

Staff Briefing Papers

Meeting Date	December 18, 2025		Agenda Item *1
Company	Otter Tail Power Co. (Otter Tail or the Company)		
Docket No.	E017/M-25-325		
	In the Matter of Otter Tail Power Company's Petition for a Proposed Energy Storage System Pilot at the University of Minnesota Morris.		
Issues	Should the Commission approve the Energy Storage System Pilot Project proposed by Otter Tail in its August 21, 2025, petition?		
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Relevant Documents

Date

Xcel – Long-Duration BESS Pilot at Sherco Petition	March 6, 2023
Commission – Xcel BESS Pilot Order	August 1, 2023
Otter Tail – IRP Order	July 22, 2024
Otter Tail – Initial Filing	August 21, 2025
Otter Tail – Initial Filing (Trade Secret)	August 21, 2025
Department of Commerce – Comments	October 9, 2025
Otter Tail – Reply Comments	October 20, 2025
Ex Parte Communication	October 23, 2025

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The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

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1. Statement of the Issues

1. Should the Commission approve Otter Tail’s proposed battery energy storage pilot project on the University of Minnesota Morris campus?
2. Should the Commission allow cost recovery through the Company’s Renewable Resource Cost Recovery Rider (RRCR)?
3. Should the Commission require Otter Tail to provide quarterly and annual reports to the Commission on the battery pilot project?

2. Background

In an effort to add capacity and reliability benefits to the grid, the Commission ordered Otter Tail Power Company (OTP or the Company), on July 22, 2024 in the Company’s Integrated Resource Plan, to add “no less than 20 MWs and up to 75 MWs of battery storage resources with a minimum of four-hour duration with a commercial operation date of December 31, 2029 or as soon as practicable thereafter.”¹

On August 21, 2025, the Company filed a Petition requesting approval for an Energy Storage System Pilot located at the University of Minnesota Morris campus (UMN-Morris or University). The Company is seeking approval of the purchase and construction of a 1 MW/4-6 MWh duration battery energy storage system (BESS) pilot project (Pilot) at the University. The petition also requests the Commission allow the Company to recover all costs through the Renewable Resource Cost Recovery Rider (RRCR).²

On October 9, 2025, the Minnesota Department of Commerce (Department) submitted comments.³ The Department recommends approval of the petition with modifications to compliance filings and reporting requirements.

¹ Docket No. E-017/RP-21-339, *In the Matter of Otter Tail Power’s 2023-2037 Integrated Resource Plan*, Order Modifying Otter Tail Power’s 2023-2037 Integrated Resource Plan, July 22, 2024, Order Point 11, (hereinafter “OTP IRP Order”).

² Docket No. E017/M-25-325, *In the Matter of Otter Tail Power Company’s Petition for a Proposed Energy Storage System Pilot at the University of Minnesota Morris*, Initial Filing, August 21, 2025, (hereinafter “Initial Filing” or “Petition”).

³ Docket No. E017/M-25-325, *Comments of the Minnesota Department of Commerce, Division of Energy Resources*, October 9, 2025, (hereinafter “Department Comments”).

The decision before the Commission is whether to approve the Company's petition for a proposed BESS pilot at the UMN-Morris, allow cost recovery through the Company's RRCR, require the Company to provide updates and reports to the Commission on the BESS pilot projects, or take other actions.

3. Energy Storage System Pilot Plan

The pilot project seeks to install a 1 MW / 4-6 MWh non-lithium BESS on the UMN-Morris campus grounds, where it will interconnect to the University's microgrid. The BESS will be powered primarily by the University's two 1.65 MW wind turbines, over 500kW of solar energy (planned and completed), and other energy projects. The Pilot will serve as a testing site to demonstrate the effectiveness of a BESS in serving the microgrid and to accelerate the University's transition to clean energy. Otter Tail has also agreed to allow UMN-Morris to request up to 720 hours per year, over the next three years of the project, to dispatch the battery at certain levels; these test cases will allow the University to gain insight on the use of energy storage to manage excess renewable energy production.

UMN-Morris and Otter Tail solicited competitive bids from multiple vendors who offered a variety of battery technologies, including vanadium redox flow batteries, zinc aqueous batteries, and iron flow batteries.⁴

The BESS will interconnect to Otter Tail's distribution system on the Company's side. The Company will own and operate the BESS which will directly capture the University's excess renewable energy generation. Otter Tail will extend its south feeder to connect to the BESS and replace the existing north feeder to the campus.⁵

Map 1, below, shows the proposed location of the BESS, the north feeder line, and the extended south feeder line. The full south feeder line extension can be seen in Map 2, below.⁶

⁴ Initial Filing, at 6.

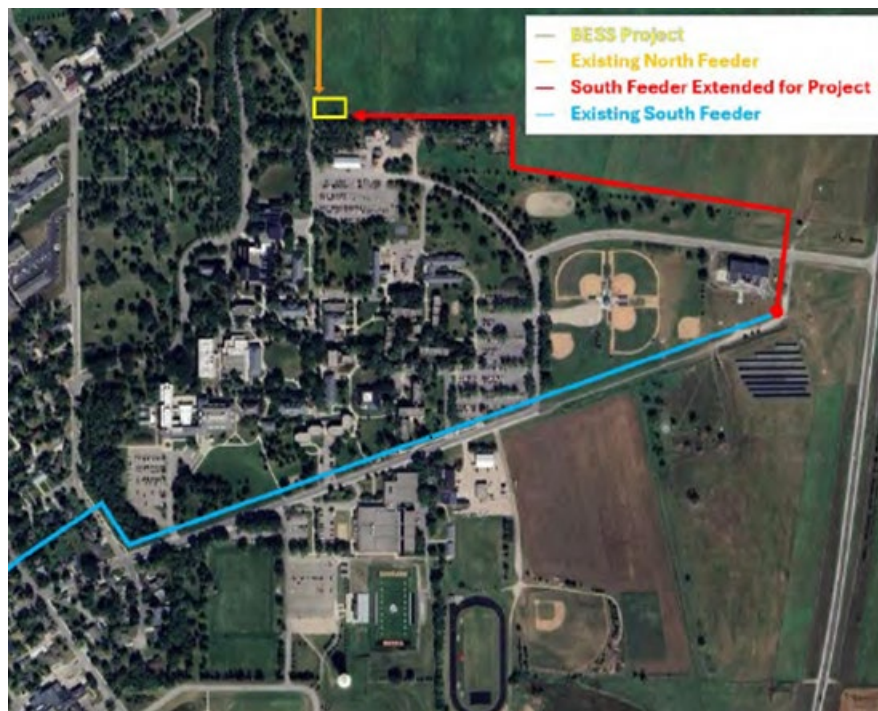
⁵ *Id.*, at 8-9.

⁶ *Id.*

Map 1: Zoomed In



Map 2: Zoomed Out



A) BESS Pilot Project Goals

Both Otter Tail and the University outline various shared and separate goals to achieve in pursuing the BESS project.⁷

Otter Tail lists several goals for the BESS project after it is commissioned:

- a) Develop internal processes and assign an internal team to monitor and optimize the BESS's performance and enhance the reliability of the distribution grid.
- b) Gain an understanding of necessary BESS maintenance requirements.
- c) Learn how the BESS performs during cold-climate operations.
- d) Optimize charging or dispatching the BESS based on the energy production of the University's or other local renewables.
- e) How to optimize the BESS for energy arbitrage, respond to transmission congestion, or local emergency outage issues. Additional financial value streams may be identified.
- f) This project supports the Company's Integrated Resource Plan (IRP).

UMN-Morris lists several goals for the BESS project after it is commissioned:⁸

- a) Research how a community-scale non-lithium BESS in combination with local and regional solar and wind generation can improve resilience in both the grid and in rural communities.
- b) Research future viability of the University having their own BESS behind their meter, what battery chemistry might be best in a cold weather climate, what size battery is needed to interplay with the campus' renewables, and if the University should pursue a microgrid.
- c) Understand the potential financial benefits the University can realize from having its own battery on campus to reduce its billed demand and how it can maximize its renewable energy generation to be used on campus.
- d) Explore how the BESS project can financially support the University's ongoing energy research and development of future renewable energy, energy-efficiency, or BESS projects.
- e) Showcase an innovative energy technology to students, the local community, and University visitors.
- f) The economic and technical analysis gained from the project will allow the University to develop a document that will help transfer knowledge for future development. The University plans to present at conferences or association meetings to help utility and energy planners learn from the demonstration and analysis that is gained.

⁷ *Id.*, at 10.

⁸ *Id.*, at 11.

B) Project Timeline

Otter Tail and UMN-Morris aim to make the final selection of the BESS by the end of 2025. Otter Tail expects a nine-month to one-year timeline for procurement of the BESS, the eventual commissioning of the project by the third or fourth quarters of 2026, and live operations by the first quarter of 2027.⁹

C) Project Financing and Cost Recovery

The Company seeks cost recovery through the RRCR rider as governed by the Minnesota Energy Storage System (ESS) Pilot Projects Statute.¹⁰

Otter Tail states that it will utilize the Investment Tax Credit (ITC) at the 40% level and plans to credit the project's ITC impacts to the RRCR rider. Otter Tail is awaiting further guidance from the Internal Revenue Service for the final impacts of the ITC. The Company states that its tax consultants have advised that the federal government's One Big Beautiful Bill Act (OBBBA) will not negatively impact the BESS project.¹¹

Staff notes that Otter Tail has provided project cost estimates as trade secret in **Not Public Data Appendix B** of the petition.¹²

After the completion of the project, Otter Tail states that it will calculate UMN-Morris' contribution to the project and compensate the University with up to half of its initial capital input. This payment would be calculated according to the initial capital contribution and a pro-rata portion of ITC benefits claimed by Otter Tail, netted against additional taxes paid by Otter Tail.¹³

D) Request for Proposal Process

Otter Tail and the University interviewed several battery manufacturers and utilized an engineering consultant to prepare for the Request for Proposal (RFP) process. UMN-Morris' Category Manager/Contract Specialist within its Purchasing/Controller's office administered the RFP, soliciting several bids issued by battery manufacturers.¹⁴

⁹ *Id.*, at 7.

¹⁰ [Minn. Stat. Section 216B.16, subd. 7e.](#) (hereinafter "Minnesota ESS Pilot Projects Statute")

¹¹ Initial Filing, at 7.

¹² Docket No. E017/M-25-325, In the Matter of Otter Tail Power Company's Petition for a Proposed Energy Storage System Pilot at the University of Minnesota Morris, Initial Filing (not public document/not for public disclosure), Appendix B, at 1-2, August 21, 2025, (hereinafter "Trade Secret Initial Filing" or "Trade Secret Petition").

¹³ *Id.*, at 8.

¹⁴ *Id.*, at 5.

E) Selection Criteria

Otter Tail and UMN-Morris constitute the evaluation committee responsible for selecting the battery supplier. Otter Tail provides the supplier selection criteria as follows:¹⁵

1. Project Approach and Work plan
2. Total Cost to the University
3. Technical Adherence
4. Project Schedule
5. Staffing Plan, Experience, Qualifications, References
6. Supplier Diversity Commitment

Otter Tail provides several priority selection criteria for the project:¹⁶

- **Non-flammable** - The BESS solution should have low to no risk of thermal runaway, nor any need for expensive fire suppression systems.
- **Low O&M Costs** - Minimal maintenance costs going forward with simple low-cost solutions for equipment change outs if needed.
- **Long Lifespan** - Solution should provide thousands of cycles and include more than 20 years of life.
- **Flat Degradation Curve** - The BESS should have minimal degradation over its thousands of cycles and 20 plus years of operation.
- **Fully Recyclable** - Chemistries, minerals, and materials making up the BESS shall be abundant, affordable, non-toxic, and all fully recyclable at end of project life.
- **Tariffs** - Tariffs on goods from certain countries could significantly impact overall costs.
- **Tax Credit Eligibility** - Investment Tax Credit eligibility could be impacted if sourcing from foreign entities of concern (FEOC).

F) Reporting Requirements

Table 1, below, summarizes the reports that Otter Tail proposes to submit regarding the BESS project:¹⁷ **(Decision Options 4 & 5)**

¹⁵ *Id.*

¹⁶ *Id.*, at 6.

¹⁷ Docket No. E017/M-25-325, *In the Matter of Otter Tail Power Company's Petition for a Proposed Energy Storage System Pilot at the University of Minnesota Morris*, Reply Comments, October 20, 2025, at 5, (hereinafter "Otter Tail Reply Comments").

Table 1: Proposed Reporting Requirements

Information	Timing	Timing Notes
Construction and schedule updates	Quarterly	Beginning upon Commission approval until the pilot project is in service.
Financial Reporting and <ul style="list-style-type: none"> • Capital and maintenance expenditures • Cost and credits applied to RRCR Operational performance data, including: <ul style="list-style-type: none"> • Round-Trip Efficiency • Maximum Ramp Rate (Charge & Discharge Rates) • Derated Capacity • Highest and lowest temperature of battery operation. 	Annually	Beginning one year after the pilot project is in service and continuing for 10 years.
Investment Tax Credit information and calculations		Provided with future cost recovery filings.
Research and Learning Report	Non-recurring	Lessons learned by project, cold weather performance, interaction with UMN-Morris generation, challenges and successes.
Risk Mitigation Report	Non-recurring	Safety incidents, equipment failures, or maintenance issues.

4. Comments

G) Project Approval

The Department states that Otter Tail has met the filing requirements under the Minnesota ESS Pilot Projects Statute¹⁸ and Minn. Stat. Section 216B.1645, subd. 2a.¹⁹ The Department recommends that the Commission approve Otter Tail's BESS pilot project, noting that the Company's project is in the public interest and the petition satisfies statutory requirements.²⁰ **(Decision Option 1)**

¹⁸ [Minn. Stat. Section 216B.16, subd. 7e.](#)

¹⁹ [Minn. Stat. Section 216B.1645, subd. 2a.](#)

²⁰ Department Comments, at 2.

The Department conditions its recommendation for approval on the Commission requiring and reviewing a post-selection compliance filing.²¹ **(Decision Option 1a)**. The Department clarified in ex-parte communications that the exact criteria would include:²²

- Scoring criteria for vendor selection
- Chosen technology
- Key commercial terms
- Warranty for the BESS
- Delivery schedule

The Department did not clarify what Commission review means in terms of approval of the petition. Otter Tail filed reply comments in agreement with the Department's recommendations.²³

Moreover, the Department recommends that if the BESS project costs, size, or schedule change materially during the process, the Commission require approval before the project can continue to advance. **(Decision Option 1b)**. Otter Tail agreed to this as well in its reply comments.

H) Cost Recovery

The Department recommends that the Commission approve Otter Tail's proposal to recover costs of the BESS project by way of the RRCR under the Minnesota ESS Pilot Projects Statute on the condition that Otter Tail submits the post-selection compliance filing.²⁴ **(Decision Option 2)**

I) Reporting Requirements

The Department agrees with the quarterly and yearly project updates and reports proposed by Otter Tail. **(Decision Option 4)**

Furthermore, the Department states that a more comprehensive reporting requirement schedule is necessary to keep stakeholders and the Commission informed of the project's progress, performance, and operations.²⁵ Thus, the Department recommends that reporting requirements also include: an annual financing report, a lessons-learned report, and a risk mitigation report. The details of such reports are as follows: **(Decision Option 5)**

- **Financial Reporting:** An annual financial report, submitted alongside the annual operational performance data, should provide a detailed breakdown of all project costs, including capital expenditures and operational and maintenance expenses. This report should also include an annual true-up of all costs and credits applied to the RRCR. **Decision Option 5a)**

²¹ *Id.*, at 7.

²² Docket No. E017/M-25-325, *In the Matter of Otter Tail Power Company's Petition for a Proposed Energy Storage System Pilot at the University of Minnesota Morris*, Ex Parte Communication, October 23, 2025, (hereinafter "Ex Parte Communication").

²³ Otter Tail Reply Comments, at 2.

²⁴ Department Comments, at 2.

²⁵ Department Comments, at 6.

- **Research and Learnings:** A formal "lessons learned" report should be submitted to capture insights gained from the project. This would include information on the BESS's technical performance in cold weather, its interaction with the University's distributed generation, and any challenges or successes related to its operation. The Department clarifies in ex parte communications that this should be filed within two years after the BESS becomes operational.²⁶ **(Decision Option 5b)**
- **Risk Mitigation:** As with any new technology, a report on any safety incidents, equipment failures, or maintenance issues would be valuable to the Commission and the public. The Department clarifies in ex parte communications that this should be filed within two years after the BESS becomes operational. **(Decision Option 5c)**

Otter Tail agreed to the Department's above recommendations in its reply comments.²⁷

The Department also requested that Otter Tail include in reply comments the calculation of Otter Tail's compensation payment to the University and include in the post-selection compliance filing the University's exact contribution amount.²⁸ In reply comments, Otter Tail notes that in the initial filing petition, UMN-Morris had committed an upfront \$1,640,000 contribution to the BESS project, and further remarks that since the initial filing, the Company has agreed with the University on a one-time compensation payment of \$500,000 to the University.²⁹

5. Staff Analysis

The Energy Storage System Pilot Project statute was added in 2019 and includes requirements of ESS projects and petitions for Commission approval; such as, certain information to be in the petition (Subd. 7e(a)) and that the pilot project be owned, operated, and controlled by the public utility (Subd. 7e(f)(1)). The statute also describes what is required to be considered for a utility's renewable resource cost recovery rider (Subd. 7e(b)-(d)). Staff agrees with the Department's assessment that Otter Tail Power's petition meets statutory requirements.

For additional context, Staff offers the Commission's previous consideration of an Xcel Energy (Xcel) petition under this statute. On August 1, 2023, in Docket No. 23-119, the Commission approved "a rate schedule for the recovery of prudently incurred storage-pilot costs as contemplated in Minn. Stat. § 216B.16, subd. 7e" in Xcel's 10 megawatt/1,000 megawatt-hour long-duration energy-storage pilot project petition.³⁰

A) Cost Recovery and Tariff Modification

The Department notes that a post-selection compliance filing detailing the scoring criteria for vendor selection, chosen technology, key commercial terms, BESS warranty, and delivery schedule should be required for this project to receive cost recovery in the rider. The filing

²⁶ Ex Parte Communication.

²⁷ Otter Tail Reply Comments, at 3.

²⁸ Ex Parte Communication.

²⁹ Otter Tail Reply Comments, at 2.

³⁰ Docket No. E-002/M-23-119, *In the Matter of Xcel Energy's Petition for a Long-Duration energy Storage System Pilot Project at Sherco*, Order Approving Pilot Project, August 1, 2023, at 6, (hereinafter, "Xcel BESS Pilot Order").

would be useful to stakeholders and Commission to gain greater insight into non-lithium BESS. Moreover, conditioning cost recovery through the RRCR rider on the Commission's review of the post-selection compliance filing would give the Commission greater oversight of the project **(Decision Option 2)**.

While Staff notes that the requirement for a post-selection compliance filing creates additional process concerning the consideration of this proposed BESS project, Staff ultimately reasons that it is a necessary procedure and concurs with the Department. In the Xcel BESS pilot project in Docket 23-119,³¹ Xcel had already decided on a battery technology in its initial petition filing, obviating the need for a post-selection compliance filing. In Otter Tail's case in this docket, the exact battery technology, costs, and timeline are still unknown as of the filing of this petition. Otter Tail has yet to make a final vendor selection, which may impact cost estimates and project timelines. Thus, this post-selection filing would help provide greater transparency into the final details, impacts, and prudence of the project.

Staff includes Table 2 below outlining the components of the proposed post-selection compliance filing, the information provided by Xcel in Docket 23-119, and the information provided so far by Otter Tail in this docket:

Table 2

Post-Selection Compliance Filing	Otter Tail (25-325)	Xcel (23-119)
Scoring Criteria for Vendor Selection	N/A	No
Chosen Technology	N/A	Yes (Iron-Air)
Key Commercial Terms	N/A	Yes
Warranty for BESS	N/A	Yes (Limited Warranty)
Delivery Schedule	N/A	Yes (Estimated)

Staff, along with the finance unit staff, reviewed the petition's financial details³² and support the Department's request for post-selection information prior to allowing rider recovery. Staff offers a process for the Commission review of the post-selection compliance filing and address the conditional approval of the petition either via Notice or by bringing the item back to the Commission **(Decision Option 2a or 2b)**. Given parties did not address this topic, the Commission should allow opportunity for oral comment by Minn. R. 7829.2600.

Staff agrees with the Department's recommendation for the Commission to approve material changes in project cost, size, or schedule, in order to ensure that the project stays within reasonable parameters. **(Decision Option 1b)** However, it is not clear what the threshold is for "material", so the Commissioners may wish to clarify this with the parties.

Staff offers a cost recovery cap, similar to what was approved in the Xcel BESS Pilot Order, that could incentivize the Company to act prudently towards project costs. **(Decision Option 2c)**

³¹Docket No. E-002/M-23-119, In the Matter of Xcel Energy's Petition for a Long-Duration Energy Storage System Pilot Project at Sherco, Petition, March 6, 2023, (hereinafter, "Xcel Petition").

³² Trade Secret Initial Filing, Appendix B, at 1-2.

Parties should have the opportunity to provide comment on this additional staff decision option as required by Minn. R. 7829.2600.

The Department did not address the proposed tariff modifications directly; however, the tariff should only be modified once cost recovery in the rider is approved. To clarify this contingency, staff modified Otter Tail Power's recommendation. **(Decision Option 3)** Staff notes that if Commissioners decide to schedule the post-selection compliance filing for review at a later agenda meeting **(Decision Option 2a)**, then they do not need to seek ample information regarding the cost recovery cap and tariff modification. However, if Commissioners choose to issue a notice for approval of this BESS project **(Decision Option 2b)**, then they should seek as much clarification as possible regarding the tariff modification and cost recovery cap at the agenda meeting.

B) Reporting Requirements

Staff notes that the Department's recommendation for a "lessons learned" report **(Decision Option 5b)** as well as a risk mitigation report **(Decision Option 5c)** to be filed within two years after the BESS becomes operational is a reasonable timeframe that Otter Tail Power has agreed to meet.

6. Decision Options

Pilot Project Approval

1. Approve Otter Tail's proposed battery energy storage pilot project on the University of Minnesota Morris campus with the conditions identified below: (Department, Otter Tail)
 - a. Require Otter Tail to make a post-selection compliance filing detailing the scoring criteria for vendor selection, the chosen technology, the key commercial terms, the warranty for the BESS system, and the delivery schedule.
 - b. Require Commission approval prior to any material changes to the project's size, cost, or schedule.

Cost Recovery

2. Approve Otter Tail's request to allow cost recovery through the Company's Renewable Resource Cost Recovery Rider subject to the Commission's review of Otter Tail's post-selection compliance filing, as described in Decision Option 1a. Delegate authority to the Executive Secretary to review the post-selection compliance filing and to either: (Staff interpretation of Department, Otter Tail)
 - a. Issue a notice confirming that the filing meets the condition for approval.

OR

 - b. Schedule the matter for Commission review at an agenda meeting.

AND

- c. Limit cost recovery for the pilot to a cost cap of the amount identified in the Trade Secret Initial Filing, Appendix B, at 1-2, unless Otter Tail shows by clear and convincing evidence that any incremental costs above that amount were reasonable, prudent, and beyond the Company's control. (Staff alternative related to Decision Option 1b)

Tariff Modification

3. If cost recovery of the BESS through the Renewable Resource Cost Recovery Rider is approved, then approve Otter Tail's request to modify its Renewable Resource Cost Recovery Rider tariff sheet, Section 13.04 to include the recovery of energy storage pilot project costs as identified in Trade Secret Initial Filing, Appendix C, at 1-2. (Otter Tail with Staff modification)

Reporting

4. Require Otter Tail to file the following quarterly and annual reports to the Commission: (Otter Tail, Department)
 - a. Quarterly construction and schedule updates beginning upon issuance of Commission Order of Approval until the pilot project is in service. (Staff interpretation of Otter Tail, Department)
 - b. Annual operation performance data, beginning one year after the pilot project is in service and continuing for 10 years, including:
 - i. Round-trip efficiency
 - ii. Maximum ramp rate (charge & discharge rates)
 - iii. Derated Capacity
 - iv. Highest and lowest temperature of battery operation
 - c. Investment tax credit information and calculations provided with future cost recovery filings.

AND

5. Require Otter Tail to file the following reports to the Commission: (Department, Otter Tail)
 - a. Financial Reporting – An annual financial report, submitted alongside the annual operational performance data, providing a detailed breakdown of the following:
 - i. All project costs, including capital expenditures and operational and maintenance expenses.
 - ii. An annual true-up of all costs and credits applied to the Renewable Resource Cost Recovery Rider.
 - b. Research and Learnings – A formal “lessons learned” report, filed two years after the BESS becomes operational, providing a detailed breakdown of the following:
 - i. Information on the Battery Energy Storage System's technical performance in cold weather.

- ii. The Battery Energy Storage System's interaction with the University of Minnesota Morris campus' distributed generation.
 - iii. Any challenges or successes related to its operation.
- c. Risk Mitigation – A formal report, filed two years after the BESS becomes operational, detailing safety issues with the Battery Energy Storage system including the following:
 - i. Safety incidents
 - ii. Equipment failures
 - iii. Maintenance issues