



# Great Lakes Utilities

Reciprocating Internal Combustion Engine

Project Update

The City of Manitowoc Common Council

May 17, 2021

# Outline

---

- Great Lakes Utilities Overview and Membership
- Generation Portfolio Diversification; Own vs Rent
- Reciprocating Internal Combustion Engine Power Plant
- Proposed Project Location
- Project Milestones and Timeline
- Benefits to the City of Manitowoc
- Request of the Common Council

# Great Lakes Utilities – Overview

---

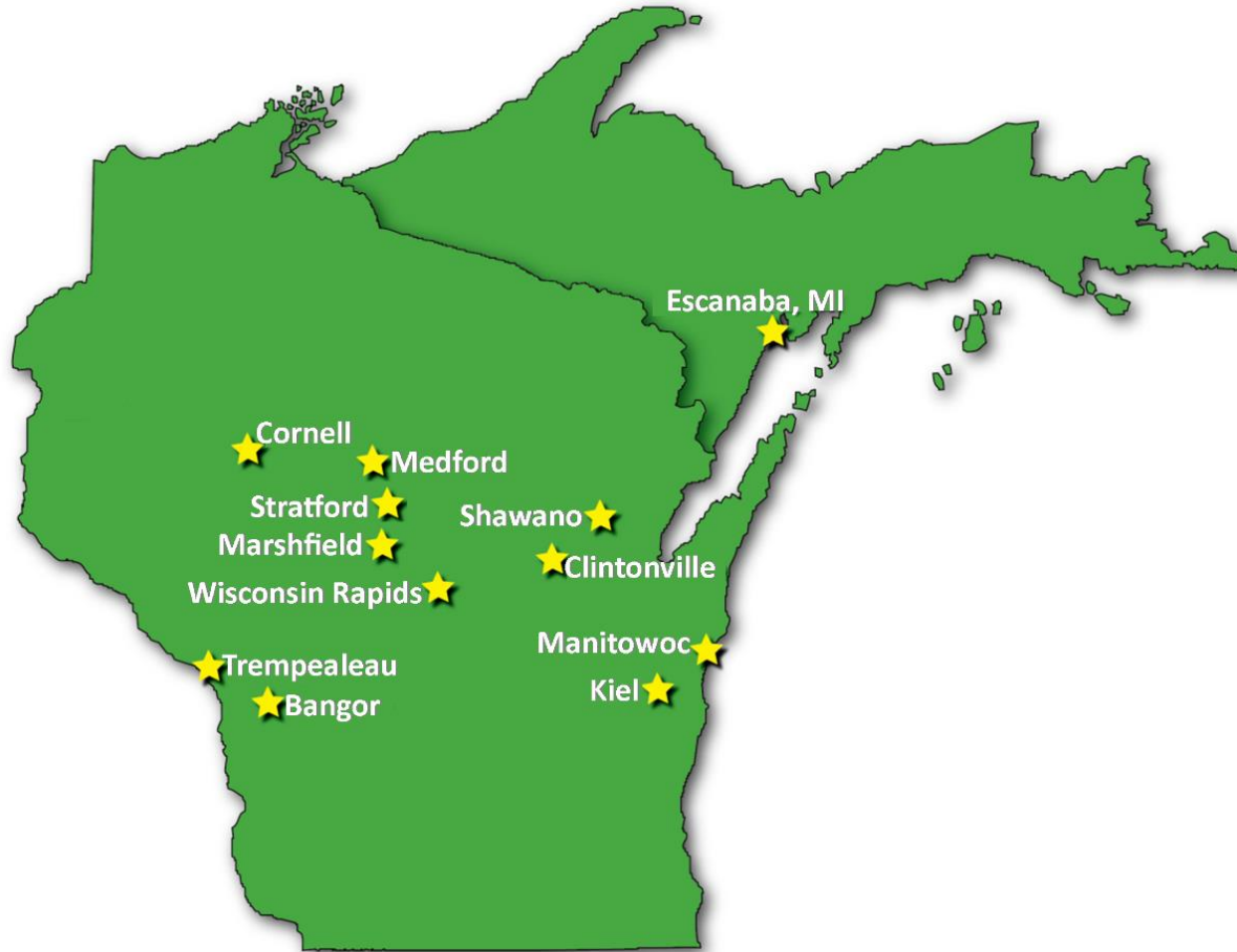
- **Great Lakes Utilities** (GLU) is a municipal electric company “agency” formed under WI Statutes, Section 66.0825, in 2000.
- GLU is **not-for-profit**, owned by the Members for the sole purpose of serving member communities (not shareholders).
- GLU is governed by representatives from **all** Members.
- GLU is a “**project**” agency, not a “full requirements” joint action agency. Members participate only in the projects or services they find value.
- **MPU is a GLU member** as approved by City of Manitowoc Common Council in 2000; and, MPU provides management and operating services for GLU by contract.



# Great Lakes Utilities – Membership

---

12 Public Power utility Members in Wisconsin and Upper Michigan



# Generation Portfolio Diversification; Own vs Rent

---

- GLU Board established a goal to become an **owner vs renter**. Included initiative for owning generation assets as part of their 2020-2023 Strategic Plan.
- GLU has a 70MW **capacity shortfall** to address by 2024.
- Following a lengthy resource evaluation process involving several consultants, the GLU Board has begun the process to **address the shortfall while adding diversity to the portfolio**.
- This portfolio diversity will be achieved through the addition of a proposed **Reciprocating Internal Combustion Engines (RICE)** power plant, **solar** generation projects, and **power purchase agreements** for a diversified power supply portfolio.

# Reciprocating Internal Combustion Engine Power Plant

---

- GLU is in the **planning phase** for this RICE generation project to help address the upcoming capacity shortfall.
- The RICE project will site **45.6MW of generation** in Manitowoc, WI. The proposed location for the project is at the existing MPU Custer Energy Center.
- Compared to the current portfolio, the RICE project should result in **lower capacity costs** and provide a **hedge for energy costs**.

# Reciprocating Internal Combustion Engine Power Plant

---

- A RICE power plant can ramp up and ramp down quickly following load. This attribute makes RICE power plants an **excellent compliment to renewables** that may be intermittent like wind and solar.
- Because of this, RICE generation will play an important role in any **path to a zero carbon future** helping to bridge the gap to new technologies.
- This RICE project could potentially be converted to operate on **green hydrogen** in the future. This adaptability should provide regulatory risk mitigation and extending useful life by becoming a zero carbon emitter.

# Reciprocating Internal Combustion Engine Power Plant

---

## Wärtsilä W12V50DF

- Wärtsilä (Finland)
- Gross Output: 11.3 MWe
- Heat Rate: 8,387 BTU/kWh (HHV)
- Medium-speed
- Dual fuel unit; requires fuel oil for ignition source
- Grey-market units considered
- Never operated
- Engines will require conversion from marine-base to land-base



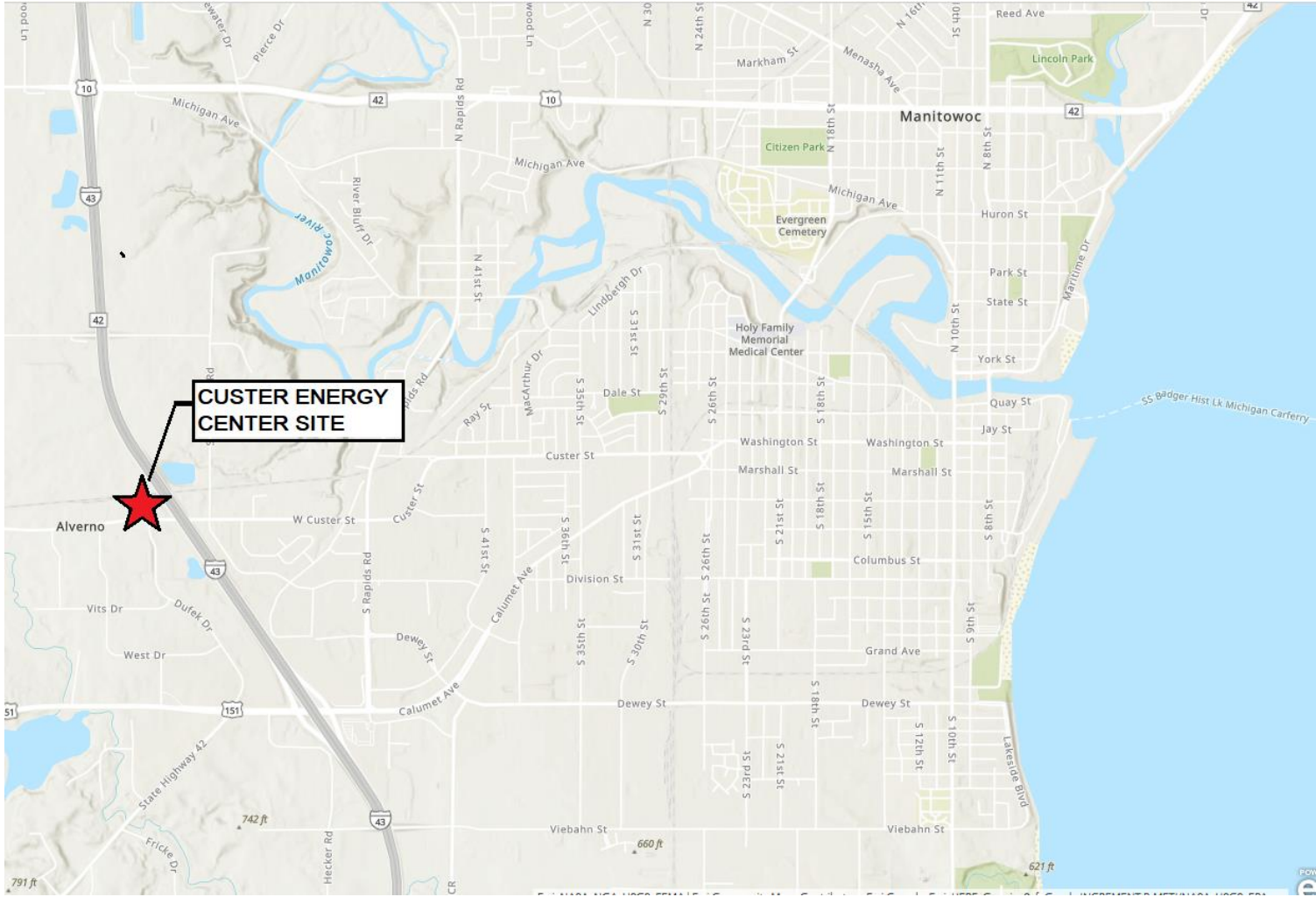


# Proposed Project Location – Manitowoc

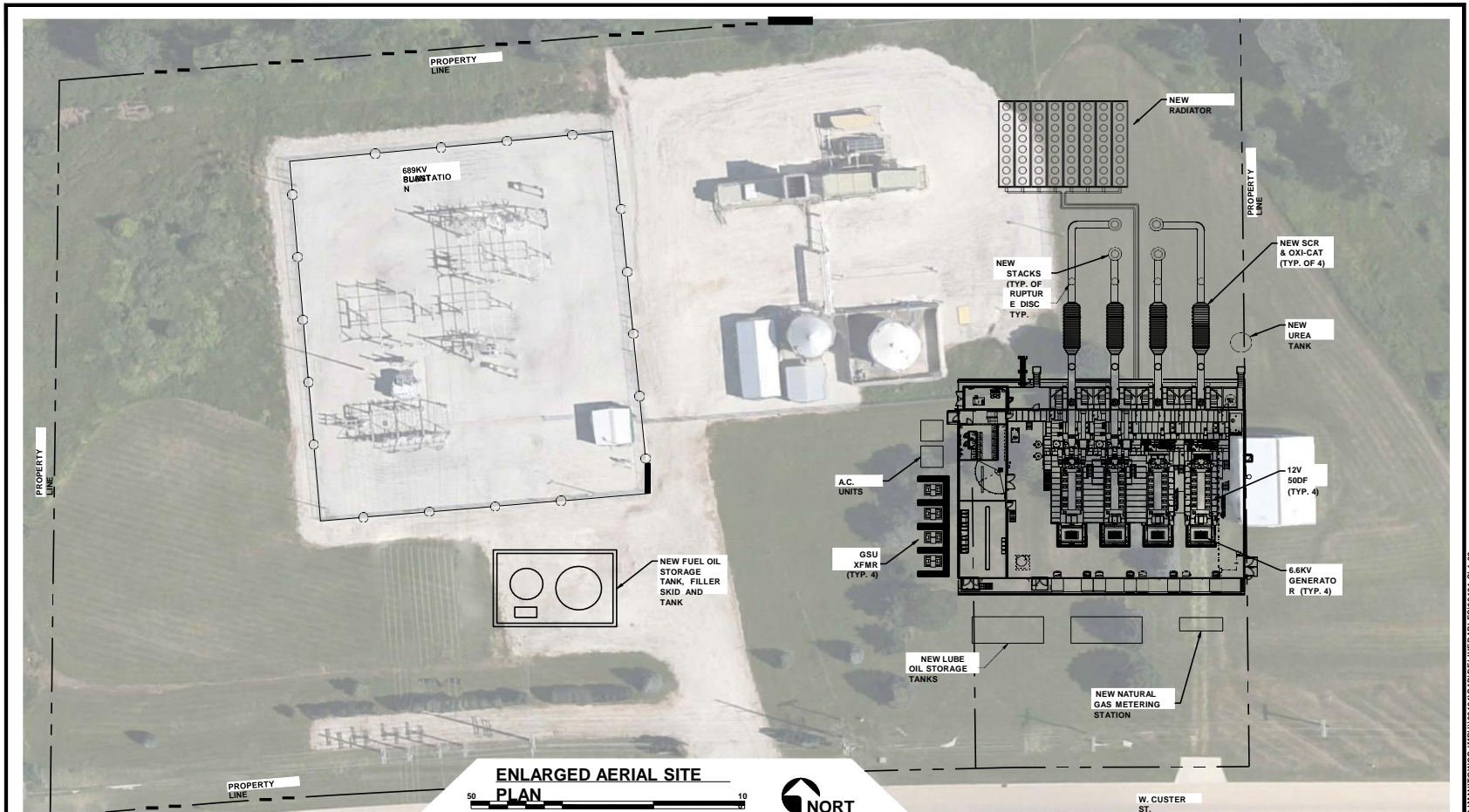
---

- GLU considered multiple member sites for hosting.
- GLU selected Manitowoc for the site of the RICE project because MPU has around-the-clock power plant staffing to operate the plant as well as experienced maintenance staff.
- The MPU Custer Energy Center location also provides access to natural gas, rail, interstate, and the electric transmission grid.
- The proposed GLU RICE project site is adjacent to an existing MPU Combustion Turbine and Electric Distribution Substation.

# Proposed Project Location – Overview Map



# Proposed Project Location – Custer Energy Center



**ENLARGED AERIAL SITE PLAN**

CAD FILE NAME: 20121-SL1-08-REVA PLOT SCALE: 1:1 (1/14/17) REVISION: REVA (02-09-2021)

**LUTZ, DAILY & BRAIN, LLC**  
 DESIGN CONSULTING ENGINEERS  
 BY \_\_\_\_\_ DRAWN BY \_\_\_\_\_

6400 GLENWOOD CLOVERLEAF 4 BUILDING OVERLAND PARK, KANSAS 66202  
 CHECKED BY \_\_\_\_\_ APPROVED BY \_\_\_\_\_



**PRELIMINARY ENLARGED AERIAL SITE PLAN WARTSILA PLANT ADDITION AT MPU CUSTER ENERGY CENTER SITE LAYOUT #4**

DRAWING NUMBER: 20121-SL1-08-REVA SHEET NUMBER: 2 OF 2

REVISION: 02-09-2021 BY: ADRIEN  
 REVISION: 02-09-2021 BY: ADRIEN  
 REVISION: 02-09-2021 BY: ADRIEN



# Project Milestones and Timeline

---

- January 2021: GLU secured purchase rights for the four Wartsila engines and parts from TOTE Services in Seattle, WA.
- April 2021: Public Service Commission of Wisconsin (PSCW) Certificate of Authority (CA) Application filed.
- July 2021: Secure land rights, submit interconnection application with the Midcontinent Independent System Operator (MISO).
- 2Q2022: Contingent upon PSCW CA approval, procurement of balance of plant, building construction, and engine conversion will begin.
- July 2023: Generation in service.

# Benefits to the City of Manitowoc

---

- Tax base – \$45M Construction Project within City. Project has an anticipated 30-year life.
- Local generation – Although not connected to the distribution system, MPU would have the ability to back-feed distribution system through the transmission system during a catastrophic failure of the regional grid.
- Local jobs and revenue – GLU and MPU are in discussions to develop an Operating Services Agreement for MPU to provide O&M services for the RICE Plant. GLU and MPU are also in discussions regarding revisions to the existing Management Services Contract under which MPU provides management and administrative services for GLU.

# GLU Request of the Common Council

---

- Support for the GLU RICE project understating the role it will play for MPU and GLU for the future.
- Support GLU in the local permitting process.
- Support GLU as needed in receiving the Certificate of Authority (CA) from the Public Service Commission of Wisconsin (PSCW).
- Support GLU as needed in approval of an Interconnection Agreement to the electric transmission grid with the Midcontinent Independent System Operator (MISO).

---

# Questions?