consider equity in the selection process to prioritize investments?

Q.DPS.GMP.1-66. On page 35 of Mr. Burke's direct testimony, Mr. Burke discusses the use of contract crews (line 16) to perform the work.

a. To what level will the proposed work use contract crews rather than GMP employees?;
b. Has GMP evaluated ramping up staffing levels to use its own crews to complete the objectives of the proposal?; and
c. What are the additional costs associated with using contract crews?

Q.DPS.GMP.1-67. How many miles is the requested funding anticipated to support of each: undergrounding lines, and spacer cable and tree wire for overhead lines?

Q.DPS.GMP.1-68. Mr. Burke states on page 20 of his direct testimony that "[i]t is very costly to restore service after significant storm events. As indicated in **Exhibit GMP-MB-4**, the amounts incurred for just the most recent six major storms in the last twelve months are approximately $45M. This is in addition to the approximately $8M per year in routine and recurring smaller storm response. In total, since 2014, there has been over $115M just in direct major storm costs, with 2023 being the highest ever experienced. More than 60% of that total is just in the last 5 years, and 40% in the last 10 two years. *See* **Exhibit GMP-MB-4** (Ten Year Major Storm Costs)."

a. Absent the proposed spending under the ZOI, does GMP anticipate this level of storm response spending to stay the same or increase?; and
b. If increase, by how much (anticipated storm restoration costs over the next ten (10) years given recent past experience and GMP's understanding of the changing climate)?

Q.DPS.GMP.1-69. Please provide GMP's vegetation management costs for the last ten (10) years, including associated line miles and any other pertinent data informing variances in average costs per mile.

Q.DPS.GMP.1-70. Mr. Burke states on page 8 of his direct testimony "[a]dditionally, the longer growing season is resulting in rights- of-way that will require much more expensive and frequent trimming. This will increase costs to an unsustainable level." Please provide a projection of future vegetation management costs including the additional increment related to more expensive and frequent trimming.

Q.DPS.GMP.1-71. Mr. Burke states on page 11 of his direct testimony "[u]ndergrounding is now often more cost-effective overall than storm hardening overhead single-phase distribution lines and we can also use undergrounding when conditions warrant on three-phase main lines."

a. What is the current average cost per mile of undergrounding for GMP?; and
b. Will any of those costs decrease with the scale of the proposed Initiative?

Q.DPS.GMP.1-72. Mr. Burke states on page 21 of his direct testimony "[t]he investment we are seeking approval for in this filing—up to $250M for additional T&D projects and up to $30M for additional energy storage between now and the end of FY26—would not exceed an annual 2% rate impact." Please provide GMP's benefit-cost analysis informing this conclusion, including anticipated cost savings to GMP's ratepayers from reduced vegetation management and storm response, and identifying costs that would otherwise have been incurred due to asset condition.

Q.DPS.GMP.1-73. Mr. Burke states on page 20 and 37, respectively, of his direct testimony "i]n addition to these direct costs for outage repair, there are financial, social, and emotional costs to our customers every time an outage occurs—impacting their daily life and livelihoods, especially with an increased number of customers continuing to work from home," and, "[f]ormulaic cost-benefit analysis and traditional tools like the Interruption Cost Estimate (ICE) method that attempts to place a system value on doing a project now versus deferring the project is highly inadequate and unsatisfactory for this work, as we described in the Climate Plan proceeding." Has GMP attempted to use the ICE calculator, research other methodologies, develop other methodologies, or otherwise assign a value to these "indirect" costs?

Q.DPS.GMP.1-74. Is GMP proposing to amend its SQRP metrics to align with the spirit of the ZOI? If so, how?

Q.DPS.GMP.1-75. Mr. Burke states on page 34 of his direct testimony "[w]ith the solutions we know work now, we can address this inequity while lowering costs for all customers across the state." Is there any benefit to non-GMP Vermont utility customers of the proposed ZOI? Please explain.

Q.DPS.GMP.1-76. Mr. Burke states on pages 5-6 of his direct testimony that during Phase 1 of the proposed ZOI, GMP will, "build the statewide roadmap and systems to ramp up this work throughout all of our service territory so that customers will not experience any outages by 2030." What systems does this refer to and what costs are included in Phase 1 that are not needed to complete Phase 1, but rather to prepare for Phase 2?

Q.DPS.GMP.1-77. Mr. Burke states on page 11 of his direct testimony "[m]any [customers with storage systems] who live in areas hit hard by this year's storms stayed powered up while we repaired damage to infrastructure that caused outages for their neighbors."

a. How long will a typical battery storage system – under current GMP tariffs and as proposed in the Initiative – keep a typical customer home energized?
b. How does that vary in relation to the degree of weatherization and electrification that happen in the home?

Q.DPS.GMP.1-78. Mr. Burke states on page 28 of his direct testimony "[o]nce at scale, storage resources will also guide our restoration and damage response, allowing us to deploy a

more efficient set of resources." Please describe in more detail how GMP's restoration and damage response will change as a result of deployment of storage resources.

Questions regarding the Prefiled Direct Testimony and Exhibits of Joshua Castonguay:

Q.DPS.GMP.1-79. Regarding page 6 of Mr. Castonguay's direct testimony and the budget limit of $30 million:

a. Please confirm this cap of "up to" $30 million is only for storage solutions; and
b. Will this $30 million budget for storage solutions include the unrestricted sign up of the ESS & BYOD programs referenced in Mr. Castonguay's testimony?

Q.DPS.GMP.1-80. Regarding page 7 of Mr. Castonguay's direct testimony and "the targeted rural customer storage resilience work":

a. Please describe the rural customer storage resilience work; and
b. How much of the $30 million budget is dedicated to this rural work?

Q.DPS.GMP.1-81. Regarding page 12 of Mr. Castonguay's direct testimony, which provides that after GMP ramps up its storage programs, it will "continue to provide the latest storage innovations to support all [its] customers so that they do not experience outages in 2030."

a. What level of investment beyond FY '25 and '26 does Mr. Castonguay believe is necessary to achieve sufficient storage for all relevant customers so that they do not experience outages?; and
b. Is GMP asking for the above level of investment in this proceeding?

Q.DPS.GMP.1-82. With regards to energy storage projects being incorporated into rates:

a. Is the intent to include into rate base the energy storage units in individual dwelling units as they are complete?;
b. Is the intent to include the rural energy storage aspect of the ZOI into rate base, which would include BESS in multiple homes, when the program is complete?; and
c. How will stakeholders know if a residential energy storage unit is part of the MYRP or part of the ZOI?

Q.DPS.GMP.1-83. Regarding the residential storage to which Mr. Castonguay refers in his direct testimony on page 7:

a. What percentage of energy storage units in the ESS program are whole-home backup?;
b. Please provide a listing of the battery capacity in kWh for whole-home backup systems;
c. Please provide a listing of the battery capacity for the specific critical loads; and
d. Please provide a list of meter numbers and locations of vehicles that connect to the home and can be used to support the grid.

Q.DPS.GMP.1-84. a. If a residential battery is sized for whole-home backup, and the home adds electric load such as EVs, electric cooking, electric hot

water, and/or electric heat, how will the ESS need to change to accommodate the load?; and

b. If a change is required, will GMP use the funding from ZOI to assist the customer with the change/upgrade?

Q.DPS.GMP.1-85. Referring to Mr. Castonguay's direct testimony at page 8 and the statement that customers "experience uninterrupted service just like customers in more urban areas have now":

a. Please identify feeders that serve "more urban" areas that have had not interruptions for the last five (5) years; and

b. Please identify the total number and general location of residential customers that have not experienced an electric interruption in the last five (5) years.

Q.DPS.GMP.1-86. a. If a residential battery system is used for peak demand management, will the battery be capable of providing uninterrupted electric service to the residential home?

b. If so, for how long can the depleted battery supply energy to the home?

Q.DPS.GMP.1-87. a. If a residential battery system is used to support system voltage, will the battery be capable of providing uninterrupted electric service to the residential home?

b. If so, for how long can the depleted battery supply energy to the home?

Q.DPS.GMP.1-88. a. If a residential battery system is used to support system frequency, will the battery be capable of providing uninterrupted electric service to the residential home?

b. If so, for how long can the depleted battery supply energy to the home?

Q.DPS.GMP.1-89. Given that GMP has identified at least four different use cases for residential battery (demand management, frequency support, voltage support, and uninterruptable power):

a. Which of these cases will get priority on any given day?;

b. If emergency backup is given priority, then please explain how it is possible to deplete the battery for any other use and retain a sufficient charge for a longer duration outage; and

c. These batteries are charged with energy purchased by customers. Are customers compensated for the discharge of this charge for these other use cases? If not, why not?

Q.DPS.GMP.1-90. When a residential customer has a fixed energy storage system in their home, the battery is charged with purchased power from GMP or via solar on the home. When

GMP deploys small portable backup batteries, who is responsible for the energy usage from these portable backup batteries?

Q.DPS.GMP.1-91. Regarding the DOE grant for Bethel BE-G28 circuit, GMP costs will be $10 million over a timeline of five (5) years (Castonguay direct testimony page 14):

a. How of the much $10 million will be funded by the ZOI?; and
b. Please explain how GMP will fund this grant work.

Q.DPS.GMP.1-92. Regarding the GRIP program, where GMP's share of the overall program would be $58 million over multiple years (Castonguay direct testimony page 15):

a. How of the much of the $58 million will be funded by the ZOI?; and
b. Please explain how GMP will fund this grant work.

Q.DPS.GMP.1-93. Regarding the OCED program for the NOMAD, what is GMP's cost share of this program (Castonguay direct testimony page 15)?

a. How of the much of this will be funded by the ZOI?; and
b. Please explain how GMP will fund this grant work.

Q.DPS.GMP.1-94. Regarding the OCED program in partnership with the Town of Guilford, what is GMP's cost share of this program (Castonguay direct testimony page 15)?

a. How much of this will be funded by the ZOI?; and
b. Please explain how GMP will fund this grant work.

Q.DPS.GMP.1-95. Regarding the State's Energy Storage Access Program, what is GMP's cost share of this program (Castonguay direct testimony page 16)?

a. How of the much of this will be funded by the ZOI?; and
b. Explain how GMP will fund this grant work.

Q.DPS.GMP.1-96. Regarding the DOE Grid Resilience State and Tribal Formula Grants, what is GMP's cost share of this program (Castonguay direct testimony page 16)?

a. How of the much of this will be funded by the ZOI?; and
b. Please explain how GMP will fund this grant work.

Q.DPS.GMP.1-97. Many of the grant applications are preliminary in nature and have not been awarded.

a. Will the funding sought through the grant applications be removed from the ZOI budgets if the grant is not awarded?;
b. If the funding is not removed from the ZOI budget, what will GMP propose to use the funding for?; and
c. Does Mr. Castonguay believe that GMP will need specific authorization to re-allocate this funding from the grants to other GMP programs?

Q.DPS.GMP.1-98. Regarding the Panton microgrid and Stafford Hill microgrid mentioned in Mr. Castonguay's direct testimony on page 17:

a. Please provide after-action reports for the automatic operation of each of these microgrids;
b. Please provide all annual costs necessary to maintain these microgrids; and
c. Please provide all repairs including firm-ware upgrades to these microgrids, descriptions, and costs incurred since the installation of the microgrids.

Q.DPS.GMP.1-99. Regarding the Resiliency Zones:
a. Please provide one-line diagrams depicting how these microgrids would interconnect into GMP's system;
b. If a Zone 3 or 4 section fails during a storm, will the Resiliency Zone provide continued power to the homes on these sections?;
c. Are the Resiliency Zones designed to provide back energy in the event of a transmission line failure?;
d. Are the Resiliency Zones designed to provide back energy in the event of a distribution line failure?;
e. Will the Resiliency Zone isolate the zone and engage the microgrid autonomously or must GMP personnel be present to initial the microgrid operation; and
f. What safety features are in place to prevent re-energizing power lines that may have fallen prior to the initial microgrid operation?

Q.DPS.GMP.1-100. Regarding equity of electric service discussed in Mr. Castonguay's direct testimony on page 19:
a. Is GMP proposing any ZOI adjustments for economically disadvantaged ratepayers, specifically?;
b. Is GMP proposing any ZOI adjustments for locations known for second homeownership, specifically?; and
c. Does the ZOI create a cost shift to economically disadvantaged ratepayers from second-home homeowners?

Q.DPS.GMP.1-101. Mr. Castonguay states on page 19 of his direct testimony that some community centers may be far enough outside of the mainline locations that they will not fully be covered by Zone 1 and Zone 2 of the zero-outage zone:
a. Is it Mr. Castonguay's belief that the work proposed in Zone 1 and Zone 2 will lead to zero outages for the next 20 to 30 years?;
b. Will GMP bury the overhead services to the community centers near Zone 1 and Zone 2 to help prevent all outages?; and
c. If the overhead services to these community centers are not buried, please explain how a microgrid will power these centers if the overhead service line fails.

Q.DPS.GMP.1-102. Regarding social vulnerability in the Resiliency Zone screening criteria (Mr. Castonguay's direct testimony at page 20):
a. Please provide all work papers and reference materials beyond the limited information in Exhibit GMP-JC-1 used by GMP to address the social vulnerability of communities; specifically, the scoring sheets developed for communities;

b. Did this analysis include urban communities or only rural communities?; and
c. How was it determined which communities to access?

Q.DPS.GMP.1-103. Please identify each Resiliency Zone that will be funded or has been funded by the MYRP along with the budgeted/actual cost for the microgrid work.

Q.DPS.GMP.1-104. Please identify each Resiliency Zone that will be funded by ZOI along with the budgeted cost for the microgrid work.

a. Please provide any total cap within the ZOI for Resiliency Zone funding proposed by GMP; and
b. Are any of the towns/cities contributing to the deployment and/or maintenance of these microgrids? If so, please explain the cost sharing proposed by GMP.

Q.DPS.GMP.1-105. Mr. Castonguay explains the advantages of energy storage (frequency control, voltage control, peak demand reduction, power factor correction, energy time shifting) in his testimony on pages 24 and 25.

a. If all the storage units are deployed in the rural parts of GMP's system, what storage capacity will be used for voltage/frequency/power factor support in urban areas?;
b. Please identify all substations and transmission lines that are within 95% of their capacity rating or 95% of their capacity rating during single contingency outages; and
c. Please identify if these nearly overloaded facilities are in urban areas or rural areas.

Q.DPS.GMP.1-106. Regarding the screening criteria in Exhibit GMP-JC-1:

a. Please explain why GMP does not use more current data than 2018 for the resiliency screening; and
b. Please explain how service reliability from extreme storms like the ones experienced since 2021 are used in the screening process.

Q.DPS.GMP.1-107. How will GMP take equity and/or energy burden into account when prioritizing projects for the ZOI?

Q.DPS.GMP.1-108. Please provide the following information regarding second and seasonal homes served by GMP:

a. The total number served by GMP by rate, town, and circuit;
b. The total number in each of Zones 1 through 4 as indicated in Exhibit GMP-MB-7 (Rev); and
c. The percentage of all homes that are second/seasonal in each of the Zones 1 through 4 in Exhibit GMP-MB-7 (Rev)."

Q.DPS.GMP.1-109. Please refer to the direct testimony of Mr. Castonguay, page 7 lines 9-12. Please explain how spending up to $30 million over two years lowers overall costs for GMP's customers. In particular, please provide any cost/benefit analyses to support this claim.

Q.DPS.GMP.1-110. How will GMP assure that rate impacts on lower-income households and small businesses will be equitable with the impacts on its other customers with the implementation of ZOI?

Q.DPS.GMP.1-111. Will ZOI impact AMI customers differently than analog-meter customers? If so, how, and how will those differences be mitigated (if needed)?

Q.DPS.GMP.1-112. Under the ZOI, will individual storage systems be deployed by circuit, by Zone, or by some other determination?

Q.DPS.GMP.1-113. Page 6 of Mr. Castonguay's testimony states "[w]e will invest these resources for customers to continue to build out storage through the ESS & BYOD programs, which remain popular, along with the types of additional Zero Outage storage projects described in my testimony below, which would be subject to PUC review and regulatory approval as appropriate." Please clarify for which customers GMP is requesting up to $30 million to invest in storage solutions, and whether they will include customers who would otherwise apply for GMP's BYOD program, which requires customers to purchase their own storage equipment. If so, please explain which costs associated with the BYOD program would the requested up to $30M be used to cover.

Q.DPS.GMP.1-114. Page 12 of Mr. Castonguay's testimony states "[a]s noted, V2X is one ongoing focus we are excited about that will expand with the adoption of EVs."

a. Does GMP anticipate that the EV adoption rate over the next two years will be consistent with its modeling for the availability of V2X storage over that period?; and
b. Will GMP be able to avoid drawing down power during an outage from individual storage systems at residences where a household member requires electricity for a life-saving medical device?

Q.DPS.GMP.1-115.
a. What are the towns in Vermont where GMP customers are experiencing the highest number of customer outages by year for each of the past five years?
b. Please identify any of these towns where customers experienced more than two outages per year lasting more than 24 hours.

Q.DPS.GMP.1-116. What community impact metrics has GMP used in its analysis of need for proposing its ZOI initiative? Please describe and discuss. Provide any notes, research, or relevant work papers.

Q.DPS.GMP.1-117. What is the energy burden estimated by GMP for its residential customers expressed as a percentage of total housing costs and expressed as a percentage of income?

Q.DPS.GMP.1-118. What affordability concerns has GMP reviewed and discussed as it prepared the ZOI filing and request for approval of resources? Please describe and discuss. Provide any notes, research, or relevant work papers.

Q.DPS.GMP.1-119. What resiliency metrics does GMP propose for tracking the success of the ZOI investment? Please describe and discuss. Provide any notes, research, or relevant work papers.

Q.DPS.GMP.1-120. What number of critical services (e.g. hospitals, fire stations, clinics) were without power each year for the past five (5) years for outages lasting more than 2 hours?

Q.DPS.GMP.1-121. Has GMP done any community engagement specific to the design and development of this ZOI? If so, please describe, including which communities and/or community-based organizations were engaged and how. Please describe any plans to involve customers/communities/community-based organizations in additional design details/implementation.

Q.DPS.GMP.1-122. Mr. Castonguay states on page 18 of his direct testimony "[o]ur Zero Outages Initiative will continue to expand these Resiliency Zones, recognizing that reliable service is a critical element in community resilience, equity, and safety across the state."

a. How much of the $30 million proposed for energy storage systems in the ZOI would go to community resilience (Resilience Zones) vs. residential storage?; and
b. How many MW/MWh of community vs. residential storage is the $30 million expected to support?

Q.DPS.GMP.1-123. Mr. Castonguay states on page 25 of his direct testimony "[a]s Mr. Burke notes, as we analyze our distribution circuits and look at the best resiliency measures for each zone in our system, there will be a portion of customers where individual storage is the optimal solution to achieve zero outages. This typically will be in the part of the circuit we are calling Zone 4, focused on the rural, remote ends of the circuit."

a. How many GMP customers are in so-called "Zone 4" and how many is the $30 million expected to support?;
b. How will GMP prioritize which customers receive battery storage?; and
c. Please discuss any data sources and/or metrics GMP intends to utilize.

Q.DPS.GMP.1-124. Mr. Castonguay states on page 29 of his direct testimony "[e]ven after taking the systems needed to clear the substantial wait list into account, this level of investment will allow us to develop additional community pilots now to deploy systems directly to customers at no additional cost to them in vulnerable rural areas – some of which are included in the federal government's Justice 40 initiative—while learning how quickly we can provide these systems to more customers with similar needs throughout our territory. Meanwhile, we will continue to operate the voluntary ESS and BYOD programs in parallel with storage deployed as

a part of the Zero Outages Initiative so that in the years ahead all customers will have access to storage."

a. Will all customers receiving storage systems receive them at no charge?; and
b. What impacts of the proposed ZOI does GMP foresee on either uptake of the ESS/BYOD tariffs or availability of batteries to tariff customers?

Q.DPS.GMP.1-125. Mr. Castonguay states on page 28 of his direct testimony "[w]e will expect to broaden this type of storage deployment through additional resiliency pilots like the Grafton RZ—partnering with customers to offer an installed residential battery owned and operated by GMP as a grid asset with no lease payments and moving to a tariffed offering once we have reached scale."

a. Does this imply a customer will receive a free battery at first and then be asked to pay later?; and
b. Does this imply that some customers will receive a free battery, and some will not?

Q.DPS.GMP.1-126. Mr. Castonguay states on page 9 of his direct testimony "[i]n addition, while the Zero Outages Initiative has a primary focus on reliability and resilience in the face of extreme events, all of these solutions ultimately feed into our broader distributed energy resource platforms providing a host of additional benefits day in and day out. This can include managing peak energy demands, increasing renewable generation hosting capacity as well as supporting the intermittency of these renewables, providing the regional grid operator with various services that lower costs for all customers, and much more."

a. Does GMP anticipate operating residential storage under the proposed ZOI any differently than it operates storage systems under its ESS tariff?;
b. What battery storage technologies is GMP proposing to deploy?;
c. If all Tesla Powerwalls, why?; and
d. Is GMP proposing to own these systems or would customers be able to own systems and enroll them in the ZOI Initiative for payment rather than employ a GMP-owned storage system?

Q.DPS.GMP.1-127. Mr. Castonguay states on page 29 of his direct testimony "[u]nlike the ESS or BYOD programs, however, which are customer driven and designed to have net positive rate impacts, Zero Outages storage installations would be deployed in areas that would otherwise require more expensive storm-hardening work to achieve zero outage resiliency, and therefore prioritize reliability benefits. When compared to the avoided investment expense of the alternative, this approach will save all customers money, while continuing to generate similar benefits as our other battery programs."

a. Please describe the basis for this conclusion and clarify whether the alternative is storm restoration and vegetation management (status quo) or a different solution proposed under the Initiative such as undergrounding; and
b. What is the cost to GMP ratepayers to subsidize the resilience for individual customer beneficiaries of the ZOI storage systems, in $/customer/year?

Q.DPS.GMP.1-128. Mr. Castonguay states on page 30 of his direct testimony "[w]ith this increased electrification comes the need for increased grid flexibility to assure that significant system upgrades are not needed while we make this transition. We have proven that we can avoid upgrades in some cases, thanks to our flexible load programs and the deployment of energy storage." Will the addition of storage systems under the proposed ZOI enable electrification that might otherwise be limited by home electric system, distribution line, or distribution or substation transformer sizing?

Q.DPS.GMP.1-129. What fire codes, safety standards, installation practices, and decommissioning plans does GMP follow for residential battery storage systems, and how are these enforced?

Questions regarding the Prefiled Direct Testimony and Exhibits of Laura Doane:

Q.DPS.GMP.1-130. In reference to GMP's computation of property taxes on ZOI capital projects, please provide the Excel model and discuss the process to compute property taxes to be recorded to the regulatory asset.

Q.DPS.GMP.1-131. Please clarify whether all capital projects under the ZOI will result in an incremental increase in GMP's property tax liability. For example, does a line relocation through undergrounding result in an increase in property tax assessment?

Q.DPS.GMP.1-132. Please explain the frequency by which the valuation of GMP's assets is reassessed for property tax assessment purposes.

Q.DPS.GMP.1-133. Please explain the criteria measure by which GMP's assets are valued for property tax assessment purposes, e.g., the net book value of plant in service or gross plant in service.

Q.DPS.GMP.1-134. Please explain how the GMP proposes to determine property tax impacts of ZOI capital projects that reflects the incremental property tax liability of GMP.

Q.DPS.GMP.1-135. Please explain how GMP's property tax costs reflected in the ZOI capital project regulatory asset will reflect the potential reduction in property taxes for any assets removed from service.

Q.DPS.GMP.1-136. In reference to GMP's inclusion of incremental capital costs in the regulatory asset for ZOI Capital Projects, please provide GMP's criteria and approach to determine whether a cost is an "incremental O&M expense" eligible to be deferred to the regulatory asset.

Q.DPS.GMP.1-137. Please confirm whether the "incremental O&M expense" that is eligible to be deferred to the regulatory asset for ZOI Capital Projects are limited to costs properly includable in FERC Accounts 580-598 that are directly associated with ZOI projects. If it cannot be confirmed, please provide a detailed justification.

Q.DPS.GMP.1-138. In reference to the Prefiled Direct Testimony of Laura Doane, page 6:1-2, Ms. Doane states that it will record to a regulatory asset the incurred Zero Outages O&M expenses that have not been included in the COS of a base rate filing. Please:

a. Provide the criteria and approach to determine whether a cost has not been included in the cost of service of a base rate filing;
b. In determining the costs to include in the regulatory asset, will GMP also consider any cost savings achieved by the ZOI projects that were included in the COS of a base rate filing? If so, please explain how this will be accomplished. If not, please justify; and
c. Will the "O&M expenses" included in the regulatory asset include any costs includable in FERC Accounts 920 – 935?

Q.DPS.GMP.1-139. In reference to Prefiled Direct Testimony of Laura Doane, page 8:2-5, GMP states that it "will accrue the cost of capital on the regulatory assets, excluding the deferred debt and equity components of the regulatory asset." Please confirm whether GMP's intent in this statement is to not compound the cost of capital included in the regulatory asset, i.e., committing not to compound interest or carrying costs. If not, please provide a detailed explanation of GMP's intent in the statement.

Q.DPS.GMP.1-140. For GMP's accrual of cost of capital on ZOI capital projects, please explain whether the cost of capital rate will be applied to the original cost, less accumulated depreciation and deferred income taxes. If not, please provide a detailed computation and justification.

Q.DPS.GMP.1-141. Regarding GMP's ZOI, please identify any additional full-time equivalent positions GMP has or intends to hire specifically to support ZOI projects and provide a detailed description of the duties and responsibilities of each position.

Q.DPS.GMP.1-142. Regarding GMP's undergrounding project, please explain whether the construction activities will be primarily done by contractor or GMP employees.

Q.DPS.GMP.1-143. In reference to GMP's ZOI, please identify any modifications or changes to financial accounting or income tax accounting practices or procedures directly or indirectly associated with the initiative.

Q.DPS.GMP.1-144. Has GMP pursued any funding for its ZOI projects under the Infrastructure Investments and Jobs Act of 2021 or other sources of government funding? Please provide a detailed discussion of funding GMP has sought out or intends to apply for.

Q.DPS.GMP.1-145. Please confirm whether GMP's overhead capitalization rate will increase above the level used to establish base rates as a result of the increased capital spend associated with the ZOI capital projects.

Q.DPS.GMP.1-146. To the extent GMP's overhead capitalization rate will increase to reflect increased capital spend associated with the ZOI capital projects, please discuss how the associated cost savings achieved to costs included in base rates will be reflected in the ZOI regulatory assets.

Q.DPS.GMP.1-147. Please provide any analyses GMP has prepared that demonstrate the impact on GMP rates associated with the ZOI.

Q.DPS.GMP.1-148. Please provide any research or supporting information that indicates how much GMP customers are willing to have their rates increased in order to achieve zero outages.

Q.DPS.GMP.1-149. Is the framework for how projects from the ZOI will be reflected in GMP's rates the same framework that is currently used to account for GMP's Climate Action Plan projects? If so, please provide an example of the reporting of a Climate Action Plan project that has been approved for inclusion in rates including all documentation developed to support the accounting treatment of the regulatory asset and information shared with the Commission to seek approval of including the project in rates.

Q.DPS.GMP.1-150. Given that GMP's justification for the ZOI is based largely on the impact of major storms to the system, why is GMP not seeking to use the already approved Climate Action Plan as the means to pursue some or all of the projects described in this Petition?

Q.DPS.GMP.1-151.
a. What valuation did GMP consider for the avoided costs of an outage when contemplating and planning the ZOI initiative?
b. Did these costs attempt to quantify non-utility costs such as direct or indirect costs incurred by customers, including damages to personal property, business interruption costs, etc.? Please describe and discuss. Provide any notes, research, or relevant work papers.

Dated at Montpelier, Vermont this 15th day of December, 2023.

/s/ Erin C. Brennan
Erin C. Brennan, Special Counsel
Department of Public Service
112 State Street
Montpelier, VT 05620-2601
(802) 522-6301
Erin. Brennan@vermont.gov

/s/ Alex Wing
Alexander Wing, Special Counsel
Department of Public Service
112 State Street
Montpelier, VT 05620-2601
(802) 461-5009
Alexander.Wing@vermont.gov

cc: ePUC Service List