



August 8, 2023

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, MN 55101

Re: *In the Matter of the Great River Energy's 2023-2037 Integrated Resource Plan; Docket No. ET-2/RP-22-75*

Dear Mr. Seuffert,

CURE respectfully submits these comments in response to the Public Utilities Commission's (Commission) notice of comment period on Great River Energy's (GRE) 2023-2037 Integrated Resource Plan (IRP). Topics open for comment include:

- Should the Commission accept Great River Energy's (GRE) 2023-2037 Integrated Resource Plan (IRP)?
- What issues should the Commission consider for GRE's next IRP?
- When should GRE file its next IRP?
- Are there other issues or concerns related to this matter?

The Commission Should Not Accept GRE's 2023-2037 IRP

CURE is very supportive of GRE's commitment to move towards a carbon-free future over this IRP period. As we know, climate change is real, it is primarily caused by human activities, and our electricity sector is responsible for about 11% of the greenhouse gases produced in Minnesota in 2020. That is why we remain concerned about several elements of GRE's modeling and planning, which in turn impact the selection of the preferred plan. Because of the shortcomings of the modeling assumptions and variable selections, CURE urges the Commission to reject the Preferred Plan.

As GRE notes, the goal of an IRP is to establish a plan that meets member-owners' needs while ensuring reliability and reasonable costs and complying with relevant state and federal laws. As demonstrated below, GRE's assumptions and modeling choices are inadequate and should be corrected by the Commission. Electric cooperatives like GRE are not rate-regulated by the Commission, and member-owners often lack meaningful ways to change the policy direction of their cooperatives—especially for generation and transmission cooperatives such as GRE, which

are one level removed from member-owners. Because of this lack of member-owner control, it is especially important now for the Commission to carefully vet GRE's Preferred Plan, to ensure that GRE is pragmatically managing risks and selecting the least-cost path for consumers.

A. Load Forecast Assumptions

CURE's primary concern with GRE's Load Forecast Assumptions is the anticipated adoption rate of electric (and plug-in hybrid) vehicles (collectively "EVs") and the resulting impact assumptions about rate of EV adoption may have on anticipated load over the planning period. According to GRE's assumptions, it anticipates adding only 5,390 new EV units in its service territory over the next 15 years.¹ Given recent advancements in technology, unprecedented federal and state funding for infrastructure and incentives, and additional legislative action, such estimates are now unrealistically low. Although CURE agrees with GRE that accurate forecasting for EV adoption can be difficult to forecast based on prior history, GRE's use of the outdated, 2021 U.S. Energy Information Administration's (EIA) Annual Energy Outlook (AEO) forecast for EV stocks is untenable.

According to the 2021 AEO, sales of 100-, 200-, and 300-mile EVs are estimated to be as high as 4,000, 131,600, and 385,000, respectively, by 2038. But the 2023 data, which takes into account the Inflation Reduction Act's (IRA) unprecedented investment in renewable energy, suggests that sales of each will be significantly higher, in some cases more than three times the 2021 estimates.²

Vehicle Type	2021 AEO (2038 sales)	2023 AEO (2038 sales)
100-mile EV	4,000	5,400
200-mile EV	131,600	431,000
300-mile EV	385,000	859,700
Plug-in Hybrid ³	104,300	131,700
Electric-Gasoline Hybrid	402,700	380,000

GRE's own experience with increased load from EV adoption by its member-owners supports the conclusion that their initial forecast is too conservative and therefore inaccurate. In 2017, GRE reported that it anticipated 737 EV units⁴ across its service territory by 2018, and 2,080 units by 2023. The actual rate of adoption, according to GRE's IRP is 9,972 EVs, nearly five times larger than anticipated.

¹ Great River Energy, *2023-2037 Integrated Resource Plan*, Appendix C, 14-16, eDockets Document No. 20233-194396-05.

² Compare U.S. Energy Information Administration, *Annual Energy Outlook 2021, Table 38. Light-Duty Vehicles Sales by Technology Type*, with U.S. Energy Information Administration, *Annual Energy Outlook 2023, Table 38. Light-Duty Vehicle Sales by Technology Type*. Data available at <https://www.eia.gov/outlooks/aeo/>.

³ Combined estimates for 10, 20, 40, and 50 gasoline hybrid vehicles.

⁴ It is not clear whether this estimation only considered fully electric vehicles or if it included plug-in hybrids.

Other sources also support the conclusion that EV adoption will happen much faster and at a much higher rate than GRE's IRP would suggest. Some estimates suggest that one in four new passenger cars produced in 2030 will be an EV.⁵ Others forecast the EVs will comprise as much as 85% of total U.S. vehicle sales by 2040.⁶ Importantly, all these forecasts only measure sales of *new* EVs, and don't account for how the resale of existing EV stock would also increase the number of EVs owned or leased by GRE member-owners anticipated to be charging at home during the forecast period. In short, given all the above, GRE's IRP should assume higher EV adoption and therefore significantly higher nighttime loads as part of its underlying load forecast assumptions.

B. Modeling Variables

We appreciate GRE's consideration of so many variables in its modeling runs, and the focus on renewable sources of energy generation. It is especially helpful to see the reality of climbing costs for combustion-turbine-generated energy and decreasing costs for wind or solar PPAs, or even the falling costs of lithium-ion battery technology. That said, GRE failed to include at least one key variable—the option for self-build solar—meaning the model returned planning options that are inherently limited.

GRE does not explain why a self-build solar option is not included as a variable, despite the widely accepted knowledge that solar self-builds are technologically feasible and cost-effective today.⁷ In fact, Connexus Energy built its own solar-plus-battery project in Ramsey, which is able to generate the amount of energy used by 1,889 homes in an average year and store the equivalent of 6,742 homes' average annual energy use.⁸ We also know that the cost of self-build solar will only decrease throughout the planning period, especially with the millions of dollars available through IRA loans or tax credits—including a direct-pay option—to defray the costs. Grid interconnection is a persistent issue, but not one without solutions. In fact, GRE is already seeking surplus interconnection of wind projects at some of its peaking plants, allowing the wind-generated energy to tie into the existing transmission system without going through the arduous process of MISO approval.⁹

Because GRE failed to include a solar self-build option in its modeling variables, the planning outcomes, including the Preferred Plan, are inadequate. The Commission should direct GRE to re-run its model with at least three self-build solar options—fixed-tilt, single-axis tracking, and solar-

⁵ S&P Global, *Electric Vehicle Trends*, <https://www.spglobal.com/mobility/en/topic/electric-vehicle-trends.html>.

⁶ Goldman Sachs, *Electric Vehicles are Forecast to be Half of Global Car Sales by 2035*, <https://www.goldmansachs.com/intelligence/pages/electric-vehicles-are-forecast-to-be-half-of-global-car-sales-by-2035.html> (Feb. 10, 2023).

⁷ U.S. Energy Information Administration, *Average U.S. Construction Costs Drop for Solar, Rise for Wind and Natural Gas Generators*, <https://www.eia.gov/todayinenergy/detail.php?id=54519> (Nov. 3, 2022).

⁸ Connexus Energy, *Solar + Storage in Ramsey and Athens Township*, <https://www.connexusenergy.com/blog/2018/solar-storage-in-ramsey-and-athens-township/> (Nov. 8, 2018); Kirsti Marohn, *Some Rural Co-ops Embrace Renewable Energy, Keep Rates Flat*, Minnesota Public Radio, <https://www.mprnews.org/story/2022/01/19/some-rural-coops-keep-rates-flat-while-also-seeking-cleaner-electricity> (Jan. 19, 2022).

⁹ Great River Energy, *2023-2037 Integrated Resource Plan*, 16-17, eDockets Document No. 20233-194396-01; Great River Energy, *2021 Integrated Resource Plan Update*, 1-2, eDockets Document No. 20214-172476-01.

plus-storage. Each option should have an assumed nameplate capacity of at least 5 MW. Cost estimates for these options should come from the EIA or a comparable source.

Issues the Commission Should Consider for GRE's Next IRP

In addition to the statutory requirements GRE's IRP will address, CURE requests that the Commission consider two topics in the next iteration of GRE's IRP. First, the Commission should consider the anticipated impact of federal funding—primarily from IRA sources and any consistent legislation extending such funding—obtained by GRE. If GRE is a recipient of IRA funding, that funding will have a significant impact on the cooperative's future planning as well as the rates member-owners pay. It is essential for the Commission to understand what funding, if any, GRE receives and how it impacts consumers and the cooperative's long-range energy planning.

Second, the Commission should also require GRE to model the retirement of Spiritwood Station in 2040. A retirement of Spiritwood may not actually occur in that year but given the new carbon-free targets established by the Minnesota Legislature this past legislative session, as well as the updated goals for our statewide greenhouse gas emissions reductions, it makes sense for the Commission to begin considering what impacts such a retirement will have on GRE's overall energy mix, and costs to member-owners.

GRE Should File its Next IRP on April 1, 2025

Pursuant to Minnesota Rule 7843.0300, subpart 2, GRE should file its next IRP on April 1, 2025. The Commission should also order GRE to submit an interim report, filed on April 1, 2024, that provides updates on the delayed Form Energy battery project, as well as GRE's actions related to federal funding made available through the IRA. This would include any plans submitted to the federal government and any grant or distribution of such funds or tax credits.

Finally, if the Commission grants GRE's request for a minor alteration for the Cambridge peaking plant the interim report should also include updates on that project, such as the anticipated schedule for completion, the estimated cost, if different from the original estimate of \$25 million, and information about whether GRE has or plans to install a continuous emissions monitor system (CEMs) which would allow the facility to operate for 1,367 hours instead of 1,282 hours annually. If the Commission rejects GRE's request for a minor alteration, GRE should still be required to update the Commission on the Cambridge project should the company opt to pursue the project through the normal permitting process.

Cambridge Peaking Plant

As the Commission is aware, GRE has requested a minor alteration to its Cambridge peaking facility to remove the existing natural gas-firing equipment and replace it with new dual fuel burners that would allow it to operate on either natural gas or diesel fuel oil. The Commission ordered an environmental assessment worksheet, which is available for public comment until August 17, 2023.

As CURE has stated in comments in that docket, the proposed project is problematic for several reasons, including the higher hourly greenhouse gas (GHG) emission rates of diesel when compared to natural gas. It seems obvious that this proposal cannot meet the definition of a "minor alteration" and the Commission should reject it as such. But in the context of the IRP, we are

especially concerned with how the proposed project would impact both GRE's compliance with new carbon-free standards and the state's overall GHG emission reduction goals over the anticipated 30-year lifespan of the project.¹⁰

This year, the Minnesota Legislature passed two laws that seriously call into question the viability of the proposed project's 30-year lifespan. Behind both laws is the understanding that, as stated most recently by the Intergovernmental Panel on Climate Change in its Synthesis Report for the Sixth Assessment, to limit warming to 2.0°C or lower requires rapid, deep, and immediate GHG emissions reductions in all sectors within this decade.¹¹

First, the "100% Act" requires all utilities, including electric cooperatives, to produce or procure 100% carbon-free electricity by 2040.¹² Because fuel oil is not one of the carbon-free sources of electricity contemplated by the law, GRE cannot meet the production requirement if it constructs and operates the project as proposed for approximately 15 years of its anticipated life. Under the current version of the 100% Act GRE could purchase renewable energy credits (RECs) to compensate for the disparity between its production of carbon-intensive energy and the required reductions for those 15 years. But such purchases would come at an increasing cost to member-owners, in addition to the fuel, operating, and maintenance costs of the peaking plant itself. Additionally, not all "renewable" energy credits provide the purported environmental and health benefits. For example, in its 2022 compliance report GRE retired 71,000 RECs from a municipal solid waste incinerator in Florida.¹³ Incinerators, often referred to as "waste-to-energy" facilities, release toxic materials, including particulate matter, lead, mercury, and even persistent organic pollutants like PFAS and dioxins.¹⁴ If GRE plans to build a new oil-burning facility with a 30-year lifespan it should explain to the Commission how this complies with the 100% Act and how the increasing cost of increasingly scarce RECs is a more responsible investment than cheap, clean energy that doesn't poison communities like the RECs GRE has recently purchased and retired.

Beyond the 100% carbon-free requirements, GRE must also reconcile its decision to build and operate the proposed project with the updated "Next Generation Climate Act" which reflects new state-wide GHG emission reduction goals and requires the state to achieve net-zero GHG emissions by 2050.¹⁵ Almost certainly, the construction and operation of a new dual-fuel burner which increases GHG emissions (even as compared to the existing gas-only plant that has existed at the site for more than a decade) and is expected to do so for another 30 years would result in economic liability for GRE and its member-owners, either as a stranded asset or as a GHG emitter that requires the purchase of RECs or other offsets to achieve new statutory requirements.

¹⁰ Minnesota Department of Commerce, *Environmental Assessment Worksheet: Cambridge 2 Fuel Conversion*, 2, eDockets Document No. 20237-197372-01.

¹¹ Intergovernmental Panel on Climate Change, *Climate Change 2023 Synthesis Report – Summary for Policymakers*, 20, https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

¹² Laws of Minnesota, Chapter 7.

¹³ Great River Energy, *REC Retirement Compliance Reporting*, eDockets Document No. 202335-196233-04.

¹⁴ Daniel Rosenberg, Veena Singla, & Darby Hoover, *Burned: Why Waste Incineration is Harmful*, <https://www.nrdc.org/bio/daniel-rosenberg/burned-why-waste-incineration-harmful> (July 19, 2021).

¹⁵ Laws of Minnesota, Chapter 60, Article 12, Section 61.

Fundamentally, the planned emissions of GHGs and other pollutants—especially from a *new* fossil fuel source—is in direct conflict with our collective understanding that to prevent the worst effects of climate change, we must achieve “deep, rapid, and sustained reductions in greenhouse gas emissions.”¹⁶ It is also in conflict with bedrock Minnesota environmental laws such as the Minnesota Environmental Rights Act, which states: “each person is entitled by right to the protection, preservation, and enhancement of air, water, land, and other natural resources located within the state and that each person has the responsibility to contribute to the protection, preservation, and enhancement thereof.”¹⁷ The Commission must consider the impacts such a proposed project may have on GRE’s ability to comply with new and longstanding state regulations and what impact such compliance or noncompliance may have on member-owners’ rates.

Conclusion

GRE promises significant improvements on its existing fleet to move towards the clean, just energy future its member-owners need and deserve. However, GRE’s load forecast assumptions are unrealistically low for EV adoption, and its modeling variables are incomplete without analysis of significant self-build solar alternatives. GRE’s proposal to change its Cambridge peaking plan to operate on either natural gas or diesel also calls into question the cooperatives’ ability to comply with updated GHG emissions standards, and its failure to anticipate increased costs from the need to purchase and retire RECs.

Because of the above, the Commission should deny GRE’s IRP, and require the cooperative to reevaluate its load forecast assumptions for EV adoption, using more accurate data from the EIA’s 2023 AEO. The Commission should also require GRE to add modeling variables for self-build solar described above, using costs from the EIA or a comparable source, and run its model with the new additions. This will allow GRE, the Commission, the public, and all member-owners to get a complete picture of what is possible for GRE’s evolution over the 15-year period.

Sincerely,

/s/Sarah Mooradian

Government Relations and Policy Director

CURE

117 South 1st Street

Montevideo, MN 56265

(320) 269-2984

sarah@curemn.org

¹⁶ Intergovernmental Panel on Climate Change, *Climate Change 2023 Synthesis Report – Summary for Policymakers*, 4, https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

¹⁷ Minn. Stat. § 116B.01.