

# From Pneumatic to DDC in 20 Minutes!

## CASE STUDY:

WIRELESS PNEUMATIC THERMOSTAT (WPT)  
COUNTY OF SANTA CLARA



### HEADQUARTERS

198 Champion Court

San Jose, CA 95134

+1 408 943 2800

[info@cypressenvirosystems.com](mailto:info@cypressenvirosystems.com)

[www.cypressenvirosystems.com](http://www.cypressenvirosystems.com)

Cypress EnviroSystems™ and its logo are trademarks of Cypress EnviroSystems, Inc. The name of any other company, products, or services mentioned herein are for identification purposes only and may be trademarks, registered trademarks, or service marks of or may be copyrighted by their respective holders.

© Copyright 2008 Cypress EnviroSystems, Inc. All rights reserved.

## SITUATION:

The County of Santa Clara needed to retrofit their buildings' pneumatic HVAC controls to save energy and participate in PG&E's Auto-Demand Response program

- Two five-story buildings built in the year 2000, totaling 300,000 square feet
- 350 non-communicating, non-programmable pneumatic thermostats
- Potential to achieve 200 kW of load shed by participating in PG&E's Auto-Demand Response program

## CHALLENGE AND SOLUTION:

Traditional Direct Digital Control retrofits were cost and time prohibitive for the County—the WPT enabled them to retrofit their buildings at 80% less cost in only eight days

	Best DDC Quote	Actual WPT Retrofit
Installed price	\$875,000	\$175,000
Project time	6 months plus	8 days
Disruption of tenants and operations	Significant	Minimal
Potential exposure to toxic substances in walls	Unknown	None
Paid by PG&E Auto-DR incentive program	31%	100%

Legacy Pneumatic Thermostat



DDC in 20 Minutes!

Wireless Pneumatic Thermostat

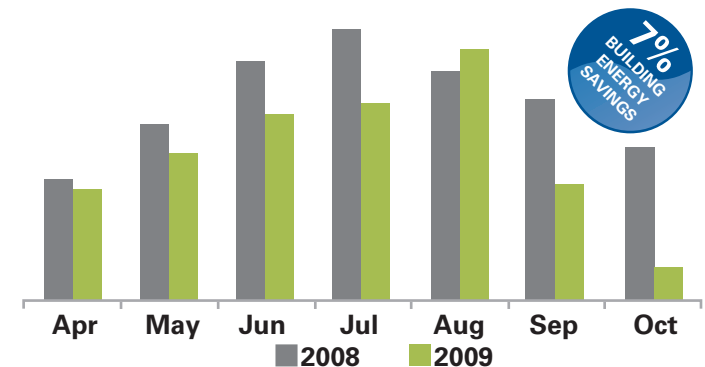


- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Manual setpoint control</li><li>• Cannot support Auto-DR</li><li>• No remote readings</li><li>• No diagnostics</li><li>• Manual calibration</li><li>• Old technology</li><li>• Very unreliable</li></ul> | <ul style="list-style-type: none"><li>• Remote monitoring and control</li><li>• Enables Auto-DR strategies</li><li>• BACnet interface to BMS and compatible with legacy systems</li><li>• Diagnostics for continuous commissioning</li><li>• Automatic self-calibration</li></ul> |
|--|---|

## RESULT:

Through the first seven months of operations, the County achieved 7% average building energy savings with set-point strategies and continuous commissioning

Actual Year-Over-Year Energy Savings From WPT Retrofit<sup>1</sup>



<sup>1</sup> Graph is based on actual PG&E billing data and reflects average kWh/day. The range shown is 15,000 to 20,897 kWh/day.

### Realized Benefits from WPT Retrofit

**\$205,500 annualized savings with 16-month payback (excluding PG&E incentive payment)**

- **Energy Savings:** \$42,000 per year  
– 350,000 kWh per year saved at \$0.12 per kWh
- **Demand Response Savings:** \$7,500 per year  
– 10,700 kWh per year curtailed at a peak rate of \$0.70 per kWh
- **Maintenance Cost Savings:** \$156,000 per year  
– Continuous commissioning data helped prioritize maintenance and reduce troubleshooting time resulting in cost savings of more than 50%

Social Services Administration Buildings  
333 and 373 Julian Street, San Jose, CA 95110

