

West Campus Cogeneration Facility

Water Use

The West Campus Cogeneration Facility provides reliable heating and cooling for the UW-Madison campus and 150 megawatts of electricity for MGE customers. The facility began producing power for the community in spring 2005.

The natural gas-fired plant is one of the cleanest in the Midwest. MGE worked with community members to take steps beyond current environmental regulations. Through innovative mitigation measures, MGE offsets air emissions and water use from the power facility.

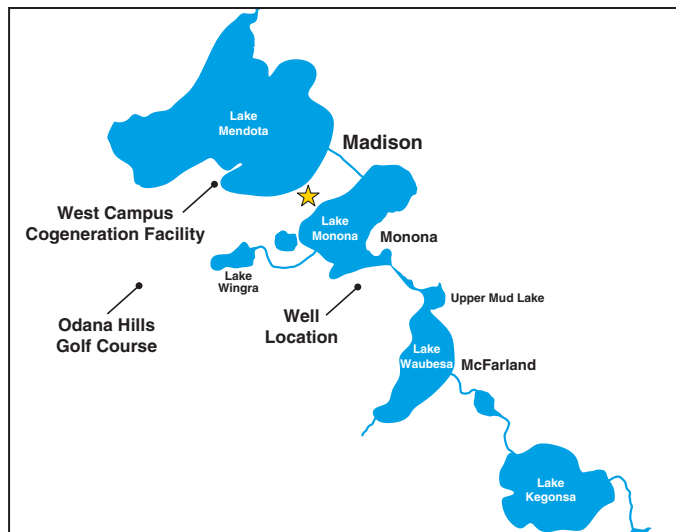
Minimizing water use

The cogeneration facility was designed to minimize water use. Where possible, water is reused in the facility. Water is used for the cooling towers, steam production and general use.

MGE is committed to mitigation measures to offset water use impacts from the facility. MGE worked with government, water resource experts and concerned citizens on water supplies. From this careful review, MGE implemented a water source plan.

The facility uses about one million gallons of water a day on average. On hot summer days, when air-conditioning demand is high, the facility uses about two million gallons a day.

Most of the water is withdrawn from Lake Mendota through the existing UW-Madison intake structure and used in the cooling towers. Most of this water is returned to the environment through evaporation from the cooling towers. City of Madison municipal well water is used for all general purposes.



Mitigation would help replenish the watershed system:

During times of drought or low water flows, groundwater is pumped for short periods from a well into the Yahara River near Upper Mud Lake. This measure helps replenish the Yahara River in southern Dane County. A water recharge project at Odana Hills replaces the groundwater pumped into the river.

Innovative steps to offset impacts

The facility's water withdrawal from Lake Mendota is not expected to produce a significant impact on Dane County's lakes and rivers except during times of extreme low flows, which occur every three to four years on average. The Yahara River, south of Lake Waubesa, is an area of concern during these periods.

A group of area water resource experts studied potential watershed management issues concerning the cogeneration facility.

(continued on reverse side)

After reviewing several options, the group endorsed this two-step process to offset the facility's water use:

1. Pumping water from a well into the Yahara River during low flow or drought periods.
2. Implementing a groundwater recharge project.

• **Pumping groundwater for short periods during periods of low water flows to supplement the Yahara River.** The groundwater is pumped from a well and discharged into the Yahara River near Upper Mud Lake. The amount of water pumped into the river offsets the water used by the power facility.

This pumping supplements flows in the Yahara River, especially south of Lake Waubesa. Low water flows can have detrimental effects on river habitats, wastewater treatment plants and hydroelectric facilities downstream.

• **Collect and infiltrate stormwater runoff to recharge the groundwater system.** This replenishes the water that would be taken from the aquifer when pumping groundwater from the well.

MGE installed a groundwater recharge system at the Odana Hills Golf Course because of the ample space and its large pond that collects abundant stormwater

runoff from the surrounding developed areas. During operation, the pond water is filtered, pumped to higher ground and infiltrated into the soil in a specially engineered underground drain field located in a rough area between fairways.

The recharge system is expected to:

- Help replenish the groundwater aquifer that supplies Lake Wingra and area springs. This will help re-establish the more natural system that existed before the area was developed.
- Reduce excess sediments and nutrients that currently flow out of the Odana Pond through storm sewers and into Lake Wingra.
- Demonstrate the benefits of stormwater infiltration.

MGE also funded a project that allowed Dane County to develop a watershed hydrologic model to better understand and manage the entire watershed.

For more information:

- Visit www.mge.com/about/powerplants/cogen.
- Direct any questions to Bob Stoffs, an MGE community services manager, at rstoffs@mge.com or (608) 252-7906.