

**PowerMand, Inc.**

# Case Study

# Small Cost Big Payback



## Company Overview

CalTech's San Angelo, Texas campus was founded in 1988 as a customer software provider. Its expertise includes comprehensive IT service and support, network design, technology consulting and IT management and planning. Since its founding, CalTech has become the area's leading provider of innovative technologies.

## CalTech Recent Achievement

CalTech was recently commissioned to assist in installation and implementation of a computer network for the Reagan County Independent School District. CalTech was tasked with creating a one-to-one computer network that would meet the high-volume demands of both students and faculty. CalTech successfully calibrated 600 new computers, set up the one-to-one computer network and installed necessary security measures.

## Challenge

CalTech energy usage charge was over \$23,000 a year for its buildings. It wanted a global monitoring system that allowed scheduling for different zones in order to deliver reduced energy consumption while increasing occupant comfort.

## Choice

CalTech chose PowerMand because it provides cost-effective energy management systems for light commercial facilities. DreamWatts' ability to globally access, monitor and control HVAC systems online was crucial.

## Design Criteria

CalTech installed the DreamWatts Energy Management System in two buildings on its Texas campus: Jackson and Arroyo.

### Objectives

- 1 - Optimize its energy management
- 2 - Global control of its HVAC systems
- 3 - Set schedules for different occupancy zones and its training center

### Implementation

7 Robertshaw 9825i2 thermostats were installed in Jackson and 10 in Arroyo. They were linked with three DreamWay gateways managed from one account. DreamWatts' mesh network insured a strong signal between thermostats. Its multi-site aggregation capabilities made DreamWatts the ideal energy management solution.

# » Results

DreamWatts® Energy Management System

## » 26% Energy Savings



### Building Information

*Size:* 5,000 square feet

*Roof Installation:* 6 inches

*Construction Material:* Metal

*Occupancy Size:* 18

*Occupancy Type:* Offices, server room (set at 70 degrees), computer lab and conference room.

*Thermostat Location:* Common areas, halls, conference room, 2 in server room, office common areas

*Number of Thermostats:* 7

*Size:* 18,000 square feet

*Roof Installation:* 3 inches

*Construction Material:* Brick

*Occupancy Size:* 50

*Occupancy Type:* Offices, server room, computer lab, training center, warehouse, controlled lab

*Thermostat Location:* Common areas, halls, large office common areas, 1 in warehouse, 1 in lab

*Number of Thermostats:* 10

**Installation** - CalTech easily installed the DreamWay gateways and several thermostats themselves. It hired an HVAC contractor to install the remaining Robertshaw 9825i2 thermostats. CalTech then completed all account setup and scheduling.

**Comfort** - In on-site surveys, occupants report experiencing more stable temperature levels with minimal swings.

### Scheduling

-Occupied: 7:30am – 5:30pm Mon-Fri.

-Most thermostats cool at 72 degrees and heat at 69 degrees during occupied times.

-Exceptions were the server and lab rooms.

-Significant setbacks on holidays and weekends.

**Override Control** - Occupants can manually override temperature settings for up to 2 hours. Building management monitors and adjusts temperatures for zones as necessary. This building management reduces energy use while increasing comfort.

**Detailed Results** - Analysis of each building showed significant reductions in energy usage.

*Jackson* - Since its October 1st, 2009 installation, energy savings are over **21%**.

*Arroyo* - Since its January 15th, 2010 installation, energy savings are over **31%**.

Combined average energy savings is **26%**.

The above graph depicts CalTech's projected payback period and energy savings for the next 3 years. Cumulative savings were calculated using the 26% average energy savings and CalTech's annual energy costs.