



COUNTY HOME SCHOOL

# Microturbine Demonstration Project

Demonstrating how emerging energy technologies, like microturbines, can work in real applications to boost energy efficiency and minimize air pollution.

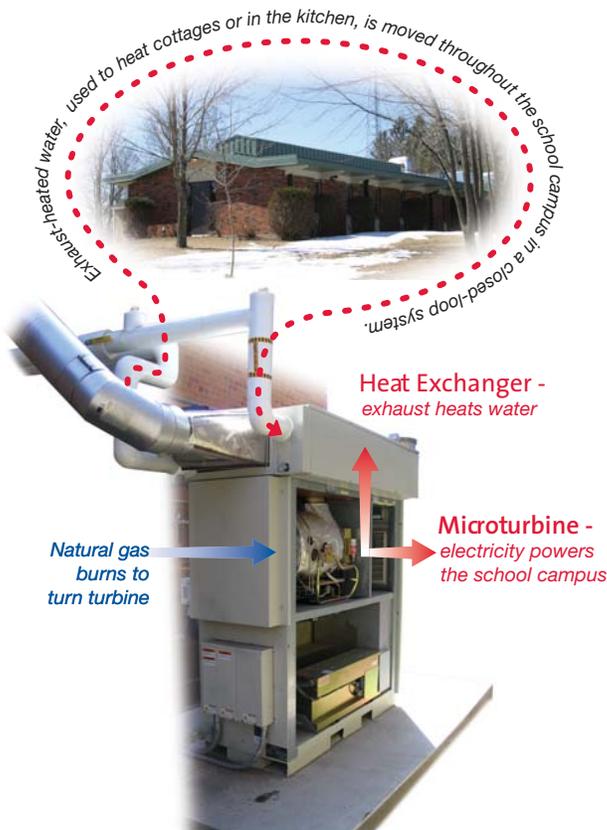
## The County Home School's Microturbine:

- Will generate about 5% of the school's electricity needs.
- Will provide supplemental heat to the campus.
- Estimated to result in about \$8,000 of annual utility savings for the County Home School at current natural gas and electricity rates.
- Is a demonstration of Hennepin County's commitment to promote alternative sources of energy to power our buildings.



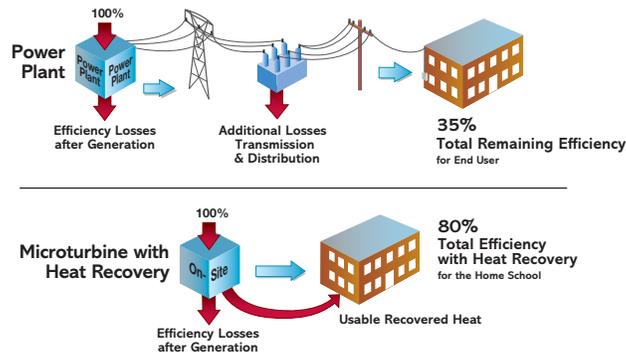
## How Does the Microturbine Work?

A 60-kilowatt microturbine was installed in 2005 to generate electrical power and heat for the Home School campus. The microturbine is fueled by natural gas, which powers the turbine, and turns a generator to produce electricity. The hot exhaust air created in this process is recovered and used to heat water. This water is used for hot water needs throughout the campus.



## Microturbines:

- Create reliable electricity and heat on-site.
- Ultra low emissions. The exhaust contains few nitrogen oxides, or sulfur dioxides, the primary cause of smog.
- Achieve up to 80% efficiency with heat recovery. A traditional power plant achieves about 35% efficiency.



## To Learn More About Microturbines

### HENNEPIN COUNTY

- Visit [www.hennepin.us](http://www.hennepin.us)  
key word search: microturbine  
for additional information and websites

### U.S. DEPT. OF ENERGY'S DISTRIBUTED ENERGY PROGRAM

- [www.eere.energy.gov/de](http://www.eere.energy.gov/de)

### XCEL ENERGY

- [www.xcelenergy.com](http://www.xcelenergy.com)  
search: microturbine

### CAPSTONE MICROTURBINE CORPORATION

- [www.microturbine.com](http://www.microturbine.com)
- Manufacturer of the County Home School's microturbine

## Frequently Asked Questions about the County Home School's microturbine

### Can microturbines use renewable fuel sources?

Microturbines can also use bio-gas fuels. Currently there are technical and economic limitations that makes it impractical for the County to be using renewable fuel sources. Hennepin County will continue to explore using renewable fuel sources in the future.

### I want a microturbine for my home, how can I get one?

Currently, microturbines are not practical for homeowners, but may be available within a decade. In the meantime, you can educate yourself about energy issues and communicate your support of renewable energy resources to your elected officials.

## Hennepin County: Commitment to energy conservation and renewable energy

Hennepin County is dedicated to protecting the environment and conserving resources for future generations. The County is committed to promoting alternative sources of energy to power our buildings in ways that are affordable, reliable, environmentally friendly and renewable. Hennepin County Property Services, Environmental Services, and other departments collaborate to achieve these ends.

In the late 1990's, Hennepin County was the first public entity in Minnesota to develop a green building rating system, which became the forerunner of Minnesota's Sustainable Building Guidelines.

### The County's commitment to renewable energy includes:

- Installing the first public natural gas fuel cell in Minnesota at the Eden Prairie Resource Library.
- Using five percent biodiesel fuels in our entire diesel fleet.
- A fleet of 75 flexible-fuel vehicles that run on E85, a cleaner-burning fuel blended with 85 percent ethanol.
- Five hybrid electric vehicles that average more than 40 miles per gallon.
- Installing equipment at the County's Public Works Facility in Medina to measure and monitor wind speeds — a necessary first step to evaluating the economics of on-site wind generation.

## A Thank You to Our Partners

The Microturbine Demonstration project was made possible through the cooperation of the County Home School and the Hennepin County departments of Property Services and Environmental Services. Hennepin County would like to thank its project partner, Xcel Energy, for financial and technical assistance.



## About the County Home School

The County Home School (CHS) is a state-licensed residential correctional treatment center for juveniles ages 13 to 19, committed by the court for offenses ranging from breaking and entering to fire-setting and sexual assault. The facility is located on a 167-acre site in Minnetonka, Minnesota and is owned and operated by Hennepin County.

The CHS is a premier model nationwide for treating serious teen offenders, most of whom have significant behavioral problems, mental illness and chemical dependency issues.



## Hennepin County

[www.hennepin.us](http://www.hennepin.us) Key Word Search: microturbine

**612-348-3RRR (3777):** For information about **Reducing, Reusing & Recycling** for residents and businesses

In compliance with Americans with Disabilities Act (ADA), this material is also available in alternative forms. Please call 612-348-3777 (M-F 8-4:30) or 763-478-4030 (TDD/TTY).

Hennepin County's energy programs are supported by the Hennepin County Board of Commissioners