



Commission Meeting

FEBRUARY 10TH, 2025

Commission Meeting Agenda

February 10th, 2025

Chair J. Hart	—	Commissioner J. Bayliss	—
Commissioner J. Stokes	—	Commissioner J. Babich	—
Commissioner J. Sandstede	—	Legal Counsel A. Borland	—
General Manager L. Peterson	—	Auditors Abdo, LLP	—
Utility Operations S. Dickinson	—	Energy & Pricing P. Plombon	—
Customer Ser. & Finance J. Zallar	—	Admin & Comm E. Dixon	—
Electrical Operations S. Adams	—	Local 94 President Rich Kampsula	—

1. Employee Policies

- a. MMUA Policy / Org Review Discussion – Karleen Koss, CEO of MMUA
- b. Employee Complaint Process
- c. Employee Communication

2. Economic Development Opportunity

Kevin Westergard, Vershuin Energy, Inc.

3. Water Treatment Plant Update & Water Supply Gap – Brian Guldan, Meghan Brockman, PhD Bolton & Menk



Item 1.a – MMUA Policy/Org Review Discussion

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February 10th, 2025

Jeff Hart, Chairman
Hibbing Public Utilities Commission
1902 E. 6th Avenue
Hibbing, MN 55746

RE: Item 1.b – MMUA Policy/Org Review Discussion

Dear Commissioners;

In alignment with Hibbing Public Utilities' ongoing discussions regarding employee and organizational policies, HPU staff has invited Karleen Koss to join the February 10th Commission Working Session to discuss best practices and support.

Karleen Koss serves as the Chief Executive Officer of the Minnesota Municipal Utilities Association (MMUA), a trade organization that represents 226 municipal utilities across Minnesota.

Karleen's participation in the session is intended to provide valuable insight into industry best practices, policy considerations and resources available to municipal utilities. Her expertise will help inform our discussions as we work to update and strengthen the policy that supports HPU's employees and the organization as a whole.

Please feel free to reach out with any questions in advance of the Working Session. Staff looks forward to a productive discussion at the meeting.

Sincerely;



Luke J. Peterson



ANNUAL REPORT

2023–2024

A MESSAGE FOR OUR FRIENDS

Over the past three years at MMUA, we've done a lot of work to take things to the next level. You might say our strategic plan has been the transformer—and we are energized! With the support of MMUA's members, the staff and volunteers have been empowered to make changes that position the Association to grow and lead for years to come. Thank you. With your help and the engagement of our Board of Directors, we have worked hard and been creative in searching for ways to bring you better services and representation while improving our operational processes. As we enter into the second half of this decade, MMUA has the systems in place to deliver what members need from the classroom to the Capitol.

But the work isn't done yet—not even close. We will continue to expand our offerings so every utility employee can benefit and learn through our programs. We will find new ways to help you articulate the unique value of hometown utilities to your communities. We will fight to protect the municipal model in St. Paul and beyond. Really, the hard work has only just begun.

It's a pleasure to serve the people of Minnesota alongside you. Thank you for supporting our mission!



Julie Kennedy

*President, MMUA Board
of Directors*



Karleen Kos

CEO, MMUA

MMUA strategic plan

MMUA unveiled a new strategic plan in 2022 with the goal of enhancing our leadership position and fostering growth while focusing intently on the needs of municipal utilities. The plan features five strategic pillars to guide the work of our organization through 2027. This annual report is organized to represent what we have done to honor those pillars in 2023–24. The strategic pillars are listed below.



- Effective Public Policy Advocacy
- Strategic Preservation of Local Control
- Best-in-Class Programs and Services
- Excellence in Member Benefits
- Efficient Association Operations

Effective Public Policy Advocacy

MMUA's strategic plan focuses on strengthening public policy advocacy by prioritizing state-level utility initiatives, partnering with allied organizations for joint policy influence, and creating a resource library for municipal utility leaders. Additionally, MMUA hosts regional meetings and develops educational materials to deepen understanding of emerging policy issues. Here are some efforts MMUA made this year toward these goals.

Key legislative messages

- Hometown utilities are reliable, affordable, and sustainable.** Municipal utilities provide excellent services responsibly and reliably, directly to their communities.
- We are Main Street not Wall Street.** The municipal utility model keeps profits within the community.
- Municipal utilities are different than investor-owned utilities and cooperatives.** While we share many objectives with our counterparts, municipal utilities have different needs and capabilities than other utility companies—one size does not fit all.



Interacting on the Issues

The MMUA Government Relations team hosted another series of gatherings for utility leaders, commissioners, and council members in 2024.



The meetings covered implications of the legislative session and other hot topics related to strengthening municipal utilities.

MMUA's Kent Sulem testifies before the House Climate and Energy Finance and Policy Committee alongside Representative Patty Acomb.

Virtual Legislative Conference

The only major winter storm of 2024 forced MMUA's Legislative Conference into a virtual environment this year. Over the course of the two days, participants heard from the Government Relations team as well as from the two scheduled keynote speakers, Dr. Pete Wyckoff of the Minnesota Department of Commerce Division of Energy and Mark Teklinski of the Midwest Renewable Energy Tracking System.

Effective Public Policy Advocacy

The MMUA Board of Directors and our Government Relations team, along with the Government Relations Working Group of member utility leaders, developed a list of legislative priorities for the 2024 session. Here is a brief synopsis of issues relevant to MMUA members.

Issue	Summary
Critical Infrastructure Protection (CIP) rules for data mining	A growing number of Minnesota municipal utilities are becoming home to large data mining centers. These centers are usually designed to be as efficient as possible, making it difficult to find the increased energy saving offsets required by the state's CIP standards. MMUA successfully lobbied to exempt data mining related to cryptocurrency from the CIP requirements of Minnesota Statutes if the operation increases the utility's load by at least 40 percent.
CIP rules for gas utilities	An oversight in drafting the Energy Conservation and Optimization (ECO) Act of 2021 resulted in municipal gas utilities having a higher CIP goal than investor-owned utilities. MMUA successfully lobbied for lowering the CIP goal for municipal gas utilities to 1.0 percent.
Bonding bill	The proceeds of state-issued bonds are used in part to fund important projects and programs that assist municipal utilities—particularly water and wastewater utilities. Even-numbered years are traditional bonding years for the legislature, and MMUA supported efforts to get a bill passed; however, the vote required to pass the bill did not occur due to the politics surrounding the end of the 2024 legislative session.
Nuclear moratorium	MMUA supports exploring all sources for producing clean and renewable energy. To allow for meaningful dialogue on expanding carbon-free resources, MMUA believes the 1994 legislative moratorium on the siting of new nuclear reactors should be repealed. MMUA supported an effort in the Senate to study the issue, but the measure was not included in the final omnibus bill.
Excavation	The Association of General Contractors pushed hard for changes to laws governing excavation near underground utilities, claiming utilities do not locate on time, thus causing work delays. MMUA supported changes that would improve safety, and we blocked or amended proposals that would have forced unwarranted requirements on utilities.
Per- and polyfluoroalkyl substances (PFAS)	MMUA, along with other municipal advocates, continued its efforts to keep responsibility for PFAS pollution on producers, not on water and wastewater utilities. Many utilities did their parts to advance the state's PFAS blueprint by testing facility influent to help identify PFAS sources in their communities. Without passing further mandates on utilities, the legislature ordered a study to determine how to hold sources accountable and allocated more funding for local governments to identify and reduce sources.
Minnesota Public Utilities Commission (MPUC) measures for solar customers	After complaints over Xcel Energy delaying customer solar interconnections, advocates successfully pressured the MPUC to add an ombudsperson to its staff. They also succeeded in forcing an MPUC process to allocate interconnection-related utility upgrade costs across all customer beneficiaries, rather than requiring the first interconnecting cost causer to pay. MMUA led efforts to change the bill to apply only to state-regulated utilities; municipal utilities will continue to work through their own customers' issues and determine their own cost allocation methods.
MPUC Docket 23-251	The MPUC opened this docket to interpret and enforce the revised renewable energy standard and the new carbon-free standard. MMUA has actively participated in this docket, submitting comments and testifying at hearings to protect the interests of municipal utilities.

Strategic Preservation of Local Control

MMUA's five-year strategic plan is dedicated to preserving local control of utility services. Key goals include championing reliability, affordability, and sustainability within the municipal model, improving communications to underscore the benefits of local ownership, offering educational resources to enhance customer relations, and empowering local leaders to advocate for their hometown utilities.



MMUA members advocating for hometown utilities with Senator Amy Klobuchar's staff in Washington DC.

New resource: Model resolution for requiring a referendum

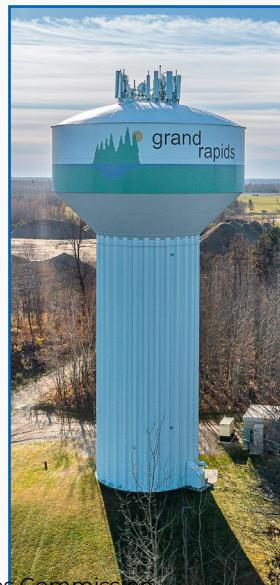
MMUA introduced a document to help communities organize around the issue of utility sales. In recent years, four Minnesota municipal utilities were sold without a required referendum. State law mandates a two-thirds affirmative vote from the community for such sales or closures, but this has not been enforced.

MMUA believes early awareness of referendum requirements empowers citizens in municipal cities. MMUA's model resolution provides a locally binding process that requires a two-thirds community vote before any sale or closure.

New service: Strategic planning consulting

Many utilities excel in financial and capital expenditure planning but may overlook holistic organizational planning for the future. MMUA offers tailored assistance for comprehensive utility planning, covering areas like community relations, education, workforce development, and sustainability.

Our services include research, data analysis, planning session facilitation, and the creation of customized strategic plans. We also help translate these plans into operational objectives with measurable outcomes.



**STRATEGIC
PLAN**
2023-2028



Best-in-Class Programs and Services

MMUA's strategic plan outlines five-year goals for advancing municipal utilities employees' excellence, safety, and proficiency. This includes updating safety and training programs, enhancing communication and evaluation tools, tailoring services to diverse utility needs, collaborating with partner organizations, and establishing a capital replacement process for facilities to align with mission requirements.



Zero blackouts

After restructuring the Safety Management Program in 2022, MMUA has focused on eliminating gaps in program coverage due to staffing changes or other emergency circumstances. This year, MMUA added the Field Safety Services Coordinator position, whose role has been designed to ensure MMUA can fill gaps as needed. Other staff members have gained new skills so they can step into openings when necessary.

These steps provide program flexibility and responsiveness without compromising training and consulting time for participants. As a result, MMUA proudly reports "zero blackouts" in the Safety Management Program in 2024.



Expanded Apprenticeship Program

MMUA's Apprenticeship Program has recently grown through an important new partnership with the Minnesota Department of Labor and Industry (MN DOLI). This collaboration makes MMUA the official sponsor for the Lineperson Apprenticeship Program, easing the administrative load for utilities and facilitating a streamlined certification process for apprentices.

The program offers a robust curriculum featuring extensive on-the-job training, safety components, and tailored educational experiences. Its flexible, we-come-to-you approach allows for customized training that adapts to each utility's specific needs and apprentices' learning styles. With these advancements, MMUA remains at the forefront of developing skilled lineworkers and supporting municipal utilities in workforce development.

Students learn about locating at Underground School at the MMUA Training Center in Marshall.



MMUA's Jay Reading instructs on wood chipper safety at the Tree Trimming Workshop.



New program: Gas Circuit Rider Plus

The MMUA Gas Circuit Rider (GCR) program offers essential support for municipal gas utilities, focusing on Pipeline and Hazardous Materials Safety Administration (PHMSA) compliance. It provides technical training and regulatory assistance to ensure operators meet all requirements, including operator qualification and the Gas Distribution Integrity Management Plan (DIMP).

In 2024, MMUA is launching the Gas Circuit Rider Plus (GCR+) program, designed to complement the GCR core program with additional flexibility and customization. GCR+ allows utilities to purchase tailored sessions for:

- Training and evaluation
- Inspection assistance
- Operator qualification
- New employee training
- Leak inspection
- Program development and manual updates
- Regulator/meter assistance
- Other utility-specific topics

This initiative aims to enhance proficiency and support ongoing excellence in natural gas operations.

Excellence in Member Benefits

MMUA's strategic plan focuses on improving benefits for all members. Here are some benefits we have added or upgraded this year.

New MMUA website



For the first time in a decade, the MMUA website has undergone a major refresh. In June, MMUA launched a new, modern website and online membership platform. Improvements include an enhanced directory, robust library tools, and clearer service descriptions. The new Member Compass simplifies event registration, invoicing, and profile customization.

Grant assistance

This year, MMUA doubled down on its commitment to helping members access grant funds. We have spearheaded grant collaborations for federal GRIP funds and attained state funds that help us offer members expert assistance with grant applications and stewardship. With the addition of MMUA's Grant Development and Technical Support Coordinator, the Association has helped members gather information and edit applications for federal and state grants.

We have led a weekly series of webinars on the 40101(d) Grid Resiliency grant and the State Competitiveness Fund grants during the summer of 2024. Moving forward, MMUA will assist members in navigating reporting requirements and provide resources to simplify the grant application process.

February 10, 2025

Hibbing Public Utilities Commission

Award-winning publication



The Resource, MMUA's flagship publication, was honored with an APPA Excellence in Public Power Communications Award of Merit in November 2023 for its bold new look and content. With a monthly circulation of 2,100, *The Resource* reaches members, legislators, and libraries, supporting MMUA's mission to unify and serve municipal utilities.



Human Resources webinars

MMUA introduced quarterly webinars to address HR topics relevant to municipal utilities.

These webinars aim to keep members informed about changes in HR law, pending legislation, and current trends. In addition, a new column in *The Resource* will provide further insights and updates on HR issues.

Members are encouraged to suggest topics and questions for future content. These initiatives enhance member engagement and ensure access to essential HR information and resources.

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Efficient Association Operations

MMUA's strategic plan outlines a five-year vision for efficient association operations, staffed with competent and forward-looking professionals. Goals include implementing a strategic visioning and accountability process, enhancing staff development, clarifying and promoting the organization's brand, updating governance procedures, leveraging partnerships for efficiency, seeking grant funding, and optimizing financial policies. The plan aims to foster competence, innovation, and effectiveness while ensuring prudent management of resources and alignment with MMUA's mission.



Upping our organizational development game

Municipal utilities face a myriad of changes as populations shift and the grid moves to carbon-free generation. In 2024, MMUA introduced a new leadership role to help MMUA help you evolve.

In addition to routine HR duties at MMUA, the Human Resources and Organizational Development Manager will be spearheading a whole new approach to leadership development for municipal utilities, envisioning and implementing workforce changes with the help of a member-driven workforce development task force, and making sure member utilities have access to the information and data they need to stay on top of what is happening in the world of personnel.

February 10, 2025

New Association Management Software

MMUA launched new association management software in 2024 alongside the new website. This modern system eliminates redundant processes and enhances the organization of member data.

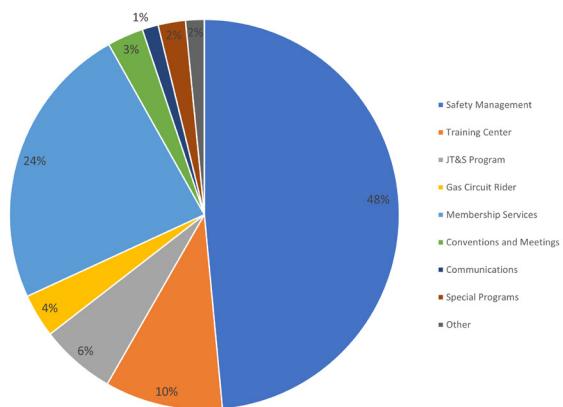
With improved segmentation and information storage, the software allows MMUA staff to create a more personalized experience for members. It also simplifies invoicing, event management, and other administrative tasks, streamlining operations significantly.

Hibbing Public Utilities Commission

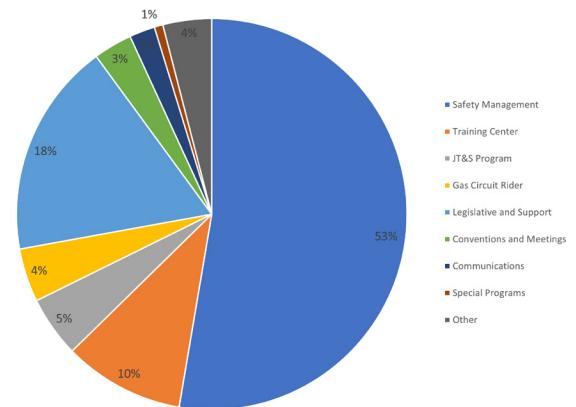
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Financial Highlights Fiscal Year 2022–2023

MMUA FY2022–23 INCOME SOURCES



MMUA FY2022–23 EXPENSES



MMUA FY2022–23 INCOME

	ACTUAL INCOME	PERCENT OF TOTAL INCOME
Safety Management	\$2,980,963	49%
Training Center	\$600,984	10%
JT&S Program	\$382,658	6%
Gas Circuit Rider	\$221,920	4%
Membership Services	\$1,456,781	24%
Conventions & Meetings	\$184,543	3%
Communications	\$81,878	1%
Special Programs	\$139,359	2%
Miscellaneous Other	\$95,152	2%
TOTAL	\$6,144,236	

MMUA FY2022–23 EXPENSES

	ACTUAL EXPENSES	PERCENT OF TOTAL EXPENSES
Safety Management	\$2,990,398	53%
Training Center	\$567,719	10%
JT&S Program	\$286,014	5%
Gas Circuit Rider	\$251,453	4%
Legislative & Support	\$1,009,388	18%
Conventions & Meetings	\$182,123	3%
Communications	\$120,411	2%
Special Programs	\$40,486	1%
Miscellaneous Other	\$228,935	4%
TOTAL	\$5,676,927	

MMUA Board of Directors (as of July 2024)

Officers

President—Julie Kennedy, Grand Rapids

President-Elect—Scott Grabe, Staples

Secretary/Treasurer—Pete Moulton, Saint Peter

Directors

Keith Butcher, Princeton

Jeremy Carter, Hutchinson

Bruce DeBlieck, Willmar

Greg Drent, Shakopee
February 10, 2025

Kevin Lee, Marshall

Jay Lutz, Austin

Dave Meyer, Glencoe

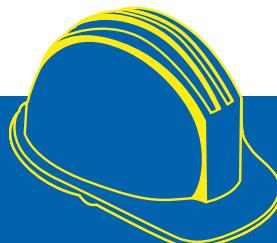
Roger Warehime, Owatonna
Hibbing Public Utilities Commission

**MINNESOTA MUNICIPAL UTILITIES ASSOCIATION
STATEMENTS OF FINANCIAL POSITION
SEPTEMBER 30, 2023 AND 2022**

Assets	2023	2022
CURRENT ASSETS		
Cash and Cash Equivalents	1,090,085	519,305
Accounts Receivable, Net	548,004	472,054
Prepaid Expenses	56,168	46,273
Total Current Assets	1,694,257	1,037,632
PROPERTY AND EQUIPMENT		
Leasehold Improvements	20,667	20,667
Land	39,000	39,000
Building	342,449	342,449
Equipment	1,142,056	1,064,227
Vehicles	166,247	166,247
Total	1,710,419	1,632,590
Less: Accumulated Depreciation	(1,309,859)	(1,250,658)
Net Property and Equipment	400,560	381,932
OTHER ASSETS	27,348	27,348
Total Assets	2,390,430	1,722,097
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts Payable	147,512	145,626
Accrued Payroll and Payroll Taxes	196,277	12,375
Accrued Vacation	130,833	145,709
Deferred Revenue—Membership Dues	303,203	310,118
Deferred Revenue—Other	109,784	83,540
Current Portion of Long-Term Debt	6,853	15,720
Total Current Liabilities	1,055,054	713,088
Long-term debt, net of current portion	0	1,402
Total Liabilities	1,194,430	993,406
NET ASSETS		
Unrestricted Net Assets:		
Board Designated—Legal and Legislative	67,264	67,264
Board Designated—Capacity Building Fund	233,655	0
Board Designated—Operating Reserve Fund	468,654	235,000
Undesignated	426,427	426,427
Total Net Assets	1,196,000	728,691
Total Liabilities and Net Assets	2,390,430	1,722,097



MMUA
Minnesota Municipal Utilities Association



TECHNICAL & OPERATIONS CONFERENCE

SAFER TOGETHER

**DECEMBER
10-12, 2024**

*Holiday Inn,
St. Cloud, MN*

MINNESOTA MUNICIPAL UTILITIES ASSOCIATION

New Address:



600 Highway 169 South, Ste 701
St. Louis Park, MN 55426



763-551-1230
Toll Free 800-422-0119



www.mmua.org

MMUA
Minnesota Municipal Utilities Association



Minnesota Municipal Utilities Association

STRATEGIC PLAN

2024-2025

WWW.MMUA.ORG

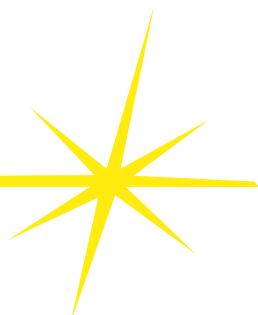


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WHO WE ARE

MMUA is a nonprofit member-led trade association representing the interests of the state's municipal utility systems. Together with the thousands of community leaders and volunteers who are dedicating their lives to ensuring their neighbors and friends have reliable, affordable, and sustainable services, we work to promote the value of community ownership and to assist them in achieving excellence.



Our Vision

MMUA's vision is to be a nationally recognized leader in advocacy, bringing value to municipal utilities, and enhancing their position in the industry.



Our Mission

Our mission is to unify, support, and serve as a common voice for municipal utilities.



Our History

MMUA was founded in 1931 primarily as an organization representing municipal electrical utilities. Over time, its mission expanded to serving the communities which operate utilities of all types including electric, gas, water, wastewater, storm sewer, and more. The Association hired its first paid consultant in the 1960s and its first full time staff member in the 1970s. The organization provides services on which members depend, and it represents their interests in the many venues where laws and regulations are developed and enforced.



Our Values

<i>People</i>	We practice respect, demonstrate leadership, and encourage growth through education and training.
<i>Safety</i>	We are safety-driven at all times, and we work to instill a safety culture in all municipal operations.
<i>Advocacy</i>	We strive to be an articulate and powerful voice on the issues.
<i>Teamwork</i>	Working together, we accomplish what would be impossible alone.
<i>Communication</i>	We listen carefully, and we speak respectfully and truthfully.
<i>Creativity</i>	We find new solutions to meet new challenges.
<i>Dedication</i>	We do whatever it takes to help our members get the job done.
<i>Integrity</i>	We behave in a manner that is honest, trustworthy, reliable, and fiscally responsible.
<i>Environment</i>	We support the efficient use of resources and sustainable energy.

PLANNING PROCESS

For more than ninety years, MMUA has consistently evolved to meet the needs of its members. During that time MMUA has always benefitted from spirited input supplied by members, strong leadership at the Board level, and knowledgeable staff.



Julie Kennedy
MMUA Board President 2023-24
Grand Rapids Public Utilities



Scott Grabe
MMUA Board President 2024-25
City of Staples



Karleen Kos
MMUA CEO

In late 2021 MMUA engaged a new staff leader, its first in nearly thirty years. During the search, many activities involved in clarifying the association's needs set the stage for the strategic planning process that followed. Once on board the new CEO, together with the Board of Directors and the entire MMUA staff, undertook a series of additional actions aimed at ensuring the relevant voices were represented and due diligence had occurred. We:

- Conducted surveys of all members and staff
- Reviewed data from member and nonmember municipal utilities
- Met extensively with members
- Consulted notes from previous meetings with members
- Referred to the strategic plans and processes from related organizations in the utilities space
- Surveyed available information related to the forces impacting utilities in general and municipal utilities in particular

With all this information in mind, the staff and Board have engaged in multi-day planning sessions to determine the path forward that will best serve our members and strengthen our association in the coming years. The Board of Directors approved this plan in June 2022 and has updated it annually since.

TO BE A LEADER

MMUA has been an association leader for municipal utilities for decades. Both within the state of Minnesota and on the national stage, we have served as a trusted source for answers and expertise, for products and services that meet the needs of municipal utilities, and for a spirit of collaboration and problem-solving.



This strategic plan is designed to enhance our leadership position and foster growth while focusing intently on the needs of municipal utilities, in Minnesota primarily, though we are willing to extend our reach beyond its borders where we can uniquely and cost-effectively bring value that is needed by municipals elsewhere. To that end, our plan is intended to achieve the following:

- MMUA is a trusted resource for helping utilities navigate the process of change that is currently underway related to the evolution of energy sources, water supply and contamination issues, population shifts, and the ever-evolving regulatory environment.
- Municipal utilities professionals, the communities they serve, and the policy makers who serve them all have MMUA as their top-of-mind resource in matters concerning the success of those utilities.
- MMUA programs and services extend beyond the familiar domains of electrical and gas services to address unmet needs in the water, wastewater, storm sewer, broadband, and related municipal utility domains.
- MMUA members are knowledgeable about the value for the investment of their dues and service dollars spent with MMUA.
- MMUA is known for delivering positive results programmatically, legislatively, and interpersonally.
- MMUA is fiscally sound with an adequate operating reserve and is positioned to seize opportunities for growth without threatening operational stability.

STRATEGIC PILLARS

Effective Public Policy Advocacy (PPA)

MMUA's Strategic Plan sets the following goals for the next five years related to effective public policy advocacy.

1. MMUA's government relations and policy efforts will focus on maximizing positive results and limiting negative impacts for all utility services at the state legislative and regulatory levels based on priorities developed annually considering both ongoing and emerging issues.
2. MMUA will work collaboratively with and through allied organizations to influence national and local policies and to solve problems of mutual concern.
3. MMUA will maintain and improve its library of tools, references, and data to support municipal utility leaders in successfully navigating evolving regulations and maximizing resources that may be available to their communities.
4. MMUA will offer a series of regional meetings and disseminate informational videos, position documents, best practice guidance, and action alerts aimed at engaging local leaders in active participation related to municipal utility policy needs.
5. MMUA will develop and execute a comprehensive communications strategy aimed at educating elected leaders and the public regarding the value of municipal utilities, encouraging them to take actions which strengthen these important public assets.



Strategic Preservation of Local Control (LC)

MMUA's Strategic Plan sets the following goals for the next five years related to the strategic preservation of local control of utility services.

1. MMUA will champion the three pillars of future utility success: reliability, affordability, and sustainability, within the municipal model.
2. MMUA will develop and deploy a comprehensive communications strategy to engage members and, when appropriate, directly interact in their communities in articulating the value of local ownership and continuously evolving their utilities for the changing times.
3. MMUA will design and offer a series of resources aimed at helping communities value their assets and sustaining local control when that is the will of the majority of ratepayers, while assisting utilities staff in dealing with regulatory issues that complicate local control, developing their workforces, and improving customer connections and loyalty.
4. MMUA will prepare and implement one or more tools empowering local leaders to effectively evaluate and communicate regarding alternative ownership options if they are presented, remaining ever-mindful of the value of local municipal ownership and control.



Excellence in Member Benefits (MB)

MMUA's Strategic Plan sets the following goals for the next five years for the creation and maintenance of exemplary, cost-effective benefits for all members.

1. MMUA will explore and implement benefit programs that are valuable for members representing utilities of all types.
2. MMUA will offer the means for peer- and interest-specific networking groups to easily identify and connect with one another.
3. MMUA will encourage and measure member engagement through a variety of traditional and innovative offerings that result in increased perception of MMUA's relevance to utilities of all types.
4. MMUA will evaluate the current and evolving needs of members and the technology platforms, updating current software and introducing additional or alternative solutions that improve ROI on the membership investment.
5. MMUA will evaluate its dues structure and educate members regarding the values of their dues dollars.
6. MMUA will devise offerings such as data collection/comparison/dissemination, council/commission education, and offerings for ratepayers/general public that extend MMUA value to members' stakeholders.
7. MMUA will provide associate members with opportunities to participate in the life of the organization in a manner that maximizes ROI for them and helps support MMUA programs.

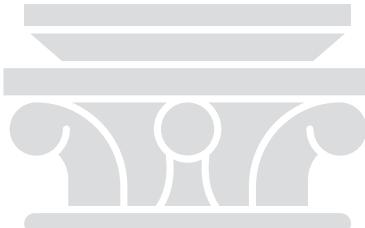


Best-in-Class Programs and Services (PS)

MMUA's Strategic Plan sets the following goals for the next five years with the intention of building and maintaining best-in-class services that promote excellence, safety, and ever-evolving proficiency for all municipal utilities employees.

1. MMUA will continuously evolve its successful safety, job training, apprenticeship, and related programs and facilities to ensure they meet the ever-evolving needs of members and clients, are flexible in changing circumstances, and are fiscally sustainable for all concerned.
2. MMUA will enhance current and future programming with more effective communication tools, transparency, and evaluation measurements, so that relevant programs are continuously improved and those no longer needed are sunsetted in a timely manner.
3. MMUA will develop new services tailored to the needs of municipal utilities of all types using traditional and nontraditional modes of delivery, ensuring that all offerings are affordable and sustainable for everyone.
4. MMUA will continue to work with and through partner organizations to collaboratively develop and deliver programming that enhances the Association's reach and relevance.
5. MMUA will implement a capital replacement and investment process to ensure its training and office facilities consistently align with the requirements for mission delivery.

FOUNDATIONAL PILLAR



Efficient Association Operations (AO)

MMUA's Strategic Plan sets the following goals for the next five years with the intent of creating efficient association operations staffed by increasingly competent and forward-looking professionals.

1. MMUA will implement its organization-level and individual staff development plans to ensure our staff is competent as evidenced both by the attainment or maintenance of necessary credentials and by achieving key performance indicators each year.
2. MMUA will devise and implement a strategy for clarifying and marketing its brand to relevant audiences and positioning the organization as a leader in the relevant venues.
3. MMUA will continually update its governance and operating procedures to ensure they are relevant to the evolving organization and suitable for managing the risks inherent in delivering on our mission.
4. MMUA will leverage partnerships with allies and service organizations to meet the needs of members and operate the organization efficiently and cost-effectively.
5. MMUA will increase its focus on grant funding to enhance its own mission delivery and to assist members in receiving these funds when appropriate for their communities' needs.
6. MMUA will update its operating reserve and investment policies to reflect the most prudent path forward in light of the Association's priorities and external exigencies.



OPERATIONAL PLANNING, REPORTING AND ACCOUNTABILITY

PLANNING



Each year the Board and CEO will review the organization's SWOT, strategic, and operational progress in June. At that time the strategic plan will be updated. In August, the coming year's operating priorities will be set, and a provisional dues plan will be proposed to the membership for approval at the annual membership meeting. Open comment from the membership will be encouraged in an annual Board listening session prior to the vote on the provisional dues.

Following the vote and direction from the Board, the CEO will create an annual operating plan. This plan will include specific, measurable, achievable, relevant, and timely goals based on the operating priorities and strategic intent of the Board. The annual budget will be developed to support the successful realization of the operating plan, and the Audit and Finance Committee will review the budget prior to referral to the Board for a vote in December. If the provisional dues rate proves untenable because of changing circumstances, another membership meeting will be called in the last quarter of the year for the purpose of approving dues.

REPORTING



The CEO will report on the status of each approved goal/deliverable in a document prepared for the Board quarterly (October, January, April, July). Items requiring Board action will be placed on the agenda of the next Board meeting.

STAFF ACCOUNTABILITY



A success sharing structure incentivizes high performance and accountability from the staff to achieve the objectives in this plan. Each member of the staff will have professional development plans that are tied to the success sharing structure. Success sharing rewards both individual performance and organizational attainment of the operational/financial goals as approved by the Board as part of the budgeting process.

VOLUNTEER ACCOUNTABILITY



It is important to recognize that some of the goals/objectives in this plan will require assistance from Board members and other volunteers. The President and the Committee Chairs will need to work closely with staff and the volunteer groups they lead to ensure goals are met. When goals are met, MMUA advances its mission and member utilities are strengthened. That is the definition of success.



CONTACT US



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Toll Free 800.422.0119



kkos@mmua.org

WWW.MMUA.ORG



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Hometown solutions.*

Strategic and Operational Planning



Are you planning holistically for the future of your utility?

Most utilities are adept at financial planning year to year, and even at planning for capital expenditures over many years. Have you engaged your stakeholders and built a comprehensive plan that takes things like community relations, education, workforce development, increased sustainability, and related topics into account?

MMUA can help with this.

With a project tailored to your needs, we can help you build your plan and translate it into operational objectives with measurable outcomes and a reporting process that provides transparency for everyone.

Contact Karleen Kos at
kkos@mmua.org **to**
discuss your needs.

- Research
- Data analysis
- Facilitation of planning sessions
- Custom strategic plan
- Measurable outcomes
- Reporting processes





Item 1.b – Employee Complaint Process

Item 1.b– Employee Complaint Process

February 10th, 2025

Jeff Hart, Chairman
Hibbing Public Utilities Commission
1902 E. 6th Avenue
Hibbing, MN 55746

RE: Item 1.b – Employee Complaint Process

Dear Commissioners;

At the January work session, Commissioners asked about the employee complaint process or a committee to hear complaints, especially about their supervisor.

Following the conversation, the respect in the workplace policies were shared with the Commission over email on January 20th and we look forward to a feedback on how and best practice to modernize the respect in the work place policies as well as specifically point out the policy currently in place.

A copy of the Employee Policies currently in place is provided for your review.

Sincerely;



Luke J. Peterson



Item 1.c – Employee Communication

Item 1.c – Employee Communication

February 10th, 2025

Jeff Hart, Chairman
Hibbing Public Utilities Commission
1902 E. 6th Avenue
Hibbing, MN 55746

RE: Item 1.c – Employee Communication

Dear Commissioners;

During this topic, I would like to discuss employee communication especially in light of employee benefits and pay concerns recently.

Sincerely;



Luke J. Peterson



Item 2 – Economic Development Opportunity

Item 2 – Economic Development Opportunity

February 10th, 2025

Jeff Hart, Chairman
Hibbing Public Utilities Commission
1902 E. 6th Avenue
Hibbing, MN 55746

RE: Item 2 – Economic Development Opportunity

Dear Commissioners;

Following up with the December 3rd Concept Introduction to the Commission Working Session, Staff and Vershuin Energy, Inc have had several conversations about potential ways of securing an industrial Steam Customer in North Hibbing.

To that end, Vershuin has provided a business plan, financial model, and project term sheet for Commission feedback. Staff has been in conversation with Vershuin since December and looks forward to Commision feedback and discussion of the opportunity.

Sincerely;



Luke J. Peterson



Vershuin Energy Inc.
76B Montrose Cres. N.E.
Calgary, Ab, Canada T2E 5P4

NON-BINDING TERM SHEET

Laurentian Energy Authority & Vershuin Energy Inc.:
Hibbing Economic Development: Project “Bow-Tie”

January 22nd, 2025

This non-binding term sheet summarizes the principal terms of a commercial project package (the “Package”), whereby Laurentian Energy Authority LLC (LEA) will contract Vershuin Energy Inc (VEI) to develop a Project Package for the installation of a commercial scale facility currently proposed but not limited to produce Activated Carbon from local biomass feedstocks utilizing VEI’s Boost-E™ technology, built on and based around its proprietary Hydrothermal Carbonization (HTC) Technology. The Package Deliverables will be outlined in this Term Sheet, as will development budget requirements, roles and responsibilities of both VEI and LEA.

The binding completion of the transaction contemplated by this term sheet will be subject to, the delivery of a Retainer and manufacturing Deposit by LEA to VEI and among other things, satisfactory completion of legal contracting as required by both VEI and LEA.

General Terms:

Parties Involved:

Vershuin Energy Inc, an Alberta corporation and its subsidiaries/affiliates. (“VEI”) and Laurentian Energy Authority LLC a Minnesota Corporation (“LEA”)

Term:

Package will be developed over a maximum term of **4 months** with a start date of the day VEI receives a retainer deposit, as mutually agreed by LEA and VEI.

Project Budget:

- i. Modular BOOST-E™ system wholesale pricing of \$2,600,000 USD.
- ii. Project Package Deliverables quoted at \$1,600,000 USD.
- iii. Contingency/Reserve capital at \$300,000 USD

Package Deliverables:

- **Delivery of one (1) Modular BOOST-E™ system with specifications outlined in the draft purchase order to be provided by VEI.**
- **Project Package, including:**
 - **Business Plan: For investors and financier due diligence.**
 - **Financial Models: for investor grade capital structuring and financing of the full-scale deployment of the Package in Hibbing.**
 - **Front End Engineering & Design (FEED): Package for Project “Bow-Tie” where facility design permutations are developed to consider a range of feedstocks and select value added end products (See Appendix diagram) for ultimate implementation at both the proposed Hibbing site, as well as up to five other VEI pipeline projects.**
 - **Supply and offtake agreements: Specifically for the Hibbing project with a minimum requirement of an offtake strategy for the Activated Carbon anticipated to be produced.**
 - **Supplementary: Data room/due diligence materials for potential investor review.**

Intellectual Property

and Materials Description:

VEI retains All Intellectual Property rights surrounding the Technology solution of BOOST-E™ as well as the final Project package including FEED, Financial Models, Supplementary Data Room, Due Diligence materials, feedstock and offtake agreements.

General Development

Plan:

VEI will lead the commissioning, planning, commercialization and scale up across 3 phases over a one-year time frame.

Phase I:

Build and deploy the Modular Boost-E™ system at Hibbing township to complete feedstock analysis and process testing whereby samples of activated carbon can be produced for procurement of a Hibbing Public Utilities Commission



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Calgary, Ab, Canada T2E 5P4

satisfactory offtake agreement (in collaboration with equipment partners), scope and publish the Package deliverables (outlined above).

Phase II: Utilize the Package to secure financing for the Hibbing project as well as generate early revenue by sub-licensing the Package to VEI pipeline projects. Whereby each additional project in VEI's pipeline will pay a Package sub-license fee to LEA until the soft cost budget has been recovered (anticipated full recovery at 5 projects).

Phase III: In collaboration, VEI & LEA will utilize the Mobile/Modular BOOST-E™ system for feedstock testing of the planned feedstock for the Hibbing project. In addition, VEI & LEA will utilize the Modular system for commercial waste remediation services to further develop local applications of BOOST-E™, and generate early revenues for the project (in addition to the sub-licensing revenue of Phase II).

Roles and Responsibilities: LEA will provide, Initial Capital of \$4.2M, along with reasonable access to Legal, Engineering and other infrastructure resources currently available through LEA's public parent entity, Hibbing Public Utility. S

VEI will deliver one (1) Mobile/Modular BOOST-E™ system, and will lead the development of the project Package as outlined in this term sheet, further VEI will utilize its Banking, Regulatory, Manufacturing and Engineering resources and other stakeholder relationships to ensure the successful delivery of an Investment ready Commercial Scale BOOST-E™ system based off of the Bow-Tie model developed through the Project Deliverables commissioned by LEA.

Hibbing Project Commercialization: LEA is currently wholly owned by Hibbing Public Utility. Upon the completion of the Package VEI will have the Right of First refusal to purchase up to 51% of LEA through an equity investment into LEA where the expected equity capital requirement on the project will be 40% of a \$24M USD development, resulting in an anticipated equity contribution of ~\$4.8M. if VEI wishes to acquire additional ownership in LEA, then that will be valued at its market rate and subject to negotiation at that time.

Performance Covenants: VEI will sub-license the Package into its current pipeline projects where the sub-licensing revenue will be Retained by LEA and be applied as part of the capital financing required for LEA. VEI will retain Global Exclusive intellectual property ownership of the Package and associated commercialization rights, subject to meeting the performance covenants outlined in this term sheet.

Warranties & Representations: VEI confirms that it is authorized to commercialize the HTC technology and other associated intellectual property for delivering the Package Deliverables, Engineering designs, process manuals and any other relevant information in support of the delivering the Package and the subsequent commercialization of the proposed Hibbing facility.

Confidentiality: Parties to this transaction are not permitted to discuss the terms here-in with un-affiliated parties.

Governing Law & Jurisdiction: This agreement will be governed by Minnesota Law

This term sheet is non-binding and is intended solely as a summary of the terms that are currently proposed by the parties. Each party shall be solely liable for all of its own fees, costs and other expenses in conjunction with negotiation and preparation of a final agreement pursuant to this term sheet.

Vershuin Energy Inc.

Laurentian Energy Authority LLC



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Appendix I:
Project Bow-Tie Overview, Financials & Project Deliverables Milestones

Laurentian Energy Authority | Vershuin Energy:
Hibbing Economic Development "Project Bow-Tie"

Black Positive Numbers = Cash Inflow, Red Negative Numbers = Cash Outflow: From LEA View

All \$ in Millions USD	Feb.25	Mar.25	Apr.25	May.25	Jun.25	Jul.25	Aug.25	Sep.25	Oct.25	Nov.25	Dec.25	Jan.26	Feb.26	Cumul. Yr 1
Phase 1 Project Package Development:														
Boost-E Mobile System Manufacturing (Milestone Deposits, Paid to Vershuin Energy)	\$-1.20		\$-1.20	\$-0.20										\$-2.60
Retainer Paid to Vershuin Energy for Project Package Development	\$-0.80	\$-0.40	\$-0.40											\$-1.60
Phase 2 Project Package Sub-Licensing Revenue:														
Hibbing Project Funding		\$0.00												\$0.00
Wenatchee One		\$0.33												\$0.33
Morong (Philippines)			\$0.33											\$0.33
Siargao/Dapa (Philippines)			\$0.33											\$0.33
Pennsylvania One				\$0.33										\$0.33
Idaho One				\$0.33										\$0.33
Phase 3 Mobile Boost-E Materials Sampling & Remediation:														
Hibbing Activated Carbon Sample Generation (for Securing the Activated Carbon Offtake)		\$0.00	\$0.00	\$0.00										\$0.00
Mobile System Remediation Expected Monthly Net Income					\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07		\$0.50
Hibbing Activated Carbon Project On-Line (Monthly Net Income)														\$0.36
Project Bow-Tie Totals	\$-2.00	\$-2.40	\$-3.35	\$-2.90	\$-2.58	\$-2.58	\$-2.50	\$-2.43	\$-2.36	\$-2.29	\$-2.22	\$-1.79	\$-1.36	\$-1.36



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Appendix II:
Project Breakout Economics: Snapshot

Vershuin Mobile Waste Remediation - US		Vershuin Activated Carbon	
		Phase 1	Phase 2
# of Units	1	# of Units	2 6
Max Tons per day of Waste per Unit	5	Waste per unit (tons per day)	30 30
Throughput Size	5	Project Size (tons per day)	60 180
Days In Service/Month	16	Collection Cost (Per MT)	\$ (25) \$ (25)
Day Rate	\$8,000	Total Daily Collection Cost	- 1,500 - 4,500
Conversion of Waste Solids to Hydrochar	60%	Conversion of waste to Hydrochar	60% 60%
Hydrochar Produced per Day (Metric Ton)	3.00	Hydrochar Produced per Day (Metric Ton)	36 108
MMBTU Content of Hydro-Char /Mt	20	MMBTU Content of Hydro-Char /Mt	-- --
MWHRs Produced from 1Mt Hydro-Char	1.7	AC ratio from 1 MT of Hydro-Char	0.4 0.4
Months of Operation	12	Tipping + Hauling Savings Factor	0% 0%
Monthly Topline Revenue	\$128,000	Annual AC Feedstock (Tons)	21,900 65,700
Annual Waste Volume (MT)	960	Tipping Rate Charged to Client	-\$25 -\$25
Addition Potential MWHRs produced/yr	1,224	Addition MT of AC produced/yr	4,599 13,797
Fixed Price Sale of Hydrochar	\$100.00	Fixed Price Activated Carbon	\$1,950.00 \$1,950.00
Annual Revenue	\$1,593,600	Annual Revenue	\$8,420,550 \$25,261,650
(-) Variable op costs	(\$211,200)	(-) Variable op costs	(\$2,690,415) (\$3,228,498)
(-) Site Staff	(\$240,000)	(-) Site Staff	(\$600,000) (\$1,800,000)
(-) G&A Allocation	(\$286,848)	(-) G&A Allocation	(\$842,055) (\$2,526,165)
Project Level Cash Flow	\$855,552	Project Level Cash Flow	\$4,288,080 \$17,706,987
Capex Required	\$4,200,000	Capex Required	\$19,894,640 \$52,183,920
Average Equipment Life	17.0	Average Tenor of Offtake	17.0 17.0
MOIC No Leverage	3.5x	MOIC No Leverage	3.7x 5.8x
IRR: Unlevered	19.12%	IRR: Unlevered	20.45% 33.59%
IRR: 50% Levered	34.10%	IRR: 50% Levered	36.59% 61.79%
Project payback period	4.91	Project payback period	4.64 2.95



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Appendix III:

LEA Waste Remediation Schedule & Summary Economics (including Soft Costs for VEI Package development)

Project Level: # of Plants Added											
Waste Remediation	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste Remediation	1	0	0	0	0	0	0	0	0	0	0
Project Level: P&L (In Millions USD)											
Waste Remediation	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenue	\$0.80	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59
(-) Opex	-\$0.12	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24
(-) Allocated G&A	-\$0.14	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29
(-) Fuel Costs	-\$0.11	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21
WR Gross Profit	\$0.43	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86



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Appendix IV:
LEA Hibbing Project Deployment Schedule & Summary Economics

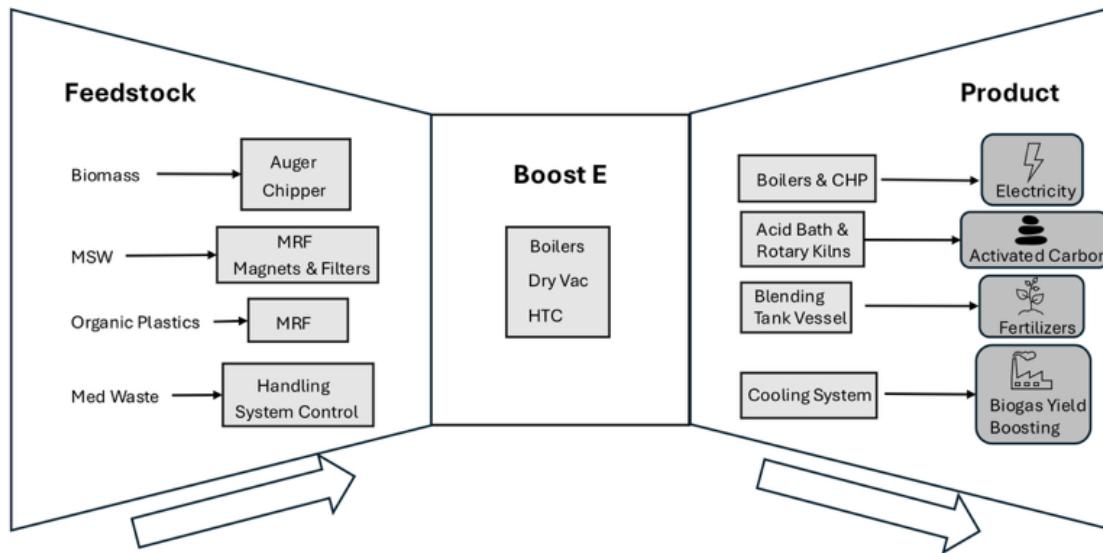
Project Level: # of Plants Added											
Activated Carbon	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste to AC (2 Units) LEA Phase 1	0	1	0	0	0	0	0	0	0	0	0
Waste to AC (6 Units) LEA Phase 2	0	0	1	0	0	0	0	0	0	0	0
Project Level: P&L (In Millions USD)											
Activated Carbon	2024 2H	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue	\$0.00	\$8.42	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68
(-) Site Opex	\$0.00	-\$0.60	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40
(-) Allocated G&A	\$0.00	-\$0.84	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37
(-) Fuel Costs	\$0.00	-\$2.69	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92
AC Gross Profit	\$0.00	\$4.29	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00



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Appendix V:

Bow-Tie Project Model





Laurentian Energy Authority

Business Plan

Executive Summary

“I only feel angry when I see waste. When I see people throwing away things we could use.”

This is quote from Mother Teresa. Today in the United States, we produce almost 300 tons of waste per day. A significant amount of what we deem “waste” can be reused or turned into new things. Our focus at LEA is to take “waste” streams and turn them into products. By taking statewide bio and wood waste problems and turning them into marketable carbon-based products and energy we will start to redefine how we look at waste.

In areas heavily infested with the emerald ash borer (EAB), there is an estimated 2 million tons of waste wood generated. The disposal of this form of waste is further complicated by the infestation of the EAB and can not be disposed of by traditional methods. It is estimated that 7-9% of the trees in Minnesota are ash. Additionally, the gypsy moth will create an additional several hundred thousand tons of waste.

By taking this would be waste and turning it into a high demand, value added product, we will create economic opportunity while solving a statewide, and eventually national, issue. When we establish that “waste” is most often feedstock, we will then expand into other categories to solve “waste” issues and work to energy independence in our communities.

Summary:

The Laurentian Energy Authority (LEA) is a joint venture revived by the partnership of Vershuin Energy Inc, a company founded on the principle of sustainable waste management and Hibbing Public Utilities Commission (HPUC). Vershuin brings a local circular solution that aligns with sustainability goals and energy sector expertise to the existing central steam district of Hibbing. HPUC also brings a long history of experience in the biomass industry and unique power generation capabilities.

Vershuin Energy and HPU will maintain equal ownership position of LEA. Both partners are prioritizing the development and headquarters in Hibbing and are committed to economic expansion and diversification. The production will initially focus on activated carbon and will eventually expand into alternative fuels and products.

The partners intend to scale up over the next 3-5 years targeting the processing of 60 tons per day of raw materials in the first quarter of 2026. The scale up process will include capacity enhancements including additional processing equipment that will allow up to 240 tons per day of raw materials. Additionally, a module system will be deployed handle other “waste” issues throughout the state such as, waste water treatment, landfill, and other bio materials.

The mission of LEA is to work with municipalities and communities to implement create energy independence utilizing a circular sustainability model. We see a future where all traditional waste streams are utilized to create products and energy.

Business Plan

Phase 1:

Site

February 2025 facility engineering and design will begin at the 7th Avenue East location in the North Hibbing Industrial Park. Upon the completion of engineering and design, groundbreaking is targeted to start in May to begin construction on the facility. With a completion target date of October 2025. Expansion is intended to begin in 2026 and is dependent upon potential funding sources.

Modular Boost E

Our estimated time of arrival on a modular unit is is the summer of 2025 (June). Upon the arrival of the modular Boost E system, calibration will be done to alongside engineering to create the first carbon product (activated carbon) that can be utilized in procuring off take agreements for the product.

Following the completion of the above, the modular system will be deployed throughout the Midwest to respond to immediate market needs in municipal and agricultural waste treatment. This will be a service-based model utilized to create more immediate cash flow and seed future markets of larger scale deployments.

Project Package

The project package consists of four components: long form business plan and model, detailed financial and investor package, Front End Engineering and Design (FEED) package, project and investor due diligence package. This will generate revenue back to the LEA and HPU from added Vershuin projects throughout the country. Initial sub licensing of the project package into other Vershuin pipeline projects is targeted in April, 2025.

Boost E

Our estimated time of arrival of the commercial grade system November 2025. Upon the arrival of the commercial grade system, installation and implementation of the Boost E system is estimated to take around 8-10 weeks with the production of the off takes set to start in January 2026.

Phase 1 of the system will process 60 tons per day (21,900 per year) of feed stock. For planning purposes, we have assumed a 65% recovery due to 35% moisture content of the feed material. Conservatively, 30% of that weight will be converted into carbon products. Approximately 4,000 tons of carbon product will be produced at a market rate of \$1,950 per ton. Assumed market rate is the lowest grade product in the marketplace. Higher end product yields significantly higher prices.

System expansion is targeted for the Spring or Summer of 2026. This expansion will be to add additional processing capacity which could include up to ten additional systems. For planning purposes. We intend to scale with an additional six systems. This will be dictated by off take potential and future product development.

Market Analysis:

Activated Carbon

Overview

Activated carbon is a porous material used primarily for adsorption in water treatment, air purification, and various industrial processes. Its ability to capture impurities makes it essential across multiple sectors.

Market Size & Growth

The global activated carbon market was valued at approximately \$4 billion in 2022 and is projected to grow at a CAGR of around 8% from 2023 to 2030. Rising environmental concerns and stricter regulations are driving demand.

Key Segments

1. Types

- Granular Activated Carbon (GAC)
- Powdered Activated Carbon (PAC)
- Extruded Activated Carbon (EAC)

2. Application

- Water Treatment
- Air & Gas Treatment
- Industrial Processes
- Food & Beverage
- Healthcare

3. Region

- North America
- Europe
- Asia-Pacific
- Latin America

Drivers

- Increasing demand for clean water and air.
- Stringent regulations regarding environmental pollution.
- Growth of the food and beverage industry requiring purification processes.

Challenges

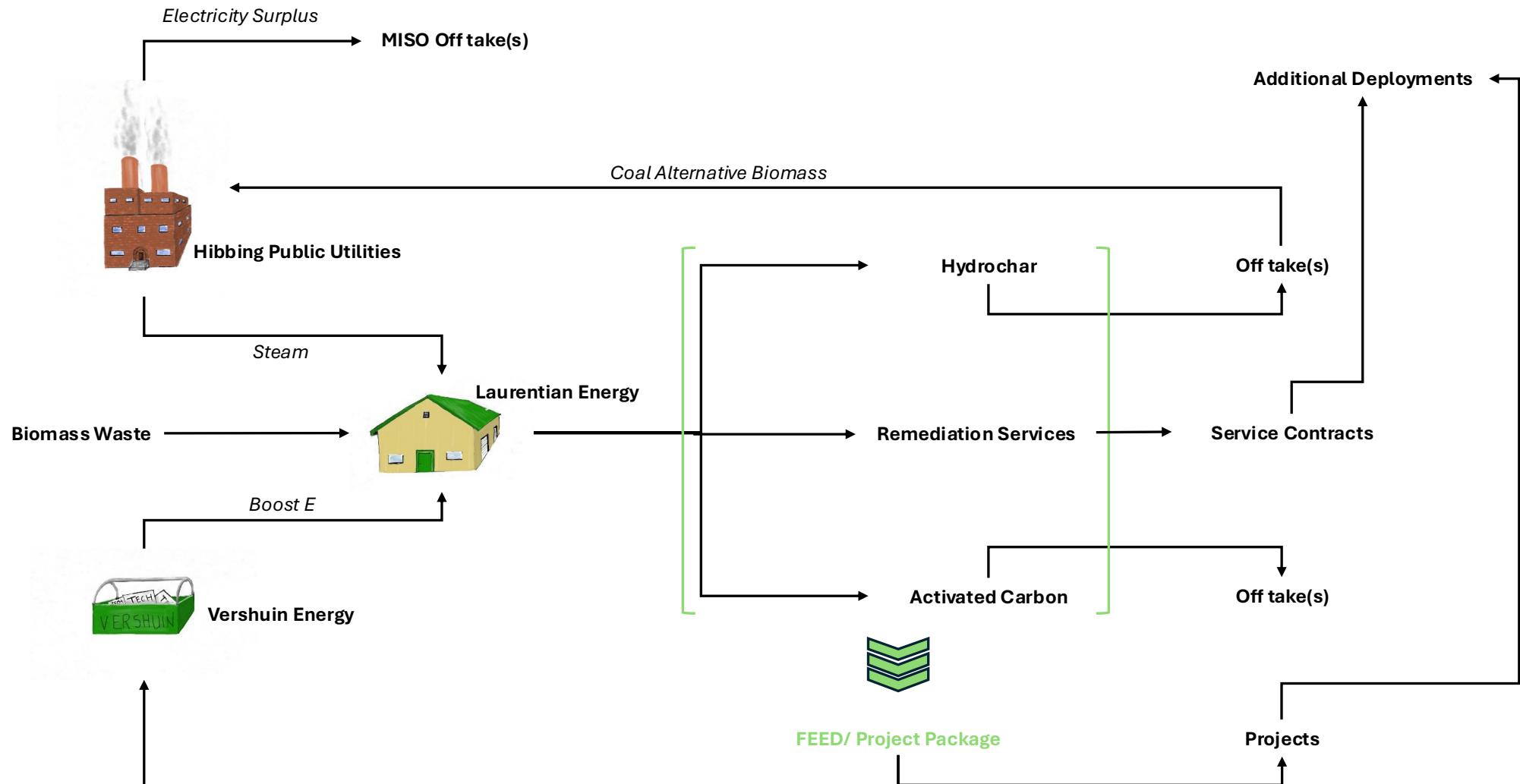
- Fluctuating raw material prices.
- Competition from alternative technologies (e.g., biochar).
- Increasing production costs.

Competitive Landscape

Major players include Calgon Carbon Corporation, Jacobi Carbons, Cabot Corporation, and Merck KGaA. Companies are focusing on innovation and sustainability to capture market share.

Future Outlook

The market is poised for growth, driven by increasing environmental awareness and technological advancements in activated carbon production. Sustainable sourcing and waste reduction will be pivotal in shaping future trends.



Laurentian Energy Authority | Vershuin Energy:
Hibbing Economic Development "Project Bow-Tie"

Black Positive Numbers = Cash Inflow, Red Negative Numbers = Cash Outflow: From LEA View

All \$ in Millions USD	Feb.25	Mar.25	Apr.25	May.25	Jun.25	Jul.25	Aug.25	Sep.25	Oct.25	Nov.25	Dec.25	Jan.26	Feb.26	Cumul. Yr 1
Phase 1 Project Package Development:														
Boost-E Mobile System Manufacturing (Milstone Deposits, Paid to Vershuin Energy)	-\$1.20		-\$1.20	-\$0.20										-\$2.60
Retainer Paid to Vershuin Energy for Project Package Development	-\$0.80	-\$0.40	-\$0.40											-\$1.60
Phase 2 Project Package Sub-Licencing Revenue:														
Hibbing Project Funding				\$0.00										\$0.00
Wenatchee One				\$0.33										\$0.33
Morong (Philippines)				\$0.33										\$0.33
Siargao/Dapa (Philippines)				\$0.33										\$0.33
Pennsylvania One				\$0.33										\$0.33
Idaho One				\$0.33										\$0.33
Phase 3 Mobile Boost-E Materials Sampling & Remediation:														
Hibbing Activated Carbon Sample Generation (for Securing the Activated Carbon Offtake)				\$0.00	\$0.00	\$0.00								\$0.00
Mobile System Remediation Expected Monthly Net Income							\$0.07	\$0.07	\$0.07	\$0.07	\$0.07			\$0.36
Hibbing Activated Carbon Project On-Line (Monthly Net Income)												\$0.36	\$0.36	\$0.71
Project Bow-Tie Totals	-\$2.00	-\$2.40	-\$3.35	-\$2.90	-\$2.58	-\$2.58	-\$2.50	-\$2.43	-\$2.36	-\$2.29	-\$2.22	-\$1.86	-\$1.50	-\$1.50

Project Level: # of Plants Added											
Activated Carbon	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste to AC (2 Units) LEA F	0	1	0	0	0	0	0	0	0	0	0
Waste to AC (6 Units) LEA F	0	0	1	0	0	0	0	0	0	0	0
Waste Remediation											
Waste Remediation	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste Remediation	1	0	0	0	0	0	0	0	0	0	0
Project Level: P&L (In Millions USD)											
Activated Carbon	2024 2H	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue	\$0.00	\$8.42	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68
(-) Site Opex	\$0.00	-\$0.60	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40
(-) Allocated G&A	\$0.00	-\$0.84	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37
(-) Fuel Costs	\$0.00	-\$2.69	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92
AC Gross Profit	\$0.00	\$4.29	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00
Waste Remediation	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenue	\$0.80	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59
(-) Opex	-\$0.12	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24
(-) Allocated G&A	-\$0.14	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29
(-) Fuel Costs	-\$0.11	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21
WR Gross Profit	\$0.43	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86
Project Level: P&L (In Millions USD)											
Project Roll-Up	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Project Level Revenues	\$0.80	\$10.01	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28
(-) Project Opex	-\$0.12	-\$0.84	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24
(-) Allocated G&A	-\$0.14	-\$1.13	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29
(-) Fuel Costs	-\$0.11	-\$2.90	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21
Project Level Gross Profit:	\$0.43	\$5.14	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54
(-) G&A	\$0.00	\$0.00	-\$1.50	-\$2.53	-\$2.75	-\$2.75	-\$2.75	-\$2.75	-\$2.75	-\$2.75	-\$2.75
(-) R&D	\$0.00	\$0.00	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60
(-) Sales & Marketing	\$0.00	\$0.00	-\$1.45	-\$2.25	-\$2.40	-\$4.40	-\$4.40	-\$4.40	-\$4.40	-\$4.40	-\$4.40
EBITDA	\$0.43	\$5.14	\$30.99	\$29.16	\$28.79	\$26.79	\$26.79	\$26.79	\$26.79	\$26.79	\$26.79
(-) Maintenance Capex	-\$0.06	-\$0.36	-\$0.36	-\$0.36	-\$0.36	-\$0.36	-\$0.36	-\$0.36	-\$0.36	-\$0.36	-\$0.36
(-) Growth Capex	-\$4.00	-\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Free Cash Flow (Before ECF)	-\$3.68	-\$15.62	\$27.53	\$25.89	\$25.55	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75
Free Cash Flow (Including)	\$16.32	\$36.38	\$27.53	\$25.89	\$25.55	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75
Debt Draw Down											
Statistics	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Annual Draw	\$16.00	\$52.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Debt Line Cumulative Balance	\$16.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00
Annual Interest : 6%	\$0.96	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08
Actual Interest Paid	\$0.96	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08
Cash Flow After Draw	\$12.32	\$36.38	\$27.53	\$25.89	\$25.55	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75

Vershuijn Mobile Waste Remediation - US		Vershuijn Activated Carbon		
		Phase 1	Phase 2	
# of Units	1	# of Units	2	6
Max Tons per day of Waste per Unit	5	Waste per unit (tons per day)	30	30
Throughput Size	5	Project Size (tons per day)	60	180
Days In Service/Month	16	Collection Cost (Per MT)	\$ (25)	\$ (25)
Day Rate	\$8,000	Total Daily Collection Cost	- 1,500	- 4,500
Conversion of Waste Solids to Hydrochar	60%	Conversion of waste to Hydrochar	60%	60%
Hydrochar Produced per Day (Metric Ton)	3.00	Hydrochar Produced per Day (Metric Ton)	36	108
MMBTU Content of Hydro-Char /Mt	20	MMBTU Content of Hydro-Char /Mt	--	--
MWHRs Produced from 1Mt Hydro-Char	1.7	AC ratio from 1 MT of Hydro-Char	0.4	0.4
Months of Operation	12	Tipping + Hauling Savings Factor	0%	0%
Monthly Topline Revenue	\$128,000	Annual AC Feedstock (Tons)	21,900	65,700
Annual Waste Volume (MT)	960	Tipping Rate Charged to Client	-\$25	-\$25
Addition Potential MWHRs produced/yr	1,224	Addition MT of AC produced/yr	4,599	13,797
Fixed Price Sale of Hydrochar	\$100.00	Fixed Price Activated Carbon	\$1,950.00	\$1,950.00
Annual Revenue	\$1,593,600	Annual Revenue	\$8,420,550	\$25,261,650
(-) Variable op costs	(\$211,200)	(-) Variable op costs	(\$2,690,415)	(\$3,228,498)
(-) Site Staff	(\$240,000)	(-) Site Staff	(\$600,000)	(\$1,800,000)
(-) G&A Allocation	(\$286,848)	(-) G&A Allocation	(\$842,055)	(\$2,526,165)
Project Level Cash Flow	\$855,552	Project Level Cash Flow	\$4,288,080	\$17,706,987
Capex Required	\$4,000,000	Capex Required	\$19,894,640	\$52,183,920
Average Equipment Life	17.0	Average Tenor of Offtake	17.0	17.0
MOIC No Leverage	3.6x	MOIC No Leverage	3.7x	5.8x
IRR: Unlevered	20.26%	IRR: Unlevered	20.45%	33.59%
IRR: 50% Levered	36.24%	IRR: 50% Levered	36.59%	61.79%
Project payback period	4.68	Project payback period	4.64	2.95

Vershuin Base Business Plan Scenario For LEA												
Project Level	2025 1H	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste to Activated Carbon	2025 1H	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste to AC (2)			0	1	0	0	0	0	0	0	0	0
Waste to AC (6)			0	0	1	0	0	0	0	0	0	0
Mobile AC Processing			0	0	0	0	0	0	0	0	0	0
Mobile Remediation	2024 1H	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Waste Remediation			1	0	0	0	0	0	0	0	0	0
Planned Commercial Proj.	2024 1H	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Wenatchee One			1									
Morong (Philippines)			1									
Siargao/Dapa (Philippines)			1									
Pennsilvania One			1									
Idaho One			1									
Surigao City One (Philippines)				1								
Activated Carbon	2025 1H	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenue	\$0.00	\$0.00	\$8.42	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68	\$33.68
(-) Site Opex	\$0.00	\$0.00	-\$0.60	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40	-\$2.40
(-) Allocated G&A	\$0.00	\$0.00	-\$0.84	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37	-\$3.37
Transaction Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(-) Fuel Costs	\$0.00	\$0.00	-\$2.69	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92	-\$5.92
WTP Gross Profit	\$0.00	\$0.00	\$4.29	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00
Waste Remediation	2025 1H	2025 2H	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenue	\$0.00	\$0.80	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59	\$1.59
(-) Site Opex	\$0.00	-\$0.12	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24
(-) Allocated G&A	\$0.00	-\$0.14	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29
(-) Fuel Costs	\$0.00	-\$0.14	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29
Gross Profit	\$0.00	\$0.43	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86	\$0.86
			53.69%	53.69%	53.69%	53.69%	53.69%	53.69%	53.69%	53.69%	53.69%	53.69%
LEA Corp. Level												
Project Level Revenues	\$0.00	\$0.80	\$10.01	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28	\$35.28
(-) Project Opex	\$0.00	-\$0.12	-\$0.84	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24	-\$0.24
(-) Allocated G&A	\$0.00	-\$0.14	-\$1.13	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29	-\$0.29
(-) IP Royalty	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(-) Fuel Costs	\$0.00	-\$0.11	-\$2.90	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21	-\$0.21
Project Level Gross Profits	\$0.00	\$0.43	\$5.14	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54	\$34.54
(-) G&A	\$0.00	\$0.00	\$0.00	-\$1.50	-\$2.53	-\$2.75	-\$2.75	-\$2.75	-\$2.75	-\$2.75	-\$2.75	-\$2.75
(-) R&D	\$0.00	\$0.00	\$0.00	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60	-\$0.60
(-) Sales & Marketing	\$0.00	\$0.00	\$0.00	-\$1.45	-\$2.25	-\$2.40	-\$4.40	-\$4.40	-\$4.40	-\$4.40	-\$4.40	-\$4.40
EBITDA	\$0.00	\$0.43	\$5.14	\$30.99	\$29.16	\$28.79	\$26.79	\$26.79	\$26.79	\$26.79	\$26.79	\$26.79
*Updated Annual Draw	\$16.00	\$52.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Loan Balance	\$16.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00
Interest Paid (Debt Terms 10yr, 6%)	\$0.96	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08	\$4.08
0% Split												
CF w/DS	-\$4.64	-\$19.70	\$23.45	\$21.81	\$21.47	\$19.67	\$19.67	\$19.67	\$19.67	\$19.67	\$19.67	\$19.67
CF w/DS and Draw	\$11.36	\$32.30	\$23.45	\$21.81	\$21.47	\$19.67	\$19.67	\$19.67	\$19.67	\$19.67	\$19.67	\$19.67
Beginning Cash	\$0.00	\$4.00	\$20.32	\$56.70	\$84.23	\$110.12	\$135.67	\$159.42	\$183.17	\$206.92	\$230.67	\$254.42
Free Cash Flow	\$0.00	-\$3.68	-\$15.62	\$27.53	\$25.89	\$25.55	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75	\$23.75
Equity Issuance	\$4.00	\$4.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Debt Issuance (Securitization/Mtg)	\$16.00	\$52.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Distributions/Liquidity Event												
Ending Cash	\$4.00	\$20.32	\$56.70	\$84.23	\$110.12	\$135.67	\$159.42	\$183.17	\$206.92	\$230.67	\$254.42	\$278.17
Beginning Equity												
SEED		\$4.00										
Series A			\$4.00									
Series B												
Series C/Debt Facility												
Ending Equity												
Total Capex Req.	\$0.00	-\$4.00	-\$23.89	-\$23.89	-\$23.89	-\$23.89	-\$23.89	-\$23.89	-\$23.89	-\$23.89	-\$23.89	-\$23.89
Proposed Draw Schedule folk	\$0.00	-\$4.00	-\$19.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
*Updated Cumulative Draw		\$16.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00	\$68.00

Vershuijn Mobile Waste Remediation			Vershuijn Activated Carbon Package		
	Mobile	Notes		Base	Medium
# of Units	1		# of Units	2	6
Max Tons per day of Waste per Unit	5		Waste per unit (tons per day)	30	30
Throughput Size	5		Project Size (tons per day)	60	180
Days In Service/Month	16		Collection Cost (Per MT)	(\$25)	(\$25)
Day Rate	\$8,000		Total Daily Collection Cost	1,500	4,500
Conversion of Waste Solids to Hydro	60%		Conversion of waste to Hydrochar	60%	60%
Hydrochar Produced per Day (Metric)	3.00		Hydrochar Produced per Day (Metric Ton)	36	108
MMBTU Content of Hydro-Char /Mt	20		MMBTU Content of Hydro-Char /Mt	--	--
MWHRs Produced from 1Mt Hydro-Char	1.7		AC ratio from 1 MT of Hydro-Char	35.0%	35.0%
Months of Operation	12		Tipping + Hauling Savings Factor	0%	0%
Monthly Topline Revenue	\$128,000		Annual AC Feedstock (Tons)	21,900	65,700
Annual Waste Volume (MT)	960		Tipping Rate Charged to Client	-\$25	-\$25
Addition Potential MWHRs produced/	1,224		Addition MT of AC produced/yr	4,599	13,797
Fixed Price Sale of Hydrochar	\$100		Fixed Price Activated Carbon	\$1,950.00	\$1,950.00
Annual Revenue	\$1,593,600		Annual Revenue	\$8,420,550	\$25,261,650
(-) Variable op costs	(\$211,200)		(-) Variable op costs	(\$2,690,415)	(\$3,228,498)
(-) Site Staff	(\$240,000)		(-) Site Staff	(\$600,000)	(\$1,800,000)
(-) G&A Allocation	(\$286,848)		(-) G&A Allocation	(\$842,055)	(\$2,526,165)
Project Level Cash Flow	\$855,552		Project Level Cash Flow	\$4,288,080	\$17,706,987
DS (50% LTC)	\$120,000		DS (50% LTC)	\$596,839	\$1,565,518
DS (60% LTC)	\$144,000		DS (60% LTC)	\$716,207	\$1,878,621
DS (70% LTC)	\$168,000		DS (70% LTC)	\$835,575	\$2,191,725
DS (80% LTC)	\$192,000		DS (80% LTC)	\$954,943	\$2,504,828
Interest Rate	6.0%		Capex Required	\$19,894,640	\$52,183,920
Capex Required	\$4,000,000		Average Tenor of Ofttake	17.0	17.0
Average Equipment Life	17.0		MOIC No Leverage	3.7x	5.8x
MOIC No Leverage	3.6x		IRR	20.45%	33.59%
IRR	20.26%		MOIC 50% Leverage	6.3x	10.5x
MOIC 50% Leverage	6.0x		IRR	36.59%	61.79%
IRR	36.24%		MOIC 60% Leverage	7.6x	12.9x
MOIC 60% Leverage	7.6x		IRR	44.56%	75.78%
IRR	44.14%		MOIC 70% Leverage	9.8x	16.8x
MOIC 70% Leverage	10.1x		IRR	57.69%	99.08%
IRR	59.16%		MOIC 80% Leverage	14.2x	24.8x
MOIC 80% Leverage	15.1x		IRR	83.72%	145.63%
IRR	88.90%				
Project Capex	\$4,000,000		Gross Up/ Contingency	\$ 23,873,568	\$ 62,620,704
Operating Expense Assumptions			Project Capex	\$19,894,640	\$52,183,920
Site Staff Required	3		Operating Expense Assumptions		
Cost per site staff	\$ 80,000		Site Staff Required	8	24
G&A Allocation	18%		Cost per site staff	\$ 75,000	\$ 75,000
Partner Cost Savings	--		G&A Allocation	10.0%	10.0%
Partner Value Savings	\$0		Partner Cost Savings	--	--
Capex Assumptions			Partner Value Savings	\$0	\$0
Sorting/Feed System	\$ 75,000		Capex Assumptions		
HTC Boiler	\$ 150,000		Sorting System	\$1,000,000	\$3,000,000
HTC Reactor	\$ 1,050,000		HTC Boiler	\$1,000,000	\$3,000,000
Dewatering	\$ 975,000		HTC Reactor	\$3,400,000	\$10,200,000
Supporting equip	\$ 75,000		Dewatering	\$6,000,000	\$18,000,000
Tech Licencing Fee's	\$ 200,000		Supporting equip	\$1,000,000	\$3,000,000
EPC Wrap	\$ 50,000		Licencing Fee's on HTC Reactor	\$558,000	\$1,674,000
Land	--		EPC Wrap	\$1,436,640	\$4,309,920
Project Package Development	\$ 1,425,000		Siemens support Steam Boiler		\$0
Power Gen	\$ --		Energy Source Equipment for AC Chamber	\$500,000	\$1,500,000
Electric Charging Station	\$ --		Acid bath	\$500,000	\$1,500,000
			Activation Chamber for AC	\$2,000,000	\$6,000,000
Land & Building			Land & Building	\$2,000,000	\$0
Permitting			Permitting	\$500,000	\$0
Environmental & Energy Assumptions					
Waste Diverted from Landfill	21,900				
CO2e Abated	44,457				
MWHRs Produced	4,599				
Cars Removed Annually (CO2e Equiv)	991				
Salary Breakdown:					
Sorters/Pickers count					
Picker Annual Salary					
Power Engineers					
Power Engineers Annual Salary					
G&A Breakdown					
Insurance					
Property Tax					
Accounting & Administration					
Maintenance Budget					



Item 3 – Water Treatment Plant Update & Water Supply Gap

Item 3 – Water Treatment Plant Update & Water Supply Gap

February 10th, 2025

Jeff Hart, Chairman
Hibbing Public Utilities Commission
1902 E. 6th Avenue
Hibbing, MN 55746

RE: Item 3 – Water Treatment Plant Update & Water Supply Gap

Dear Commissioners;

Please find attached for your review and discussion a presentation from Bolton & Menk Project Manager Brian Gulden. Brian will be present at the Commission Working Session to provide this presentation and updates on the water treatment plant project and status of the water supply gap.

Sincerely;



Luke J. Peterson

Hibbing Public Utilities

Water Supply Update

February 10, 2025

Presented By: Brian Guldán, PE



Introduction



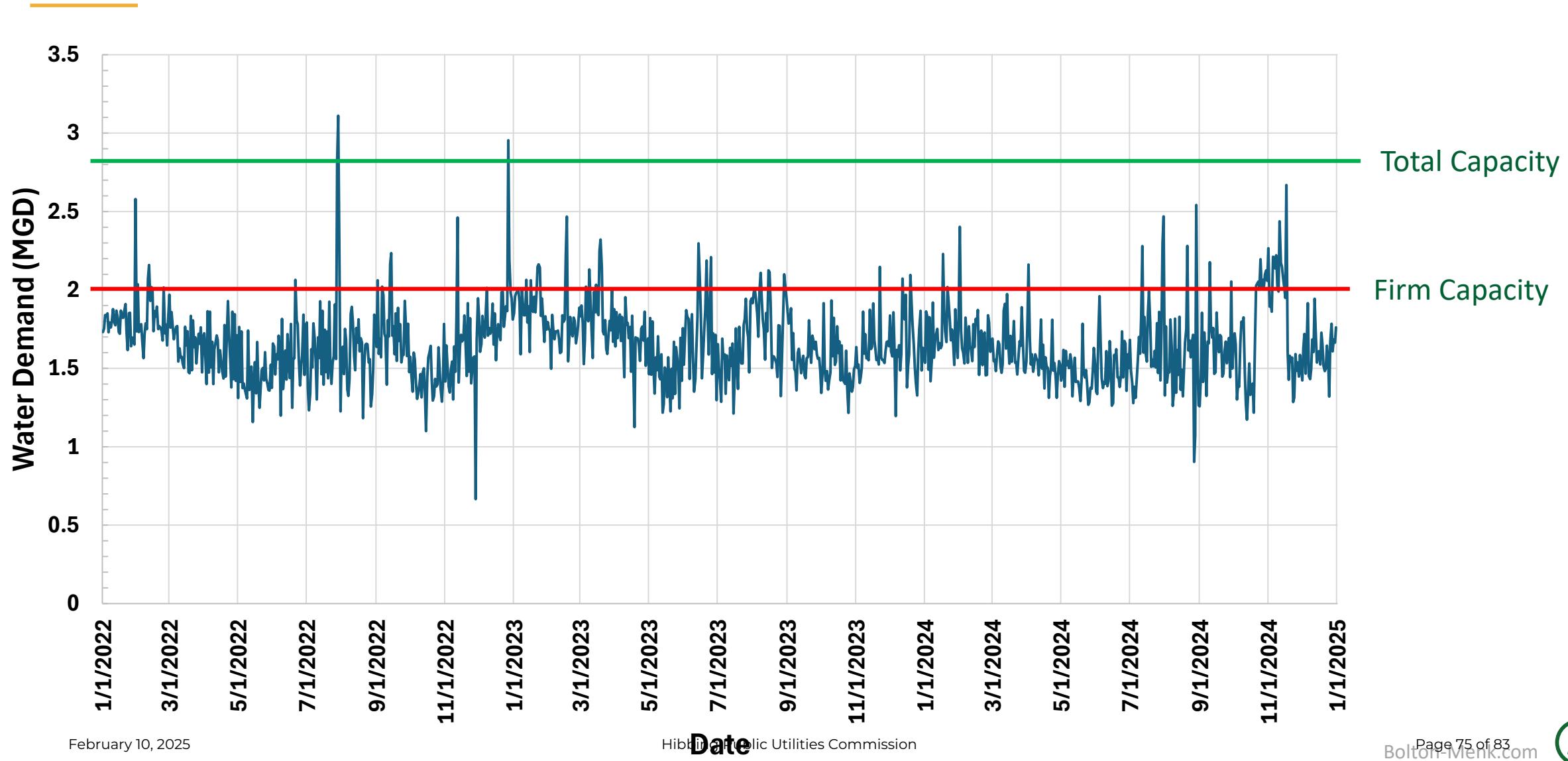
February 10, 2025

Hibbing Public Utilities Commission



- Water Demand Projections
- Capacity needed
- Options for Acquiring Additional Capacity

Historical Water Usage

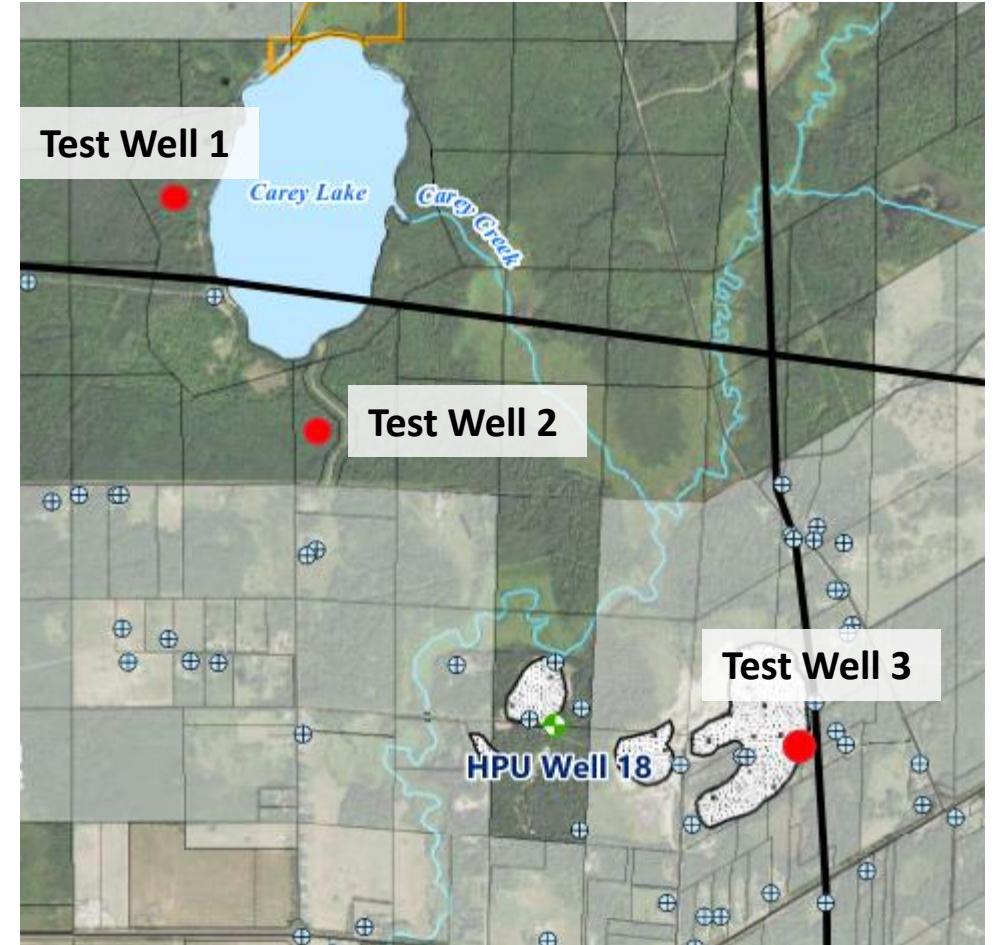


Water Supply and Demand

Supply		
Current Total Capacity	2.8	MGD
Current Firm Capacity	2.0	MGD
Demand		
Current Average Day	1.7	MGD
Current Max Day	3.5	MGD
Future Average Day	2.2	MGD
Future Max Day	4.0	MGD
Deficit		
Now	1.5	MGD
Future	2.0	MGD

History

- 2022 Water Study determines 2.0 MGD water deficient
- Well 18 (Carey Valley) drilled and planning begins to provide treatment
- WHPP completed – determined Well 18 capacity lower than previously believed
- Test wells drilled near Carey Lake – no water found



Options for Additional Capacity

- Alt 1: Drill test wells to try and find water near South WTP
- Alt 2: Construct a surface water treatment plant at Scranton Pit (“North WTP”)
- Alt 3: Drill wells in bedrock formations

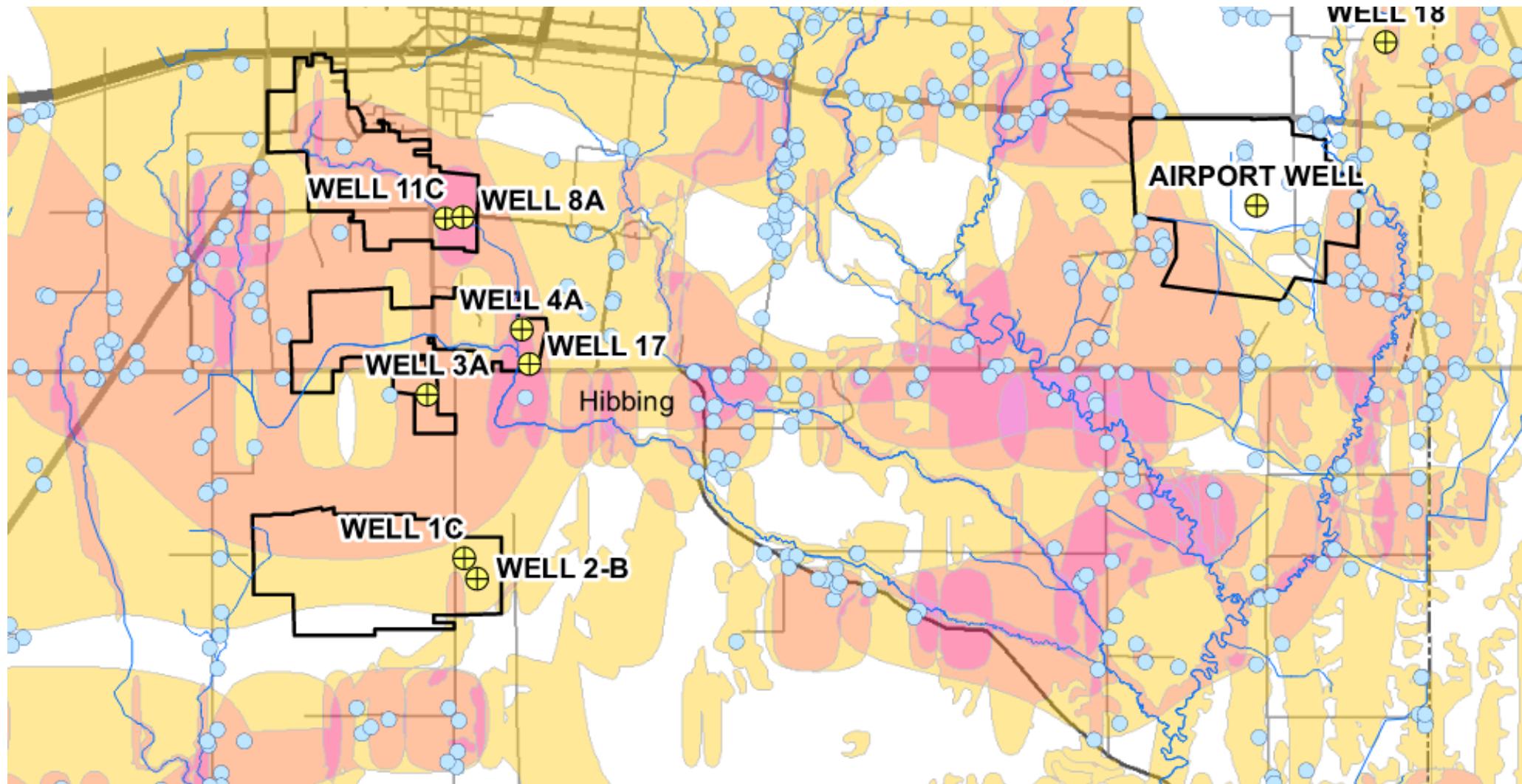


Alt 1: Test Wells

- Test wells drilled in areas believed to have promising conditions for a well
- Test pumping performed to estimate possible well capacity
- Can also be used to verify other data sources (“sand map”)
- Estimated cost per well: \$65,000



Alt 1: Test Wells



Alt 2: Surface Water Treatment Plant

- Treat water from Scranton Well
- Could be used to treat other dewatering sources
- Possible other wells drilled in north portion of City
- Requires different treatment than used at South WTP
 - Higher O&M and Capital Costs



Alt 3: Bedrock Well

- Requires deeper wells to move past the quaternary sands and down to the bedrock
- More protected water source
- Less likely to impact other wells in the area
- Can produce higher well capacities
- More expensive than shallower wells
- *Unknown at this time what bedrock aquifers are available*

Questions?



**BOLTON
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