

# Bexar County, Texas

Alamo Controls, Inc. / Automated Logic Corporation

## WebCTRL® Helps Texas County Triple Mandated Energy Savings in Only One Year

### The Challenge

- Demonstrate an effective environmental energy savings and control strategy
- Maintain optimal tolerances of temperature, air pressure and relative humidity in all environments
- Create a formal Energy Management Program designed to deliver at least 5% per year energy savings
- Capture data for an Energy Education Program illustrating energy reduction progress
- Deliver maximum return on investment while updating existing control system and hardware

### The Players

Bexar County is a 1,248 square mile municipal jurisdiction located in South Central Texas. It is home to the city of San Antonio and one of the country's most prominent historic sites, the Mission San Antonio de Valero, more commonly known as "The Alamo."

In 2004 the county hired Vince Fuentes as its first energy manager. Creation of the position was in response to state legislation mandating that local governments reduce annual energy consumption by 5% per year over a 5-year period.

Fuentes was tasked with creating a formal Energy Management Program (EMP) to meet or exceed the targeted savings while improving comfort in county-owned facilities. As part of the EMP, he decided to undertake several small projects to provide a proof-of-concept for proposed strategies and build support for more ambitious initiatives.



Vince Fuentes, Energy Manager, Bexar County, Texas.

"I had faced the same challenges in El Paso (Texas)," said Fuentes. "I knew we would need the help of a good building automation specialist to implement the program and ensure return on investment. So the second call I made when I got here was to Bob Gleeson at Alamo Controls."

Fuentes wanted to use Automated Logic's WebCTRL and control modules for the pilots, and he knew that Alamo Controls had a region-wide reputation for problem solving and outstanding customer service. Initial meetings confirmed the Alamo team's technical expertise and professionalism and paved the way for the county to engage the firm for its first project.

### The Solution

"They took us for a test drive," said Gleeson.

The \$20,000 project involved reducing energy usage and improving comfort on the fourth and fifth floors of the county's Vista Verde Plaza administration building. Occupants of these floors had been complaining about temperature extremes for years, and numerous attempts to fix the problem had always yielded unsatisfactory results.

Alamo Controls installed WebCTRL and used its building management functions to define occupancy schedules, adjust setpoints and control other parameters that influence ambient air temperatures.

"Up to that point everything was running 24/7," said Fuentes.



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After the upgrade, the building's chiller could be shut down until required. Better control of HVAC systems resolved Vista Verde's temperature fluctuations and yielded a 25.4% reduction in energy usage. Between January 2004 and August 2005, the county's investment returned \$109,510 in savings.

"The project paid for itself in two months," said Fuentez. He noted that Alamo Controls was also able to correct an outside air problem as well and improve air quality throughout the building.

The firm was subsequently hired to improve energy management at a central plant serving the county's Courthouse and Justice Center. WebCTRL® was installed and used to optimize scheduling for the plant's three chillers, two boilers and associated pumps. The project presented significant technical challenges since the Courthouse was more than 100 years old while the Justice Center was completed in February 2006.

"WebCTRL provides the capability to schedule occupancy times, ensure a comfortable air environment and save energy for two types of environments," Fuentez said. The browser-based software can be accessed through many types of web-enabled devices over the county's intranet network. Maintenance staff are able to easily make parameter and schedule changes affecting a broad range of systems and devices. The system's BACnet® communications protocol also provides a 100% open architecture, which ensures interoperability with additional subsystems should they be automated.

The application's trending feature also allows Fuentez to track usage by facility and subsystem. And its reporting feature lets him generate spreadsheet-style reports showing how the control strategy is reducing energy consumption.

Both features are helping him change attitudes about the value of using taxpayer dollars for energy management. The reports in particular are demonstrating that small changes in scheduling, occupant behavior and system parameters can have

a big impact on operating costs.

Between January 2004 and August 2005, energy use at the Justice Center was reduced by 14.9% for savings of \$149,468. During the same period, energy use at the Courthouse was reduced by 21.1% for savings of \$95,694. Overall, the county has cut energy usage at the facilities by 18.8% for \$354,672 in savings. Those figures mean the county has achieved more than three years of mandated savings in just one year.

Fuentez sees many more opportunities for improving productivity and reducing energy consumption. He'd like to extend WebCTRL to other county facilities and apply its control capabilities beyond HVAC to include security, lighting, backup power, environmental monitoring and numerous other subsystems.

"What we've done is just the beginning," said Fuentez.

### Project Summary

Savings:	18.8% in 2004 (compared to 2003)
Location:	Bexar County, Texas
Project Type:	Replacement
Building Size:	1.5 million square feet (3 buildings)
Building Usage:	Municipal services
Objectives:	Reduce natural gas and electricity use
Design Considerations:	Interoperability with multiple vendor systems, including HVAC, security, lighting, backup power and environmental monitoring
Major Decision Drivers:	Browser-based graphic user interface; native BACnet open protocol

Installation Date: 2004



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