

STATE OF VERMONT  
PUBLIC UTILITY COMMISSION

Case 21-5208-PET

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Petition of Green Mountain Power Corporation, pursuant to 30 V.S.A. § 218c, for approval of its 2021 Integrated Resource Plan	
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Order entered: 11/22/2022

**ORDER APPROVING GREEN MOUNTAIN POWER CORPORATION'S**  
**2021 INTEGRATED RESOURCE PLAN**

This proceeding concerns the 2021 least-cost integrated resource plan (“IRP”) filed by Green Mountain Power Corporation (“GMP”) on December 10, 2021, for approval by the Commission pursuant to 30 V.S.A. § 218c. GMP filed a revised IRP (“2021 IRP”) on September 30, 2022. In today’s Order the Vermont Public Utility Commission (“Commission”) approves the 2021 IRP. The Commission also accepts the memorandum of understanding (“2022 MOU”) between GMP and the Vermont Department of Public Service (“Department”) filed on June 29, 2022.

**I. PROCEDURAL HISTORY**

On December 10, 2021, GMP filed its 2021 IRP and requested that the Commission approve it pursuant to 30 V.S.A. § 218c.

On February 3, 2022, a scheduling conference was held in this proceeding.

On February 17, 2022, a scheduling order was issued.

On March 31, 2022, the Commission held a public hearing via videoconference. No members of the public attended the hearing.

On April 15, 2022, the Commission held a workshop.

On April 18, 2022, a public comment was filed regarding the energy efficiency charge.

On April 22, 2022, GMP filed a response to the public comment explaining how the energy efficiency charge is calculated, providing further information about heat pumps, and responding to other questions.

On May 4, 2022, GMP, with the agreement of the Department, filed a proposed schedule for next steps in this proceeding.

On May 20, 2022, the Commission issued a Procedural Order adopting the parties' updated schedule.

On June 29, 2022, GMP filed the 2022 MOU between the Department and GMP. Consistent with paragraph 3 of the MOU, GMP also filed a revised vegetation management table.

Also on June 29, 2022, the Department filed testimony recommending approval of the 2021 IRP. The Department concluded that the IRP meets the requirements of 30 V.S.A. § 218c.

On September 30, 2022, GMP filed a draft proposal for decision, the final version of the IRP in clean and redline versions, and all appendices.

No other comments were filed in this proceeding.

No party requested an evidentiary hearing or objected to the prefiled testimony and exhibits or the IRP. Accordingly, the following are admitted into evidence as if submitted at a hearing: the 2021 IRP with appendices as filed by GMP on September 30, 2022 (Exh. GMP-1); prefiled testimony of Bill Jordan, Anne Margolis, and Scott Wheeler filed on June 29, 2022; and the 2021 MOU filed on June 29, 2022 (Exh. Joint-1).<sup>1</sup>

## **II. FINDINGS**

### **2021 IRP**

1. The 2021 IRP includes background information about GMP's current business and systems and an analysis of regional trends and influences in the electric industry. Exh. GMP-1 at Executive Summary and Chapter 5.

2. The 2021 IRP contains a 10-year load forecast, which addresses the impacts of COVID-19 on sales and the potential impact on sales if GMP's largest customer, GlobalFoundries U.S. 2 LLC, were to become a self-managed utility.<sup>2</sup> The forecast also accounts for the many factors affecting consumption, including energy efficiency standards, distributed generation such as solar net-metering, economic and household growth, and beneficial electrification measures such as cold-climate heat pumps, electric vehicles, and

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<sup>1</sup> Any objections to the admission of these documents must be filed within 14 calendar days of this order.

<sup>2</sup> In an Order issued on October 21, 2022, the Commission granted the request of GlobalFoundries U.S. 2, LLC ("GlobalFoundries") to create GF Power and operate this wholly owned subsidiary as a public service company, pursuant to 30 V.S.A. § 231. The Commission also granted GMP's request to modify its service territory by carving out GlobalFoundries' Essex Campus and reassigning it to GF Power as the GF Power service territory.

custom measure projects under Tier III of the Renewable Energy Standard (“RES”). Exh. GMP-1 at Chapter 2.

3. The 2021 IRP models the net impact on retail sales starting with the results of a Forecast Report prepared by Itron, Inc., GMP’s third-party retail sales forecaster. This information is primarily used for short-term planning purposes and represents the best estimate for total retail sales one to three years out. However, it does not adequately capture GMP’s long-term goals for electrification. To address these long-term goals, GMP overlaid the Itron forecast with a combination of electrification opportunities using the sensitivity analyses described in the IRP to forecast low, base, and high outcomes that depend on the rate of adoption of electrification measures. Exh. GMP-1 at Chapter 2.

4. The 2021 IRP presents analyses of GMP’s transmission and distribution system, including (1) an analysis of its current state, as well as upgrades recently completed, under way, and planned; (2) a description of GMP’s planning and budgeting process for maintaining the transmission and distribution system while making it more resilient and storm-hardened; and (3) an analysis of the system’s ability to handle increasing levels of distributed energy resources (“DERs”) through both traditional and innovative means. Exh. GMP-1 at 3-1 through 3-42.

5. The IRP introduces GMP’s Resiliency Zones, designed to leverage technology to improve resiliency in targeted locations and to use distribution optimization to improve efficiency, performance, and reliability. GMP engaged with the Department and other stakeholders on distribution system planning and grid modernization, including work on identifying Resiliency Zones. Specifically, GMP looked at how to value locational impacts of distributed energy resources in constrained areas such as the Sheffield-Highgate Export Interface. Exh. GMP-1 at Executive Summary 10-11 and 3-1 through 3-42.

6. The 2021 IRP also describes GMP’s Integrated Vegetation Management Program, pole inspection process, participation in the Dig Safe program to protect underground facilities, storm-hardening strategies for substations, and outage analysis and associated technology. Exh. GMP-1 at 3-44 through 3-52.

7. GMP also added a new section to address information technology, operations technology, and cybersecurity. Exh. GMP-1 at Chapter 4.

8. The 2021 IRP includes analyses of GMP's existing power supply portfolio, GMP's reference portfolio, and an illustrative future portfolio that considers sensitivity analyses for various factors including the RES Tier III supply, renewable energy credit ("REC") prices, and the cost of various supply resources. Exh. GMP-1 at Chapter 6 and 7.

9. The 2021 IRP contains GMP's financial forecasts, which consider rating agency perspectives, forecasted capital spending, and financial statements. Exh. GMP-1 at Chapter 8.

10. As required by the Commission's Order of September 26, 2019, approving GMP's 2018 IRP in Case No. 18-4166-PET ("2018 Order"), the 2021 IRP includes a specific discussion that gives due consideration to how the strategies in the IRP are designed to provide electric service while meeting the State energy policy articulated in 30 V.S.A. § 218e. Exh. GMP-1 at Executive Summary-11; Appendix H.

11. Also as required by the 2018 Order, GMP identified and provided opportunities for public input and engagement as the 2021 IRP was being developed. During 2021, GMP held three public meetings, via Facebook Live, for customers and others who were interested in the IRP process and ongoing work. Exh. GMP-1 at Executive Summary-11; Margolis pf. at 3.

12. The Department and GMP undertook robust pre-filing engagement during the development of the 2021 IRP. They met at least six times starting in January 2021, to discuss forecasts, assumptions, and GMP's decision-making framework. GMP also provided the Department with a draft of the IRP one month before filing and held a meeting to discuss the Department's feedback. Exh. GMP-1 at Executive Summary-11; Margolis pf. at 3.

13. As required by the 2018 Order, GMP has complied with each of the conditions of the MOU signed by GMP and the Department filed on June 14, 2019, in the 2018 proceeding, including addressing additional issues and new or emerging practices as discussed below:

- a. Portfolio analysis. GMP engaged with the Department with respect to the appropriate quantitative methods to evaluate multiple competing electricity supply portfolios and identify the preferred resource supply portfolio.
- b. Grid modernization/distribution system planning. GMP engaged with the Department and other stakeholders on the topic of distribution system planning and grid modernization, including through GMP's Resiliency Zone work as discussed in Chapter 3 of the 2021 IRP and its Climate Plan. GMP also collaborated with the

Department and the other distribution utilities on how to value locational impacts of distributed energy resources in, for example, the Sheffield Highgate Export Interface. GMP also incorporated its continuing work on specific analyses, such as the impacts on the distribution system of electric vehicle penetration and electrification of heating.

- c. Rate design. GMP participated in the Department's Rate Design Initiative<sup>3</sup> and has reported and analyzed in the 2021 IRP how rate design may continue to evolve to support customers, innovation, and electrification.
- d. Market-based mechanisms. GMP consulted and collaborated with the Department on GMP's innovative offerings, Resiliency Zone work, and tariff work for energy storage systems, including how to identify GMP's system needs, collect data, and set up programs to work with energy service companies to aid the selection of least-cost solutions.

Exh. GMP-1 at Executive Summary-10.

#### **2022 MOU**

14. GMP and the Department agree that the 2021 IRP should be approved by the Commission pursuant to 30 V.S.A. § 218c(b) because it describes a decision-making process that aims to meet the public's need for energy services, after safety concerns are addressed, at the lowest present value lifecycle cost, including environmental and economic costs, using a strategy that combines investments and expenditures on energy supply, transmission and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs. Exh. Joint-1 at 2; Margolis pf. at 3-4; Jordan pf. at 2-3.

15. Pursuant to 30 V.S.A. § 218c, the economic costs were assessed with due regard to the greenhouse gas ("GHG") inventory developed under 10 V.S.A. § 582; the State's progress toward meeting its GHG emission reduction requirements under 10 V.S.A. § 578; and the societal value of reducing GHG emissions. GMP and the Department agree that the 2021 IRP includes a decision-making framework that complies with the RES established under 30 V.S.A. §§ 8004 and 8005. Exh. Joint-1 at 2; Margolis pf. at 3-4; Jordan pf. at 2-3.

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<sup>3</sup> <https://publicservice.vermont.gov/content/rate-design-initiative>.

16. GMP and the Department agree that the 2021 IRP is consistent with Vermont's 2016 Comprehensive Energy Plan ("CEP") that was in place at the time the IRP was developed and filed. Exh. Joint-1 at 2.

17. GMP has submitted, simultaneously with the filing of the 2022 MOU, a revised vegetation management table consistent with the table on page 25 of Appendix E to the 2016 CEP. Exh. Joint-1 at 2; Jordan pf. at 2.

18. The Department and GMP agree that approval of the 2021 IRP constitutes approval of the decision-making process described in the IRP, not approval of any of the specific decision-making tools, analytic methods, or outcomes. Exh. Joint-1 at 3; Margolis pf. at 3–4.

19. GMP will file its next regularly scheduled IRP on or before December 10, 2024. In connection with the preparation of its next IRP, GMP agrees to engage with the Department as follows:

- a. Approximately one year before filing, GMP will schedule a kick-off meeting with the Department to discuss the methodology and components of the next IRP and to develop a meeting schedule.
- b. During the year before filing, GMP will initiate meetings with the Department to discuss IRP methods and contents, and to share work in progress, including draft chapter language as available. GMP will consider incorporating feedback from the Department before filing its final IRP with the Commission.
- c. GMP will either (a) incorporate its IRP draft planning into one of its publicly noticed meetings required under its existing, or any proposed, regulation plan; or (b) schedule a publicly noticed meeting including customers and other stakeholders to gather feedback before filing its plan with the Commission. The IRP will be consistent with GMP's existing, or any proposed, regulation plan.

Exh. Joint-1 at 3.

20. GMP's next IRP will contain the following:

- a. GMP will seek to include the results of spatially and temporally granular load and DER forecast scenarios in its next IRP, where DERs are considered to include distributed generation, energy storage, electric vehicles, cold-climate heat pumps, and other flexible load resources. Load and DER forecast scenarios will consider

historical deployment patterns, forecasts of DER deployment, state energy and emissions requirements, climate change, regional and municipal energy plans adopted under Act 174 of 2016, and the physical limits of distribution and transmission system infrastructure, as appropriate.

- b. Hosting-capacity analysis incorporating distribution facilities and sub-transmission facilities, as supported by the Vermont Electric Power Company (“VELCO”) and the Department, including:
  - i refinement of static hosting capacity methodology, as informed by discussion with stakeholders;
  - ii exploration of time series analysis at the substation level for all substations;
  - iii analysis of peak load and peak export conditions at the feeder level for all feeders; and
  - iv investigation of time series analysis for representative feeders with consideration of potential upgrade costs.

Analysis may include load-flow manipulation, graphical representations, and analytic reporting. These results, in combination with the forecasts under (a) above, will inform a discussion of whether GMP’s distribution and transmission can serve anticipated demand and DERs in the planning horizon, the strategies and tools needed to avoid system upgrades, and how reliability will be maintained as heating and transportation are increasingly electrified.

- c. An analysis of the costs, benefits, and availability of resources on annual, seasonal, and hourly bases in GMP’s portfolio evaluation, reliability, and resilience discussions; an evaluation of potential climate and market risks to various resource portfolios; and an analysis of the relative achievability and cost-effectiveness of shaping load vs. procuring shape-supply resources.
- d. A discussion of system resilience, including any anticipated resilience-focused investments; proposed metrics for measuring the impact of those investments; and a discussion regarding the overlap in benefits and costs between reliability and resilience-focused solutions. This will also include an analysis of the costs and benefits, to both participants and non-participants, of existing and proposed

Resiliency Zones, as well as a discussion of any refinements made to GMP's Resiliency Zones mapping tool to incorporate the Climate Council's Municipal Vulnerability Index<sup>4</sup> and the Vermont Agency of Natural Resources' Environmental Justice Mapping Tool,<sup>5</sup> to the extent one or both have been developed.

- e. An update on the use and convergence of information technology, operations technology, cybersecurity, and energy services for GMP customers, similar to the material included in Chapter 4 of the 2021 IRP.
- f. An analysis of the optimal power, energy, location, and size distribution of energy storage on GMP's system in the planning horizon to increase hosting capacity to defer a transmission and distribution system upgrade or pursue resiliency opportunities, as well as an analysis of the costs and benefits of deploying storage versus alternatives such as flexible loads and curtailments.
- g. A discussion of progress made on evaluation, selection, development, and deployment of an overarching Distributed Energy Resource Management System ("DERMS"). Additionally, the IRP will include a discussion of the features included in the overarching DERMS and the extent of coordination with other utilities to enable statewide coordination of resource dispatch.
- h. Discussion of GMP's efforts to enable the connection and participation of aggregations consistent with FERC Order 2222 on the GMP system, including practices surrounding dispatch instruction as related to the use of a DERMS.
- i. GMP's next IRP will be consistent with the Department's Guidance for Integrated Resource Plans and Section 202(f) Determination Requests, or any updates or successors published by January 1, 2023.

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<sup>4</sup> The Rural Resilience and Adaptation Subcommittee of the Vermont Climate Council is developing the Municipal Vulnerability Index to identify the Vermont communities that may be the most adversely affected by climate change. See <https://aoa.vermont.gov/sites/aoa/files/Boards/VCC/Vermont%20Resiliency%20Index%206-2-21.pdf>.

<sup>5</sup> In 2022, the Vermont Legislature directed the Agency of Natural Resources to create and maintain a statewide environmental justice mapping tool to depict environmental-justice focus populations and measure environmental burdens at the smallest geographic level practicable. The mapping tool may incorporate federal environmental-justice mapping tools and existing tools such as the Vermont Social Vulnerability Index. Public Act No. 154, § 6007 (2022 Vt., Adj. Sess.).

- j. GMP's next IRP will continue to include the methodological improvements identified in paragraph 14 of the MOU filed on March 11, 2015, in Docket 8397, which are binding on all subsequent GMP IRPs.
- k. The next IRP will continue to include climate planning consistent with the Commission's Order of September 24, 2020, in Case No. 20-0276-PET.

Exh. Joint-1 at 4–6.

- 21. Approval of the IRP does not relieve GMP of its ongoing duty to:
  - a. monitor key uncertainties and the continued accuracy of assumptions and data in the IRP;
  - b. continue to reevaluate the merits of the decision-making processes, including the analytic methods used, and to adapt such processes to new techniques or information; and
  - c. continue to evaluate the merits of the strategies identified in the IRP as new information becomes available.

Exh. Joint-1 at 6.

#### **IV. DISCUSSION AND CONCLUSION**

Section 218c of Title 30 of the Vermont Statutes Annotated sets out the statutory standards that the 2021 IRP must meet. Section 218c(a)(1) defines a “least cost integrated plan” as:

a plan for meeting the public's need for energy services, after safety concerns are addressed, at the lowest possible present value life cycle cost, including environmental and economic costs, through a strategy combining investments and expenditures on energy supply, transmission, and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs.

In addition, Section 218c(a)(1) provides that, in developing a least-cost plan, economic costs shall be determined with due regard to:

- (A) the greenhouse gas inventory developed under the provisions of 10 V.S.A. § 582;
- (B) the State's progress in meeting its greenhouse gas reduction goals;
- (C) the value of the financial risks associated with greenhouse gas emissions from various power sources; and
- (D) consistency with section 8001 (renewable energy goals) of this title.

The statute provides that the Commission may approve a company's least-cost plan if it complies with the requirements of Section 218c(a)(1) and 30 V.S.A. §§ 8004 and 8005 (the Renewable Energy Standard) and is consistent with the Comprehensive Energy Plan issued under 30 V.S.A. § 202(b). In reviewing the 2021 IRP and the MOU, we find that the IRP addresses the statutory standards outlined in 30 V.S.A. § 218c and will promote the general good of the State.

Although the statute establishes a standard for the review of IRPs, it does not specify what Commission approval of an IRP means. The Commission's overarching goal in reviewing and approving IRPs is to ensure that utilities are engaging in an appropriate process to address the planning components defined by statute. Regarding the details specific to each IRP, the Commission principally relies on the expertise and analytical work of the Department in reviewing the IRP. Therefore, consistent with previous Commission decisions<sup>6</sup> and as stipulated by GMP and the Department, approval of the 2021 IRP extends to the decision-making processes included in the IRP, but not to the specific decision-making tools, analytical methods, or outcomes described in the IRP.

GMP and the Department have agreed to provisions regarding GMP's next IRP, as explicitly recited in the MOU and stated in the findings above. Accordingly, as a condition of our approval of the 2021 IRP, GMP must comply with the MOU because these measures will enhance the way future IRPs address the statutory requirements of 30 V.S.A. § 218c.

Finally, utilities are required to file IRPs at least every three years. The Commission establishes December 10, 2024 (three years from the date that the 2021 IRP was originally filed) as the deadline for GMP's next IRP, as agreed to by GMP and the Department.

In the 2018 Order, the Commission directed GMP to ensure that the public has adequate opportunities to help inform and review GMP's next IRP. In the development of the 2021 IRP, GMP provided opportunities for public input and engagement during the IRP drafting process. For example, GMP conducted biannual open house meetings via Facebook Live, allowing employees to respond directly to customer questions in real time. GMP covered a variety of topics, including storm restoration and leveraging innovative rates.<sup>7</sup> GMP also held three public

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<sup>6</sup> See, e.g., Docket 7319, Order of 3/6/2008 at 6; Docket 6895, Order of 7/13/2006 at 8.

<sup>7</sup> See Exh. GMP-1 at 1-30.

meetings via Facebook Live to solicit input from customers on the 2021 IRP. These efforts ensured that customers had an opportunity to provide input and ask questions before the first draft of the IRP was written. This demonstrates that GMP made efforts to comply with our direction for more customer engagement throughout the IRP process. We encourage GMP to revisit our 2018 Order, which also included additional recommendations for public input such as outreach to groups like town energy committees.<sup>8</sup>

In the 2018 Order, the Commission directed GMP to include a summary in its next IRP of the ways in which it maximized opportunities for public input regarding the IRP. As a follow up to this, in its next IRP, GMP is directed to provide some additional information on the number of attendees at its open houses and public meetings, along with examples of the questions asked and concerns raised. In conclusion, the Commission approves the 2022 IRP filed by GMP on June and accepts the 2021 MOU between GMP and the Department filed on June 29, 2022.

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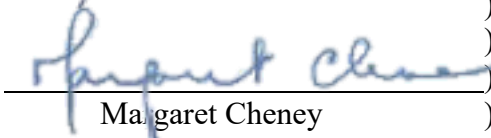
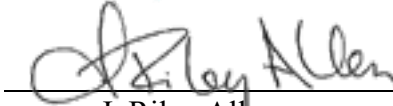
<sup>8</sup> 2018 Order at 15.

**VII. ORDER**

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Vermont Public Utility Commission that:

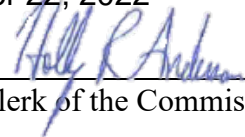
1. The findings and conclusions of the hearing officer are adopted.
2. The Integrated Resource Plan (“IRP”) filed by Green Mountain Power Corporation (“GMP”) on September 30, 2022, is approved.
3. The attached Memorandum of Understanding (“MOU”) that was signed by GMP and the Vermont Department of Public Service (“Department”) filed on June 29, 2022, is accepted, and GMP shall comply with all provisions of the MOU.
4. GMP shall continue to identify and provide opportunities for public input and engagement as the IRP is developed. GMP shall include a summary in its next IRP of the number of attendees and examples of the questions asked and concerns raised.
5. GMP’s next IRP shall comply with all requirements of this order and shall be filed no later than December 10, 2024.
6. This case is closed.

Dated at Montpelier, Vermont, this 22nd day of November, 2022.

	)	
Anthony Z. Roisman	)	PUBLIC UTILITY
	)	
	)	COMMISSION
Margaret Cheney	)	
	)	
	)	OF VERMONT
J. Riley Allen	)	

OFFICE OF THE CLERK

Filed: November 22, 2022

Attest:   
 Clerk of the Commission

*Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: [puc.clerk@vermont.gov](mailto:puc.clerk@vermont.gov))*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Commission within 30 days. Appeal will not stay the effect of this Order, absent further order by this Commission or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Commission within 28 days of the date of this decision and Order.*

*This document has been electronically filed using ePUC.*

**STATE OF VERMONT  
PUBLIC UTILITY COMMISSION**

Case No. 21-5208-PET

Petition of Green Mountain Power Corporation, pursuant to 30 V.S.A. § 218c, for approval of its 2021 Integrated Resource Plan	
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**MEMORANDUM OF UNDERSTANDING BETWEEN THE VERMONT  
DEPARTMENT OF PUBLIC SERVICE AND GREEN MOUNTAIN POWER  
CORPORATION**

This Memorandum of Understanding (“MOU”) is hereby entered into on June 29, 2022, by and between Green Mountain Power Corporation (“GMP”) and the Vermont Department of Public Service (“Department”) (collectively, the “Parties”).

WHEREAS, on December 10, 2021, GMP filed its 2021 Integrated Resource Plan (“IRP”) with the Vermont Public Utility Commission (“Commission”) for approval under 30 V.S.A. § 218c;

WHEREAS, GMP and the Department have engaged in discussions and negotiations regarding the content of GMP's 2021 IRP;

WHEREAS, the Department has conducted an extensive review of the IRP including its inputs, models, and analyses; and

WHEREAS, because of these negotiations, GMP has agreed to certain follow up actions specified below.

NOW THEREFORE, in consideration of the mutual promises and representations contained herein, the parties agree and stipulate as follows:

## TERMS AND CONDITIONS

1. The parties agree that GMP's 2021 IRP, as modified, amended, and described herein, may be approved by the Commission pursuant to 30 V.S.A. § 218c(b) because it describes a decision-making process that is likely to meet the public's need for energy services, after safety concerns are addressed, at the lowest present value life cycle cost, including environmental and economic costs, through a strategy combining investments and expenditures on energy supply, transmission and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs. Per 30 V.S.A. § 218c, the economic costs were assessed with due regard to the greenhouse gas (“GHG”) inventory developed under 10 V.S.A. § 582; the State’s progress toward meeting its GHG emission reduction requirements under 10 V.S.A. § 578; and the societal value of reducing GHG emissions. GMP and the Department agree that the 2021 IRP includes a decision-making framework that complies with the Renewable Energy Standard (“RES”) established under 30 V.S.A. §§ 8004 and 8005.
2. The 2021 GMP IRP was found to be consistent with Vermont’s 2016 Comprehensive Energy Plan (“CEP”), the CEP in place at the time this IRP was developed and filed.
3. As a result of the negotiations, GMP has agreed to submit, simultaneously with the filing of this MOU, a revised vegetation management table consistent with the table on page 25 of Appendix B to the 2016 CEP.<sup>1</sup>

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<sup>1</sup> VERMONT DEPARTMENT OF PUBLIC SERVICE, 2016 VERMONT COMPREHENSIVE ENERGY PLAN, *Appendix B: Guidance for Integrated Resource Plans and 30 V.S.A. § 202(f) Determination Requests* at 24-25, available at

4. The Department and GMP agree that approval of the IRP will only constitute approval of the decision-making process described in the IRP and will not constitute approval of any of the specific decision-making tools, analytic methods, or outcomes described in the proposed IRP.

5. GMP will file its next regularly scheduled IRP on or before December 10, 2024. In connection with the preparation of its next IRP, GMP, agrees as follows:

- I. Pre-filing engagement on the next IRP: GMP will initiate the following engagement with the Department, and other stakeholders, prior to filing its next IRP.
  - i. Approximately one year prior to filing, GMP will schedule a kick-off meeting with the Department to discuss the methodology and components of the next IRP and a meeting schedule.
  - ii. During the year prior to filing, GMP will initiate meetings with the Department to discuss IRP methods, contents, and to share work in progress, including draft chapter language as available. GMP will consider incorporating feedback from the Department prior to filing its final IRP with the Commission.
  - iii. GMP will either (a) incorporate its IRP draft planning into one of its publicly noticed meetings required pursuant to its existing, or any proposed, regulation plan or (b) schedule a publicly noticed meeting including customers and other stakeholders to gather feedback prior to filing its plan with the Commission. The IRP should demonstrate a measure of consistency with GMP's existing, or any proposed, regulation plan.
  - iv. Under the Vermont Comprehensive Energy Plan, IRP Guidance, that was in effect when the 2021 GMP IRP was filed, including financial assessments is

optional.<sup>2</sup> That said, GMP chose to incorporate a highly detailed financial assessments section in developing its 2021 IRP and the Department's review determined that these assessments are largely consistent with the methodologies and forecasts used for the pending approvals of a new multi-year regulation plan in Case No. 21-3707-PET and new fiscal year 2023 base rates in Case No. 22-0175-TF. The Department recommends that GMP continue to employ the same forecasting methodologies when developing the 2024 IRP (or those included in any future, applicable IRP Guidance).

II. 2024 IRP: GMP's next IRP will contain the following:

- i. GMP will seek to include the results of spatially and temporally granular load and distributed energy resource ("DER") forecast scenarios in its next IRP, where DERs are roughly considered to include at least distributed generation, energy storage, electric vehicles, heat pumps, and other flexible load resources. Load and DER forecast scenarios will consider a number of factors including, but not limited to, historical deployment patterns, forecasts of DER deployment, state energy and emissions requirements, climate change, regional and municipal energy plans adopted pursuant to Act 174 of 2016, and the physical limits of distribution and transmission system infrastructure, as appropriate.
- ii. Hosting capacity analysis incorporating distribution facilities and subtransmission facilities, as supported by VELCO and the Department, including: refinement of static hosting capacity methodology, as informed by discussion with stakeholders; exploration of time series analysis at the substation level for all substations; analysis of peak load and peak export conditions at the feeder level for all feeders; and investigation of time series analysis for representative feeders with consideration of potential upgrade costs. Analysis may include load flow manipulation, graphical representations and/or analytic reporting. These results, in combination with the forecasts under (i) above, will inform a discussion of whether GMP's distribution and transmission can serve anticipated demand and DERs in the planning horizon, the strategies and tools needed to avoid system upgrades, and how reliability will be maintained as heating and transportation are increasingly electrified.

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<sup>2</sup> VERMONT DEPARTMENT OF PUBLIC SERVICE, 2016 VERMONT COMPREHENSIVE ENERGY PLAN, *Appendix B: Guidance for Integrated Resource Plans and 30 V.S.A. § 202(f) Determination Requests* at 18, available at [https://publicservice.vermont.gov/sites/dps/files/documents/Pubs\\_Plans\\_Reports/State\\_Plans/Comp\\_Energy\\_Plan/2015/Appendix%20B.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/State_Plans/Comp_Energy_Plan/2015/Appendix%20B.pdf).

- iii. An analysis of the costs, benefits, and availability of resources on annual, seasonal, and hourly bases in GMP's portfolio evaluation, reliability, and resilience discussions; an evaluation of potential climate and market risks to various resource portfolios; and an analysis of the relative achievability and cost-effectiveness of shaping load vs. procuring shaped supply resources.
- iv. A discussion of system resilience, including any anticipated resilience-focused investments; proposed metrics for measuring the impact of those investments; and a discussion regarding the overlap in benefits and costs between reliability and resilience focused solutions. This will also include an analysis of the costs and benefits, to both participants and non-participants, of existing and proposed Resiliency Zones, as well as a discussion of any refinements made to GMP's Resiliency Zones mapping tool to incorporate the Climate Council's Municipal Vulnerability Index and the Vermont Agency of Natural Resource's Environmental Justice Mapping Tool, to the extent one or both have been developed.
- v. An update on the use and convergence of Information Technology ("IT"), Operations Technology ("OT"), Cybersecurity, and energy services for GMP customers, similar to the material included in Chapter 4 of the 2021 IRP.
- vi. An analysis of the optimal power, energy, location, and size distribution of energy storage on GMP's system in the planning horizon to increase hosting capacity, to defer a T&D upgrade and/or pursue resiliency opportunities, as well as an analysis of the costs and benefits of deploying storage vs. alternatives such as flexible loads and curtailments.
- vii. A discussion of progress made on evaluation, selection, development, and deployment of an overarching Distributed Energy Resource Management System ("DERMS"). Additionally, the IRP will include a discussion of the features included in the overarching DERMS and the extent of coordination with other utilities to enable statewide coordination of resource dispatch.
- viii. Discussion of GMP's efforts to enable the connection and participation of aggregations consistent with FERC Order 2222 on the GMP system, including practices surrounding dispatch instruction as they relate to the use of a DERMS.

- ix. GMP's next IRP will be consistent with the Department's Guidance for Integrated Resource Plans and 202(f) Determination Requests,<sup>3</sup> or any updates or successors thereto published by January 1, 2023.
  - x. GMP's next IRP will continue to include the methodological improvements identified in paragraph 14 of the MOU filed on March 11, 2015, in Docket 8397, which are binding on all subsequent GMP IRPs.
  - xi. The next IRP will continue to include climate planning consistent with the Commission's order of September 24, 2020, in Case No. 20-0276-PET.
6. The Department and GMP agree that approval of the IRP does not relieve GMP of its ongoing duty to:
- a. monitor key uncertainties and the continued accuracy of assumptions and data in the IRP;
  - b. continue to reevaluate the merits of the decision-making processes, including but not limited to the analytic methods used, and to adapt such processes to new techniques or information; and
  - c. continue to reevaluate the merits of the strategies identified in the IRP as new information becomes available.
7. The Parties agree that this MOU, and any Order approving this MOU, apply only to these Parties and should not be construed by any party or tribunal as having any precedential or other impacts on other proceedings. The stipulating parties have made compromises in order to reach this MOU. Accordingly, by agreement of the stipulating parties, this MOU will not be construed by any party or tribunal as having precedential impact on any future proceedings involving the Parties, except as necessary to implement this MOU or to enforce an order of the Commission resulting from this MOU. The

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<sup>3</sup> VERMONT DEPARTMENT OF PUBLIC SERVICE, 2016 VERMONT COMPREHENSIVE ENERGY PLAN, *Appendix B: Guidance for Integrated Resource Plans and 202(f) Determination Requests*, available at [https://publicservice.vermont.gov/sites/dps/files/documents/Pubs\\_Plans\\_Reports/State\\_Plans/Comp\\_Energy\\_Plan/2015/Appendix%20B.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/State_Plans/Comp_Energy_Plan/2015/Appendix%20B.pdf).

stipulating parties reserve the right in future proceedings to advocate positions that differ from the positions set forth in this MOU, and this MOU may not in any future proceeding be used against any undersigned party, except for enforcement of this MOU or the Commission's Order adopting this MOU.

8. This MOU is expressly conditioned upon the Commission's acceptance of all its provisions, without material change or condition. Except as otherwise provided for herein, the Parties agree that this MOU will become effective, and will bind the Parties hereto, only if the Commission issues an order in this matter containing terms consistent with this MOU in all respects.

9. In the event the Commission fails to approve this MOU in its entirety or acts to overrule or disapprove any portion hereof, the Parties concur that their agreements set forth herein may terminate if requested by either party, and if so, each will have the same rights as each would have had absent this MOU. In the event where any material modification or condition is made to the MOU, and a party exercises its option to terminate this agreement, the Parties' agreements herein will not be construed by any party or tribunal as having precedential impact on any future testimony or positions which may be advanced in these proceedings.

10. This MOU may be executed in multiple counterparts, which together constitute one agreement.

11. This MOU is governed by Vermont law and any disputes under this MOU will be decided by the Commission.

12. The Department will support issuance of the orders and findings of the Commission specified herein subject to the Department's obligations under Title 30 of the Vermont Statutes Annotated.

13. In consideration of the above, the Parties agree that the Commission should issue an Order approving this MOU.

14. This MOU will become effective upon the issuance of approval by the Commission in the manner contemplated herein.

15. The parties hereby waive their rights, under 3 V.S.A. § 811, to comment, present briefs, or oral arguments regarding a Proposal for Decision issued in this case, provided that the proposal for decision is consistent in all material respects with this MOU.

Dated at Montpelier, Vermont, this 29<sup>th</sup> day of June 2022.

VERMONT DEPARTMENT OF PUBLIC SERVICE

By:



/s/

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Dated at Rutland, Vermont, this 29<sup>th</sup> day of June 2022.

GREEN MOUNTAIN POWER CORPORATION

By:



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cc: Filed in ePUC

PUC Case No. 21-5208-PET - SERVICE LIST

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