# Eastern Municipal Water District

Government/Municipal

The combination of a half-century of steady population growth, a staggering multi-million dollar annual energy bill, and high summer peak energy loads left the Eastern Municipal Water District (EMWD) of Southern California in need of more resources to continue to go with the flow. Enter nine Capstone C60 MicroTurbines® to provide grid-parallel power to the EMWD Operations and Maintenance Center.

Located on an expansive 50-acre campus in Perris, California, EMWD has over 600 employees onsite and contains 100,000-square-feet (9,290-square-meters) in administrative offices along with 80,000-square-feet (7,432-square-meters) of maintenance shops. "Annual energy consumption at this one location alone is several million dollars a year," said Peter Odencrans, the District's Senior Public Affairs Officer.

What began in 1950 as an organization to secure additional water for the then sparsely-populated area of western Riverside County, the EMWD has today swelled into one of the county's largest water districts. The EMWD encompasses a 542-square-mile (1,400-square-kilometer) service area in a location that has consistently ranked as one of the fastest-growing areas in the United States since 1960. Today, the District manages not only water service, but sewage collection, water desalination, and water recycling.

With fewer than 30 average days with any measurable precipitation each year and higher than average California temperatures, the EMWD's desert-like climate means extremely high summer peak loads.

"We try to manage our summer peaks especially, and what's been very helpful is through these Capstone microturbines we have been able to shave some of the peak demands," Odencrans said. "We have been able to level out consumption,

**"We are able to become more efficient, but also more self-reliant. As we develop more of our own energy resources we can depend less on the grid itself for our energy needs."**

— Peter Odencrans, Senior Public Affairs Officer
Eastern Municipal Water District

## Power Profile

**Customer**
Eastern Municipal Water District

**Location**
Perris, California, USA

**Commissioned**
August 2002

**Fuel**
Natural Gas

**Technologies**
- Eight 60kW Capstone microturbines in a combined cooling heating and power (CCHP) application.
- One 60kW Capstone microturbine operating as a combined heat and power (CHP) unit.
- 3,000 MBTU/hr heat exchanger.
- 150-ton absorption chiller.
- 300-ton evaporation tower.


**Smarter Energy for a Cleaner Future**


**Eight Capstone C60 microturbines provide combined cooling, heating and power to EMWD's Operations and Maintenance Center in Perris, California, while a ninth microturbine provides combined heat and power to the**

and on occasion, we are able to provide all the energy that we need to operate this facility." The EMWD reports in its customer newsletter that the natural-gas fueled microturbine array reduces its peak demand by more than 10 percent.

In addition to the microturbines, the system uses a heat exchanger, absorption chiller, and evaporation tower. Eight C60s operate in a CCHP application. Exhaust from the system is used to heat water and drive an absorption chiller that creates air conditioning for facility offices.

"This is a huge benefit for the EMWD because they were able to reduce their power consumption from their old electric chiller," explained Mark Parriott, Vice President of Customer Engineering for Capstone distributor Regatta Solutions, Inc.

"Our absorption chiller has much more capacity than we have the ability to put heat into it right now," said Tom Acedes, EMWD's Control Communication System Coordinator. "The more waste heat we can capture, the more tonnage we can get out of that chiller, and, the more we can reduce our utility usage."

Peak load for the facility is 1,300kW. Average electrical power demand is 380kW.

"We generate enough power to offset during peak times about a third of our usage, and during off-peak times we can actually produce more than we can use," Acedes said. "The turbines are controlled by the Capstone Advanced Power Server, and basically have a zero utility kilowatt hour usage during this time period."

Exhaust from the additional C60 is captured to provide heat for a powder coating system. "We need a very dependable power supply for this," Odencrans explained.
"We can use the heat to powder coat some of the valves and other equipment that we need to put in the field."

"We basically supply a clean exhaust output. We just direct the exhaust right into the oven and it is already the right temperature," said Acedes.

In a report from the U.S. Department of Energy, the EMWD's projected payback period is two and a half years, with a monthly energy bill reduction of US$42,000.

"From a strictly cost standpoint it makes a lot of sense," Odencrans explained. "We are able to become more efficient, but also more self-reliant. As we develop more of our own energy resources we can depend less on the grid itself for our energy needs."

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