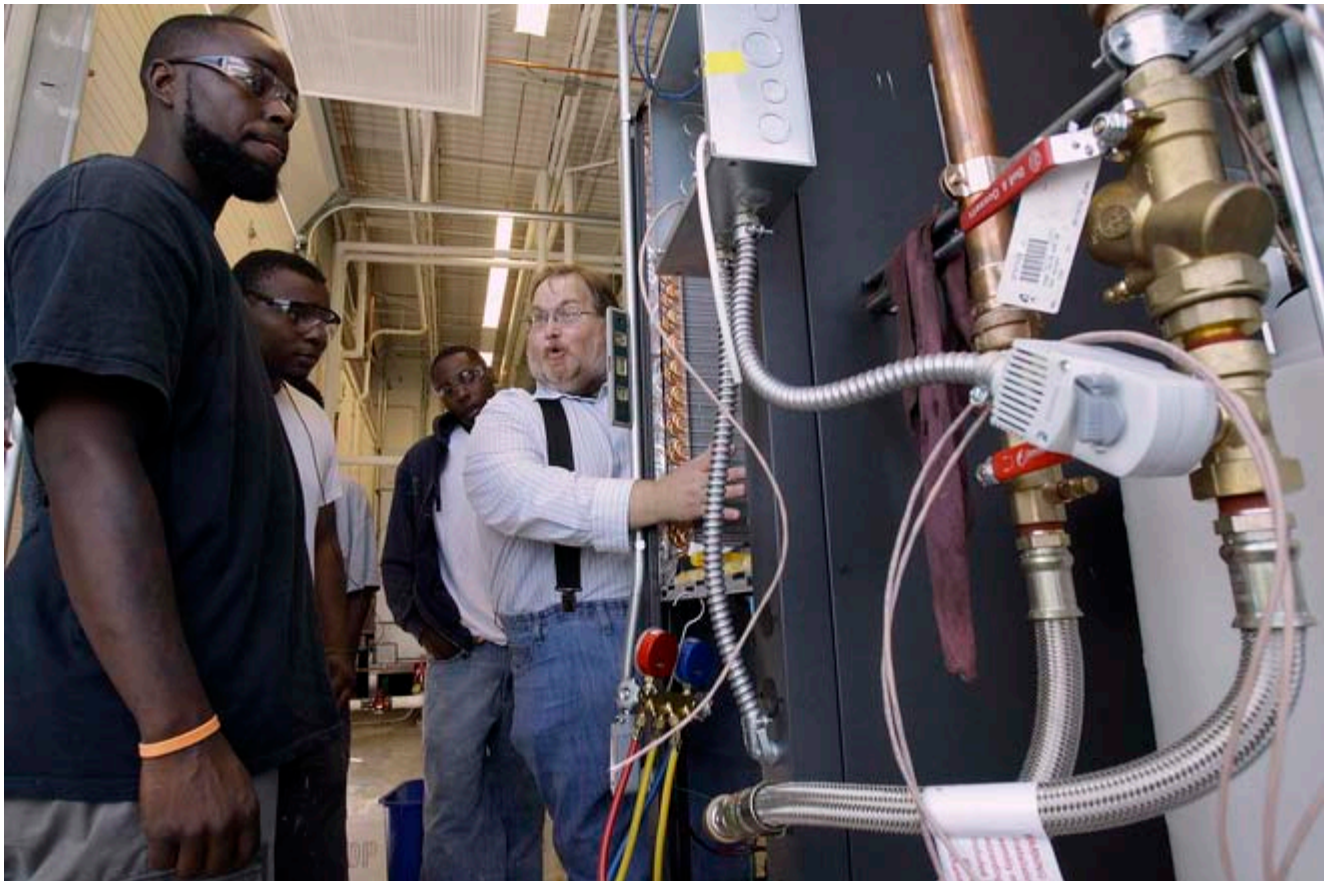




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## Business

### Students getting jump-start in geothermal systems



Benny Sieu

MATC instructor Gordon Jacoby (right) shows a geothermal unit to Anthony Harris (from left), Anthony Washington and Artyes Wingo. The Milwaukee Community Service Corps students have been learning about geothermal energy technology and pumps.



#### MATC partnership trains at-risk candidates for green energy jobs

By Thomas Content of the Journal Sentinel  
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Energy writer Thomas Content keeps you current as you adapt to changes in the world of energy, climate change and efforts to build a greener

### Plugged In

**Oak Creek** - As baby boomer retirements and growth in renewable energy sources combine to create demand for jobs for air-conditioning and heating technicians and renewable energy installers, some of the job candidates could come from Milwaukee's poorest neighborhoods.

Through a project of the Milwaukee Community Service Corps, which focuses on training at-risk Milwaukeeans to help them escape poverty, students have spent recent weeks installing solar panels and learning about geothermal heating systems.

The training has made Anthony Harris, 23, think about a new career.

"I'm enrolled in business, but since I've been in tune with this stuff I've been thinking about changing my major," he said.

The geothermal system was recently installed at the Center for Energy Conservation and Advanced Manufacturing at the Milwaukee Area Technical College's Oak Creek campus. The center includes a variety of energy technologies, including solar hot water, a solar thermal-powered boiler, a solar electric system and the new geothermal system, said director Joe Jacobsen.

The geothermal system, donated by Johnson Controls, features three wells dug 300 feet deep, said MATC instructor Gordon Jacoby.

Outside, the wells are beneath a slab of concrete and can't be seen. Inside, the system doesn't look too New Age - sort of a cross between a furnace and a central air unit, featuring pumps, a compressor, and cooling and heating coils.

A geothermal heat pump collects natural heat from underground through a series of pipes and fluid carries the heat indoors, where a compressor and heat exchanger are used to heat the home. In summer, the pipes draw excess heat from the house and allow it to be absorbed by the earth.

"I like it because I'm an old refrigeration person, and I like new technology," Jacoby said. "This will keep a house warm down to minus 10 degrees outside air before we have to add electric heat."

The systems aren't cheap, costing at least \$20,000 per unit, with a payback of up to three to five years, Jacoby said. But they now qualify for a 30% federal tax credit.

"If I had the funds to put it in my family's home, I would," Harris said.

Why? "I'd be cutting out the middleman. I've suffered through winters with no lights, so if I could get a system like this, then I won't have to pay an energy bill."

### **Corporations on board**

Large corporations that are moving to green up their headquarters, including Epic Systems of Verona and Johnson Controls Inc. of Glendale, have incorporated geothermal heating and cooling into their campuses.

Examples can be found in Milwaukee, such as Olga Village, a 37-unit apartment complex for low-income seniors, developed by the Housing Authority and the nonprofit United Community Center at 722 W. Washington St.

"We're using the ground basically as a battery of sorts for temperature," said Glen Radford, a Housing Authority project manager. "It allows for us to take advantage of the ground's temperature to provide heating in the wintertime, and in the summertime we're collecting the heat from the building and pushing it down into the ground."

The Housing Authority last year installed geothermal technology at Olga Village, which has been certified as a green building for its use of energy efficiency as well as solar hot water system, Radford said.

The Milwaukee Community Service Corps program, in partnership with MATC, is seeking to help those who need it get a few rungs up on the ladder out of poverty.

"Within the neighborhoods that you all are living in, how many geothermal systems do you see?" said Chris Litzau, executive director of the service corps.

The partnership developed to standardize training after service corps participants observed the well drilling and geothermal installation at Olga Village last year, Litzau said. In the coming months, the workers will take part in construction projects including a new home and a rehabilitation project that will have other geothermal technology, he said.

The Housing Authority is looking at installing geothermal at other projects.

The service corps partnership is backed by the Milwaukee Area Workforce Investment Board along with MATC's Office of Workforce and Economic Development. It's one of several initiatives focusing on training for green jobs, including one that's about to launch thanks to a federal grant.

The path can extend to University of Wisconsin-Milwaukee, which is partnering with MATC on a federally funded initiative aimed at training workers for future green jobs, said Jacobsen.

Jacobsen, associate dean at MATC, said the center in Oak Creek also aims to create an entire microgrid with an energy storage system, in addition to the solar hot water, solar electric, geothermal system and wind energy generated there.

The Housing Authority is greening its buildings as part of a plan to trim expenses such as utility bills, said director Antonio Perez.

Offering the training through the service corps seemed natural.

"What a great opportunity for possibly a student who lives within public housing to learn more and maybe elevate themselves to a better education level, a better job opportunity," Radford said. "Maybe it shuts the door on the cycle they've been in life."