



MICHIGAN STATE UNIVERSITY
BOARD OF TRUSTEES
Executive Action Summary

Budget & Finance-Attachment 4

Committee Name Budget and Finance

Date June 28, 2024

Agenda Item: Authorization to Plan, Proceed: Combined Heat & Power
Unit and West Regional Chilled Water Plant

Information

Review

Action

Resolution:

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to plan and proceed for the project entitled Combined Heat & Power Unit and West Regional Chilled Water Plant [CHP CWP Project].

Recommendation:

The Trustee Committee on Budget and Finance recommends that the Board of Trustees authorize the Administration to plan and proceed with design, procurement, and construction of a new Combined Heat & Power Unit at the TB Simon Power Plant and Chilled Water Plant in the central academic district.

This project is proposed to be accelerated in order to meet Federal Inflation Reduction Act deadlines for access to significant tax credits to help fund the project.

The President and Trustee Pierce have been briefed on the opportunity.

Prior Action by BOT: not available

Responsible Officers: Daniel Bollman, Vice President for Strategic Infrastructure Planning and Facilities

Summary: The proposed new Combined Heat & Power Unit at the TB Simon Power plant will add electric generation capacity, restore lost steam generation capacity, and provide utility services for a new West Regional Chilled Water Plant. The West Regional Chilled Water Plant will provide cooling to the Engineering and Digital Innovation Center and provide chilled water to existing facilities with chillers that are likely to fail in the near future without significant intervention (Engineering, Comm Arts, Anthony Hall,

Packaging, Natural Resources, Food Science, Erickson Hall, Wells Hall, & International Center). The Chilled Water Plant design, with future investment, will also provide space for future cooling capacity expansion should building opportunities identified in Vision 2050: An Integrated Facilities and Land Use Plan for Michigan State University come to fruition.

The new Combined Heat & Power Unit and west regional Chilled Water Plant will:

- Reduce risk of disruption to programs and research
- Enable long-term campus growth in support of academic and research initiatives
- Increase energy efficiency and deliver progress on University sustainability goals
- Improve infrastructure reliability and resiliency
- Provide long-term savings to the campus

Background Information:

Planned capital investment combined with aging infrastructure have created a need to proceed with additional infrastructure investment to support ongoing University priorities.

A new Combined Heat & Power Unit will offset about 80% of the steam capacity lost by shutdown of Boiler 4 and increase the overall efficiency of the TB Simon Power Plant. It will also provide utilities to support a new west regional Chilled Water Plant. The addition of a new CHP Unit is consistent the MSU Utility Master Plan and advances campus sustainability goals.

Centralized Chilled Water Plants require approximately 35% less equipment than decentralized plants and allows the equipment to be staged for optimum performance, thus significantly reducing the amount of energy required and minimizing the embodied carbon footprint for primary equipment.

The proposed Regional Chilled Water Plant creates a platform to save energy, allows for other energy technology to be deployed regionally in the future (thermal storage, etc.) to meet sustainability goals, and reduces overall cost of operations and maintenance. It will also serve the chilled water needs for two million gross square feet of existing building space in which over 70% of the existing chiller system equipment is at reduced capacity, at or beyond useful life, experiencing increasingly frequent failures, and have obsolete technology affecting ability to obtain spare parts and manufacturer support.

The proposed Combined Heat & Power Unit and regional Chilled Water Plant is being coordinated with major capital projects, the Facilities and Land Use Plan, and the Utility Master Plan.

Source of Funds:

The project will be funded from a combination of tax credits, reserves set aside to support investments in HVAC renewals, and debt, most likely utilizing Century Bond Funds. Debt service will be repaid in part from annual recurring funding to support upgrades for sustainability and related utility savings. The remainder will need to be committed from future incremental general fund revenues and will require prioritization against other planned investments.

Resource Impact:

This west regional Chilled Water Plant is planned have an interim completion of at the end of Summer 2026 to accommodate and coordinate with the construction of the Engineering Digital Innovation Center which has a completion date of December 2027. The Combined Heat & Power Unit forecast completion is early Summer 2028.

CHP Chilled Water Plant - Phases

