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 rate plan

PREFILED SURREBUTTAL TESTIMONY OF

KEVIN J. MARA

ON BEHALF OF THE

VERMONT DEPARTMENT OF PUBLIC SERVICE

May 13, 2024

Summary: My surrebuttal testimony responds to Green Mountain Power Corporation's rebuttal testimony regarding the issues discussed in my March 15, 2024, prefiled direct testimony. Specifically, I address and disagree with portions of Mr. Burkes rebuttal testimony, and I make an updated interim-metric recommendation for the Battery Failure to Start Index.

Q1. Please state your full name, address, and occupation.

A1. My name is Kevin J. Mara. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia 30067, reflecting a change to the address stated in my Prefiled Direct Testimony. I am the Executive Vice President of the firm of GDS Associates, Inc. ("GDS") and Principal Engineer for a GDS company doing business as Hi-Line Engineering. I am a Principal at GDS Associates, Inc.

Q2. Are you the same Kevin J. Mara who previously filed direct testimony in this matter on March 15, 2024?

A2. Yes, I am.

Q3. Please summarize your Prefiled Direct Testimony.

A3. My testimony describes and proposes five (5) interim metrics, exclusive of major storms, to measure Green Mountain Power Corporation's ("GMP") Zero Outages Initiative ("ZOI") resilience/reliability performance under the Vermont Department of Public Service's ("Department") **Option II** or **Option III**. These interim metrics may also be considered under **Option I** if/when GMP and stakeholders engage in a longer, more robust ZOI planning process. These metrics are summarized in the following table.

Table 1: Department's Proposed Interim Metrics for Option II	
1	33% improvement in SAIDI/SAIFI for rural feeders over 2023 SAIDI/SAIFI
2	Forced Outage Rate per Hundred miles of Zone 1 Spacer Cable ≤ 3.0
3	Storm costs, downward trend in rolling five-year average costs – less than $13 million by 2030.
4	Battery Failure to Start Index ≤ 5%
5	Report CEMI-8 for all residential customers

Q4. Have you reviewed the rebuttal testimony filed by GMP witnesses Mr. Michael Burke and Mr. Joshua Castonguay in this matter on April 15, 2024?

A4. Yes. Mr. Burke's and Mr. Castonguay's testimonies discussed the concerns and recommendations made in my prefiled direct testimony.

Q5. Does Mr. Burke's rebuttal testimony consider the metrics you proposed in your Direct Testimony?

A5. Yes. He specifically provides comments to Table 1 of my direct testimony and he recommends alternatives in several instances.

Q6. What alternate metric does Mr. Burke's rebuttal suggest regarding the 33% improvement in SAIFI/SAIDI for rural feeders?

A6. Mr. Burke suggests to simply track the System Average Interruption Frequency Index ("SAIFI"), and Customer Average Interruption Duration Index ("CAIDI") of Zero Outage Initiative ("ZOI") feeders.[1] In my opinion, simply reporting the results is insufficient. GMP is promising customers zero outages and GMP has indicated that the technology is changing fast, and the ZOI will change as it is being implemented. I recommended a metric that blended the reliability of the ZOI feeders with other rural feeders. Simply tracking the ZOI feeders without a metric provides no actionable goal for GMP and no means for stakeholders to judge the progress of the ZOI.

[1] Exhibit GMP-MB-17.

Q7. What alternate metric does Mr. Burke suggest regarding the Forced Outages per Hundred Miles per Year of Zone 1 Spacer Cable?

A7. Mr. Burke suggests tracking outages in a manner similar to the Forced Outages per Hundred Miles per Year ("FOHMY"). The suggested method tracks only the number of lockouts of the breaker on the circuit. That is not same as tracking forced outages for the spacer cable which GMP has noted as having zero outages per the design of the ZOI feeder. The spacer cable may or may not be in the zone of protection of the breaker. Further, there could be a mis-operation of the breaker without a failure of the spacer cable. Finally, the operations of the breaker need to be converted and reported as FOHMY for the spacer cable to allow a metric to be used to judge the performance. Between the Bethel Feeder (BE-G28)[2] and the East Jamaica Feeder (EJ-G7)[3], the total circuit mileage of Zone 1 is 16.7 miles which I understand will be spacer cable. The metric I proposed is FOHMY less than 3. With 16.7 miles of spacer cable, the metric would be 0.5 outage every single year or one outage every two years. Due to the small values, it is important to focus on a reasonable time frame for the metric. Simply tracking operation of the breaker requires an explanation for the cause of the operation which will vary and have no meaningful action.

Q8. Did Mr. Burke disagree with your metric for Forced Outages per Hundred Miles per Year of Zone 1 Spacer Cable?

A8. No. He did not note any concerns with the metric of the FOHMY being less than 3.

[2] Exhibit GMP-MB-9.
[3] Exhibit GMP-MB-8 Revised.

Q9. What alternate metric does Mr. Castonguay provide regarding your proposed metric of Battery Failure to Start Index?

A9. Mr. Castonguay simply stated that there are issues with the batteries working during an outage. He stated that the data provided to the Department through discovery was flawed because the data included homes that did not experience grid outages and, therefore, the metering registered no battery discharge because there was no outage. This flawed data is exactly why a metric is needed to verify the data and results. A battery storage system is a complex system with energy storage, controls for charging and discharging, interconnection protocols for protection of the grid, automatic transfer switch, and often includes control of individual breakers in the home. To say this type of complex system will not fail during its service life is simply ignoring reality. The metric I proposed was less than 5% of batteries. Tracking the performance of the battery storage will help to justify the expensive installation of $22,000 per home.

Q10. Based on Mr. Castonguay's corrections to the data of battery availability during an outage, do you recommend any changes to your metric?

A10. Yes. I recommended that the Battery Failure to Start Index be less than or equal to 5% based on the original dataset. With this new information, I recommend the metric be set at 1%.

Q11. Did Mr. Burke or Mr. Castonguay offer any definition of a grid outage for customers with battery storage?

A11. No. Mr. Jordan and I included discussions regarding the need to define an outage for customers with battery storage systems. Vermont Public Utility Commission

("Commission") Rule 4.901(A)[4] defines a customer outage as a zero-voltage event exceeding five minutes. Under the current rule, a customer who utilizes a standby generator to provide power to their home or business during a zero-voltage event at their meter is considered an outage customer. Having a battery storage device in the home is not different under the current rules. Mr. Castonguay states that GMP proposes to report the average SAIFI/CAIDI metric for customers with battery storage on each circuit. This reporting, per the current Commission Rule 4.900, will include all of these customers without power and the use of the battery storage will have no impact to the SAIFI/CAIDI values. Clearly, there needs to be a new definition of an outage within Commission Rule 4.900. I agree with Mr. Jordan's proposed method of defining an outage for customers with battery storage.

Q12. Mr. Burke is suggesting metrics in his rebuttal testimony as shown in Exhibit GMP-MB-17. Do you agree with Mr. Burke's metrics?

A12. No. Mr. Burke is not proposing metrics. His proposal is only tracking the performance of the system. GMP is further suggesting that analysis of the tracking data will be filed in reporting along with GMP's annual Multi-year Rate Plan ("MYRP") metrics report. Then, GMP will begin analysis of the data to evaluate the ZOI performance.[5]

Q13. Why is it important to have the metrics recommended by the Department?

A13. The level of capital investment requested by the ZOI is extremely large, and customers should know the expected results. The means to assess the progress toward meeting

[4] https://puc.vermont.gov/sites/psbnew/files/doc_library/4900-electricity-outage-reporting_0.pdf.
[5] GMP response to DPS.GMP.3-31(d).

performance goals is in the form of metrics. Simply tracking data does not indicate if the investment was successful; there needs to be a measurable goal.

Q14. Can you please summarize the metrics you are now recommending in your surrebuttal testimony?

A14. Yes. I am recommending one change that I discussed above, which is to change the Battery Failure to Start Index to be less than or equal to 1%.

Table 1: Department's Proposed Interim Metrics for Option II and Option III	
1	33% improvement in SAIDI/SAIFI for rural feeders over 2023 SAIDI/SAIFI
2	Forced Outage Rate per Hundred miles of Zone 1 Spacer Cable ≤ 3.0
3	Storm costs, downward trend in rolling five-year average costs – less than $13 million by 2030.
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Q15. Does this conclude your surrebuttal testimony?

A15. Yes.