Energy Management Strategic Plan

Fiscal Year 2025-2026

Western Michigan University

Facilities Management – Engineering Division

June 2025

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Physical Plant Building

Introduction

An initial Energy Reduction Strategic Plan was first introduced in 2014, following the release of the university's first climate action plan in 2012. That foundational document set the stage for the university's commitment to enhancing energy efficiency and reducing greenhouse gas (GHG) emissions. In early 2024, the Energy Reduction Strategic Plan underwent a comprehensive redevelopment and refresh, following the release of the 2022-2032 Strategic Plan. This update reflects the university's renewed commitment to accelerate climate action, bringing fresh perspectives and strategies to our energy management efforts.

As outlined in the 2024 refresh, the Energy Management Strategic Plan is designed to be updated annually, with a major revision occurring every five years. The annual updates serve as a critical venue for providing an overview of all energy management actions undertaken during the previous year. This process allows us to ensure that our day-to-day implementation aligns with our stated goals, facilitating a deliberate reflection on our successes and challenges. By assessing our progress, we can determine how to advance in the coming year, ensuring that our actions remain in alignment with our overarching objectives.

Through this ongoing process of review and adaptation, we aim to foster a culture of accountability and continuous improvement in our energy performance, ultimately contributing to the university's broader sustainability mission.

Objectives, Goals, and Strategies

Objective 1: Understand How and Where Energy Is Used on Campus

1. **Conduct a Comprehensive Annual Greenhouse Gas Inventory**
   Perform a full campus GHG inventory each year, using established protocols, to track progress toward carbon neutrality and identify major emission drivers.

2. **Expand and Maintain Comprehensive Operational Metering Coverage**
   Ensure interval metering exists (or has a clear installation plan and timeline) for all buildings and major utilities, prioritizing existing solar installations, remaining steam services, and chilled water systems.

3. **Ensure Reliable, Continuous Data Collection and Integration**
   Onboard steam meters, solar meters, and chilled water meters into the EnergyCAP platform; implement automated data acquisition processes (with documented procedures) to guarantee uninterrupted, high-quality data streams.

4. **Strengthen Data Governance and Staff Capacity**
   Formalize clear roles, processes, and documentation so that metering configuration, data ingestion, and troubleshooting do not rely on a single individual; establish cross-training and handover protocols.

5. **Provide Transparent, Accessible Reporting for Utility End-Users**
   Maintain and enhance reporting mechanisms (dashboards, regular summaries) to serve diverse audiences and ensure accuracy in billed energy, visibility into usage trends, and actionable insights.

Objective 2: Set Energy and Sustainability Goals for New Construction and Major Renovations

1. **Support Implementation of Performance and Carbon Targets in Project Requirements**
   Continually provide input on design decisions when consulted by Planning, Design, and Construction, so that new projects adopt energy-efficiency and carbon-reduction targets from early stages.
2. **Institutionalize Lifecycle Cost and Carbon Evaluation in Project Workflows**
   Collaborate with technical partners to assign carbon intensities to utility sources and embed lifecycle cost/carbon assessments into project evaluation processes, ensuring decisions consider total cost of ownership and emissions impacts.
3. **Facilitate Verification and Capture of Incentives for Sustainability Outcomes**
   Coordinate with Consumers Energy to secure all eligible rebates and incentives for efficiency measures; leverage these engagements as part of measurement & verification practices to validate energy savings.

Objective 3: Continually Improve the Efficiency of Campus Heating and Cooling Systems

1. **Modernize HVAC Equipment and Controls for Higher Efficiency**
   Prioritize replacing aging chillers with new electric chillers and converting fixed-speed equipment to variable-speed where appropriate.
2. **Implement and Sustain the Steam Trap Management Program**
   Continue the campus-wide cycle of steam trap testing, repair, and replacement; track performance data and integrate findings to minimize steam losses and energy waste.
3. **Optimize Operations and Maintenance Through Analytics**
   Leverage platforms such as Clockworks for fault detection and diagnostics; implement continuous commissioning processes in applicable buildings that use data-driven alerts to trigger timely maintenance and tune-ups for heating and cooling systems.
4. **Invest in Energy Conservation Measures via the Green Revolving Fund**
   Allocate and manage Green Revolving Fund resources to support implementation of high-impact ECMs; establish clear criteria for fund deployment and track returns in energy savings and emissions reduction. Collaborate with technical partners to identify and prioritize energy conservation measures.

5. **Conduct Measurement and Verification to Validate Energy Savings**
   For every implemented ECM, apply M&V protocols to confirm actual savings, using baseline data, metered performance, and analytics to demonstrate outcomes and inform future project prioritization.

Objective 4: Increase the Amount of Renewable Energy Generated on Campus

1. **Develop and Maintain a Prioritized Renewable Energy Installation Roadmap**
   Work with the Climate Action Plan team and master planning stakeholders to flesh out and prioritize projects (e.g., solar, geothermal) hinted at in the new master plan, using lifecycle cost and carbon analyses to guide decisions.
2. **Enhance Monitoring and Performance Verification of Existing Renewable Assets**
   Install new meters where needed and perform retro-commissioning on current systems so that all renewable assets feed real-time (or near-real-time) data into analytics platforms; use this data to benchmark performance and guide maintenance.
3. **Explore and Secure Diverse Financing and Ownership Models for Renewable Projects**
   Research and pursue funding opportunities (e.g., state grants, MI Saves programs) and other creative financing or partnership structures to reduce upfront costs and accelerate deployment.
4. **Explore Energy Storage and Grid-Interactive Strategies to Maximize Renewables' Value**
   Evaluate opportunities for battery or thermal storage, demand-response integration, or other grid-interactive measures that increase on-site consumption of renewable energy, improve resilience, and optimize financial returns.
5. **Explore and Advance Low-Carbon Heating/Cooling Pathways**
   Focus on feasibility studies (with lifecycle cost/carbon analysis) for geothermal or other low-carbon heating and cooling technologies; plan pilot projects when business cases align with carbon neutrality objectives.

Objective 5: Engage Campus Stakeholders to Reduce Energy Consumption

1. **Elevate Energy Management Successes on Social Media**
   Collaborate with the Service Center to highlight energy projects and outcomes via social channels, showcasing WMU's achievements and building broader awareness.
2. **Foster Grassroots Involvement and Support for Energy Conservation**
   Participate in conferences, events, and campus forums to elevate the profile of WMU's energy work; engage students, staff, and faculty in collaborative initiatives and challenges that support energy efficiency and renewable energy.

3. **Maintain Transparency, Feedback Loops, and Continuous Improvement**
   Continue producing an annual update to the energy management strategic plan, publish it on the website, and solicit feedback to refine approaches and demonstrate accountability.

4. **Provide Transparent, Accessible Reporting for Various Stakeholders**
   Keep the public energy dashboard up to date and user-friendly; ensure that internal and external audiences can access clear, accurate information on energy use, savings, and progress toward goals.