

**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)

**PREFILED REBUTTAL TESTIMONY OF
MICHAEL BURKE
ON BEHALF OF GREEN MOUNTAIN POWER**

April 15, 2024

Summary of Testimony

Mr. Burke introduces GMP’s rebuttal witnesses and explains how GMP’s Zero Outages Initiative serves customers in the face of climate change by further deploying proven solutions that are informed by robust customer feedback. He describes the progress GMP has made on projects in southern Vermont since filing the Petition and explains the urgency of deploying ZOI work there and elsewhere using the level of investment and selection criteria proposed to keep customers and employees safe. He responds to observations and recommendations made by the Department of Public Service witnesses and presents a recommended set of metrics and data on GMP’s Phase 1 work to transparently report progress and results.

TABLE OF CONTENTS

I. Introduction and Summary of Rebuttal	3
II. Update on Storms and GMP Restoration Since Petition Filing.....	6
III. Status of Projects and Proposed ZOI Work Requested in Petition	11
IV. Response to Department of Public Service Testimony	17
a. Mr. Poor and Ms. Margolis.....	17
b. Mr. Mara & Mr. Jordan.....	25
V. GMP’s Proposed Reporting Metrics and Data	39

Exhibit List

Exhibit GMP-MB-8 (rev.)	East Jamacia Circuit Zone Analysis
Exhibit GMP-MB-10	FY24 Storms
Exhibit GMP-MB-11	Southern Vermont Storm Hardening (2024)
Exhibit GMP-MB-12	High-Level Overview of EJG7 ZOI Projects
Exhibit GMP-MB-13	High-Level Overview of 56G1 ZOI Projects
Exhibit GMP-MB-14	Underground vs. Overhead Cost Comparison
Exhibit GMP-MB-15a&b	Customer Outage Frequency & Duration Histograms
Exhibit GMP-MB-16	Undergrounding Equipment Photos & Video
Exhibit GMP-MB-17	Proposed ZOI Metrics

PREFILED REBUTTAL TESTIMONY OF
MICHAEL BURKE
ON BEHALF OF GREEN MOUNTAIN POWER

I. Introduction and Summary of Rebuttal

1 **Q1. Please state your name and occupation.**

2 A1. My name is Michael Burke. I am the Vice President of Field Operations for Green
3 Mountain Power (“GMP”).

4 **Q2. What is the purpose of your rebuttal testimony in this case?**

5 A2. My testimony introduces GMP’s rebuttal witnesses and explains how GMP’s Zero
6 Outages Initiative (“ZOI”) directly responds to how to best serve customers in the face of
7 climate change by further deploying proven solutions that are informed by robust
8 customer feedback. I talk about the progress we have made on projects in southern
9 Vermont using ZOI solutions since filing the Petition and explain how Phase 1 of ZOI as
10 proposed will accelerate work there and elsewhere. I respond to observations and
11 recommendations made by the Department witnesses, and I present a set of metrics and
12 data on our Phase 1 work that we recommend to report progress and results transparently
13 in support of the Commission’s review of future ZOI requests.

14 **Q3. Please introduce GMP’s other rebuttal witnesses and the topics they will cover.**

15 A3. Josh Castonguay responds to the Department’s comments on storage and how storage
16 provides safety and resilience for customers. Laura Doane responds to testimony from
17 Department witnesses regarding regulatory accounting and related issues. To address

1 Department testimony regarding service quality, Tiana Smith, who leads our customer
2 care team and electrification programs at GMP and is in direct contact with communities
3 and customers every day, explains why these ZOI investments are urgently needed for
4 customers now. She describes how GMP collaborates with customers and communities
5 and what our customers experience during storm events, and she addresses the
6 Department testimony regarding outreach, service quality, equity and related issues. Don
7 Mills and Kyle Buxton, who locally lead districts in some of the hardest areas in our
8 service territory, representing central and southern Vermont, share the experience of
9 workers in the field, what they are seeing, and how necessary this ZOI work is in the face
10 of severe weather and storm restoration for both customer and crew safety. They provide
11 an on-the-ground perspective in response to Department witness Kevin Mara. They also
12 detail projects that are delivering results for customers, and how the line workers they
13 lead see the need for more work more quickly with these proven solutions. Together they
14 have five decades of field experience.

15 **Q4. Can you summarize GMP's overall rebuttal testimony position after review of the**
16 **Department's testimony and recommendations?**

17 A4. We continue to support our original proposal to invest up to \$280M on this critical work
18 for customers as part of Phase 1 of ZOI. We agree with the Department that data
19 reporting is key for continued success of this program as we work our way to zero
20 outages by 2030. In response, we have proposed a set of metrics as part of the rebuttal
21 testimony for the Commission's consideration.

1 As outlined in our initial filing, GMP’s phased approach for the ZOI is designed
2 to deliver continued improvement on our distribution system, and when paired with
3 energy storage, deliver zero outages for customers by 2030. The regulatory review of this
4 proposal will be done in phases, allowing work to be deployed to customers now, starting
5 in the hardest-hit areas, and reporting data so that the Commission and customers can see
6 results and can review our efforts as we scale up and refine them for the next phase. The
7 Department’s overall approach does not square with the urgent need to accelerate this
8 work for customers now. The Department appears to recognize the need to “increase
9 investment in measures that advance resiliency and reliability” if investments are cost
10 effective and their performance can be tracked.¹ But they nevertheless recommend a
11 primary approach that would significantly delay the benefits of this proven work and a
12 secondary approach that lacks the scale needed for customers. We disagree with both
13 approaches. We can and must start this work as soon as possible using well-established
14 regulatory guardrails, which ensure further Commission review of both the individual
15 projects before they go into rates, and evaluation of performance before any further
16 phases. GMP’s approach and its scale strikes the right balance—the first phase of the ZOI
17 work can be done within the framework of the MYRP, to deliver these significant and
18 important benefits to customers now, while allowing for thorough regulatory review of
19 the outcomes prior to future work.

¹ See Prefiled Direct Testimony of T.J. Poor (“Poor pf.”) at 6.

II. Update on Storms and GMP Restoration Since Petition Filing

1 **Q5. You filed the ZOI Petition six months ago. Can you provide an update on storms**
2 **and GMP's response during the winter '23/'24 season for customers?**

3 A5. Since November 2023, there have been ten damaging, regional storms that have all led to
4 separate multi-day events. In mid-December 2023, Vermont again saw torrential rains
5 and winds that created not only power outages but also damaging flooding, some in the
6 same areas hard hit last July. In January, Vermont saw back-to-back hurricane force wind
7 events, causing significant damage that affected GMP's system to the point where the
8 event hit the Commission's Major Storm definition.

9 At the beginning of April, just as we were preparing this testimony, a damaging
10 Nor'easter hit the region, with hurricane force winds and heavy, wet snow, toppling trees
11 and wires and causing hundreds of thousands of power outages in neighboring states.
12 Over 87,000 GMP customers lost power because of the storm, with the hardest-hit areas
13 being in many of the same places that saw damaging outages in the Winter 2022/2023
14 storms. With internal and external crews pre-positioned, we were able to restore over
15 65,000 customers within the first 24 hours of the storm damage starting.

16 The other significant storm events this winter did not hit the major storm criteria
17 due to GMP's efficient restoration, but nevertheless were costly and damaging to
18 customers. **Exhibit GMP-MB-10** lists the weather events since the time of filing and
19 their impact on customers.

20 GMP's rapid storm response for customers is only possible with advanced
21 planning and teamwork, but at a significant cost that recurs each time an impactful storm

1 hits. Since the start of this fiscal year, restoring our customers in response to these events
2 has cost \$16M in non-major storm spending, double our total yearly budget which is
3 based on a multi-year historical average with 5 months to go. Meanwhile, the Major
4 Storms in January and April cost an estimated \$20M combined. The increased frequency
5 of storms drives up costs to customers to simply repair the system, creating added cost
6 pressure that many cannot afford. On a one-year recovery basis, the \$20M in Major
7 Storm costs so far this year, on their own, would have a significantly higher rate impact
8 to customers than the ZOI Phase 1 we are proposing. This is why lasting solutions
9 through our ZOI are needed for customers.

10 **Q6. Can you speak further to how customers in different areas of the state are impacted**
11 **by these types of storm events and how GMP's ZOI addresses these equity issues?**

12 A6. We know that customers in our most rural, more heavily forested districts are impacted
13 more significantly than those in more urban districts, and that these rural areas have less
14 reliable service as a result. This stands out starkly when you look at the number of outage
15 events customers in certain districts experience. Table 1 below summarizes the
16 percentage of customers in each of our districts who experienced more than four outages
17 a year, and those who experience more than eight outages a year. In our Brattleboro
18 district led by Mr. Mills, more than 64% of customers experienced four or more outages
19 in 2023, and almost 40% experienced 8 or more outages. Other rural districts, including
20 Royalton, Springfield, Westminster and Wilmington, also see high outage events per
21 customer, particularly compared to districts like Colchester, where only 2% experience
22 more than 4 outages a year.

GMP Operating District	Customer Count by District	% of Customers in District that Experienced 4 or More outages	% of Customers in District that Experienced 8 or More outages
BRATTLEBORO	14,553	62.4%	36.8%
COLCHESTER	47,361	2.1%	0.0%
MIDDLEBURY	17,390	11.4%	0.3%
MONTPELIER	27,970	32.7%	4.0%
POULTNEY	9,446	16.0%	0.9%
ROYALTON	15,553	54.5%	22.7%
RUTLAND	26,109	13.8%	0.6%
SPRINGFIELD	19,620	45.0%	13.5%
ST. ALBANS	23,080	7.6%	0.0%
ST. JOHNSBURY	12,889	27.8%	5.1%
SUNDERLAND	22,891	20.4%	2.4%
VERGENNES	5,355	25.9%	0.5%
WESTMINSTER	6,400	50.8%	33.4%
WHITE RIVER JCT	13,131	14.3%	3.9%
WILMINGTON	8,494	36.9%	13.4%
Grand Total	270,242	23.4%	6.6%

1
2
3
4
5
6

Our ZOI approach is informed by these numbers and other data, including our 4.900 reports, and Phase 1 is designed to address this disparity. As discussed further below, we are targeting work in these areas in the first phase of ZOI guided by the prioritization and criteria outlined in our climate plan, so that ZOI work helps those who need it most first. This equity driven approach ensures we are deploying measures that will keep customers

1 safe in their homes, no matter where they live, while driving down costs for all customers
2 in the long run.

3 **Q7. You mentioned storm damage in neighboring states; what information do you have**
4 **on how storm-driven outages have affected other states and what is being done to**
5 **address the damage?**

6 A7. Vermont is not alone in seeing increased storm damage and costs. Storms have been
7 increasing in both frequency and extreme damage in other states all over the country, but
8 importantly in all other states in the Northeast. This very recent April storm, the tenth
9 worst in GMP history, provides another timely example. A swath of the mid-Atlantic and
10 south were under tornado watches and the system spawned twisters in Oklahoma,
11 flooding in Ohio, and ripped roofs off in West Virginia before it worked its way into our
12 region. Once it arrived here, there were significant power outages lasting multiple days in
13 New Hampshire (with over 174,000 outages at one point) and Maine (with more than
14 341,000 outages at the height of the storm), and millions of people across New England
15 were under high wind alerts with falling trees and white-out snow conditions causing
16 accidents and injuries.²

17 There are countless examples of storms that are hitting more frequently and
18 fiercely than anyone can remember. Utilities around the country have started to respond

² See CBS News, April 4, 2024, "[Winter Storm Leaves More Than 230,000 New Hampshire Customers Without Power](#)"; Portland Press Herald, April 4, 2024, "[Nor' Easter Slams Maine, Causing 350,000 Outages at Storm's Peak](#)"; The Washington Post, April 4, 2024, "[Major Spring Snowstorm Socks New England, Cutting Power to 600,000 Customers](#)". Page 2 of Exhibit GMP-MB-10 shows a point-in-time view of regional outages during this storm.

1 with requests, some involving very significant investments, to move lines underground
2 and storm harden infrastructure. For example, National Grid in upstate New York
3 announced a \$4 billion initiative to upgrade and rebuild more than 1,000 miles of their
4 transmission system and Avangrid is in the midst of a multi-billion dollar hardening
5 program in New York and is also pursuing upgrades in Maine. Con Edison in New York
6 is also pursuing resilience improvements estimated to be approximately \$1 billion due to
7 increased storm damage.³ Efforts are underway all over the country for strategic
8 undergrounding, and utilities are implementing energy storage in various ways, including
9 grid scale and behind-the-meter programs that are often modeled on GMP's original
10 program. We are uniquely positioned to build the ZOI because we have been
11 implementing these solutions for years and years, and were the first to implement energy
12 storage almost 10 years ago, in partnership with our customers, stakeholders and
13 regulators. As a result, we can now take a granular, by-zone approach within each circuit
14 that includes residential storage along with undergrounding and main-line hardening to
15 not just enhance reliability but instead eliminate outages experienced by customers,
16 showing how our proposal for ZOI is designed to deliver benefits to customers.

³ National Grid program description available at: <https://www.nationalgridus.com/News/2024/03/National-Grid-Announces-the-Upstate-Upgrade-Multi-year-Initiative-Will-Improve-Grid-Resilience,-Deliver-Significant-Benefits-for-Customers,-Local-Economies/>; Avangrid's for NYSEG and Rochester Gas & Electric program description available at: <https://www.nyseg.com/w/reliable-energy-new-york>; and the Con Edison initiative description available at: <https://www.coned.com/en/about-us/media-center/news/2023/11-21/coned-proposes-long-term-investments-to-protect-system-from-climate-change>.

III. Status of Projects and Proposed ZOI Work Requested in Petition

1 **Q8. What is the status of the projects you testified were underway or in planning as a**
2 **part of already accelerated work to start the ZOI initiative within the framework of**
3 **the existing regulation plan?**

4 A8. In **Exhibit GMP-MB-6**, I presented a number of projects that were underway or starting
5 soon to advance reliability in areas hardest hit in recent climate-driven storms. Work has
6 continued since last fall, as allowed by the weather. Specifically, portions of several
7 projects depicted on this exhibit have been completed, with many others in progress now,
8 or about to start. In **Exhibit GMP-MB-11**, we provide the most recent visual snapshot of
9 this region that shows completed and underway projects. Mr. Mills, the Operations
10 Supervisor with direct on-the-ground experience in that area, describes these projects
11 further in his joint testimony with Mr. Buxton.

12 Already, we can see improvement. For example, in the area in and just south of
13 Townshend, Vermont, the storm heat map previously showed oranges and reds due to the
14 many outages in winter 2022/2023; since completing a significant section of the Route 30
15 corridor upgrade, outages in that immediate area have already decreased, with more
16 improvements on the horizon as the corridor is completed.

17 **Q9. For these projects you are discussing, can you remind us what selection process and**
18 **capital documentation process you used for these and how they relate to your ZOI**
19 **request?**

20 A9. As we do with all capital projects, we followed the capital planning and documentation
21 process developed during prior rate cases with the Department and incorporated it into

1 our approved regulation plan. That means that we have capital folders for projects on
2 **Exhibit GMP-MB-11** that are developed in the planning process. We will follow this
3 same process for all ZOI projects. ZOI projects will have capital project folders
4 consistent with our existing project documentation standards under the GMP/DPS MOU
5 on capital documentation.

6 **Q10. How do the costs for these projects compare to the average undergrounding and**
7 **overhead costs you provided in your initial testimony?**

8 A10. As indicated in my initial testimony in October, undergrounding and overhead
9 construction for single phase is currently comparable from a cost perspective, when you
10 compare similar projects. This is based on our experience with projects completed and
11 delivering benefits to customers, along with information we have regarding the
12 techniques we plan to deploy here and coinciding project estimates. We provided
13 information supporting this analysis in discovery, showing both underground and
14 overhead costs at approximately \$300k per mile for single phase construction. I address
15 Mr. Mara's discussion of these estimates further below.

16 **Q11. Can you tell us again how GMP proposes to select and prioritize these projects, in**
17 **response to the Department's testimony on that topic?**

18 A11. The ZOI is designed to be an extension and acceleration of GMP's Climate Plan. The
19 Department witnesses discuss at length shortcomings they perceive regarding the ZOI,
20 but barely mention the defined and already Commission reviewed and approved
21 screening criteria that GMP has incorporated for the ZOI from the Climate Plan, which
22 was in turn incorporated into our current Integrated Resources Plan (IRP). We have years

1 of experience with using these screening criteria since the Climate Plan approval, and
2 they provide a strong, appropriate and proven planning framework for selecting projects.
3 We expect to use the same capital planning and documentation framework that has been
4 in place for a number of years and was approved again in the current regulation plan.

5 Contrary to Department testimony,⁴ we have proposed prioritization within the
6 ZOI, as shown in both our testimony and discovery responses, and the approved Climate
7 Plan project screening criteria. These specifically include:

- 8 • Type, age, condition, and location of asset;
- 9 • The number of customers served by each circuit;
- 10 • Outage hours and overall reliability of the existing line and
11 infrastructure;
- 12 • Review of where the project falls within the 20 least reliable circuits; and
- 13 • The critical facilities and community resources served by the circuit.

14 We combine these criteria with information from GMP field crews who use their
15 extensive experience to assess needed outage improvements and project priority based
16 upon factors like permitting, and availability of equipment and materials. And as we
17 described in initial testimony, at the workshop with the Commission, and during
18 Department quarterly briefings, we are demonstrating this project selection and
19 prioritization process right now through the set of accelerated projects already underway
20 in southern Vermont. We agree with Ms. Margolis that Phase 1 of the ZOI should be

⁴ See, e.g., Prefiled Direct Testimony of Anne Margolis (“Margolis pf.”) at 10-11.

1 targeted at the places of greatest need⁵ and that is exactly what we will do and what the
2 screening criteria support.

3 **Q12. How are you developing plans for further projects beyond those depicted in**
4 **Exhibits GMP-MB-6 and GMP-MB-11 that you expect to pursue as part of the**
5 **ZOI?**

6 A12. In addition to the projects underway or ready for construction now, we are using data
7 regarding storm damages and outages and the ZOI project criteria noted above and
8 scoping out additional high-level projects by construction season and year that will then
9 be developed by designers and construction crews as we move forward with Phase 1.
10 Phase 1 will immediately target a full ZOI build-out in two of our worst performing
11 circuits (discussed below), along with work on other critical sections in other circuits,
12 guided by our screening criteria. We will then apply the same criteria and methods to
13 other circuits.

14 The high-level estimates for Phase 1 of this work show that we can accomplish
15 \$250M in strategic undergrounding and overhead storm hardening, a much-needed
16 investment toward delivering the ZOI for our customers through FY26. As described by
17 Mr. Castonguay and based upon the Zone 4 locations that we expect to be able to reach in
18 Phase 1, about 1,400 additional customers will also receive GMP storage directly in their
19 homes through the ZOI during this time, an investment of approximately \$30M.

⁵ See Margolis pf. at 11.

1 **Q13. Can you speak further to the circuits on which you plan to do a full ZOI build-out in**
2 **Phase 1 of ZOI and the benefit of completing these full circuits?**

3 A13. Yes. The key innovation in our ZOI is this integrated, comprehensive circuit approach,
4 since all customers “downstream” from any protective device are affected by an outage at
5 that point. The traditional end of life asset-replacement planning that utilities have
6 deployed for decades approaches a circuit piecemeal. Accordingly, a comprehensive and
7 sequenced approach to reliability an entire circuit was not accomplished. While outcomes
8 improve in some areas on a circuit (such as illustrated in GMP-MB-5 in the Lincoln
9 area), areas of vulnerability for customers remain and those areas are often the areas that
10 are now disproportionately experiencing the effects of climate disasters. Historically,
11 when major weather disasters occurred infrequently, the traditional planning was
12 arguably sufficient, but today it simply is not. It is unsustainable both in terms of
13 reliability and in terms of costs—we must approach circuits more holistically, and that is
14 the purpose of ZOI.

15 We are in the initial stages of this for two circuits, the 56G1 and the EJ-G7. We
16 will accomplish overhead storm hardening, strategic undergrounding and energy storage
17 as outlined in ZOI in both circuits by the end of Phase 1 to demonstrate the effectiveness
18 of ZOI and to outline any learnings and improvements for continued work. Meanwhile,
19 we will continue to prioritize reliability work in zones on other circuits in areas that meet
20 the screening criteria to provide improved reliability for customers in hard-hit areas.

21 These two circuits are the right ones to prioritize for completion of the ZOI
22 approach under the criteria adopted in the Climate Plan:

- 1 • **Type/Age/Condition:** Both the EJ-G7 and the 56G1 have average age of
2 poles and related assets that is between 30-40 years with many cross-
3 country and non-storm hardened assets.
- 4 • **Number of Customers Served:** Each of these circuits serves around
5 2,500 customer locations in a mix of primarily very rural territory.
- 6 • **Total Annual Outage Hours:** EJ-G7 – 270,001 hours; 56G1 – 73,044
7 hours.
- 8 • **Ranking in 20 Least Reliable:** The EJ-G7 is at the top of this circuit list.
9 The 56G1 is fifth on this list for its zones 2 through 4, and some of the
10 sections in this circuit are the most difficult in our territory.
- 11 • **Critical Facilities/Community Resources:** Both circuits serve a number
12 of fire, EMS, and municipal facilities. Additionally, Grace Cottage
13 Hospital is served by the EJ-G7.

14 From an equity point of view, these customers have been experiencing worse
15 outcomes than most others, as can be seen clearly in **Exhibit GMP-MB-15a** showing
16 Customers Experiencing Multiple Interruptions (CEMI) by district. Using the CEMI
17 report, along with our outage heat map and GIS reliability map (which not only shows
18 outages but also pole ages and locations that are not storm hardened), it is clear we are
19 working in the right areas for customers. The focused investment in these areas is
20 equitable because it eliminates outages for these rural customers who have not had the
21 same level of reliability as customers in other areas of the state.

1 The estimated cost for ZOI implementation on those two circuits alone is
2 approximately \$60M in undergrounding and spacer cable projects, plus approximately
3 \$20M in customer storage. On **Exhibit GMP-MB-12**, I have laid out current estimated
4 costs for the EJ-G7 circuit by segment. **Exhibit GMP-MB-13** provides the same
5 information for the 56G1 circuit in central Vermont.

6 Beyond focusing the initial phase of work on the customers who are the most at
7 risk and have been bearing the brunt of this new reality of climate change-driven storms,
8 fully completing these two circuits along with the other work planned for Phase 1 will
9 provide critical information to evaluate the ZOI when GMP returns for Commission
10 approval of future work. The performance and initial cost/benefit information from these
11 projects—based upon actual installations—will address the Department’s desire for
12 further analysis without the many shortcomings of the Department’s recommendation to
13 delay work and attempt to develop reporting criteria without the benefit of data gained
14 through deploying these projects. The Phase 1 total investment we seek will allow us to
15 show we can scale up and deliver this urgently needed work for customers. This will
16 provide the Commission, Department, and GMP with quality information to evaluate
17 what will be needed to complete the ZOI in Phase 2.

IV. Response to Department of Public Service Testimony

a. Mr. Poor and Ms. Margolis

18 **Q14. Turning to DPS testimony, what is your view regarding the DPS testimony that**
19 **more planning is needed prior to undertaking these projects for customers?**

1 A14. I do not agree. All the initiatives we are pursuing are proven solutions. These projects are
2 replacing lines that are no longer performing to the standard that GMP and our customers
3 need in light of climate change. The safety of both customers and GMP team members
4 are also very much affected, specifically by the location of much of this infrastructure.
5 We always adapt as technologies improve, but there is nothing about the solutions we
6 plan to deliver in the ZOI that we have not already successfully deployed for customers.

7 The Department’s primary recommendation, Option 1, is to postpone Phase 1 ZOI
8 investment. As detailed at length by the rebuttal testimony of Ms. Smith and the joint
9 testimony of Mr. Mills and Mr. Buxton, the pace at which climate driven events have
10 arrived in Vermont and the urgency our customers feel to respond to this current problem
11 requires action now. Additionally, as I outlined above, we have a defined and already
12 Commission approved screening criteria that GMP has incorporated for the ZOI from the
13 Climate Plan, which was in turn incorporated into our current Integrated Resources Plan
14 (IRP). We have years and years of experience with using these screening criteria since
15 the Climate Plan approval, and they provide a strong, appropriate, and proven planning
16 framework for selecting projects. As stated above, we will use the same capital planning
17 and documentation framework that has been in place for several years and was approved
18 again in the current regulation plan.

19 The Department’s proposal to develop a full specific project list is contrary to this
20 proven framework. It is also operationally inefficient and inflexible. Preliminary
21 authorization to engage in the work, coupled with the proven regulatory framework,
22 allows us to contract with needed planning resources. The longer it takes to receive this

1 approved level of investment, the less likely contractors will be available to do the work.
2 Not only could this delay this important and necessary work, but the cost to construct will
3 likely increase with time as well. Finally, delaying Phase 1 is inconsistent with the
4 overriding framework behind GMP's MYRP that promotes flexibility to make decisions
5 that best serve customers while placing the risk and responsibility on GMP to deliver
6 beneficial projects. This, combined with our proposal to use the effective Climate Plan
7 regulatory accounting methodology for including capital projects in rates only once
8 completed and reviewed, means that we should be accelerating our delivery of proven
9 solutions now to customers, not waiting.

10 **Q15. Ms. Margolis discussed her opinion that resilience is not directly included in state**
11 **energy statutory criteria. How do you respond?**

12 A15. The Commission has a long history of supporting resilience under its authority and there
13 is a strong basis for doing so here. The Global Warming Solutions Act, the State Climate
14 Action Plan, and the Commission's own orders on GMP's Climate Plan, regulation plans,
15 storage tariffs and others, support this.⁶ In addition, the overall Title 30 framework
16 demands it. This is the central opportunity in Vermont: to make the entire grid far more
17 resilient and cost effective for Vermonters than it is today, particularly as customers
18 decarbonize and come to rely on the grid more for so many aspects of their everyday
19 lives. The ZOI approach is specifically designed to build a strong system to withstand not

1 only storms, but also broader grid outages from cyber, regional load shedding, or physical
2 attacks. This work is very consistent with State energy planning.

3 **Q16. The Department raised issue with the level of GMP’s capital request here; why did**
4 **GMP request up to \$280M through FY26 for this initiative?**

5 A16. We requested this amount based on (1) our experience with this work, (2) what projects
6 we can achieve during this timeframe based on the initial commitments we have from our
7 material suppliers and underground machine contractor to complete the work and meet
8 the goals of ZOI, and (3) the urgent need to address quickly and at scale the damage and
9 costs from climate disasters in the hardest hit areas of Vermont. Our proposal was and
10 continues to be based on what we can deliver to customers during the next two years. As
11 stated throughout my testimony above, if approved, this request will allow for further
12 review of ZOI strategies and for review of the data gathered from this work to continue to
13 inform the ZOI.

14 Additionally, as GMP witnesses have outlined, any investments would only be
15 included in rates after projects are completed as consistent with the adopted ZOI criteria
16 (which are themselves based upon the approved screening criteria in GMP’s Climate
17 Plan). Getting projects completed with this budget will provide immediate benefits to
18 customers where projects are completed—and all customers as it begins to reduce storm
19 costs. As mentioned previously, this will turn a Phase 1 into a state-wide proposal that
20 truly informs us, the DPS and the Commission on the time that is required, the resources
21 we need, the integration of different resources to accomplish the complete ZOI, and the

1 cost savings from these projects. We need a full and meaningful Phase 1 to do so, while
2 benefiting customers at the same time versus just doing additional planning.

3 Further, we are requesting this now because the most severe events hit well after
4 our capital planning was complete for the current MYRP, and weather events just
5 continue to increase in frequency, even beyond predicted climate forecasts; if we knew
6 then what we know now, the ZOI would have been proposed even earlier. As it is,
7 customers cannot wait for another outreach, planning, or approval process as the
8 Department suggests in its ‘Option 1’ recommendation, especially because we all know
9 what customers want and the level of spending and limitations suggested in their \$50M
10 ‘Option 2’ recommendation will not meet customer needs nor come close to making
11 Phase 1 comprehensive enough to inform the next phase of ZOI.

12 **Q17. How do you respond to Mr. Poor’s opinion that the Strategic Opportunity provision**
13 **in GMP’s regulation plan does not fit the work proposed in the ZOI Petition?**

14 A17. I do not agree. We are utilizing the same approach here as we did in the Climate Plan,
15 approved by the Commission as a strategic opportunity during our last regulation plan
16 and then incorporated into our Integrated Resource Plan (IRP) and next regulation plan,
17 also approved by the Commission. The major factor impacting the predictability of rates
18 for customers over the past several years are costs affecting our customers that are harder
19 or impossible for GMP to reduce or control, including most importantly significant storm
20 costs associated with climate-change driven weather events and responding to those
21 events to get our customers back online as soon as safely possible—the proposed ZOI is
22 designed specifically to address these escalating costs.

1 **Q18. The Department’s testimony included information on rate changes; how will**
2 **customer rates be affected by ZOI?**

3 A18. The summary of rates in the table on page 13 of Mr. Poor’s testimony is over a limited
4 period of time and does not show the whole picture. For example, many of the items are
5 short-term adjustors that come onto and later drop off customer energy statements, and at
6 times provide credits—so adding the figures up as an overall continuing rate increase is
7 not accurate. More importantly, the information only proves the point of how important
8 this work is—there are cost impacts in the period highlighted, most of which as discussed
9 in detail in related rate filings are not related to GMP’s operations, including broader
10 regional and international energy market and financial conditions, including significant
11 inflation in that period. Storm costs also contributed significantly to those figures—and
12 storm costs would have almost doubled these one-year rate impacts if GMP had not
13 sought to extend the collection period for customers.

14 **Q19. Mr. Poor’s testimony claimed that GMP did not communicate with the Department**
15 **“transparently and collaboratively” regarding the ZOI. Do you agree?**

16 A19. No. We took the approach here that we take for any filing, letting the Department know
17 we were working on further solutions after we all experienced the 2022/2023 winter
18 season and what fierce climate-change driven storms will mean for Vermont, over and
19 over again (as proven out again in the 2023/2024 winter season), unless we do something
20 comprehensive to address it. We described our Zone approach soon after the winter
21 storms, when reviewing with the Department our U.S. Department of Energy Grid
22 Resilience and Innovation Partnership grant to create a fully reliable and resilient circuit.

1 We also highlighted our efforts during the Commission’s investigation regarding the
2 statewide utility response to those devastating storms and worked to file this Petition as
3 quickly as possible after that hearing.⁷ We work regularly with stakeholders including
4 the Department on this issue, and we hear regularly from our most important
5 stakeholder—our customers—that much more work needs to be done to address
6 reliability and resiliency in the face of climate change driven storms.

7 **Q20. Please describe specifically GMP’s routine outreach to the Department of Public**
8 **Service on operations and reliability.**

9 A20. A group of GMP leaders meets every quarter with a team from the Department to go over
10 engineering, operations, and reliability in detail. I attend these meetings as GMP’s field
11 operations leader and so does our engineering, generation, and innovation leader Josh
12 Castonguay. We typically have GMP’s chief engineer, generation lead, and grid
13 operations lead at these meetings as well. For example, on January 9, 2024, we had our
14 most recent meeting. In attendance for GMP besides myself were Josh Castonguay, Jason
15 Lisai (generation lead), Kamran Hassan (chief engineer), John Voyer (Grid Operations,
16 substation and control room operations leader), Ken Couture (grid operations leader), and
17 Cam Twarog (electrical engineer). The Department’s chief engineer Bill Jordan always
18 attends, along with at least one other member of his team (in recent meetings, Lou
19 Cecere). This is a recurring meeting that we have maintained for the past several years.
20 We go over recent storms, reliability metrics, the status of major GMP projects underway

⁷ Case No. 23-0834-INV, with public hearing held September 22, 2023.

1 and upcoming, ways we are addressing reliability and other topics as requested by either
2 DPS or GMP. In 2023, we met three times in the late winter, spring and late fall.
3 Ironically, we were also scheduled to meet in July, but it was understandably cancelled
4 by the Department due to the flooding the state experienced that month. At the next
5 meeting in October 2023, following the Commission’s storm workshop, we went over
6 our just-filed ZOI petition specifically and among other things shared with the
7 Department the undergrounding technique we are pursuing to make this work quicker and
8 more efficient.

9 **Q21. In your view, is GMP’s ZOI transparent and built on customer and stakeholder**
10 **feedback to provide equitable and reliable service?**

11 A21. Yes. All our community outreach on reliability and storm restoration work, this
12 proceeding, the proposed regular annual review of completed ZOI projects, regular ZOI
13 metric reporting, and the evaluation of future ZOI phases provide a fully transparent
14 process. And the foundation of ZOI is directly responding to, and serving, customers in
15 the face of a changing climate and an increase in the frequency and severity of storms.
16 We know that reliable electric service is a top priority for customers, and that they’d like
17 protection from outages as severe weather escalates right now and as they electrify their
18 lives, not waiting as suggested by the Department. We know this because, as part of
19 doing our work, we speak with hundreds of our customers daily, including in storms, and
20 because of additional regular outreach with “ratepayers, regulatory authorities, and

1 potentially affected communities” as the Department suggests,⁸ as described further in
2 Ms. Smith’s testimony.

b. Mr. Mara & Mr. Jordan

3 **Q22. Mr. Mara discusses reliability improvement methods that GMP could enhance,**
4 **including vegetation management and pole replacement; what is your view of his**
5 **suggestions?**

6 A22. These are important components of day-to-day reliable utility operations, but they are
7 simply insufficient to address reliability on today’s grid. These methods serve yesterday’s
8 grid. Today’s grid serves a much different society and faces different threats and
9 opportunities. This requires the utilization of the proven methods of the past and the
10 incorporation of new and different solutions, particularly as our society’s reliance on
11 electricity increases.

12 To name a few, today’s grid faces (1) vegetation that is significantly different
13 from the vegetation that existed prior, (2) longer growing seasons for that vegetation, (3)
14 increased costs for vegetation management services with a declining workforce with
15 significant turnover rates, (4) significant safety concerns for continued vegetation
16 management practices in light of the changing vegetation and changing climate, (5)
17 several historic weather events a year driven by climate change resulting in, among other
18 things, the destruction of grid infrastructure from trees falling from outside rights of way
19 and that are not danger trees, (6) cyber attacks, (7) physical attacks to substations, (8)

⁸ Poor pf. at 10.

1 regional grid issues due to increased demand and a transition to different generation
2 facilities, (9) increased car / pole accidents, (10) a changing workforce with more
3 Vermonters working out of their rural homes, (11) an aging population relying on
4 electricity to power medical devices, and (12) a transition to electric transportation and
5 heating to tackle decarbonization and lower the carbon in our atmosphere. While
6 vegetation management and pole replacement programs are important initiatives from
7 yesterday's grid that we will utilize going forward (particularly as artificial intelligence
8 improves), they simply are not comprehensive enough to manage today and tomorrow's
9 grid. Additionally, vegetation management is a constant spend cycle of maintenance.
10 Some of Mr. Mara's suggestions, such as utilizing "ground to sky" clearance or routine 5-
11 year cycles for vegetation management or trying to widen distribution corridors through
12 landowner-by-landowner agreement,⁹ would add significant recurring costs to a repeating
13 maintenance challenge while not addressing the most significant part of the damages
14 customers are suffering from: healthy, large trees falling from outside of GMP's rights of
15 way. Mr. Mills and Mr. Buxton address this specifically and show photos and a video of
16 the damage we've seen in **Exhibits GMP-DM-KB-1 & 2**.

17 In my many years of experience, I can tell you that customers of utilities with
18 poor vegetation management suffer worse reliability in all seasons and weather, because
19 vegetation management plans are designed to eliminate trees growing into and onto the
20 lines in the rights of way, with only recognized unhealthy "danger trees" otherwise being

⁹ See Prefiled Direct Testimony Kevin J. Mara ("Mara pf.") at 12.

1 removed if owner permission is granted. That is not the challenge in our territory, where
2 customer service day-to-day is generally “excellent,” as the Department recognized.¹⁰
3 Mr. Jordan’s testimony correctly observed that “routine veg maintenance within the
4 ROW will not solve this problem.... Solutions must go beyond veg management, which
5 is what GMP is proposing in ZOI.”¹¹

6 Mr. Mara calculated the increase in these expenses using only a subset of specific
7 set of years—but regardless of whether his 5.4% increase or a larger increase over a
8 different number of years is considered, trimming will not avoid the major impacts of
9 large trees falling from outside our rights of way in these severe weather events in our
10 heavily forest-covered state. Our robust vegetation management plan, using technology to
11 make it more effective and efficient is key, but we need longer lasting solutions than just
12 more trimming to make our system resilient, which will also help reduce these vegetation
13 management costs over time in the long run. We need lower costs over time, not higher.

14 Regarding pole replacement, we are already doing much of what Mr. Mara
15 suggests. Our pole inspectors utilize sound boring, for example, on any pole more than 10
16 years old, and we have been replacing poles aggressively as we accomplish projects. I
17 note that our depreciation is over 48 years, not 30 as Mr. Mara suggests. Regardless,
18 poles are still subject to the extreme weather, and so our ZOI focuses efforts at targeted
19 undergrounding as a key solution, with storm hardening of overhead lines including
20 replacement of poles wherever warranted—again, lowering costs over time.

¹⁰ See Prefiled Direct Testimony Carol Flint (“Flint pf.”) at 7.

¹¹ See Prefiled Direct Testimony Bill Jordan (“Jordan pf.”) at 9.

1 **Q23. Mr. Mara specifically suggests GMP change its construction standards for wind and**
2 **ice loading to NESC Rule 250C and NESC Rule 250D, respectively; what has GMP**
3 **concluded regarding these points?**

4 A23. Mr. Castonguay leads our engineering team, but both of us have worked with our lead
5 engineer to review these suggestions and we agree they are not cost-effective for GMP to
6 adopt across the board. The primary cause of outages on our lines are from tree contacts
7 from large mature trees, often outside of the right-of-way, that themselves fall due to
8 heavy, wet snow loading and/or wind.¹² GMP is not aware of any utilities in our region
9 building to this standard on regular standalone distribution lines, and Mr. Mara confirmed
10 in discovery he is not either. The construction techniques employed in this initiative are
11 those that are designed around our primary challenge and are a more cost-effective
12 method to manage tree contacts than these NESC standards. This is another important
13 reason why we have an “underground first” mentality so that we can overcome the notion
14 built up over many years that undergrounding here is too hard or too expensive.
15 Undergrounding not only addresses tree contacts, but ice and wind as well. With new
16 advances, it is more cost-effective, and we plan to deploy it robustly using the technique
17 we mentioned at the workshop, and as I describe further below.

18 **Q24. Mr. Mara sets forth several project cost estimates, both for underground projects**
19 **and overhead storm hardening projects; what does your review of his testimony on**
20 **these topics reveal?**

¹² See Jordan pf. at 9, Mara pf. at 12, Prefiled Direct Testimony of Micheal Burke at 7-8.

1 A24. Our review shows that Mr. Mara’s analysis of average overhead and underground costs
2 reflected in Exhibits DPS-KJM-5 and -6 overestimates the cost of undergrounding by
3 more than 50% and does not accurately represent the comparative costs of this type of
4 construction. These exhibits build off GMP workpapers produced in discovery.¹³
5 Developed in 2021, that work demonstrated that the relative expense at that time of
6 typical overhead and underground projects was comparable on both a per-mile installed
7 basis—\$179k/mile for underground and \$206k/mile for overhead—and an all-in lifetime
8 analysis of associated expenses including maintenance and tax impacts.

9 The underground work analyzed by GMP and in Exh. DPS-KJM-5 were part of
10 larger capital projects that included both overhead and underground sections, with the
11 overhead mileage and costs excluded in GMP’s analysis. While this was noted in the
12 workpapers GMP produced, a data field was added that indicated total—i.e. overhead and
13 underground together—project cost/mile. This field did not impact GMP’s analysis. Mr.
14 Mara’s calculations are based on a similar total project cost/mile, but do not incorporate
15 the associated overhead mileage. This results in an inflated cost/mile estimate for
16 underground, rising to about \$309k/mile. In **Exhibit GMP-MB-14**, I have updated this
17 workpaper, removing the extraneous values and confirming the correct total per-mile cost
18 of projects utilizing both overhead and underground construction as Mr. Mara attempted

¹³ See Attachments DPS:GMP.1-28c and DPS:GMP.2-64a.

1 to do. The combined cost/mile of these costs is directly in line with GMP's estimates for
2 underground or overhead standing alone, at \$202k/mile.¹⁴

3 This analysis continues to support our current experience that underground
4 construction can be built on par with overhead construction on our distribution system,
5 plus the work is accomplished much faster.

6 **Q25. Do you have any reaction to Mr. Mara's cost estimates in Table 7 of his testimony**
7 **based upon the work you have done evaluating ZOI projects for the EJ-G7 circuit?**

8 A25. The information Mr. Mara presents regarding ZOI costs for the EJ-G7 circuit was based
9 in part upon the legend at the bottom of **Exhibit GMP-MB-8**; the detailed information on
10 the circuit line miles shows that the legend is missing a portion of line miles that would
11 have to be included in any estimate. Specifically, there are 122.7 miles of "Zone 3" lines
12 in the EJ-G7, not 12.7 as shown in that legend. I include an updated exhibit here with this
13 rebuttal testimony. *See Exhibit GMP-MB-8 (rev.)*. We did not notice the missing digit
14 on the exhibit until we attempted to reconcile Mr. Mara's analysis with our own
15 information on the number of miles in that circuit. Not all miles on that circuit require
16 hardening because it has been a central focus of our recent storm hardening efforts and
17 about 100 miles on the circuit are already storm hardened. Using the corrected mileage of

¹⁴ This is consistent with costs at the time this analysis was completed; costs for both methods have increased comparably with inflation. Exh. DPS-KJM-6 is based on these cost/mile values. As Exh. DPS-KJM-5 provides incorrect values, the analysis in DPS-KJM-6 should be disregarded. The original version of that work instead confirmed that underground projects result in equivalent or lower lifetime expense on average compared to hardened overhead construction.

1 the remaining unhardened lines that must be addressed, the cost estimate for that circuit
2 alone including customer storage is approximately \$46M. *See Exhibit GMP-MB-12.*

3 **Q26. Mr. Jordan concludes in his testimony for the Department by describing four areas**
4 **he asks GMP to address in rebuttal. Can you provide GMP's response to each?**

5 A26. Yes. Mr. Jordan asked us to confirm the definition of an “outage” we intend to apply to
6 ZOI. He also asked for histograms of customer outage and duration for 2020-2023, and
7 he asked us to comment on how we view storage regarding Commercial and Industrial
8 customers and customer outages. I will cover the first two topics here, and Mr.
9 Castonguay addresses the remaining two in his testimony.

10 Regarding an outage definition, as Mr. Jordan notes, PUC Rule 4.900 defines an
11 outage as any time a customer experiences a zero-voltage event for 5 minutes or longer.
12 We will continue to use that definition, including for assessing outages in the context of
13 customer storage. If the storage customer ultimately does consume their full amount of
14 storage and suffers an outage at that point, we would count that outage period following
15 depletion of the battery as part of our reliability statistics.

16 We have also prepared the type of histograms Mr. Jordan requests for both
17 frequency and duration of customer outages in 2023 in **Exhibits GMP-MB-15a & 15b**. I
18 note that this involved an extremely large set of data and took a significant amount of
19 time to create, and as a result we have prepared for the 2023 calendar year only. As we
20 knew, a significant number of our customers are experiencing three or more outages
21 annually and thousands of customers experience multiples of that amount. These occur in
22 the same districts we have described in testimony and highlighted the state-wide “heat

1 map” we provided as Exhibit GMP-MB-1, including many of the Southern Vermont
2 communities highlighted in Exhibit GMP-MB-6 where we are currently executing
3 projects and must do more under ZOI. Customers in these locations experience
4 significantly lower reliability compared to those in other locations such as Chittenden
5 County. We must address this inequity, as well as the need to strengthen this rural
6 infrastructure, and ZOI is designed to do just this.

7 **Q27. You mentioned above shifting to undergrounding wherever possible; tell us more**
8 **about the undergrounding technique you are going to use for ZOI installations.**

9 A27. As we have described to the Commission in other proceedings, we have been using
10 cable-in-conduit undergrounding for the last several years for overhead to underground
11 rebuilds and other areas and it is far more efficient than the previous installation
12 technique of an open trench for laying lines underground by gluing together ten-foot
13 sections of conduit and pulling in cable. The technology and equipment have now
14 evolved further, and we have located a company based in central New York that owns
15 machines that can efficiently trench and lay up to five already ready-to-serve conduits
16 with cable already in there (including communications empty innerduct conduits for later
17 access as needed), and then backfill all in one pass. The equipment is narrow enough to
18 work in the roadside laying lines as it moves along. **Exhibit GMP-MB-16** includes
19 images of the equipment that I explained at the workshop, along with a video view of the
20 equipment in use.

21 The machine incorporates a twelve-inch rock saw that allows the trenching to
22 occur in multiple conditions including ledge, shale, gravel, clay and riverbed soil,

1 whereas prior techniques would not be able to do that cost-effectively or without blasting.
2 The machine sifts out soft bedding for the first layer of backfill 18” to 24” deep and uses
3 the remainder of the soil to finish the task. The technique is faster and involves less labor
4 because reels of conduit are loaded on the machine and automatically feed into the trench
5 as it is dug, and the machine itself then accomplishes the initial backfill, followed by a
6 small custom skid steer to finish and compact the soil. Line crews then come in and
7 terminate the underground line as needed to pick up overhead or underground laterals.
8 The difference in using this new undergrounding technique, which can accomplish up to
9 a mile per day in ideal conditions, is enormous compared to simply rebuilding lines
10 overhead.

11 Fortunately, as discussed above, undergrounding is on par with overhead
12 construction from a cost standpoint and is also quicker and less disruptive. The manual
13 cable-in-conduit method (what we have deployed in the past few years for
14 undergrounding) results in approximately 200-300 feet per day of installation, with an
15 excavator and crews laying individual conduit and then manually backfill. This is often a
16 time savings compared to traditional overhead installation. The newest underground
17 method, utilizing the automatic rock saw trenching machine depicted in **Exhibit GMP-**
18 **MB-16**, is an even more efficient method, accomplishing up to a mile per day of
19 trenching, depending upon the terrain. We then come through with a small machine to
20 tamp down the backfill and make all the connections and tie ins needed to serve
21 customers, with the overall length of construction much shorter. Mr. Mills details the
22 success of this equipment further in his testimony with Mr. Buxton.

1 The contractor that supplies this equipment is committed to bringing up to 17 of
2 these machines to Vermont, as soon as we are ready to deploy them. We gave the
3 company an estimated number of 200 miles to install and they estimate they would need
4 only 6 of the 17 machines to complete this work in a 6-month period. This is a significant
5 technological advancement for deploying underground. At a time when other utilities are
6 starting to realize the importance of transitioning to underground, we intend to make sure
7 we can use it here now in Vermont. Committing to it as soon as possible is important to
8 ensure availability and to ensure we keep the costs as low as possible.

9 **Q28. Some of the Department witnesses including Mr. Jordan suggest that the baseline**
10 **service quality and reliability metrics GMP and other utilities use to report on**
11 **performance should be changed to include Major Storms. Does GMP agree with**
12 **that recommendation?**

13 A28. We do not. Excluding Major Storms from baseline reliability reporting is not unique to
14 GMP, and there is a very good reason for it. The Department's witness Mr. Mara noted
15 that Major Storms are excluded not only in Vermont but all around the country, and he
16 covered the reason for that well.¹⁵ These events are not day-to-day or routine, and
17 typically are large enough to cause damage outside of well-maintained rights of way.
18 Measuring baseline, day-to-day reliability performance without them provides regulators
19 with insight into how utilities operate, allows for comparison across a wide set of utilities
20 in different climates and with different storm challenges, and gives a picture of any

¹⁵ Mara pf. at 8.

1 changes to baseline performance over time without the lumpy outcomes and extremes
2 that are caused by Major Storms. If Major Storms were simply included in standard
3 service quality and reliability reporting, the results for GMP (and any other Vermont
4 utility that would have the same change) would be significantly skewed, both because the
5 required target itself would have to change significantly and because the results would
6 vary so much depending upon when such storms hit. The different versions of revised
7 reliability metrics for SAIFI and CAIDI with Major Storms proposed by Mr. Jordan
8 would have these same problems.

9 Instead, we agree with Mr. Mara that it would be reasonable and helpful to
10 supplement reporting already done on a yearly basis under Rule 4.900 with additional
11 information related to the difference in reliability metrics by circuit and the speed of
12 customer restoration when outages occur. In **Exhibit GMP-MB-17** I set forth GMP's
13 proposed set of additional metrics to track these items. The Rule 4.900 Report is due at
14 the same time as GMP's annual performance metrics report for the regulation plan, and
15 so these could be incorporated by Commission Order in either place or both. If the
16 Department desired further refinements to these, we could take that up in the IRP process
17 while not delaying this important work for Vermonters.

18 **Q29. Should any new reporting metrics be subject at this time to the types of penalty**
19 **payments the Department suggests?**

20 A29. No. The Department's charts and equations attempt to put an objective veneer over what
21 would be an arbitrary application of penalties, not "performance-based regulation" as the
22 Department claims. As Ms. Smith notes in detail, we are working with the Department

1 right now on updating our SQRP. While that has focused on customer communications
2 and service issues, rather than on reliability metrics such as SAIFI and CAIDI, the SQRP
3 is a living document that already can be revisited as conditions warrant and particularly if
4 the ZOI Petition is approved and projects are completed. It makes sense to continue to be
5 subject to potential penalties if baseline SQRP metrics are not met, but it would not make
6 sense to trigger compensation calculations based upon including Major Storms or at this
7 point picking a specific ‘improvement’ percentage. GMP has said before that we do not
8 expect performance awards for exceeding goals because the structure of the regulation
9 plan itself encourages good performance, and the same philosophy should hold regarding
10 any potential reset of penalty metrics.

11 **Q30. Turning to the five specific performance penalties suggested by Mr. Mara’s**
12 **testimony and discussed by Mr. Jordan and the joint testimony of Mr. Foley and**
13 **Mr. Thomas, what is your overall opinion of adopting these specific performance**
14 **penalties at this time?**

15 A30. The Department’s testimony on this to me illustrates exactly why we need to take the
16 phased approach that we are proposing by evaluating and setting appropriate Phase 1
17 metrics based on data as we proceed along, evaluating later potential performance-based
18 regulation standards based on real data and experience. And aspects of the performance
19 penalties suggested by the Department just do not work or make sense as a way for
20 tracking “success” of the ZOI.

21 For example, the Department suggests a 33% improvement over 2023 results in
22 SAIFI/CAIDI for “rural” feeders as defined by Mara, and he states that he arrived at this

1 metric by taking into account achieving no outages on our 12 lowest performing
2 circuits.¹⁶ He also states that by his own calculations the Department’s \$50M
3 recommendation would cover just a fraction of these rural circuits—about 1.5% in my
4 calculation. Either the efficacy of this performance penalty was not considered, or it
5 actually supports GMP’s request that a significant, accelerated investment amount (far
6 greater than the Department’s own suggestion) is needed to achieve meaningful change.

7 In addition, we disagree with his own curated data on storm costs developed to
8 support his claims that such costs have been “constant.”¹⁷ That does not fit the facts or
9 the lived experience of Vermonters, and it was produced by Mr. Mara by grouping the
10 data in a way that presents an inaccurate picture. Slicing the data the way Mr. Mara did
11 on storm costs does not account for increased frequency of events, including the
12 increased number of storms that are ‘minor’ but very impactful, and the costs of GMP’s
13 rapid overall outage response.

14 Instead, we agree with Mr. Mara’s statement that “customers’ experience should
15 be paramount”¹⁸—and what our customers have experienced is worsening weather and
16 outcomes, as Mr. Mara’s data in other places supports. This is exactly what the ZOI is
17 focused on and why we need to implement it rapidly—it is all about the customer
18 experience in today’s grid.

¹⁶ Mara pf. at 30.

¹⁷ Mara pf. at 16-17.

¹⁸ Mara pf at 16.

1 Mr. Mara concurs that this initiative is needed and finds our desire to deliver it for
2 customers “completely understandable.”¹⁹ He also describes the “devastating impacts” of
3 “catastrophic” weather Vermont has suffered and, as I noted already, explains why Major
4 Storm events are excluded from reliability penalty indices nationwide.²⁰ But Mr. Mara’s
5 opinion that our SAIFI/CAIDI levels are not “sufficiently challenging” does not match
6 our experience or the experience of our customers. The current standards for SAIFI and
7 CAIDI were developed in 2014 in conjunction with the merger where GMP took
8 responsibility for a much larger territory and existing distribution system that was much
9 more reliability challenged (that of Central Vermont Public Service or CVPS). At the
10 time of the merger, investments in capital projects to strengthen the distribution grid in
11 the CVPS legacy area were only about 17% higher the amount of GMP’s, even though
12 that territory was 66% larger in size. The results in that territory were consistently worse
13 for customers, in alignment with not enough investment happening over time. When the
14 merger occurred, the standards were set aggressively with that in mind, and GMP worked
15 hard to meet these new combined metrics. Reviewing the level and outcomes of these
16 same metrics for other larger utilities in Vermont and New England, as set forth by Mr.
17 Mara, highlights this point.²¹

18 Certain individual items Mr. Mara suggests are very sensible to include in
19 reporting now and as we further this initiative. I describe below all the reporting and
20 metrics GMP proposes in response to the Department’s testimony in **Exhibit GMP-MB-**

¹⁹ Mara pf. at 7.

²⁰ Mara pf. at 6-8.

²¹ Mara pf. Tables 2-4.

1 17. We particularly agree with Mr. Mara’s approach to more granularly track and report
2 reliability metrics by circuit—while he suggested grouping circuits by “rural” and
3 “urban,” we can track these metrics circuit by circuit when we commence ZOI projects
4 on each circuit and report on them in a number of ways that measure ZOI progress and
5 performance. For example, we propose to report where in our system (by circuit)
6 resilience improvements such as undergrounding and spacer cable have been
7 implemented under ZOI over time in order to see the type of direct correlation of projects
8 and benefits Mr. Mara and the Department seek, only using measures that are more
9 effective than the metrics they proposed.

V. GMP’s Proposed Reporting Metrics and Data

10 **Q31. What is GMP’s overall position on potential data and metrics that could be used to**
11 **measure the success of the ZOI?**

12 A31. We agree looking at the outcomes is important, which is why we have proposed the ZOI.
13 The Department’s testimony incorrectly states that GMP did not propose any way to
14 measure the success of ZOI. As we execute, baseline reliability would continue to be
15 measured by our Service Quality and Reliability Plan (SQRP), including any updates
16 made in the separate on-going review described further by Tiana Smith. As the
17 Department states, an “industry accepted suite has yet to emerge.”²² We agree that Phase
18 1 of the ZOI will offer “an excellent opportunity to begin to develop a suite of metrics

²² Margolis pf. at 15.

1 suitable in VT,”²³ in the long run based upon data from actually deployed projects using
2 already proven solutions of undergrounding, storm hardening overhead lines, and adding
3 customer-sited storage.

4 We agree that several of the data points Ms. Margolis includes in her testimony—
5 which differ from the five specific performance penalties the Department proposes—
6 would be a good fit for tracking the progress and impact of the ZOI. **Exhibit GMP-MB-**
7 **17** includes several suggested by Ms. Margolis’ testimony, including ones that will help
8 track cumulative customer hours out and recovery time, along with progress
9 implementing projects by circuit across our territory that are similar to the Connecticut
10 Public Utilities Regulatory Authority framework included in the Department’s testimony.
11 We also suggest several metrics that match the data Mr. Mara recommended be tracked.

12 **Q32. What set of reporting metrics and data does GMP propose, and why?**

13 A32. **Exhibit GMP-MB-17** sets forth our proposed metrics and data for Phase 1 ZOI
14 reporting. We have presented it in a format consolidating with our MYRP annual
15 reporting because we suggest it will be helpful to combine these results with that annual
16 report, which is the same date we file our Rule 4.900 report and our annual SQRP results.
17 This would create a single point at which the Commission can look at outcomes across
18 GMP’s operations, as the performance-based regulation embodied in the MYRP
19 contemplates.

²³ *Id.*

1 The metrics and data are meant to capture both concrete project progress (such as
2 miles undergrounded; miles of overhead spacer cable; and customer batteries installed)
3 and outage reduction performance by circuit performance. As we start to deploy ZOI
4 solutions on circuits, we will report on the progress to date each year and the amount
5 remaining as projects continue. Overall, we will report on the metrics mentioned above in
6 a similar manner to our other MYRP metrics.

7 We will also specifically show CEMI across all customers and districts, by each
8 outage level, so that we can check progress toward our zero outages goal for customers
9 who need this work, which in turn measures how we are increasing equity among
10 customers. We will also track outages on Zone 1 spacer cables in a manner similar to
11 Forced Outages per Hundred Miles per Year (“FOHMY”) of transmission lines by
12 tracking incidences of breaker operations as Mr. Mara suggests.²⁴ For this FOHMY
13 equivalent, we also propose to report this data on a more granular level, circuit by circuit,
14 on the circuits where Zone 1 storm hardening has occurred. *See Exh. GMP-MB-17* (ZOI
15 tab).

16 **Q33. Describe for the Commission what outcomes you expect to be able to show if Phase 1**
17 **is approved and you are able to deploy these solutions in the field.**

18 A33. The undergrounding, storm hardening, and customer-sited battery solutions in the ZOI
19 will result in significantly improved outcomes not only in daily service but particularly
20 during storms or other grid interruptions as described above for those customers who

²⁴ Mara pf. at 30.


1 have been hardest hit. This will demonstrate how treating these solutions as core utility
2 service will create a two-way self-healing connected grid that will better serve customers
3 as they continue to increase their reliance on clean electricity for every aspect of their
4 lives in the years ahead. All of this will also lead to electric service at a cost that not only
5 is just and reasonable compared to the repeated, increasing costs of storm repair and
6 maintenance, but also more equitable for customers, as costs will go down over time and
7 all GMP customers will be more safe and more secure in their homes.

8 **Q34. Does this conclude your testimony at this time?**

9 A34. Yes, it does.

I, Michael Burke, declare that the testimony and exhibits that I have sponsored are true and accurate to the best of my knowledge and belief and were prepared by me or under my direct supervision. I understand that if the above statement is false, I may be subject to sanctions by the Commission pursuant to 30 V.S.A. § 30.

Dated at Colchester, Vermont this 15th day of April 2024.



Michael Burke