LBNL-62218

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Automated Critical Peak Pricing Field Tests: 2006 Pilot Program Description and Results

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Energy Environmental Technologies Division

August 2007

Automated Critical Peak Pricing Field Tests: 2006 Program Description and Results

APPENDICES

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August 30, 2007

This work described in this report was coordinated by the Demand Response Research Center and funded by the California Energy Commission, Public Interest Energy Research Program, under Work for Others Contract No. 150-99-003, Am #1 and by the U.S. Department of Energy under Contract No. DE-AC02-05CH11231.

LBNL Report Number 62218

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Appendix A. Documents for Demand Response Integration Services Company (DRISCO)

A.1. Site Recruitment Steps

Step 1.Does the site have a different profile from the current participants? If no, make a note to approach the site in the second round. If yes, go to **Step 2.**
Step 2. Does the site have an EMCS? If no, stop**.** If yes, make a note of their account representative and their PG&E account ID. Also, note type/vendor and capability of EMCS. Go to **Step 4**.
Step 3. Would the site like to join CPP so that they can be in the Auto-CPP pilot? If no, stop. If yes, find out who is the P&GE account rep. Questions to ask: 1. Do they already have interval meters and an InterAct™ account? 2. What is the type/vendor and capability of their EMCS? Follow through their signing process. Once they sign up for CPP, go to **Step 4**;
Step 4. Follow these steps to completion of Auto-CPP system setup. 1. Sign the MOU and return it to LBNL. 2. Fill out the checklist and return it to LBNL. 3. Document demand response strategy. 4. Establish data points for trending. 5. Schedule a manual test to identify demand reduction for the TI application 6. Fill out the form for the TI application 7. Receive approval for TI funds 8. Decide on a connectivity option. 9. Provide the IP relay/gateway. 10. Provide a verbal overview of the process if needed. 11. Test the connection. 12. Test the controls.

A.2. DRISCO Selection Criteria

LBNL produces on-line and printed materials that minimize the need for site visits by PG&E, LBNL, or the DRISCO. However, half of the new sites typically require site visits. Some of these may be in the Central Valley as far south as Bakersfield.

LBNL identified the following task activities for the DRISCO:

Explanation of program and general assistance

- Establish contact with the facility managers responsible for implementing Auto-CPP. Since facility managers are not typically the original signers of the MOU site agreement, a complete explanation of the program is required
- Gather site characteristics. Assist facility managers with filling out forms about the site (via website, forms, etc.)
- Agree on implementation plan and schedule.
- Maintain the implementation plan and schedule through weekly communications.
- Communicate with and report back to the LBNL and PG&E project team on a weekly basis.

Technical assistance to connect site EMCS to DR Automation Server

- Ship communications device to site. Current plans call for use of a Client & Logic with Integrated Relay (CLIR) Box at each site
- Assist facility managers with connecting the CLIR Box. This involves coordination of an Ethernet connection to the CLIR Box and assessing IT network issues such as availability of a site Dynamic Host Configuration Profile (DHCP) server or proxy server.
- Configure DR Automation Server to communicate with the on-site CLIR Box.
- Provide simple low-voltage wiring if desired by the facility manager. These may include wiring between the CLIR Box and the EMCS panel and plugging in Ethernet cables and hubs to existing drops.

Technical assistance in selection and implementation of shed strategies

- Although the on-site facility manager should make all decisions regarding the electric load shed strategy, the DRISCO should assist in these decisions. The assistance provided should be based on research materials provided by LBNL and general knowledge of commercial building HVAC systems, lighting systems, and EMCS systems.
- Although the on-site facility manager is responsible for performing all alterations to the EMCS or other systems to enable Auto-CPP, the DRISCO should provide guidance. To limit financial liability, the DRISCO should not perform any modifications to customer control logic.

Shed event testing

- Coordinate with LBNL, PG&E, and participant sites to perform CPP load shed event testing.

Optimization and troubleshooting

- Monitor and troubleshoot (if required) all sites during the period following the successful shed event test.

- Assist participant sites with optimizing their shed strategy to maximize savings, minimize discomfort, and minimize rebound.
- Report load shed results to the respective participants.

A.3. DRISCO Implementation Procedure for Auto-DR

Technical Coordinator Steps

This list assumes that the MOU has been signed and the site has been 'handed off' by the recruiter.

Note: These tasks are in approximate order; some will likely happen simultaneously

- Contact facilities manager.
  - Explain the scope of Auto-CPP.
- Design Sequence of Operation
  - Site visit may be required.
  - Must be approved by facilities manager.
- Test system based on approved Sequence of Operations to establish baseline DR,
  - Notify LBNL, utility account manager, facilities personnel.
  - Obtain test results.
- Contact utility account manager and start TI form process.
- Confirm how DRAS will interface to EMCS (typically CLIR box),
- Contact IT dept to resolve connection of CLIR box to Internet.
  - Determine nature of CLIR connection (new or existing DSL, existing IT infrastructure or other).
  - Determine firewall/proxy considerations, if necessary.
- Contact controls contractor to implement sequence of operations.
  - Explain scope of Auto-CPP.
  - Review sequence of operations.
  - Obtain proposal; check for completeness.
    - Confirm data trending is set up.
- Locate EMCS panel with DIs available.
- Determine location of the CLIR box.
  - Input from controls contractor and IT department.
- Follow up on TI application; confirm approval prior to continuing.
  - Early installation of software/hardware may adversely affect TIs.
- Ensure delivery of CLIR box.
  - Confirm box ID, location, username, password with DRAS manager.
- Confirm installation of CLIR.
  - Confirm communication with DRAS.
- Coordinate controls contractor programming and installation.
  - Coordinate with facilities manager.
  - Test contractor's installation/programming.
- Perform complete system test through DRAS; ensure all system components are functioning.

Appendix B. CLIR and DRAS Technical Documents

B.1. CLIR and DRAS User Guides

CLIR
CLIENT & LOGIC WITH INTEGRATED RELAY

CLIR (Client and Logic with Integrated Relay) User Guide

BERKELEY LAB Demand Response Research Center DRRC pier Akuacom

Connecting your Facility to Receive Auto-CPP Event Signals

The purpose of this document is to help facility managers understand how to connect their site(s) to receive remote signals of upcoming CPP events using the CLIR Box interface device. In addition to human-readable pager alerts and e-mails, the CLIR Box enables sites to receive signals over the Internet that trigger automated sheds of pre-selected electric loads.

Connectivity Option A (CLIR Box). Recommended for all sites.

Site requirements:

1. **Energy Management and Control System (EMCS)**
2. **Ethernet LAN with Access to the Internet (EMCS does not need access the Internet.)**

The Client & Logic with Integrated Relay (CLIR) Box is a secure, self-configuring Internet relay. The CLIR box enables the EMCS to receive Auto-CPP signals over the Internet. These signals are translated into relay contacts that are sensed by the EMCS. The EMCS causes the facility to automatically enter preconfigured low-energy modes through modifications to the HVAC or lighting systems during the CPP event.

Set-up Overview:

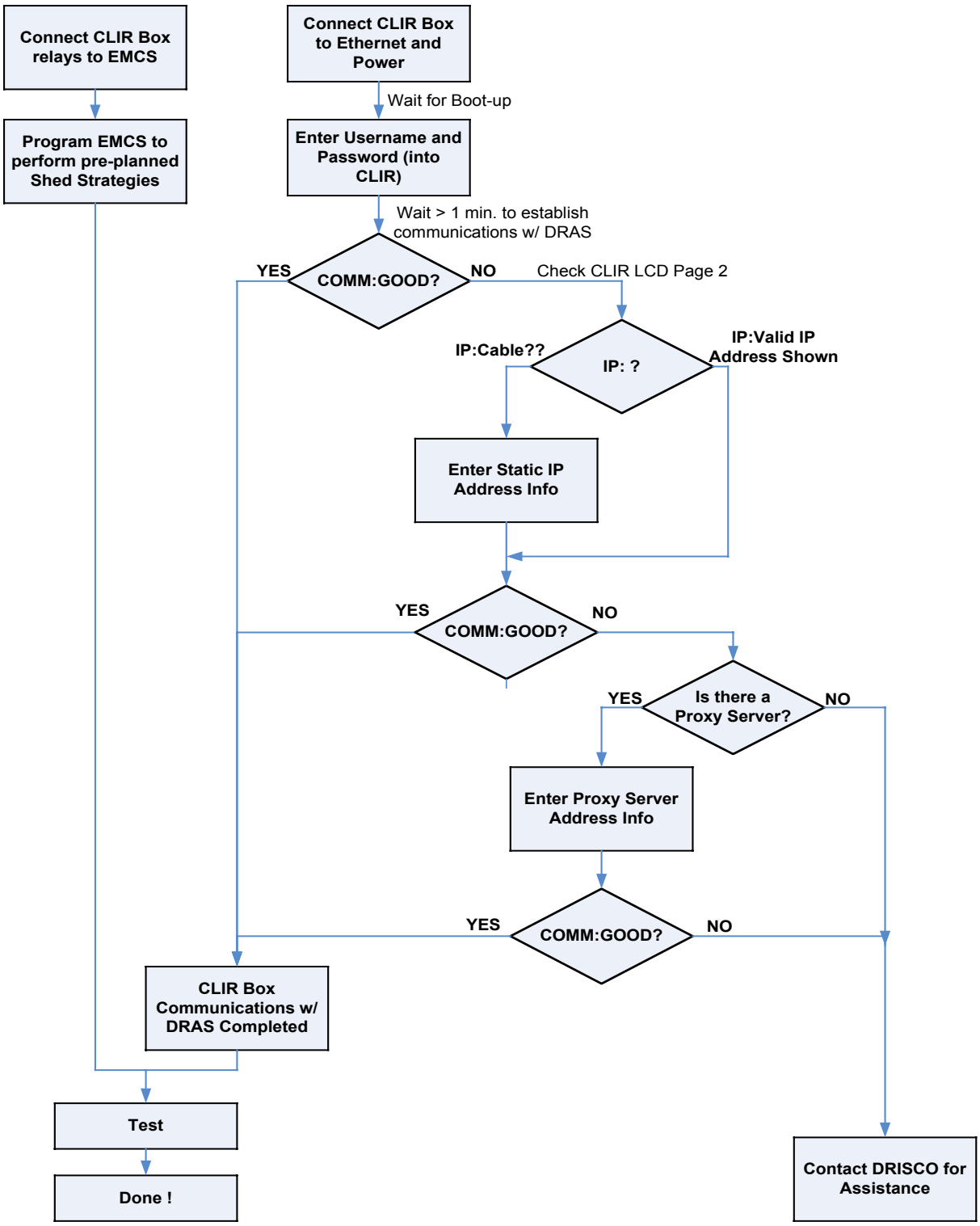
The CLIR Box device is placed near an EMCS controller.

1) Plug into standard 120 VAC outlet.
2) Plug into standard RJ-45 Ethernet connection.
3) Connect low voltage wiring to available digital input terminals on the EMCS. Use either one, two or three EMCS digital inputs per Table 1 below:

Security:

CLIR Box is “IT Friendly”. It is typically installed inside of the secure enterprise network and “surfs” for CPP event information using 128 bit secure socket layer (SSL) encryption using HTTPS protocol. (HTTPS is also used for most online financial transactions.) No modification to corporate enterprise firewalls is required. Since the CLIR Box is not accessible from the public Internet, it adds no security risk from outside the private network. The CLIR Box is also secure from internal threats (employees, contractors etc.) due to its internal firewall which filters out all messages except those from the LBNL DRAS. The CLIR firewall also protects the box if it is installed outside of the private network on the “DMZ.” The CLIR Box is password-protected and uses (SSL) encryption for all network communications.

Quick-start Installation Flowchart



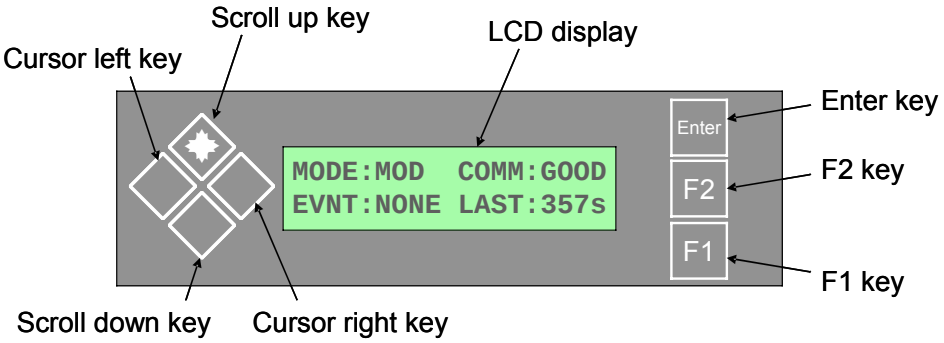


Figure 1: CLIR Box Keypad

1) Account Set-up
   a) Contact LBNL, Do you want to keep this reference?? Request Username and Password.

2) Connect CLIR Box
   a) Connect Ethernet to CLIR.
   b) Plug in power adopter to CLIR.
   c) Wait ~ 2 min. for CLIR boot-up. Check the LCD display. At first "COMM:BAD" appears.

3) Configure Username and Password
   a) Enter username & password using keypad.
   b) Press "F2". Scroll up/down until you see "username". The factory default is "test."
   c) Press "Enter." Type your username assigned by LBNL by scrolling up/down. You can move your cursor by pressing the left/right arrow button. By pressing "F1" you can delete all characters to the right of the cursor. Once you complete entering your username, press "Enter" again.
   d) Scroll up/down until you see "password." The factory default is "test."
   e) Press "Enter." Type your password assigned by LBNL by scrolling up/down. Then press "Enter" again.
   f) Press "F2" to accept the setting and return to the main display page.
   g) Wait a few seconds to 1 minute for CLIR to establish communications with the Demand Response Automation Server (DRAS). If the display remains "COMM:BAD," check the network connection configuration (next step).

4) Configure Network Connection
   a) If your network system uses a DHCP server:
      i) CLIR's factory default is to get the IP address from the DHCP server. No additional setting should be required.
   b) If your network system uses a proxy server:
      i) Press "F2." Scroll up/down until you see "netProxyServer." The factory default is "n." Press "Enter". Set "y", and press "Enter" again.
      ii) Scroll up/down until you see "netProxyIPaddress." Press "Enter." Set the IP address of the proxy server on your network, and press "Enter" again. If you don't know the proxy server IP address, contact your network system administrator.
      iii) Setup for netProxyPort: Set the IP port of the proxy server on your network, and press "Enter."
   c) If the network system requires the CLIR to have a static IP address:
      i) Contact your network system administrator and obtain a valid static IP address.
      ii) Press "F2." Scroll up/down until you see "netDHCP." The factory default is "n." Press "Enter." Set "y, and press "Enter."
      iii) Scroll up/down until you see "netGatewayAddress." Press "Enter." Set the gateway IP address of your network, and press "Enter."

iv) Scroll up/down until you see “netSubnetMask.” Press “Enter.” Set the subnet mask of your network, and press “Enter.”

d) Press “F2” to accept the setting and return to the main display page.
e) Scroll down to see “IP.” Confirm CLIR obtained IP address.
f) Wait a few seconds to 1 minute for CLIR to establish communications with the Demand Response Automation Server (DRAS).

The CLIR is now connected to the DRAS. The CLIR relays will change state based on values published by the DRAS. See Table 1 for instructions on connecting the CLIR to the building’s energy management and control system (EMCS).

Table 1: Function of Relay Contacts

CLIR Box Relay #	Description	Timing When Relay is “ON”	Used for:
1	Moderate Shed (real-time)	Noon – 6:00 PM Day of CPP Event	Digital Input into EMCS
2	High Shed (real-time) Note: Relay #1 also ON in High Shed mode	3:00 PM – 6:00 PM Day of CPP Event	Digital Input into EMCS
3	CPP-Event Pending (21 Hour advance notice). Can be used for pre-cooling strategies.	~3:00 PM prior day until end of CPP event*	Digital Input into EMCS

* If CPP days are called “back-to-back,” relay #3 will remain ON constantly until the end of the last day.

Table 2: LCD Display – Terms and Definitions

Display Page 1
`MODE:NORM COMM:GOOD`
`EVNT:NONE LAST:32s`
	MODE	Current shed mode of operation.
		NORM = No shed (Normal)
		MOD = Moderate shed mode (moderate CPP rate)
		HIGH = High shed mode (highest CPP rate)

	COMM	Communication status between CLIR and DRAS GOOD or BAD
	EVNT	CPP event indication. NONE = No upcoming event pending PEND = CPP event pending within the next 21 hours or an event is in progress
	LAST	Time duration since the last successful communication between the CLIR and DRAS.

Display Page 2
`IP:128.2.32.154`
`UP:0d 12h 08m 01s`
	IP	IP address of CLIR. The IP address may be automatically assigned by a DHCP server or manually assigned. If the CLIR Box does not have a valid IP address, "IP: Cable?" will be shown. This indicates that either 1) Ethernet cable is not connected, 2) DHCP server is not available on network, or 3) Static IP address has not been assigned.

	UP	Time duration since CLIR was last booted.

Display Page 3
`CLIR R:12345678`
`VER:2.4 10010000`
	CLIR VER	Version of CLIR box.

	R	Status of relays (R1-R8). 0 = Relay de-energized 1 = Relay energized (i.e. normally-open contact is closed) See Table 1 for description of relay behavior in various demand response modes.

Display Page 4
`SUCC:27 FAIL:0`
`AVE:247 MAX:675`
	SUCC	Number of successful communications since start.

	FAIL	Number of communication failures since start.
	AVE	Average communication latency in milliseconds.
	MAX	Maximum communication latency in milliseconds.

Table 3: F2 Setting Menu

Attribute	Factory Default	Definition
consoleLogLevel	INFO	Do not change.
endPointHost	www.electricprice.net	Do not change.
endPointPath	PSS2WS/PSS2WS	Do not change.
endPointPort	443	Do not change.
fileLogLevel	INFO	Do not change.
ipAddressFile	/usr/clir/eth0-ipaddress	Do not change.
logFile	/usr/clir/clir.log	Do not change.
netDHCP	y	If "y," CLIR automatically obtains IP address from DHCP server. Change to "n" if a static IP address is used.
netGatewayAddress	192.168.1.1	Default Gateway. If "netDHCP" is "n,", the manually entered static IP address is used as default gateway.
netIPAddress	192.168.1.99	CLIR Box IP address. If "netDHCP" is "n," the manually entered static IP address is used as IP address for the CLIR Box. Otherwise, the box receives the IP address from the network.
netProxyIPAddress	192.168.1.2	If "netProxyServer" is "y," the manually-entered static IP address is used as IP address for the proxy server.
netProxyPort	8080	Port of proxy server access. If "netProxyServer" is "y," enter IP port of proxy server on your network. Note that the CLIR uses SSL, so this should be the HTTPS port.
netProxyServer	n	If "y," CLIR accesses to proxy server.
netSubnetMask	255.255.255.0	If "netDHCP" is "n," use this IP address for subnet mask.
noLCD	n	Do not change.
noRelay	n	Do not change.
password	test	Change to the password you received from LBNL.
pollPeriodMS	60000	Do not change. Frequency of polling activity. Default 60,000 milliseconds indicates 1 poll per minute.
ssl	y	Do not change.
statsLoggingPeriodMS	60000	Do not change. Resolution of communication statistic log in milliseconds.
trustStore	/usr/clir/cacerts.jks	Do not change.
trustStorePassword	epriceLBL	Do not change.
username	test	Change to the username you received from LBNL.

B.2. DR Automation Server User Guide

An online user guide for DRAS is posted at http://drrc.lbl.gov/dras/help/. This guide is designed to introduce account managers, facility managers, DRISCOs and DR Automation Server operators to the DRAS user interface and capabilities.

Appendix C. Outreach and Survey Documents

C.1. Request for Participation

Request for Participation

Summer 2006 Automated Critical Peak Pricing Test

Is your facility ready for dynamic pricing?

Through participation in the 2006 Automated Critical Peak Pricing (CPP) test, your facility will be brought up to the speed of the Internet. PG&E will trigger price signals that will propagate to your facility to provide variable pricing for electricity. Qualified sites will be outfitted to respond to XML price signals transmitted over the Internet. During the 2006 summer test period, as the electricity price increases during a CPP event, some pre-selected electric loads will be automatically shed based on your facilities control strategy.

Time is money

Under dynamic electricity pricing, financial incentives will be greatest for organizations that are able to respond automatically to electric grid emergencies or price signals such as those produced in the upcoming test. The 2006 Automated Critical Peak Pricing test is a low risk way to get prepared!

Technical assistance and Internet hardware available

Researchers at the Lawrence Berkeley National Lab (LBNL) and a Demand Response Integration Services Company (DRISCO) will provide guidance to your staff in:

- Connecting your site to the Internet based price signal.
- Evaluating your shed control strategy and assessing its impacts

For sites that lack Web access to their energy management control systems, Internet hardware will be provided.

You can also take advantage of PG&E's technical incentives program for some of your set up costs. Ask your account managers about the incentives available for your facility today

Publicly identified as part of the solution

> *"Today I call upon all of my fellow Californians to work together during this peak demand period to use power wisely and take advantage of the available programs to save energy."*
>
> Gov. Arnold Schwarzenegger July 27, 2004

Participants in the 2006 Automated Critical Peak Pricing test will help themselves and all Californians avert future power crises, such as those that occurred in 2001. All participants will be publicly recognized in presentations at various conferences, and in trade and academic journals.

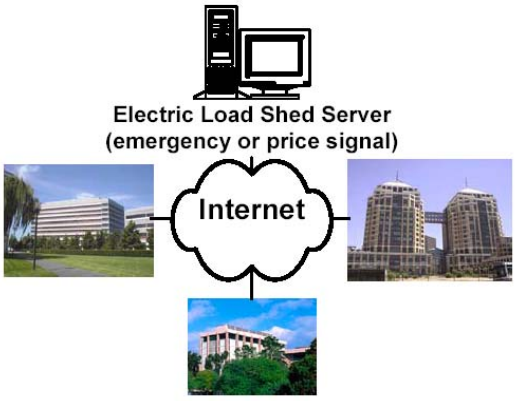
Site requirements

- Participation in PG&E's voluntary Critical Peak Pricing program.
- Functional energy management control system (EMCS) or energy information system (EIS).
- A means to measure and archive either whole building or component level electric loads on 15-minute intervals. Most large facilities have remotely readable interval meters such as InterAct II™ in PG&E's territory. Though not required, some systems with near "real-time" electric monitoring will also be selected.
- All sites must have access to the Internet (i.e. surf the Web from offices at the site). Having a Web-enabled EMCS or EIS is preferred but not required.

Implementation and Customer requirements

- Provide a public IP address to LBNL (usually available from the IT systems administrator).
- Select shed strategies. Global zone temperature set point setup/setback, lighting reductions, or shutting off other non-critical loads are all valid. Each site's facilities staff should consider these and other strategies that are best suited to their facility.
- Program or hardwire energy management control systems to shed loads based on relay contact or XML signal. Simple program changes to be conducted by staff or contractor.

Figure 1. Overview of system architecture



Test Description:

• PG&E will determine the days that CPP tariffs will be in effect.

• PG&E will announce upcoming CPP days using e-mail and pager alerts by 3:00pm the day ahead. All concerned parties will be alerted.

• On the day of a CPP event, a software application will command HVAC and/or lighting equipment at each site into a predetermined "shed" strategy. Shed strategies are worked out in advance by facility managers at the site. Although the sheds will occur automatically without human intervention, it is always possible for building managers to opt-out at any time.

• LBNL staff and DRISCO will assist each site in planning the shed strategies and technical

Schedule

- Site recruitment and selection during May 2006
- System development in May and June 2006

- Auto-CPP tests in June through October 2006

To sign-up please contact your PG&E Account Representative.

To request more information, please contact
Sila Kiliccote (510) 495-2615 skiliccote@lbl.gov

This project will be conducted through the **PIER Demand Response Research Center** (see drrc.lbl.gov) with funding from **PG&E**.

C.2. Memorandum of Understanding

2006 Automated Critical Peak Pricing Pilot

Participation Requirements

Between

Environmental Energy Technologies Division,

Lawrence Berkeley National Laboratory (LBNL)

And

_____

[Participant Company Name]

Test Participants for Demand Responsive Technology Demonstration

Purpose: The purpose of this document is to describe the plans for the upcoming project and establish the roles of each party in its implementation. This is not a legally binding document.

Introduction: LBNL is conducting a research project for the California Energy Commission and Pacific Gas and Electric Company to test automated Critical Peak Pricing technologies in commercial buildings.

Responsibilities

LBNL agrees to:

- Promptly respond to general comments, questions and concerns of the participants including those about controls, communications and shed strategies.
- Develop a measurement strategy for each demand shed and provide technical support as required for the tests.
- Transmit the critical peak price signal from PG&E.
- Present and award in the amount of $1,000.00 after the site's first successful automated participation.

Participant agrees to:

- Select appropriate shed strategies and implement them in a manner appropriate for their site.
- Provide information to LBNL about the facilities, control systems, shed strategies, energy consumption patterns, and performance measurement systems.

- Participate in the test as described in the test plan.
- Collaborate with LBNL as necessary to implement and perform the tests.
- If changes in circumstances cause the participant to drop out of the test, inform LBNL of these changes.
- Develop over-ride and fall-back strategies to switch to manual operation and activate facility shedding if the Auto-CPP system fails.

Collection of Information on Demand Response System

LBNL will collect and compile the following types of information, including but not limited to:

- Site characteristics (size, type, location, HVAC systems, etc.)
- Characteristics of controls, communications and monitoring systems installed at the site.
- HVAC, control, communications, energy, and other building time series data during the test to evaluate the shed.
- Strategies for aforementioned equipment during normal and shed modes.

The Participant agrees to provide the above information to LBNL. The Participant also allows it to be published and presented publicly. Upon Participant's advance request and PG&E's permission, LBNL will provide a copy of the report to Participant prior to making such report public. LBNL is in not responsible for any issues that arise at the building facility as a result of the tests.

In addition to this document, I have read the document describing the Auto-CPP test titled, "**Automated Critical Peak Pricing Pilot in Large Facilities Test Plan**" which is provided with this memorandum of understanding.

This participation requirements document applies to the following sites:

_____

Site Name, Address

_____

_____

Site Contact Lawrence Berkeley National Laboratory

C.3. Auto-CPP Test Plan

Automated Critical Peak Pricing (Auto-CPP) Pilot for Large Facilities Test Plan

March 2006

Background: California utilities have been exploring the use of critical peak prices (CPP) to help reduce needle peaks in customer end-use loads. CPP is a form of price-responsive demand response. Recent experience has shown that customers have limited knowledge of how to operate their facilities to reduce their electricity costs under CPP. At the same time LBNL has been conducting research to demonstrate how price-response could be automated using XML-based communications with Energy Information Systems and Energy Management and Control Systems. Fully automated electric load shedding has taken place at about 27 sites, with average demand reductions of about 10%. Many end-use customers have suggested that automation will help them institutionalize their electric shedding.

System Overview: The overall goal of this research is to understand technological attributes of systems that could automatically reduce electric demand in facilities throughout California upon receipt of an emergency signal or rise in the price of electricity. In this system, a price signal, mimicking CPP, will be published on a single Web services server, available on the Internet using the meta-language, XML (Extensible Markup Language). Each of the participating facilities will monitor the common price signal using Web services client applications and automatically shed site-specific electric loads when the price increases predetermined by the Critical Peak Pricing Program. The system shall be designed to operate without human intervention during the test period.

I. Objectives

The objectives of this project are:

1. Demonstrate how an automated notification system for critical peak pricing can be used in large commercial facilities for demand response (DR). Evaluate effectiveness of such a system. Determine how customers will respond to this form of automation for CPP.
2. Evaluate what type of DR shifting and shedding strategies can be automated.
3. Develop information systems for commercial customers such as energy consumption feedback, audits, and economic analysis tools.
4. Demonstrate integrated energy management using advanced controls for both energy efficiency and DR. (Sample candidate for such a demonstration is dimmable ballast.)
5. Explore how automation of control strategies can increase participation rates and DR from CPP and automation.

6. Evaluate CPP economics and the influence of various rate designs.
7. Understand the costs and benefits of CPP from the owners' perspective.
8. Identify optimal control and shedding strategies.
9. Determine occupant and tenant response.

II. Pre-Test

In preparation for CPP days, the participating sites must work with LBNL on the following tasks:

Sign Memorandum of Understanding (MOU) - The MOU is for mutual communication purposes. It allows us to ensure that you understand the LBNL agreement for collaboration ensures the payment of the Participation award.

Provide General Site Data - LBNL will request general information about your site including: facility size, use, HVAC equipment type, etc.

Define Electric Data Collection Methods - Most commercial sites have local databases that archive data from electric meters, Energy Management Control Systems (EMCS) or Energy Information Systems (EIS). Please allow for access by LBNL project staff and DRISCO.

Define Shed Strategies - Successful strategies that were used in the 2003, 2004 and 2005 tests included: global temperature adjustment, duct static pressure reset, VFD position limiting, chilled water valve position limiting, and reductions in lighting level. We encourage you and your facilities management staff to come up with innovative shed strategies that are appropriate for your site.

Establish Connectivity - Each site must be outfitted to receive the LBNL generated price signals (or the associated operational mode signals) with one of the two following methods:

1. Client Logic Integrated Relay Box (CLIR Box):
2. Internet to EMCS or EIS Gateway - If your site already has a gateway that connects the EMCS/EIS to the Internet then this method may be used. If you can currently view your EMCS data using an Internet browser then such a gateway is likely installed.

Additional information can be found at http://drrc.lbl.gov/pubs/Connectivity.pdf

Program Shed Strategies into EMCS – Once a method of receiving the price signal has been established, the EMCS can be programmed to facilitate the desired sheds upon a rise in price.

III. During the Test

Price Signal - During the CPP period (May 1st- October 31st), each participating site and LBNL will receive a CPP notification from PG&E. LBNL will relay PG&E's signal to participants to initiate shed events. During each shed event, each participating site will automatically shed some electric load. The shed actions at your site will be based on the strategy created ahead of time by you and your staff.

Documenting Your Shed – LBNL will collect whole-building electricity consumption data for each site in the pilot. When available, we will also collect detailed data from an

EMCS or other end-use meters to help us understand the dynamics of the shed strategies.

IV. Project Report

After the test, LBNL will provide a detailed project report that evaluates the automated sheds of your site and the others. The report will compare the DR technologies and shed strategies; and develop metrics such as total kW shed, W/sq-ft shed, and percent of whole-building shed. The report will include the electric consumption data from your facility, a statistical analysis of the shed data (using a weather-corrected baseline), and other EMCS or related data. The report will also describe the controls and communications systems at each test site. These results will be presented publicly in academic and trade publications and conferences.

V. Project Timeline for Auto-CPP Pilot

Activity	Date	Who
Plan Shed Strategies, Connectivity, Sign MOU LBNL & Participants	May - July	LBNL & Participants
Establish Connectivity, Preprogram EMCS Shed Strategies Participants	May-August	Participants
Confirmation of System Readiness LBNL & Participants	June- August	LBNL & Participants
CPP days	May - October	PG&E
Data Analysis and Write-up LBNL	September - December	LBNL

VI. LBNL Staff:

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Nance Matson, namatson@lbl.gov, (510) 486-7328

C.4. Site Survey Form

LBNL Automated Critical Peak Pricing 2006
Site Questionnaire

LBNL Interviewer	
Date Interviewed	

1. Contact Information

Name	
Company	
E-mail	
Phone	
Fax	
Contact's address	

2. Site Information

Site name		
Primary services or products of the site		
Number of buildings		
Location (address)		
Year constructed		
Floor space	Total	
	Conditioned	
	In Auto-CPP	
# of floors		
Occupancy schedule	Weekday	
	Non-Weekday	
Utility company	PG&E	
Facility management type	☐ Company-owned ☐ Outsourced	

3. Electric Demand

Peak load [kW]		
Approximate breakdown of summer peak period [in %]	Lighting	
	HVAC	

	Appliances, misc.	
	Process line	

4. HVAC Systems

Distribution system type	☐ Constant volume reheat ☐ Multi-zone ☐ Variable air volume ☐ Dual duct ☐ Dual fan dual duct
Fan control type	☐ Inlet guide vanes ☐ Discharge damper ☐ Variable pitch ☐ Variable speed drive ☐ No control
Supply air temperature	Cold deck (°F): Hot deck (°F):
Temperature control type	☐ Manual ☐ Always on ☐ Time clock ☐ EMCS ☐ Programmable thermostat Zone temperature setpoint (°F):
Supply fans	Quantity: Airflow rate (CFM):
Return fans	Quantity: Airflow rate (CFM):
Return air path	☐ Direct ☐ Ducted ☐ Plenum
% of outside air	
Cooling equipment type	☐ Direct Expansion ☐ Chilled water ☐ Evaporative cooler ☐ Purchased chilled water ☐ Chilled water supplied by other building
Control system type	☐ Conventional Pneumatic ☐ Pneumatic with EMCS ☐ Direct Digital Control (DDC)

5. Chillers, Circulation Pumps

Chiller type	☐ Centrifugal ☐ Reciprocating ☐ Screw ☐ Scroll ☐ Absorption, steam ☐ Absorption, gas-fired
Fuel type	☐ Electricity ☐ Gas ☐ Steam
Heat rejection type	☐ Water cooled ☐ Air cooled
Number of units	Main: Backup:
Capacity (tons for each)	
VSD compressor control	☐ Yes ☐ No
Chilled water setpoint temp	(°F)
Chilled water reset	☐ Yes ☐ No Reset temperature (°F):

Water-side economizer	☐ In use ☐ Not in use
Cooling lockout	Lockout outside air temp (°F): Month cooling on: Month cooling off:
Control system type	☐ Conventional Pneumatic ☐ Pneumatic with EMCS ☐ Direct Digital Control (DDC)
Number of circulation pumps	Chilled water (main): (backup): Secondary chilled water (main): (backup):
Pump power (hp)	
Pump control	☐ Constant ☐ 2-speed ☐ Variable

6. Cooling Towers

Condenser type	☐ Air-cooled condenser ☐ Evaporative condenser ☐ Air-cooled with pre-cooler
Temperature control	☐ Fixed ☐ Reset ☐ Setpoint
Condenser water setpoint	(°F):
Number of fans	
Fan control	☐ Constant ☐ 2-speed ☐ Variable
Condenser water pump	Quantity: Horsepower:
Pump control	☐ Constant ☐ 2-speed ☐ Variable
Control system type	☐ Conventional Pneumatic ☐ Pneumatic with EMCS ☐ Direct Digital Control (DDC)

7. Boilers, Circulation Pumps

Boiler type	☐ Water ☐ Steam ☐ Other
Hot water temperature (°F):	
Fuel type	☐ Electricity ☐ Gas ☐ Steam
Number of units	Main: Backup:
Capacity (kBtu/hr for each)	
Hot water temp reset	☐ Yes ☐ No
Space heat lockout	Lockout outside air temp (°F): Month cooling on: Month cooling off:
Hot water pump	Quantity: Horsepower:
Pump motor type	☐ Constant ☐ 2-speed ☐ Variable
Control system type	☐ Conventional Pneumatic ☐ Pneumatic with EMCS ☐ Direct Digital Control (DDC)

8. Domestic Hot Water

Domestic water heater fuel	☐ Electricity	☐ Gas ☐ Steam
Water heater	Quantity:	Input (kW):
Heater control	☐ Continuous ☐ Timer	☐ Temperature ☐ Demand
EMCS control to heater	☐ Yes	☐ No
Domestic hot water pump	Quantity:	Horsepower:
Pump control type	☐ Continuous ☐ Timer	☐ Temperature ☐ Demand
EMCS control to pump	☐ Yes	☐ No

9. Lighting System

Control type (Office area)	☐ None, continuous ☐ Time clock ☐ Photocell ☐ Motion sensor ☐ Dimmable ballast	☐ Manual on/off switch ☐ Bi-level switch ☐ Photocell/Timeclock ☐ Daylighting controls
EMCS control	☐ Yes	☐ No
Control type (Common space)	☐ None, continuous ☐ Time clock ☐ Photocell ☐ Motion sensor ☐ Dimmable ballast	☐ Manual on/off switch ☐ Bi-level switch ☐ Photocell/Timeclock ☐ Daylighting controls
EMCS control	☐ Yes	☐ No

10. Miscellaneous Loads

Equipment which can be shed during a CPP event	☐ Refrigerator ☐ Anti-sweat heater ☐ Other	☐ Fountain pumps ☐ Process equipment
EMCS control	☐ Yes	☐ No

11. Energy Management and Control System

Manufacturer		
Control system is viewable at,	☐ Web-browser ☐ On-site	☐ Off-site ☐ Never
Data trending capability	☐ Yes	☐ No

Currently trending data?	☐ Yes ☐ No Data point collected:
Data trend interval (minutes)	

12. Energy Information System

PG&E InterAct	☐ Yes ☐ No
Other EIS installed	☐ Yes ☐ No If yes, vendor:
Data points collected	
Trend interval (minutes)	
Is the data accessible from third party (LBNL)?	☐ Yes ☐ No

13. Connectivity (Connecting the EMCS to the Internet)

A. Does the site have Internet connectivity for tenants (i.e. can they surf the Web?).	☐ Yes ☐ No
B. Is EMCS data viewable through a Web browser on site?	☐ Yes ☐ No
C. Is EMCS data viewable through a Web browser off site?	☐ Yes ☐ No
D. If ***C*** above is Yes, is a Web programmer available to install a Web services/XML client (template provided)?	☐ Yes ☐ No
E. If (***A*** = Yes) and (***C*** or ***D*** = No), can you provide a public IP address? A pre-configured IP relay will be shipped to your site.	☐ Yes ☐ No

14. Demand Response Control Strategy

Shed control strategies planned for summer 2005	☐ Zone setpoint increase ☐ Fan control ☐ Cooling system control ☐ Lighting shed ☐ Misc. equipments
Strategy detail	
Have you implemented the strategies before?	☐ Yes ☐ No
How much kW do you think you can shed? [kW]	unknown

Appendix D. Site Descriptions and Demand Response Details

D.1. Alameda County Water District, Headquarters

Alameda County Water District, Headquarter

Site Summary

Building Use	Office, lab
Industry Classification	County government, water supply survice
City	Fremont, CA
Gross Floor Area	51,200 ft_
Conditioned Area	51,200 ft_
# of Buildings, floor	1-building, 1-floor
Peak Load kW	347 kW
Peak W/ft_	6.78 W/ft_
Tenant Type	County employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri, 7am - 6pm
Non-weekday Schedule	Sat&Sun
Building Details	7,200 ft_of lab space were added in August 2005 (gross floor area was 44,000 ft_prior to the addition).

HVAC System Summary

Air Distribution Type	Variable Air Volume
Air Handler Unit	(4) 14,500 CFM supply fans, SAT: 56 °F, 20% OA (4) 2,700 CFM return fans
Cooling Plant	(1) 140 ton air-cooled scroll chiller CHW Supply Temp: 45 °F, Cooling lock out at 55 °F OAT. (1) 20 HP variable volume chilled water pump
Heating Plant	(1) 2,000 Mbtu/h hot water boiler + (1) backup boiler Hot water temp: 160 - 180 °F (2) 15 HP CV hot water pumps
HVAC Control System	Invensys, control system viewable from offsite. Data trending capability.
DDC Zone Control	Yes
Other Details	None.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	EMCS trends are available on site. Each AHU has 6 points trending at 15-minute intervals. In addition, 1 zone's temperatures were being collected.

Auto-CPP System Summary

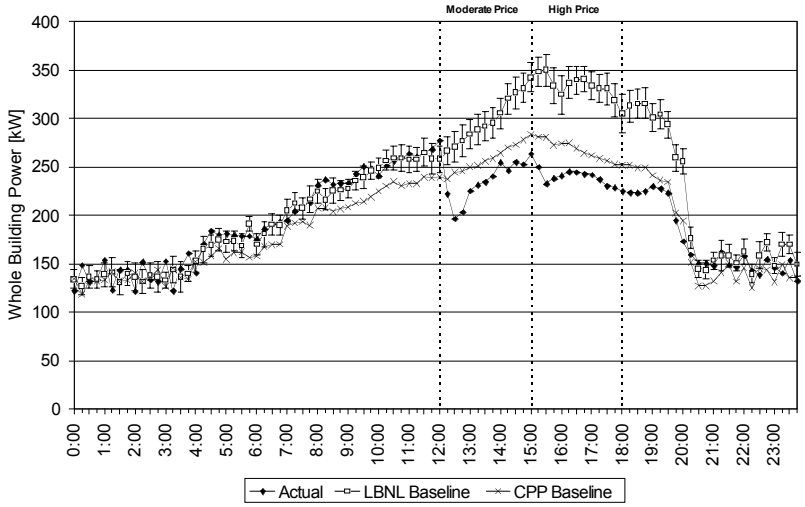
Communication Method		Relay at site	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=Yes High=Yes Notification=Yes	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ Boiler disabled. _ CHW setpoint raised to 50 °F. _ Current limiting to 70%. _ SAT increased from 55 °F to 65 °F for AHUs 1, 2, 3 and Lab AHU. _ DSP setpoint decreased from 1.5" to 1.0". _ Zone setpoint increased to 75 °F	
	High Price	_ Zone setpoint increased to 78 °F.	
	Slow Recovery	_ Extend shed control 2 hours (until 8 pm).	

Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Succeeded	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

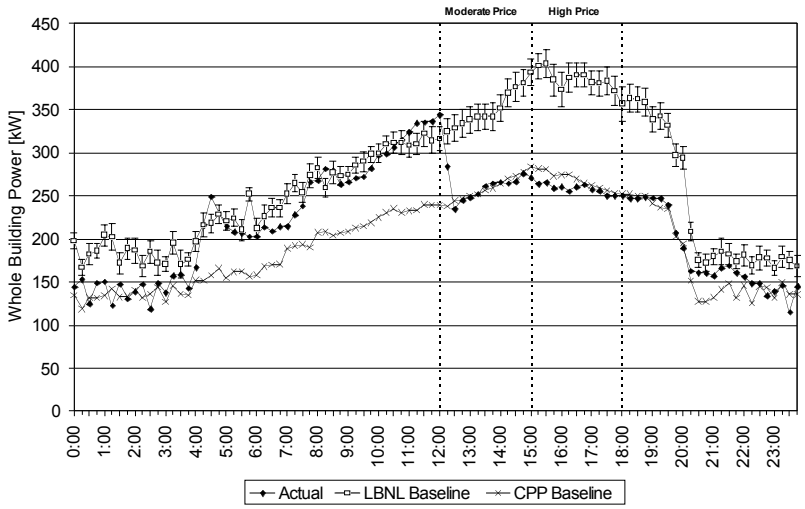
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.

ACWD, 6/21/2006 (Max OAT: 90 °F)



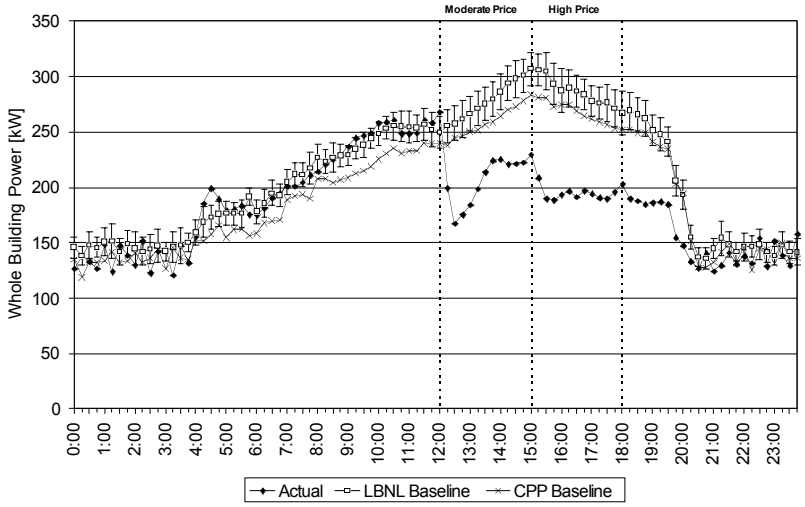
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	Moderate Price	82	68	1.60	1.33	28%	22%
	High Price	121	98	2.36	1.92	34%	29%

ACWD, 6/22/2006 (Max OAT: 94 °F)



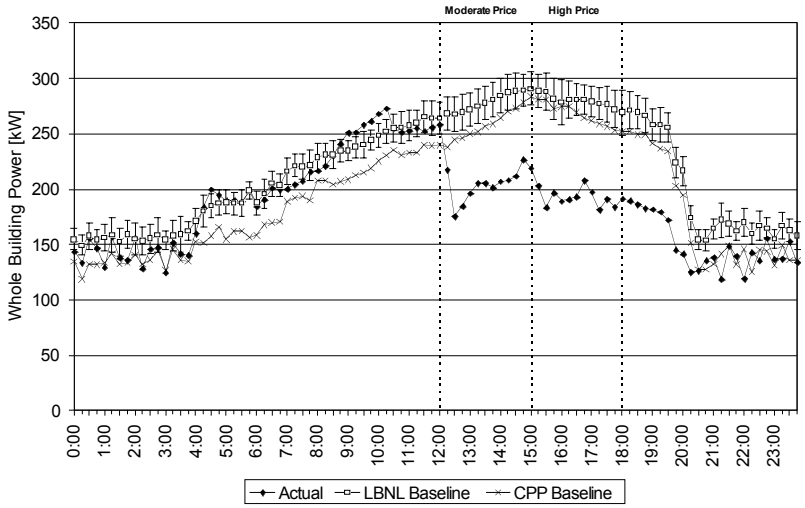
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	125	94	2.45	1.83	32%	26%
	High Price	141	129	2.76	2.53	35%	33%

ACWD, 6/23/2006 (Max OAT: 80 °F)



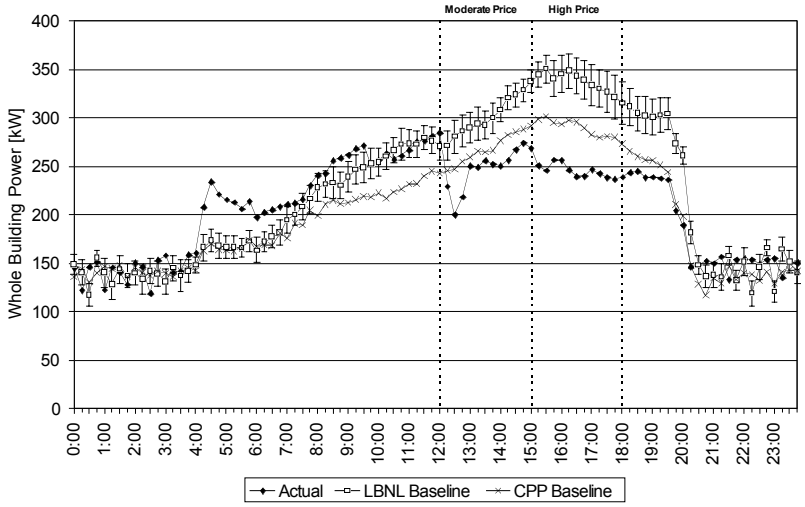
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	95	77	1.85	1.51	36%	27%
	High Price	119	95	2.33	1.85	39%	33%

ACWD, 6/26/2006 (Max OAT: 76 °F)



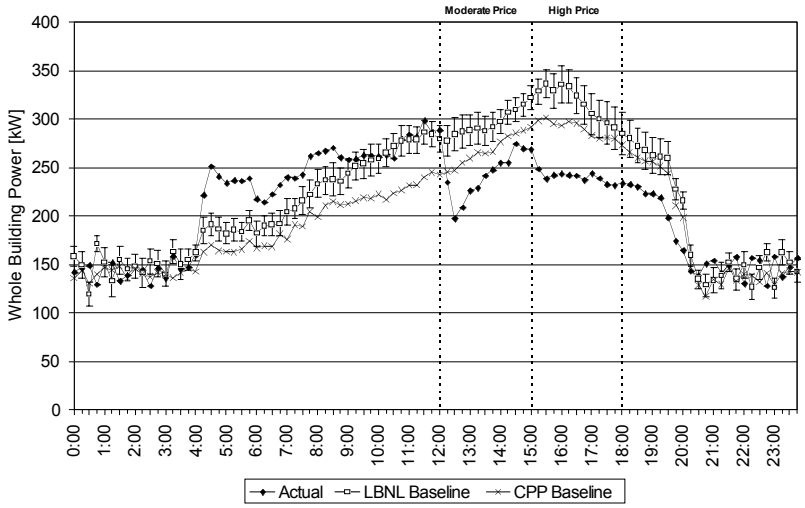
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	97	78	1.89	1.53	36%	28%
	High Price	109	91	2.12	1.78	37%	32%

ACWD, 7/17/2006 (Max OAT: 92 °F)



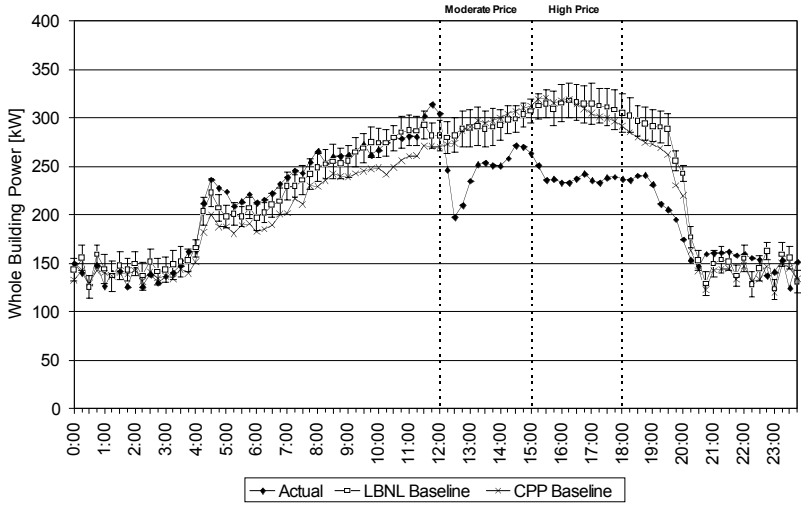
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	84	58	1.64	1.14	29%	19%
	High Price	108	95	2.12	1.85	31%	28%

ACWD, 7/18/2006 (Max OAT: 87 °F)



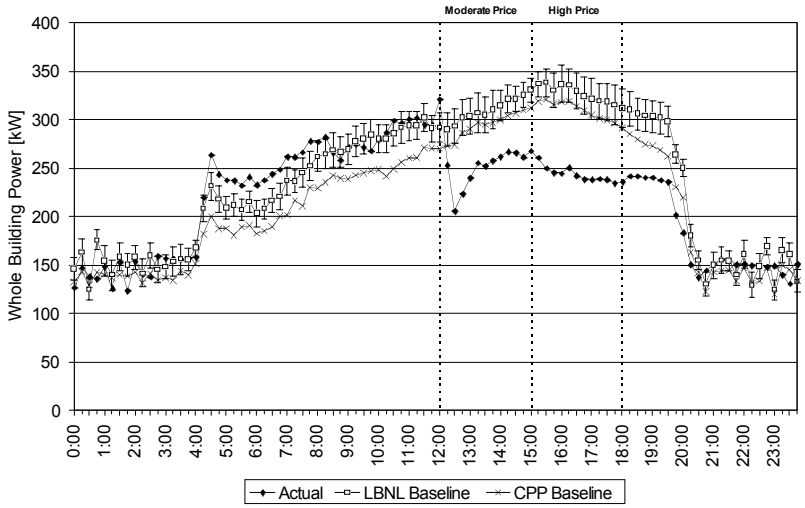
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	90	58	1.76	1.12	31%	19%
	High Price	101	79	1.97	1.54	30%	24%

ACWD, 7/20/2006 (Max OAT: 85 °F)



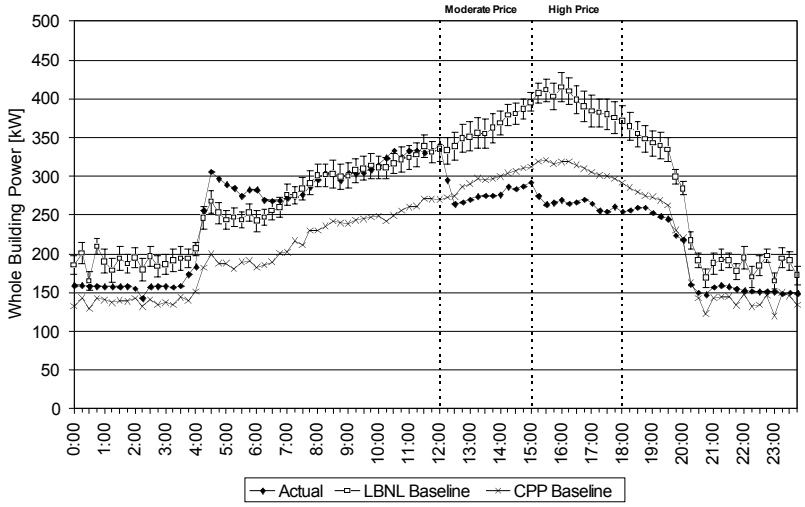
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	87	49	1.70	0.95	31%	17%
	High Price	87	78	1.71	1.52	27%	25%

ACWD, 7/21/2006 (Max OAT: 88 °F)



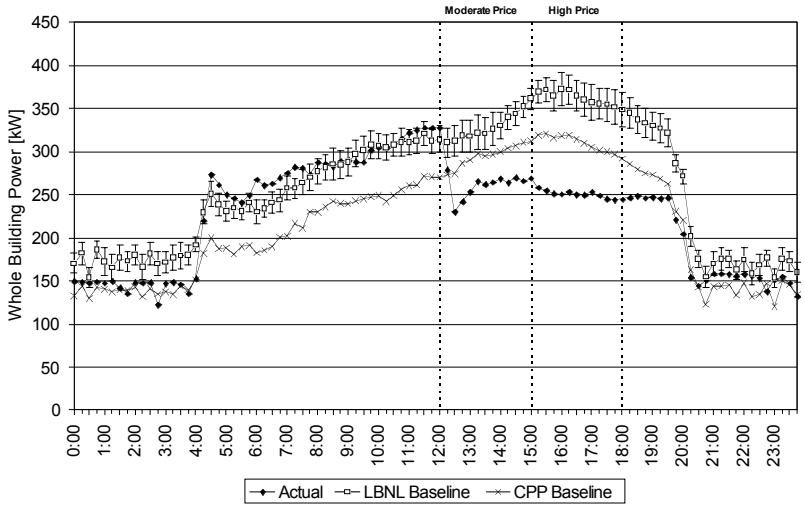
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	91	62	1.77	1.22	31%	20%
	High Price	95	86	1.85	1.69	28%	26%

ACWD, 7/24/2006 (Max OAT: 95 °F)

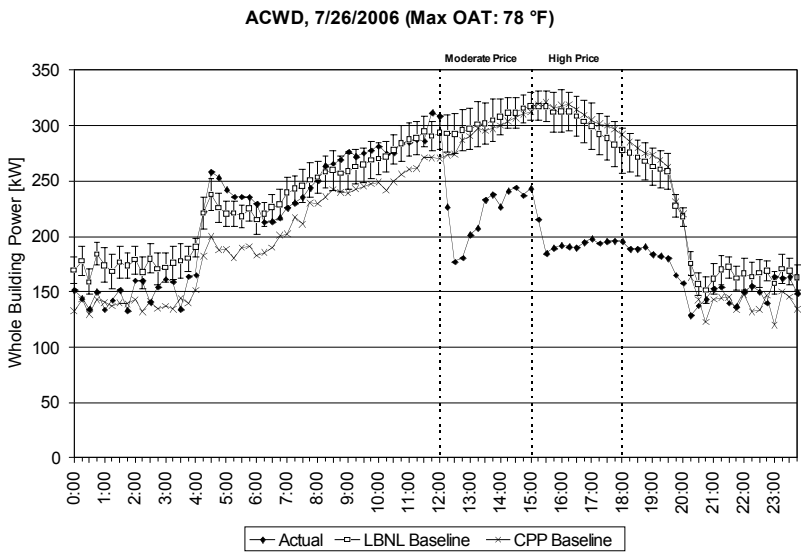


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	106	87	2.08	1.70	27%	24%
	High Price	151	133	2.94	2.60	36%	33%

ACWD, 7/25/2006 (Max OAT: 89 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	95	71	1.86	1.39	27%	21%
	High Price	125	114	2.43	2.23	33%	31%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	121	88	2.36	1.72	40%	29%
	High Price	138	113	2.70	2.21	43%	37%

D.2. Chabot Space and Science Center, Buildings 1&2

Chabot Space and Science Center, Buildings 1&2

Site Summary

Building Use	Museum
Industry Classification	Museum
City	Oakland, CA
Gross Floor Area	86,000 ft_
Conditioned Area	86,000 ft_
# of Buildings, floor	2-building, 2-floor
Peak Load kW	333 kW
Peak W/ft_	3.87 W/ft_
Tenant Type	Visitors, employees
Facility Management	Company-owned
Weekday Schedule	Wed-Thu:10am-5pm Fri-Sat:10am-10pm Sun: 11am - 5pm
Non-weekday Schedule	Mon&Tue
Building Details	Consists of 2 buildings including museum exhibit areas, auditorium, and offices. Building structure consists of high-concrete mass.

HVAC System Summary

Air Distribution Type	Variable Air Volume with Reheat. No global setpoint adjustment capability. Normally operates at 74 °F cooling, 72 °F heating setpoint.
Air Handler Unit	Supply fan with VSD.
Cooling Plant	Total 230 tons VFD Centrifugal chiller (approx 119 kW).
Heating Plant	Information not available
HVAC Control System	YAMAS. Viewable and controllable onsite. Data trending capability.
DDC Zone Control	Yes
Other Details	The lighting system has dimmable ballasts.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	EMCS trends collect zone conditions, AHU, and central plant data.

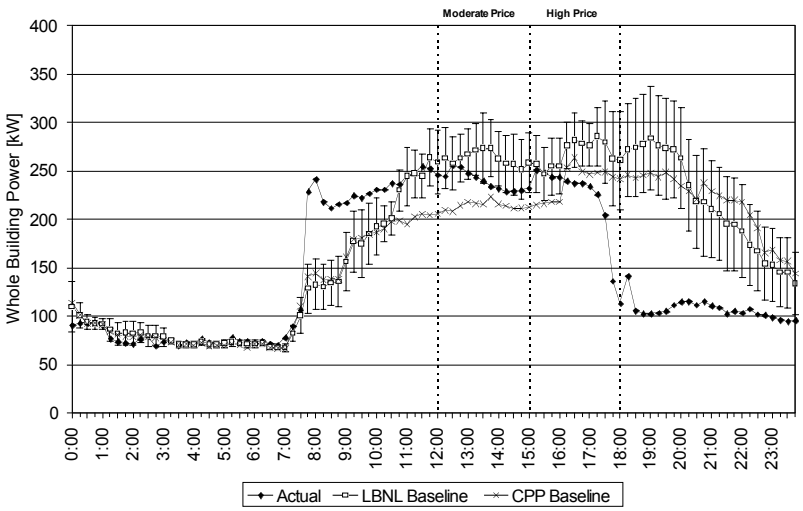
Auto-CPP System Summary

Communication Method		Relay at site	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=Yes High=Yes Notification=Yes	
Shed Strategies	**Pre-event**	_ Free cooling when the OAT is below 62 °F _ Pre-cooling until noon at 70 °F average zone temp.	
	Moderate Price	_ Drift zone setpoint to 74 °F, 4/3 °F each hour	
	High Price	_ Drift zone setpoint to 78 °F, 4/3 °F each hour	
	Slow Recovery	None.	

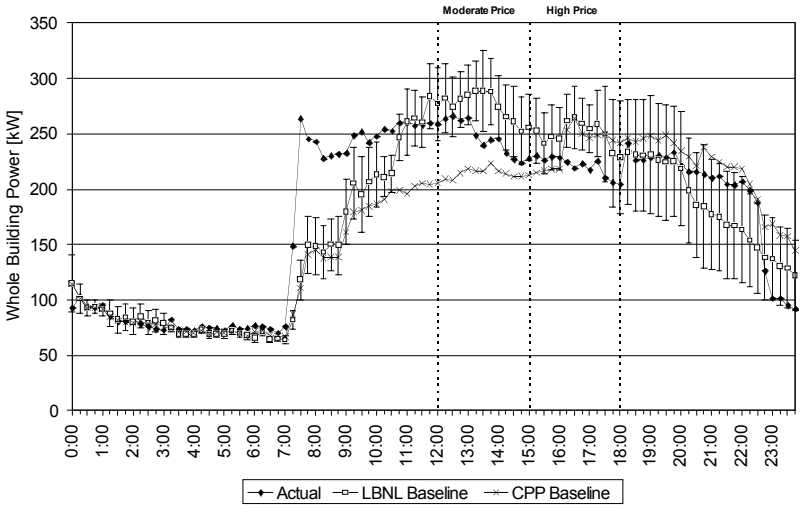
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Not visible	**22-Jun**	Not visible
23-Jun	Not visible	**26-Jun**	Closed
17-Jul	Closed	**18-Jul**	Closed
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Closed	**25-Jul**	Closed
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

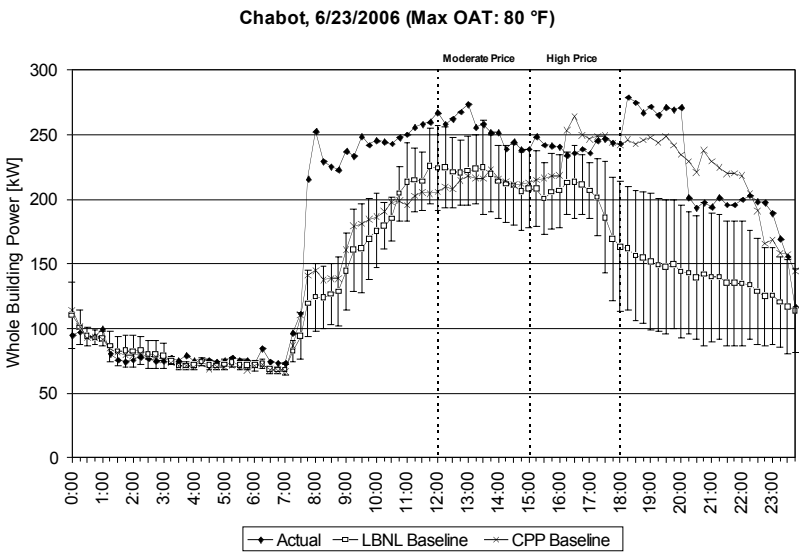
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



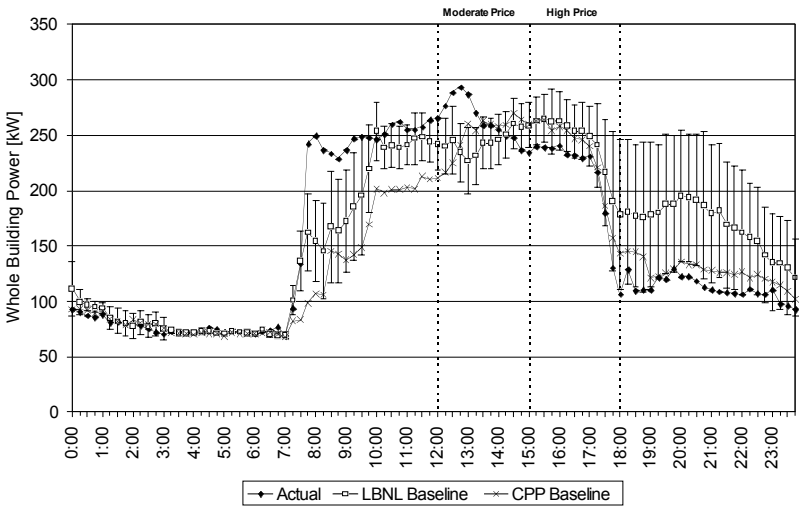
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	Moderate Price	39	24	0.46	0.28	14%	9%
	High Price	148	50	1.72	0.58	56%	18%



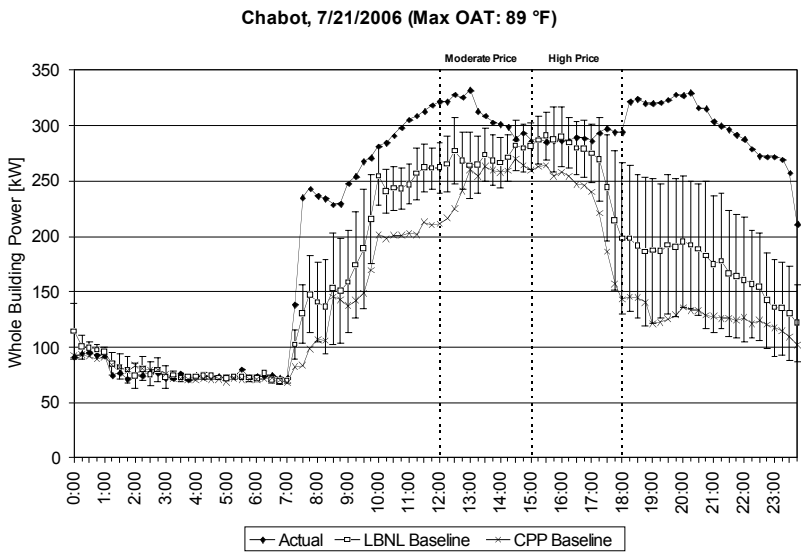
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	48	29	0.56	0.34	17%	11%
	High Price	45	29	0.53	0.34	17%	12%



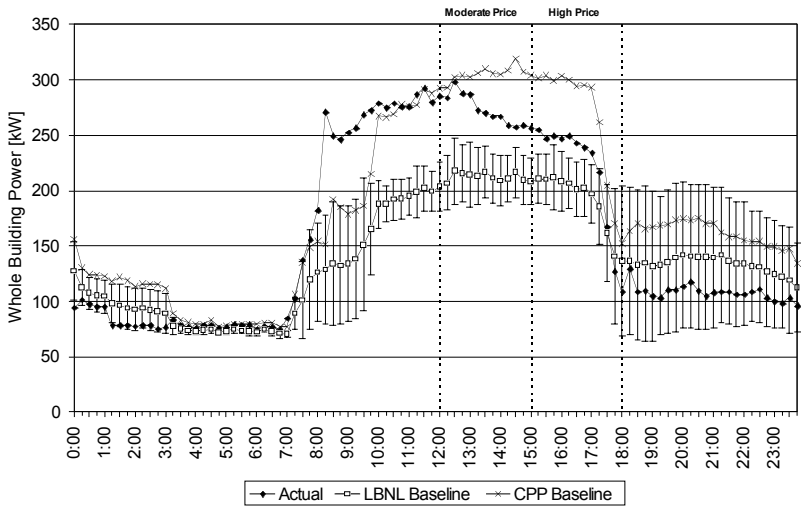
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	-27	-36	-0.32	-0.42	-13%	-17%
	High Price	-22	-43	-0.25	-0.50	-10%	-22%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	25	-18	0.29	-0.21	9%	-8%
	High Price	72	31	0.84	0.37	40%	14%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	-5	-37	-0.05	-0.42	-2%	-14%
	High Price	5	-23	0.06	-0.27	2%	-11%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	-41	-60	-0.48	-0.70	-19%	-28%
	High Price	28	-26	0.32	-0.30	20%	-12%

D.3. Contra Costa County, 2530 Arnold

Contra Costa County, 2530 Arnold

Site Summary

Building Use	Office
Industry Classification	County government
City	Martinez, CA
Gross Floor Area	131,000 ft_
Conditioned Area	131,000 ft_
# of Buildings, floor	1-building, 4-floor
Peak Load kW	528 kW
Peak W/ft_	4.03 W/ft_
Tenant Type	County employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri: 5am-6pm
Non-weekday Schedule	Sat&Sun
Building Details	None.

HVAC System Summary

Air Distribution Type	Single duct Variable Air Volume with perimeter reheat
Air Handler Unit	(5) 60 ton rooftop package units with DX cooling and 8 equal compressor stages.
Cooling Plant	-
Heating Plant	Separate direct fired natural gas rooftop package
HVAC Control System	Alerton Control using BACtalk, operating on local workstations.
DDC Zone Control	Yes
Other Details	None.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	EMCS trends collect RTU parameters and zone temp.

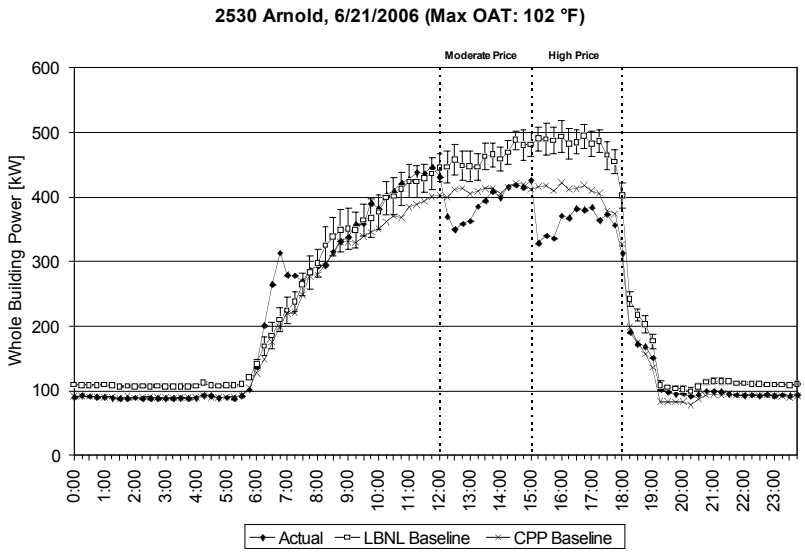
Auto-CPP System Summary

Communication Method		Relay w/WAN	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=Yes High=Yes Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ Zone setpoint increased 2 °F (76 °F to 78 °F).	
	High Price	_ Zone setpoint 4 °F up (80 °F).	
	Slow Recovery	_ VAV boxes are released one at a time over a short time interval.	

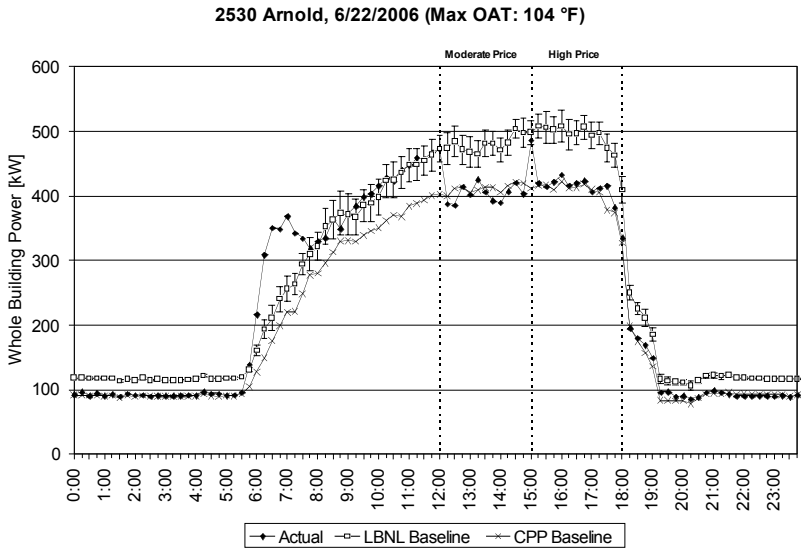
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Succeeded	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

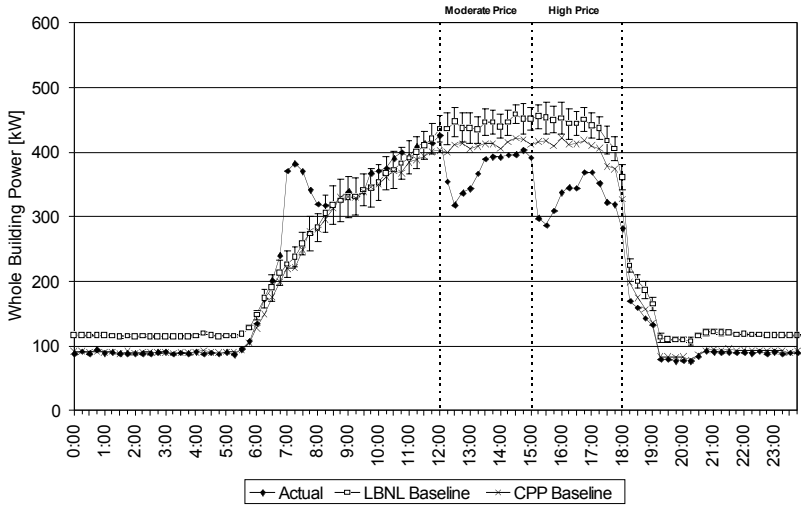
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	**Moderate Price**	114	77	0.87	0.59	25%	16%
	High Price	168	124	1.28	0.95	34%	26%

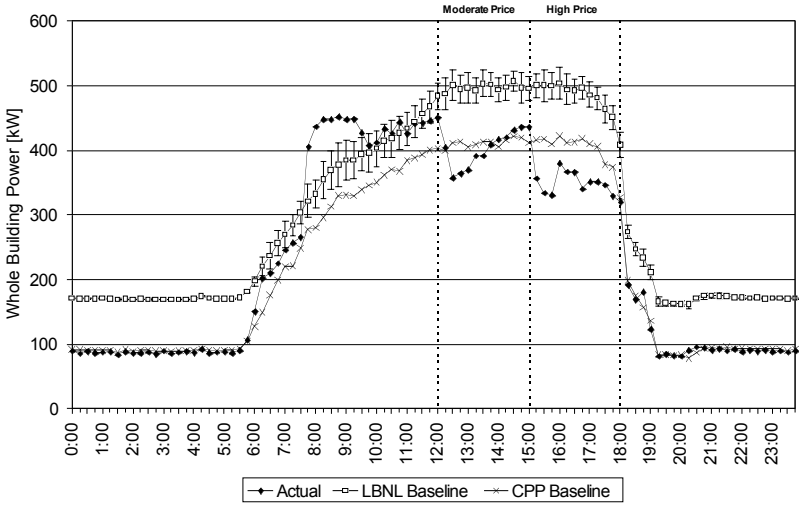


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	106	79	0.81	0.60	22%	16%
	High Price	98	87	0.75	0.66	20%	18%



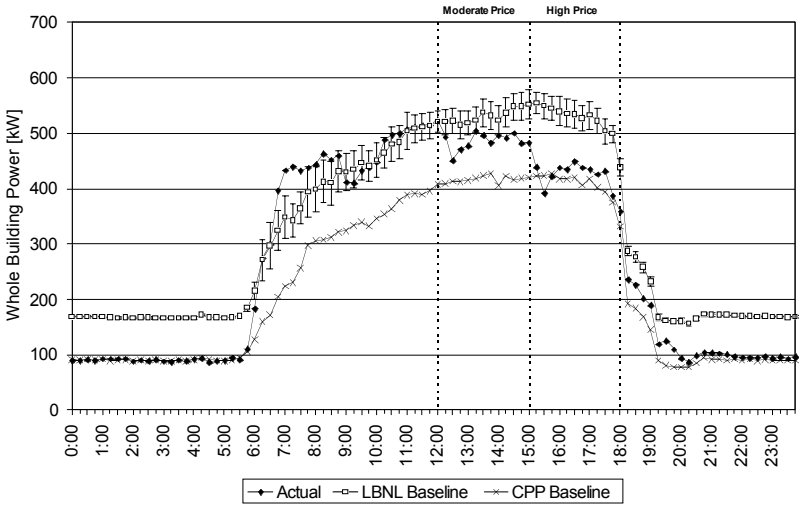
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	135	78	1.03	0.59	30%	17%
	High Price	172	113	1.32	0.86	37%	25%

2530 Arnold, 6/26/2006 (Max OAT: 96 °F)

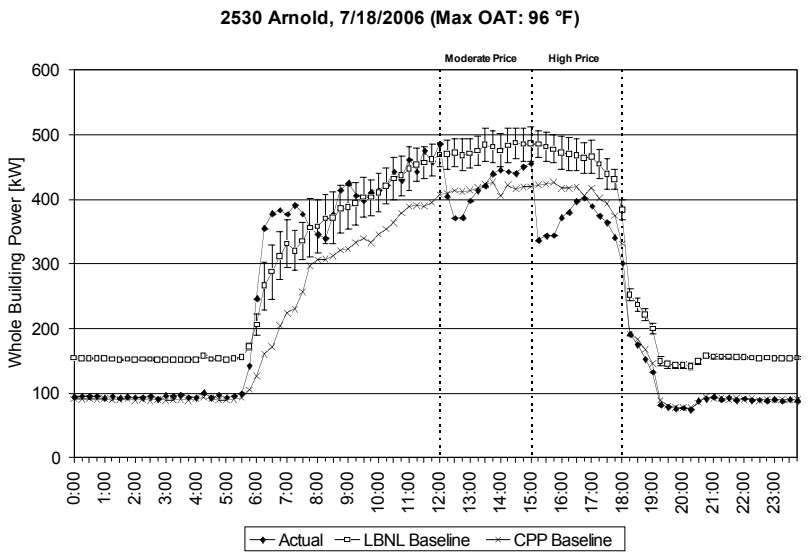


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	151	102	1.15	0.78	30%	20%
	High Price	175	140	1.34	1.07	35%	29%

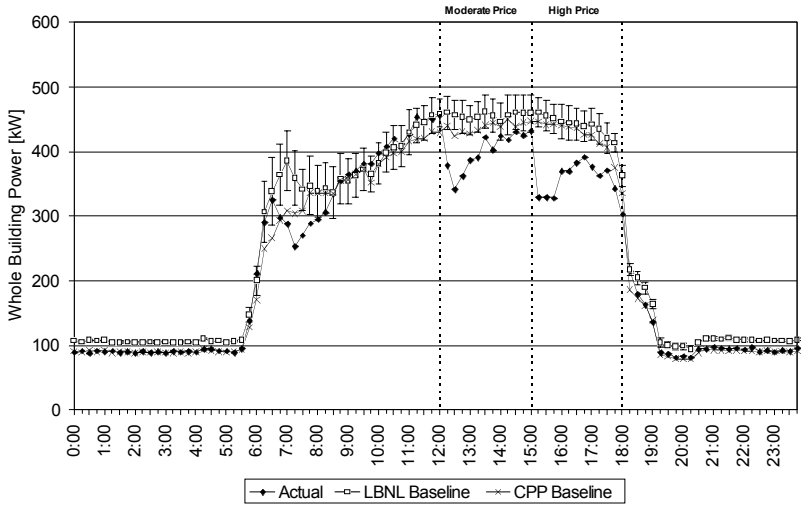
2530 Arnold, 7/17/2006 (Max OAT: 106 °F)



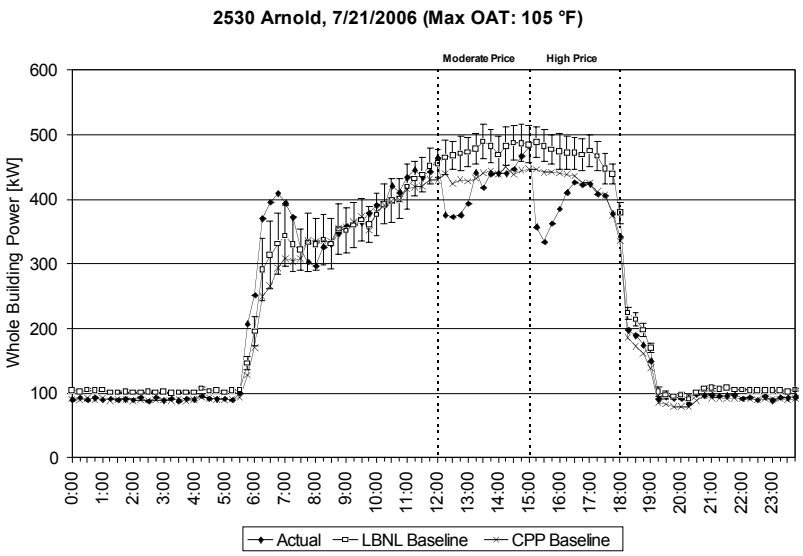
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	73	48	0.56	0.37	14%	9%
	High Price	160	105	1.22	0.80	29%	20%



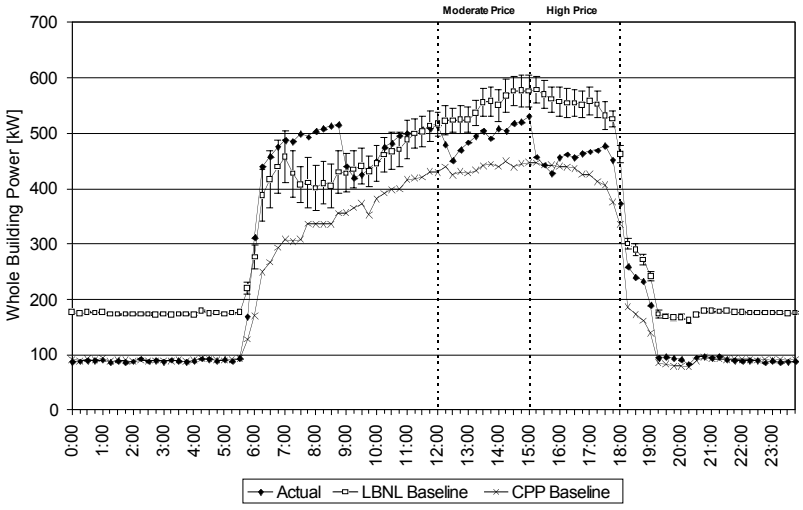
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	106	62	0.81	0.47	22%	13%
	High Price	154	101	1.17	0.77	31%	22%



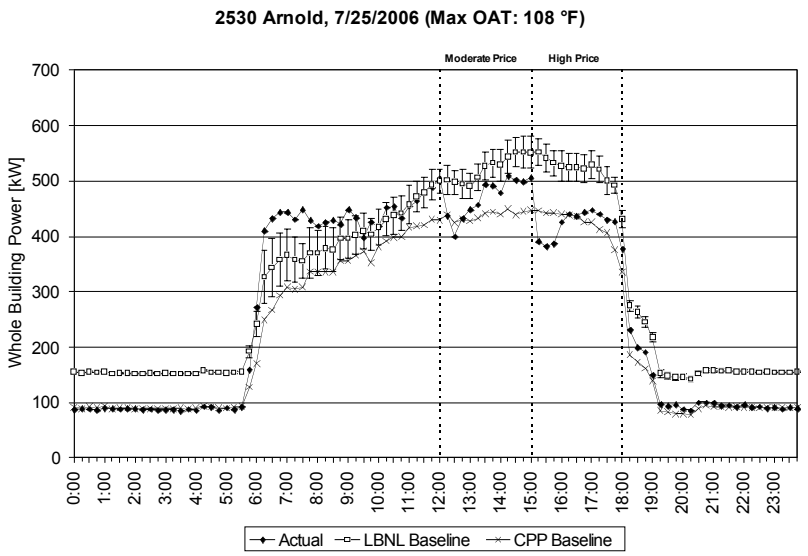
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	121	61	0.93	0.47	26%	13%
	High Price	138	86	1.05	0.66	30%	19%



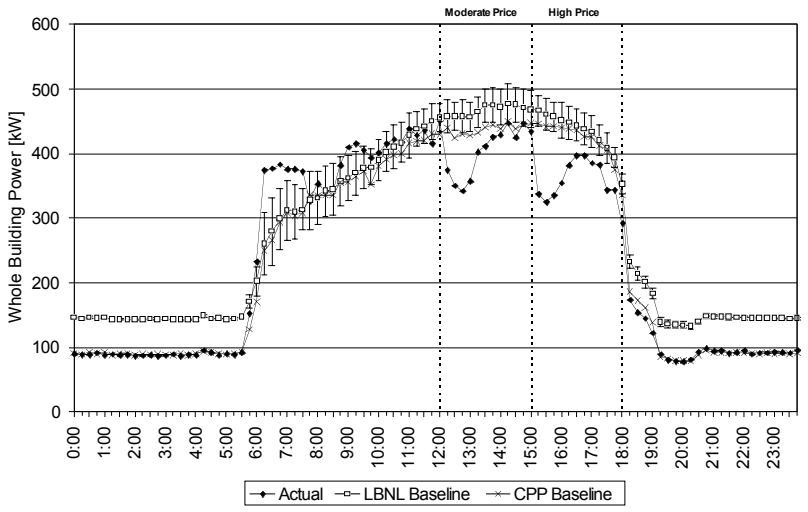
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	102	61	0.78	0.46	21%	13%
	High Price	156	81	1.19	0.62	32%	17%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	76	56	0.58	0.43	14%	10%
	High Price	138	99	1.05	0.76	24%	18%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	103	57	0.78	0.44	20%	11%
	High Price	166	103	1.26	0.78	30%	19%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	122	70	0.93	0.54	26%	15%
	High Price	143	82	1.09	0.62	30%	18%

D.4. Contra Costa County, 50 Douglas

Contra Costa County, 50 Douglas

Site Summary

Building Use	Office
Industry Classification	County government
City	Martinez, CA
Gross Floor Area	90,000 ft_
Conditioned Area	90,000 ft_
# of Buildings, floor	1-building, 3-floor
Peak Load kW	422 kW
Peak W/ft_	4.69 W/ft_
Tenant Type	County employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri: 5am-6pm
Non-weekday Schedule	Sat&Sun
Building Details	Has a building-integrated photovoltaic (PV) array with a maximum power rating of 100 kW. The array is connected on the customer side of the meter.

HVAC System Summary

Air Distribution Type	Single duct Variable Air Volume with perimeter reheat
Air Handler Unit	DX cooling rooftop package: (2) 75 ton with 4 equal compressor stages, and (1) 90 ton with 6 equal compressor stages.
Cooling Plant	-
Heating Plant	Each RTU has direct fired natural gas heaters
HVAC Control System	Alerton Control using BACtalk, operating on local workstations.
DDC Zone Control	Yes
Other Details	None.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	EMCS trends collect RTU parameters and zone temp. PV submetering provided by PowerLight Corp.

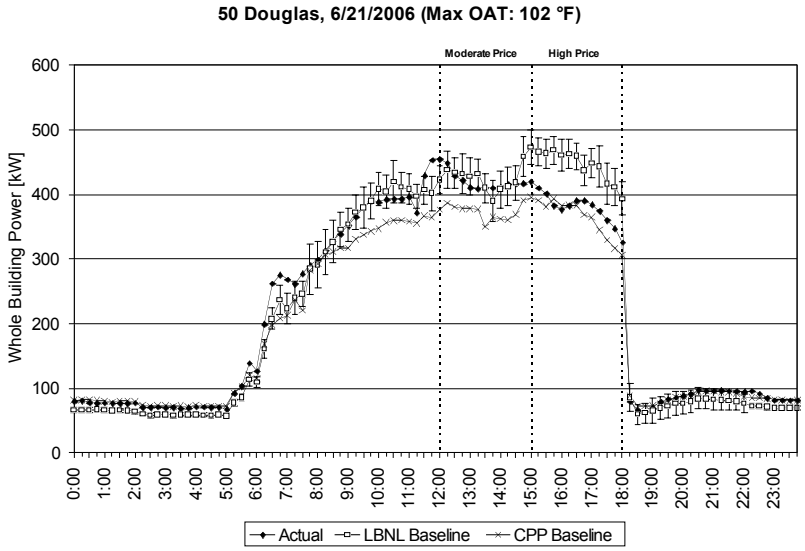
Auto-CPP System Summary

Communication Method		Relay w/WAN	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=Yes High=Yes Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ Zone setpoint increased 2 °F (76 °F to 78 °F).	
	High Price	_ Zone setpoint 4 °F up (80 °F).	
	Slow Recovery	_ VAV boxes are released one at a time over a short time interval.	

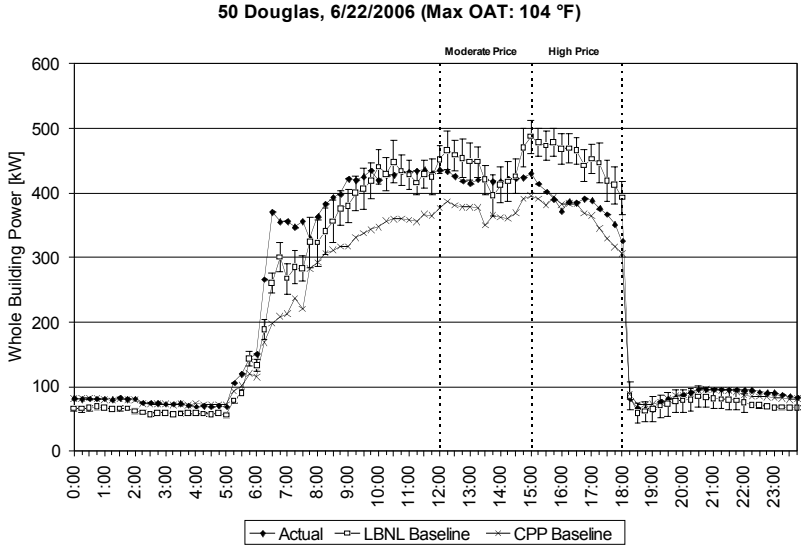
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Succeeded	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

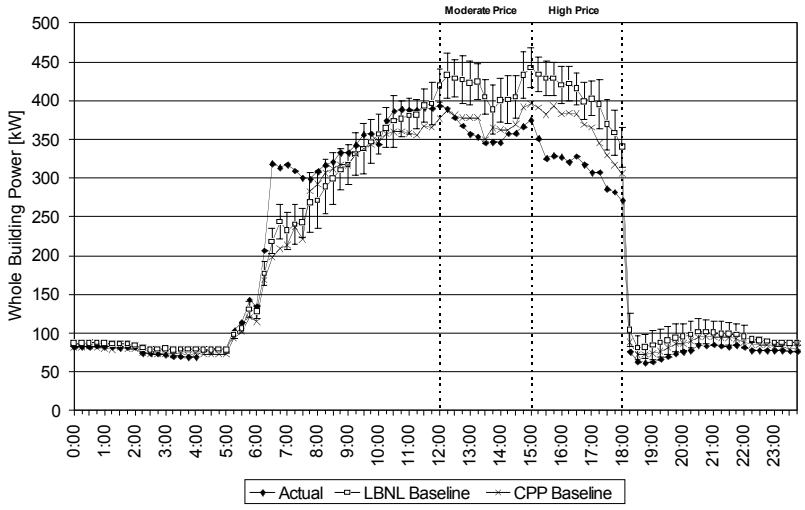
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	**Moderate Price**	52	8	0.58	0.09	11%	2%
	High Price	85	66	0.94	0.73	18%	15%

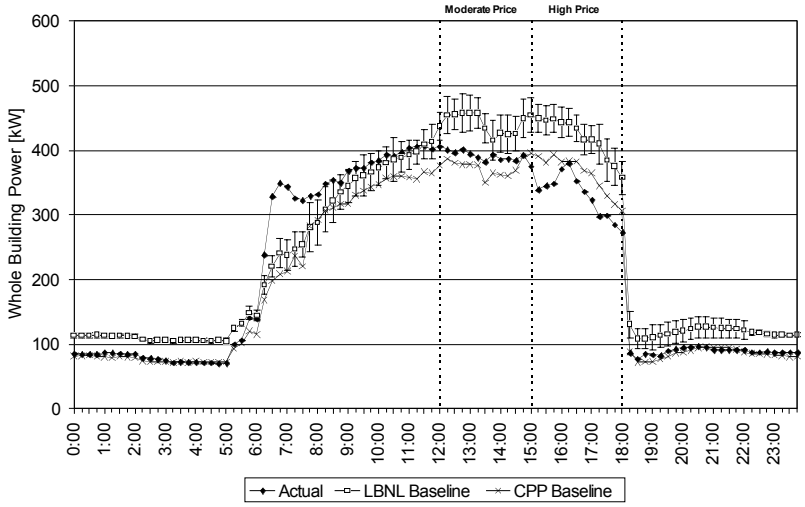


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	59	22	0.66	0.25	12%	5%
	High Price	99	73	1.10	0.81	21%	16%



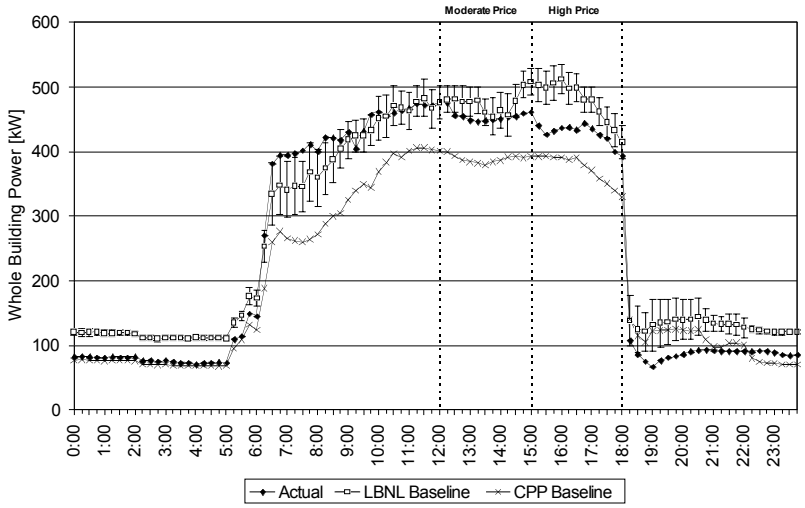
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	75	59	0.83	0.66	17%	14%
	High Price	106	92	1.18	1.02	25%	23%

50 Douglas, 6/26/2006 (Max OAT: 96 °F)



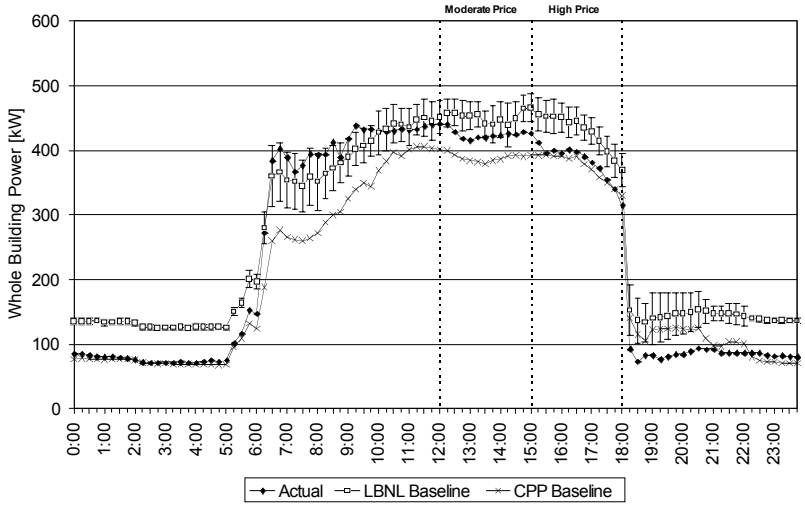
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	84	57	0.93	0.63	18%	13%
	High Price	116	94	1.29	1.04	28%	22%

50 Douglas, 7/17/2006 (Max OAT: 106 °F)



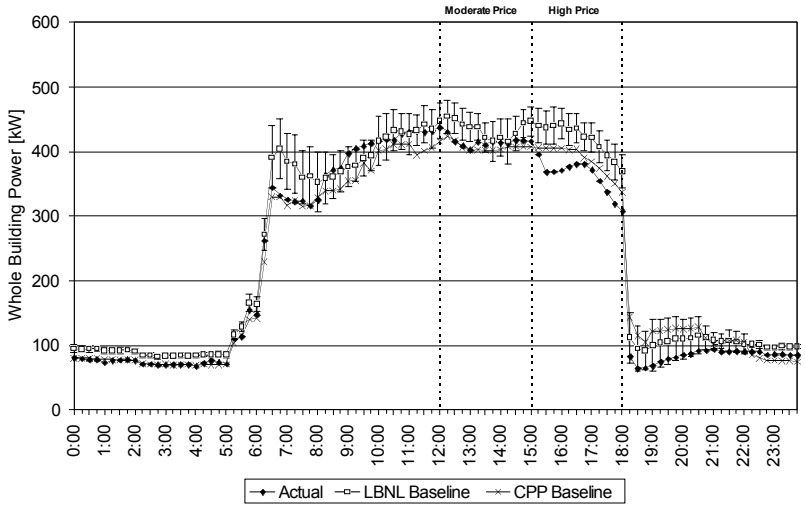
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	47	22	0.52	0.25	9%	5%
	High Price	76	51	0.84	0.56	15%	10%

50 Douglas, 7/18/2006 (Max OAT: 96 °F)



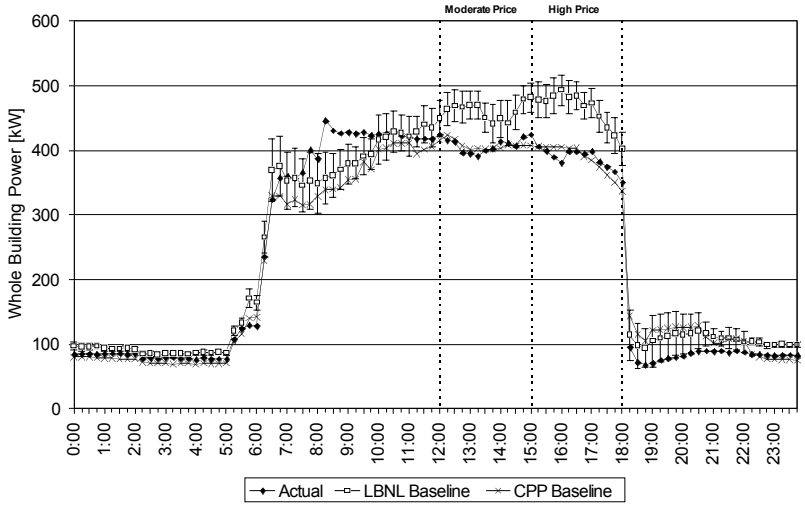
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	40	29	0.44	0.32	9%	6%
	High Price	58	49	0.65	0.54	15%	11%

50 Douglas, 7/20/2006 (Max OAT: 99 °F)



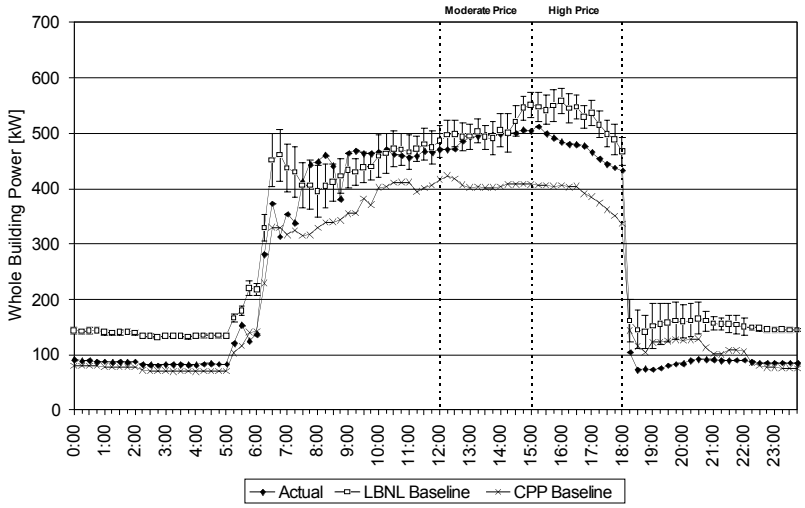
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	38	22	0.42	0.24	8%	5%
	High Price	74	60	0.82	0.66	17%	14%

50 Douglas, 7/21/2006 (Max OAT: 105 °F)



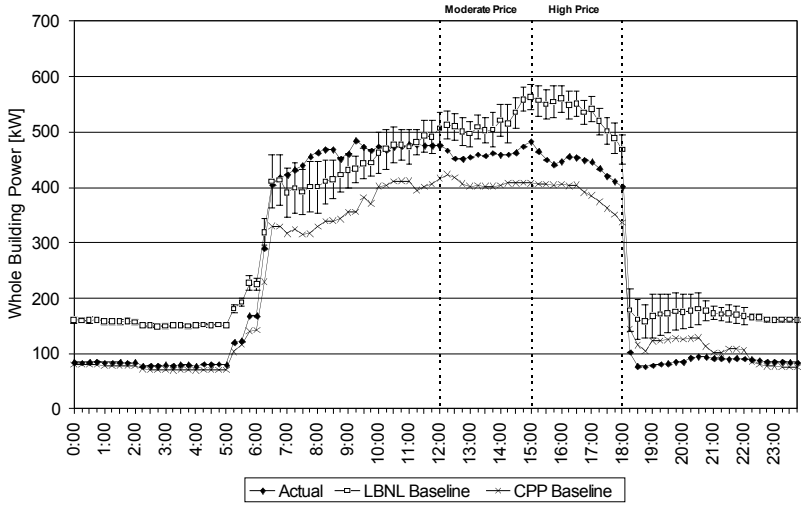
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	83	58	0.92	0.65	17%	12%
	High Price	116	80	1.29	0.89	23%	17%

50 Douglas, 7/24/2006 (Max OAT: 109 °F)



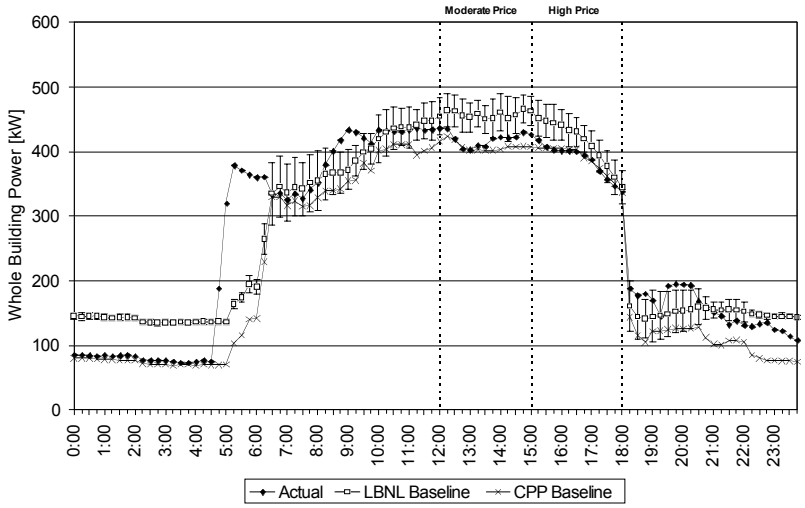
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	49	16	0.55	0.18	9%	3%
	High Price	76	57	0.84	0.64	14%	11%

50 Douglas, 7/25/2006 (Max OAT: 108 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	88	61	0.98	0.68	16%	12%
	High Price	118	95	1.31	1.06	21%	18%

50 Douglas, 7/26/2006 (Max OAT: 96 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	53	41	0.59	0.46	12%	9%
	High Price	44	29	0.49	0.33	10%	7%

D.5. Contra Costa County, Martinez Detention Facility

Site Summary

Building Use	Detention facility
Industry Classification	Detention facility
City	Martinez, CA
Gross Floor Area	172,300 ft_
Conditioned Area	172,300 ft_
# of Buildings, floor	1-building, N/A-floor
Peak Load kW	561 kW
Peak W/ft_	3.26 W/ft_
Tenant Type	Guards
Facility Management	Company-owned
Weekday Schedule	N/A
Non-weekday Schedule	N/A
Building Details	N/A

HVAC System Summary

Air Distribution Type	N/A
Air Handler Unit	N/A
Cooling Plant	N/A
Heating Plant	N/A
HVAC Control System	N/A
DDC Zone Control	N/A
Other Details	N/A

Data Trending

DDC Zone Control	InterAct=N/A EMCS Trends=N/A Submeter=N/A
Data Trending Detail	N/A

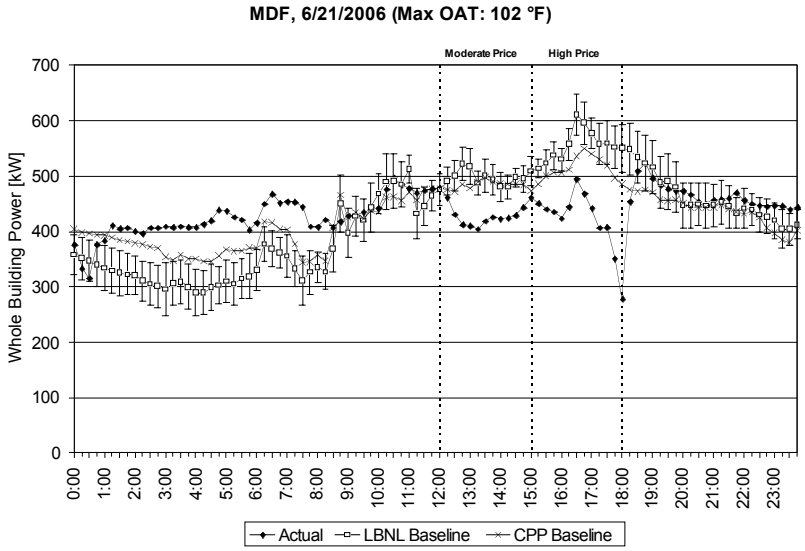
Auto-CPP System Summary

Communication Method		Relay w/WAN	
Gateway/Relay Device	ADAM6060	**Client Host Location**	N/A
Price Client Host	N/A	**Client Hosted at Co-Lo**	N/A
Price Signal Use		Mod=N/A High=N/A Notification=N/A	
Shed Strategies	**Pre-event**	N/A	
	Moderate Price	N/A	
	High Price	_ Raise temperature setting. _ Thinking about lights.	
	Slow Recovery	N/A	

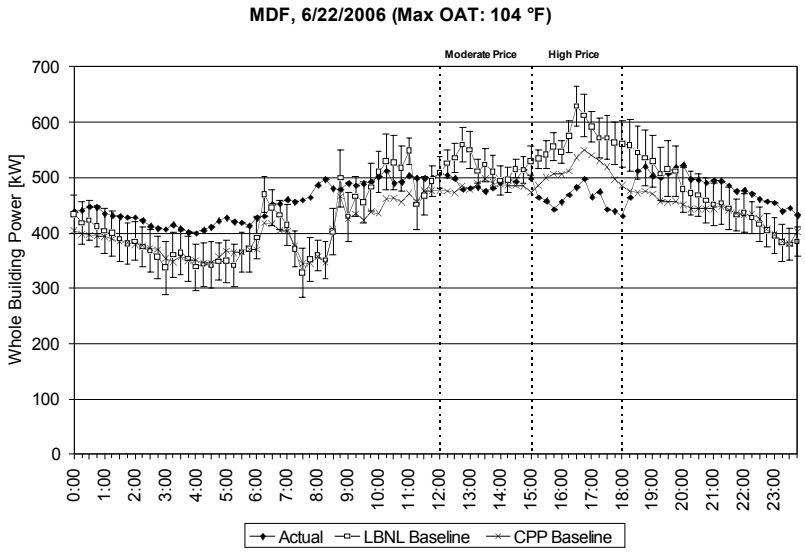
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Not visible	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

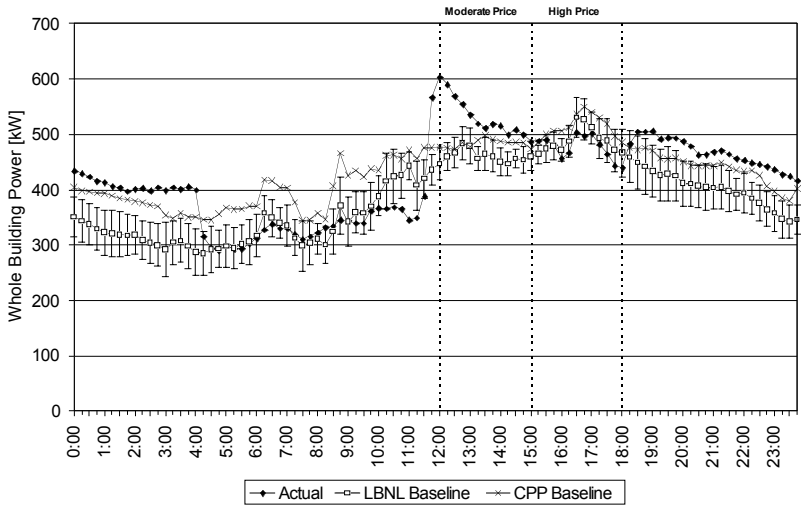
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	**Moderate Price**	111	71	0.65	0.41	21%	14%
	High Price	275	138	1.59	0.80	50%	25%

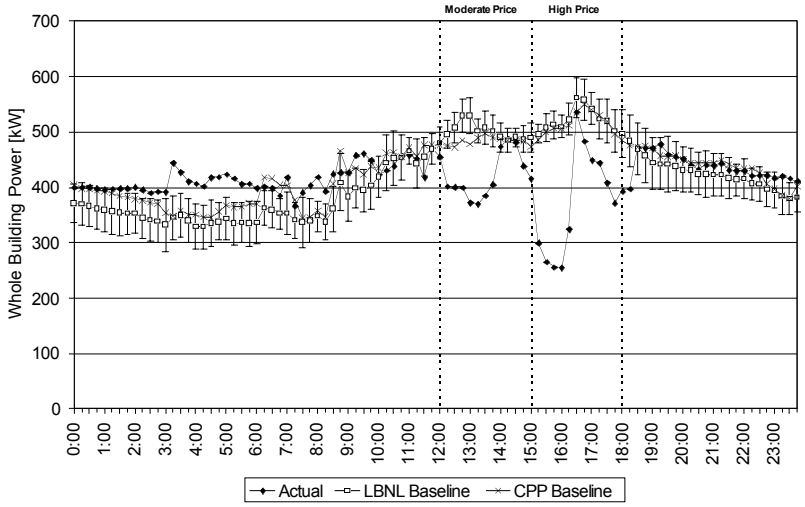


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	82	32	0.48	0.19	15%	6%
	High Price	147	112	0.85	0.65	23%	19%



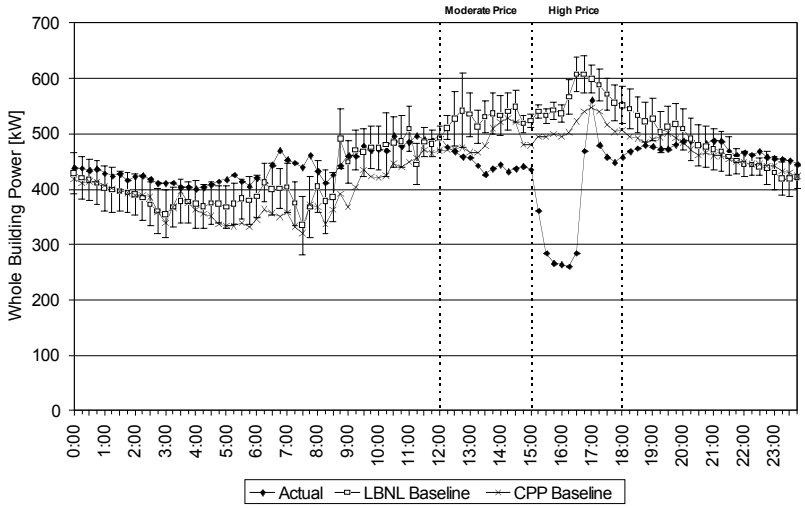
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	-37	-75	-0.22	-0.44	-8%	-17%
	High Price	19	1	0.11	0.01	4%	0%

MDF, 6/26/2006 (Max OAT: 96 °F)



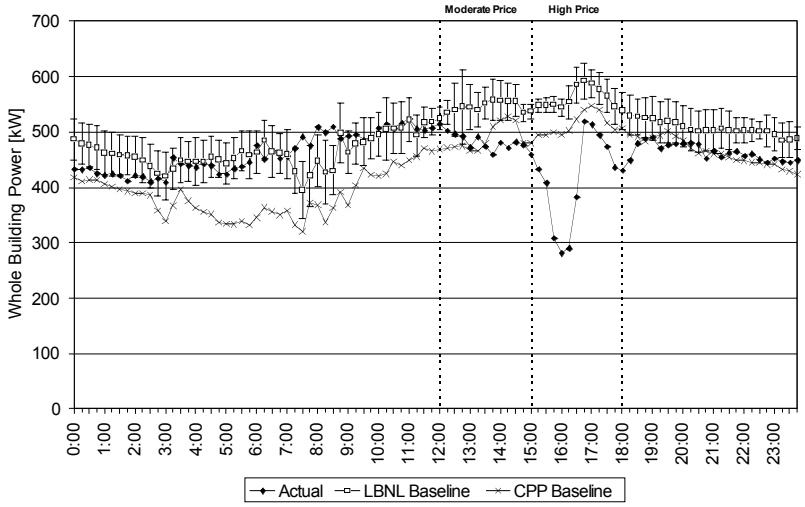
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	165	90	0.96	0.52	31%	17%
	High Price	265	155	1.54	0.90	51%	30%

MDF, 7/17/2006 (Max OAT: 106 °F)



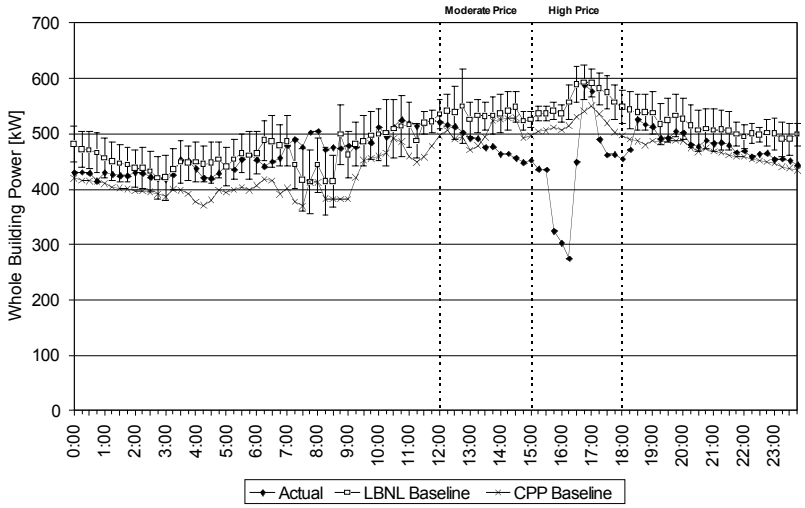
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	115	86	0.66	0.50	21%	16%
	High Price	325	186	1.89	1.08	54%	33%

MDF, 7/18/2006 (Max OAT: 96 °F)



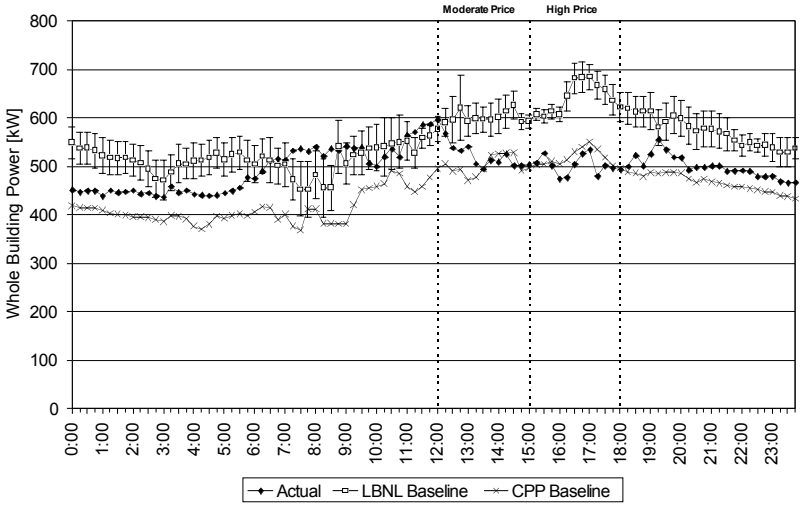
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	102	69	0.59	0.40	18%	12%
	High Price	266	149	1.55	0.87	48%	27%

MDF, 7/20/2006 (Max OAT: 99 °F)



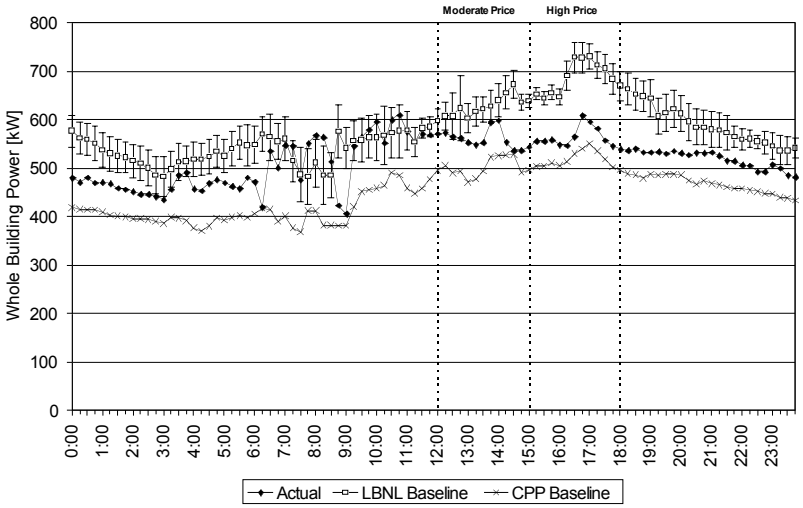
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	94	58	0.54	0.34	17%	11%
	High Price	284	125	1.65	0.73	51%	23%

MDF, 7/21/2006 (Max OAT: 105 °F)



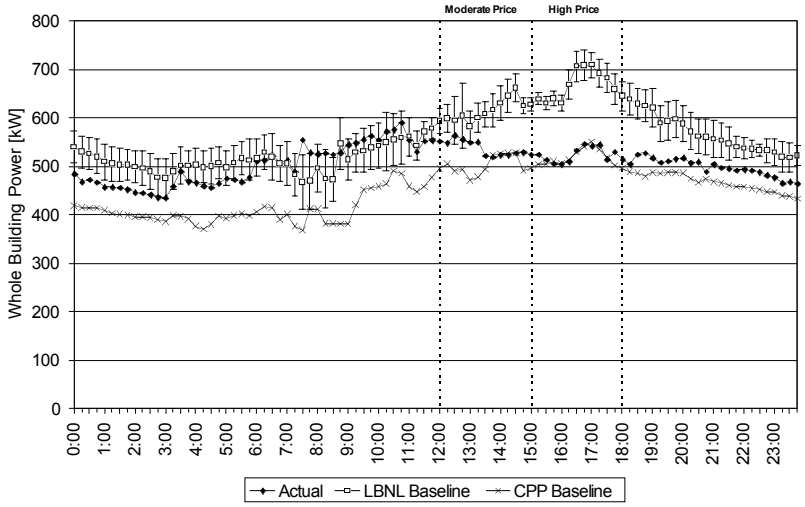
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	125	84	0.73	0.49	20%	14%
	High Price	189	142	1.10	0.82	28%	22%

MDF, 7/24/2006 (Max OAT: 109 °F)



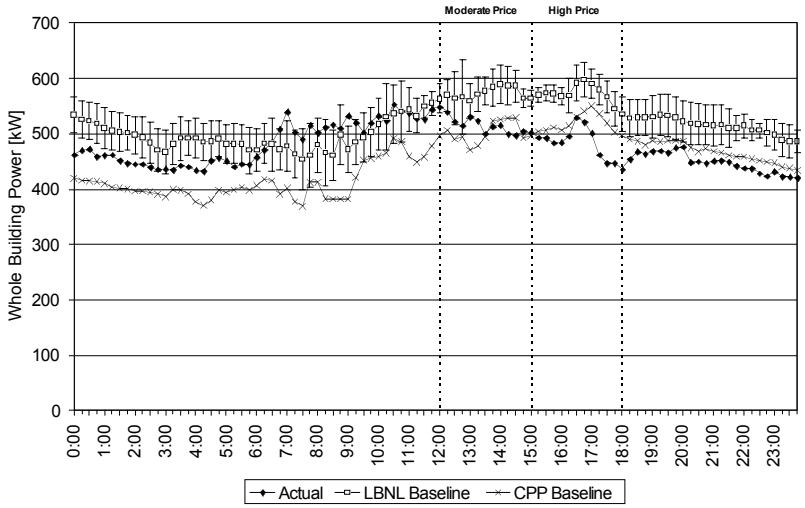
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	139	72	0.80	0.42	21%	11%
	High Price	167	127	0.97	0.73	23%	18%

MDF, 7/25/2006 (Max OAT: 108 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	138	84	0.80	0.49	21%	13%
	High Price	178	148	1.03	0.86	25%	22%

MDF, 7/26/2006 (Max OAT: 96 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	92	62	0.53	0.36	16%	11%
	High Price	122	91	0.71	0.53	21%	16%

D.6. Echelon, San Jose Headquarters

Echelon, San Jose Headquarter

Site Summary

Building Use	Hi-tech office
Industry Classification	Industrial Control Manufacturing
City	San Jose, CA
Gross Floor Area	75,000 ft_
Conditioned Area	75,000 ft_
# of Buildings, floor	1-building, 3-floor
Peak Load kW	403 kW
Peak W/ft_	5.37 W/ft_
Tenant Type	Company employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri
Non-weekday Schedule	Sat&Sun
Building Details	Echelon San Jose Headquarter was built as the company's technologies showcase.

HVAC System Summary

Air Distribution Type	Variable Air Volume
Air Handler Unit	Total 4,800 tons of roof-top units with VFD. One unit per floor.
Cooling Plant	-
Heating Plant	-
HVAC Control System	All the RTU and VAV are controlled with LonWorks.
DDC Zone Control	Yes.
Other Details	All office spaces are equipped with dimmable ballast lightings.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No.
Data Trending Detail	EMCS trend collects electric demand of RTU, receptacles, and total load for each floor.

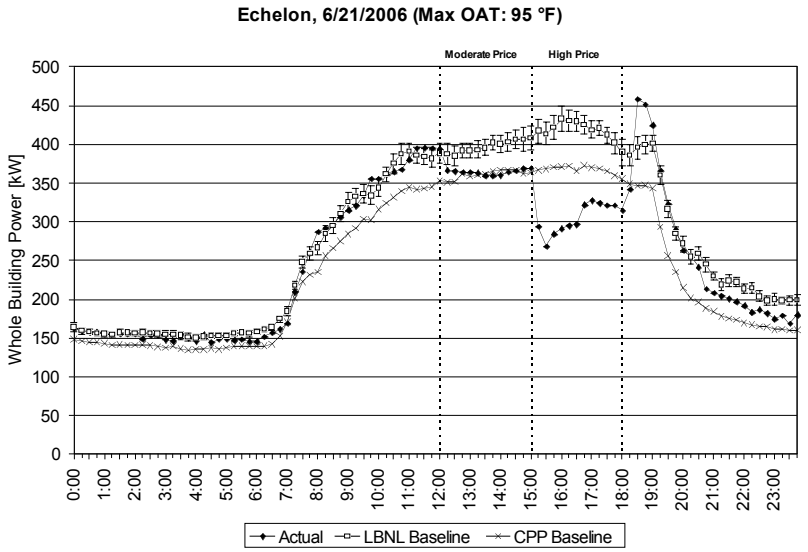
Auto-CPP System Summary

Communication Method		Software client	
Gateway/Relay Device	i.LON	**Client Host Location**	San Francisco, CA
Price Client Host	Kenmark	**Client Hosted at Co-Lo**	No
Price Signal Use		Mod=Yes High=Yes Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ Hallway lighting turned off where there is ambient light _ Daylit office lights turned off. _ Inner office lights dimmed to 20%.	
	High Price	_ 1 of 3 RTU turned off. _ DSP reduced from 1.5" to 0.8" _ SAT increased from 55 to 65°F.	
	Slow Recovery	None.	

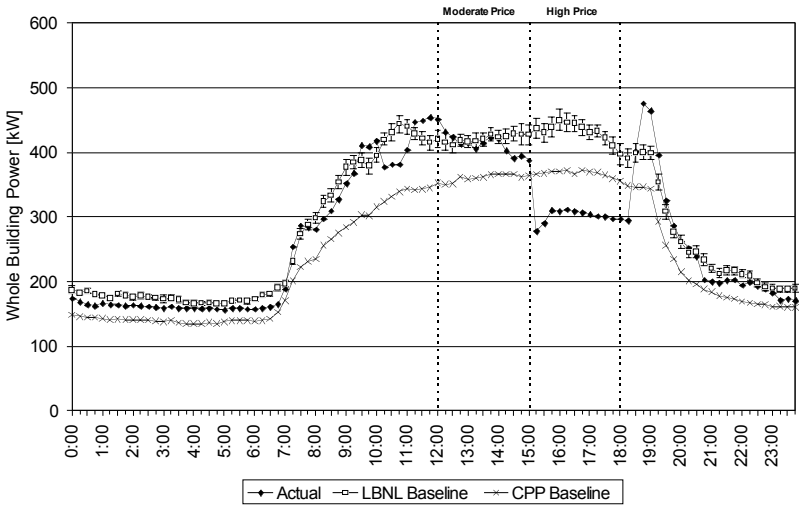
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Succeeded	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

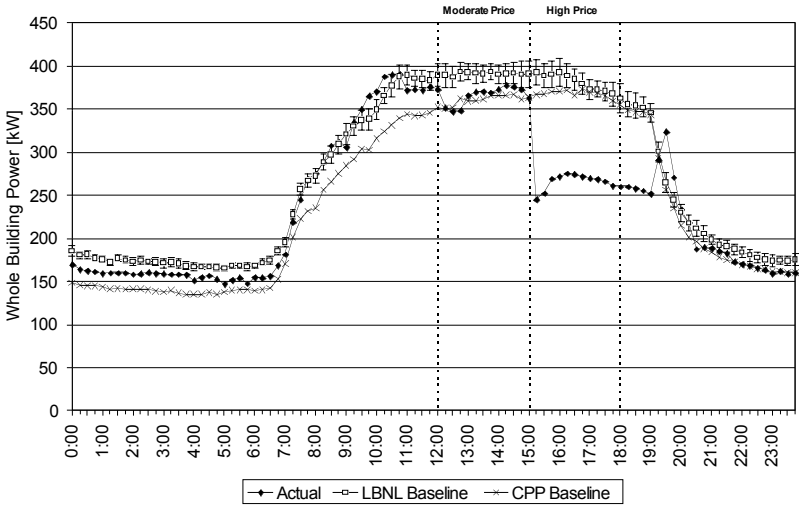
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



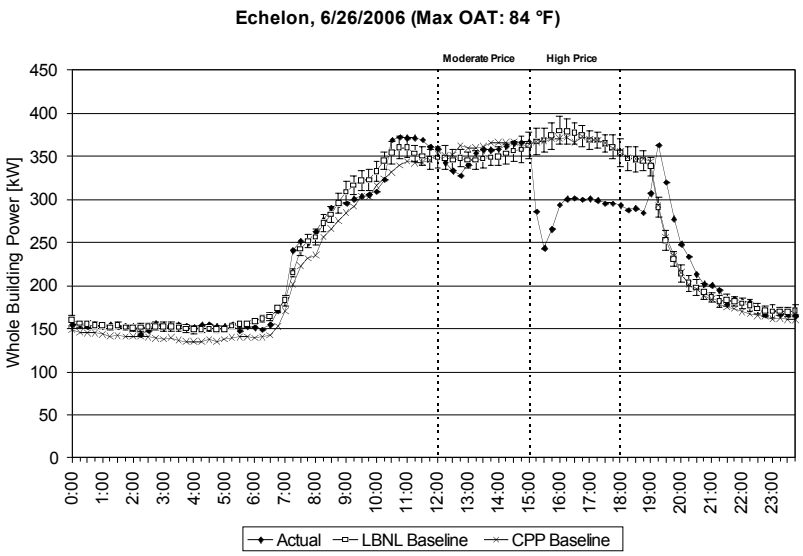
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	**Moderate Price**	44	35	0.58	0.47	11%	9%
	High Price	146	114	1.95	1.52	35%	27%



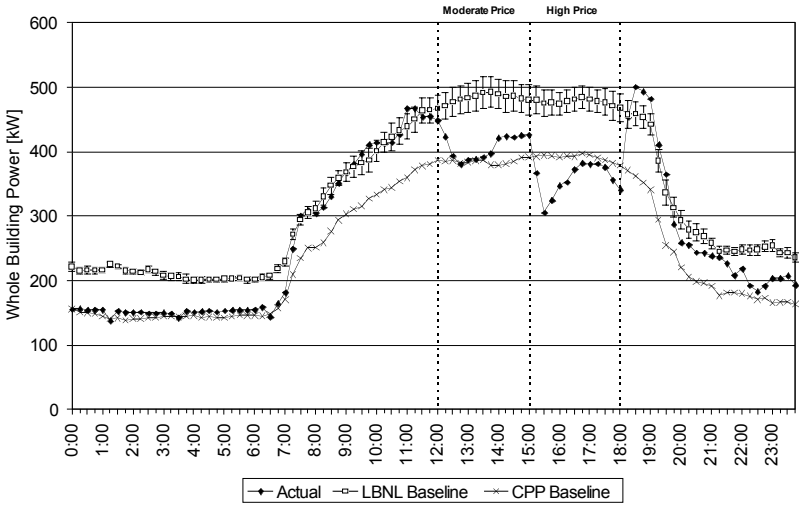
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	38	10	0.51	0.13	9%	2%
	High Price	157	129	2.10	1.72	36%	30%



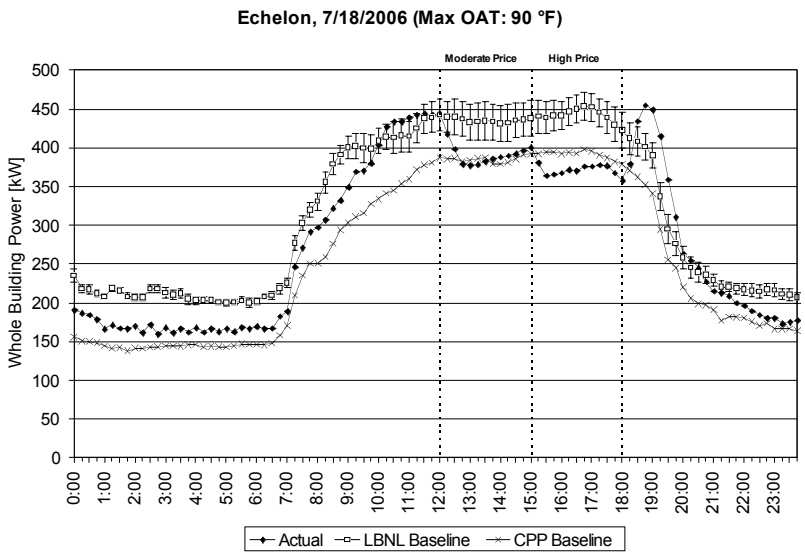
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	48	29	0.64	0.38	12%	7%
	High Price	150	118	2.01	1.57	38%	31%



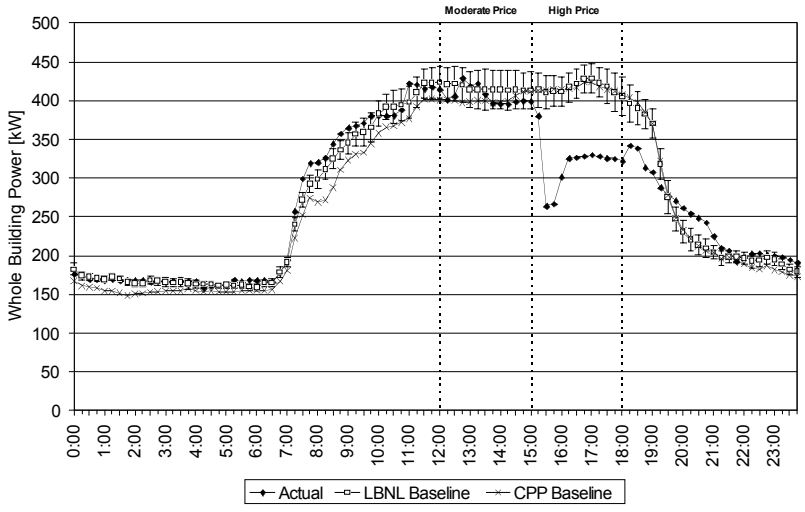
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	20	-2	0.26	-0.02	6%	0%
	High Price	126	80	1.67	1.07	34%	22%



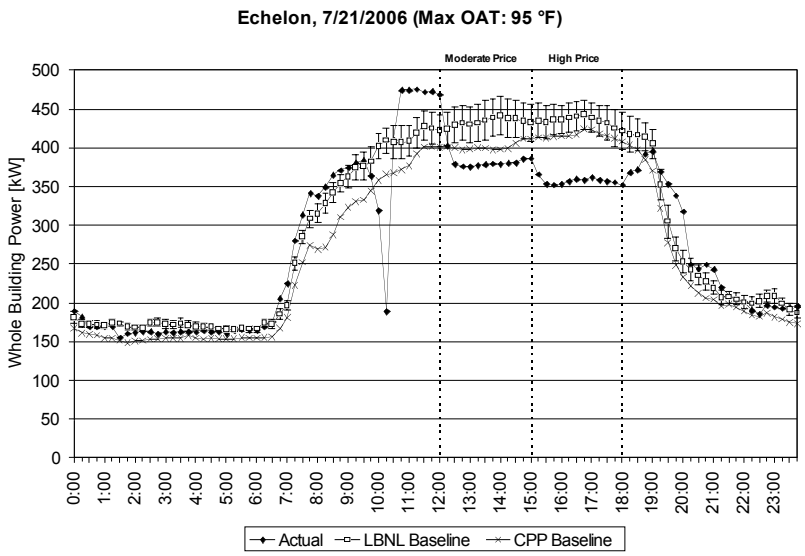
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	104	81	1.39	1.08	21%	17%
	High Price	173	124	2.31	1.65	36%	26%



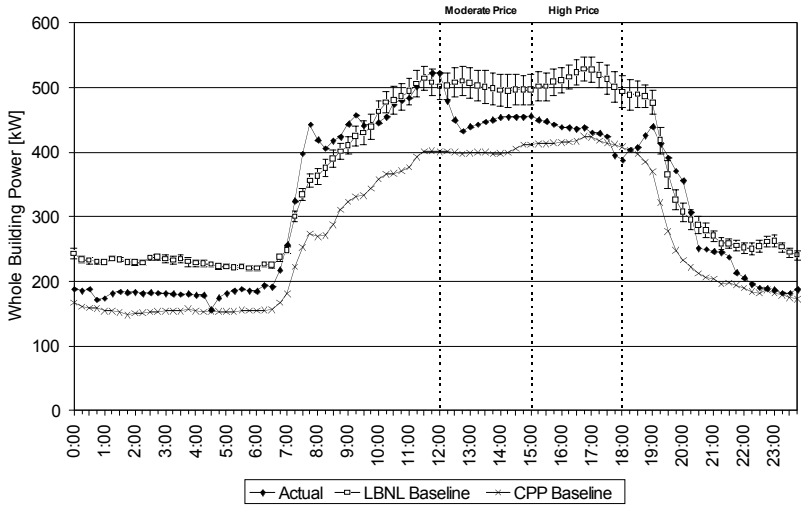
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	60	47	0.80	0.62	14%	11%
	High Price	81	72	1.08	0.97	18%	16%



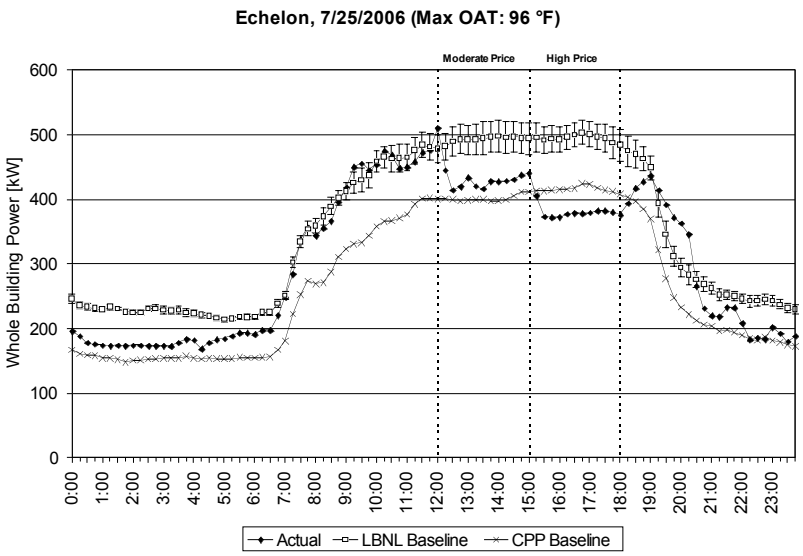
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	22	11	0.30	0.15	5%	3%
	High Price	149	100	1.98	1.33	36%	24%



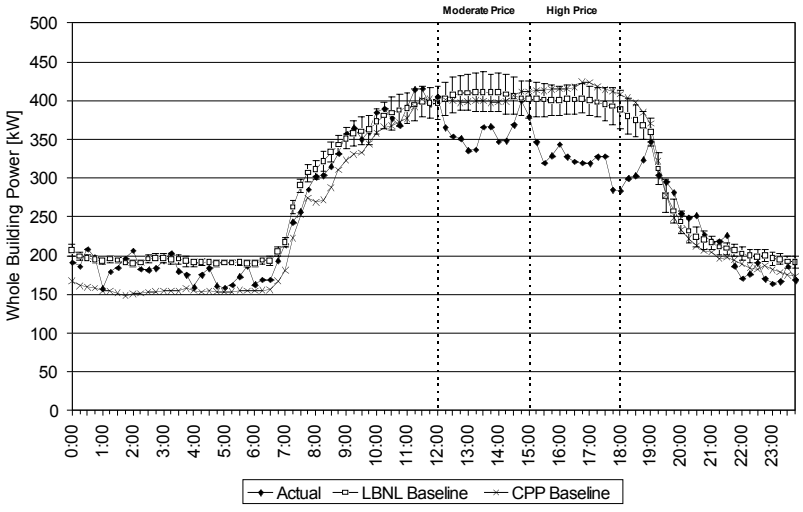
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	64	54	0.86	0.72	15%	12%
	High Price	86	79	1.15	1.06	20%	18%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	79	51	1.06	0.68	15%	10%
	High Price	108	84	1.43	1.12	22%	16%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	81	68	1.09	0.90	16%	14%
	High Price	128	118	1.71	1.57	25%	24%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	77	50	1.03	0.67	19%	12%
	High Price	110	81	1.47	1.07	28%	20%

D.7. Fremont Unified School District, Irvington High School

Fremont Unified School District, Irvington High School

Site Summary

Building Use	Highschool
Industry Classification	Highschool - public
City	Fremont, CA
Gross Floor Area	186,000 ft_
Conditioned Area	186,000 ft_
# of Buildings, floor	1-building, N/A-floor
Peak Load kW	N/A kW
Peak W/ft_	N/A W/ft_
Tenant Type	Teachers, students
Facility Management	Company-owned
Weekday Schedule	Mon-Fri 7:00 a.m. to 4:00 p.m.
Non-weekday Schedule	Off
Building Details	Concrete block walls and flat roof

HVAC System Summary

Air Distribution Type	Constant Volume
Air Handler Unit	Trane hot and chilled water coils
Cooling Plant	Trane Chiller - air cooled
Heating Plant	Boiler
HVAC Control System	Tracer Summit with a small percentage of pneumatic
DDC Zone Control	Tracer Summit
Other Details	None.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=Yes
Data Trending Detail	Circulation loop, room and air supply temperatures

Auto-CPP System Summary

Communication Method		CLIR	
Gateway/Relay Device	CLIR	**Client Host Location**	Onsite
Price Client Host	CLIR	**Client Hosted at Co-Lo**	No
Price Signal Use		Mod=Yes High=Yes Notification=Yes	
Shed Strategies	**Pre-event**	_ Precooling to 72 °F until 11:50 a.m.	
	Moderate Price	_ Raise temperature to 78°F until 2:50 p.m.	
	High Price	_ Turn off systems at 2:50pm. School closes at 3pm. Office areas drift.	
	Slow Recovery	None.	

Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Closed	**22-Jun**	Closed
23-Jun	Closed	**26-Jun**	Closed
17-Jul	Closed	**18-Jul**	Closed
20-Jul	Closed	**21-Jul**	Closed
24-Jul	Closed	**25-Jul**	Closed
26-Jul	Closed	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.

D.8. Gilead Science, 300 Lakeside Dr.

Gilead Science, 300 Lakeside Dr.

Site Summary

Building Use	Office
Industry Classification	Life Sciences Research and Development
City	Foster City, CA
Gross Floor Area	83,000 ft_
Conditioned Area	83,000 ft_
# of Buildings, floor	1-building, 2-floor
Peak Load kW	N/A kW
Peak W/ft_	N/A W/ft_
Tenant Type	Company employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri
Non-weekday Schedule	Sat&Sun
Building Details	Newly constructed building. Occupancy started in Spring 2005.

HVAC System Summary

Air Distribution Type	Variable Air Volume
Air Handler Unit	(4) VFD AHUs.Supply air temp 55 °F.
Cooling Plant	(2) 75 ton rooftop units.
Heating Plant	N/A
HVAC Control System	Siemens
DDC Zone Control	Yes
Other Details	None.

Data Trending

DDC Zone Control	InterAct=No EMCS Trends=Yes Submeter=No
Data Trending Detail	None.

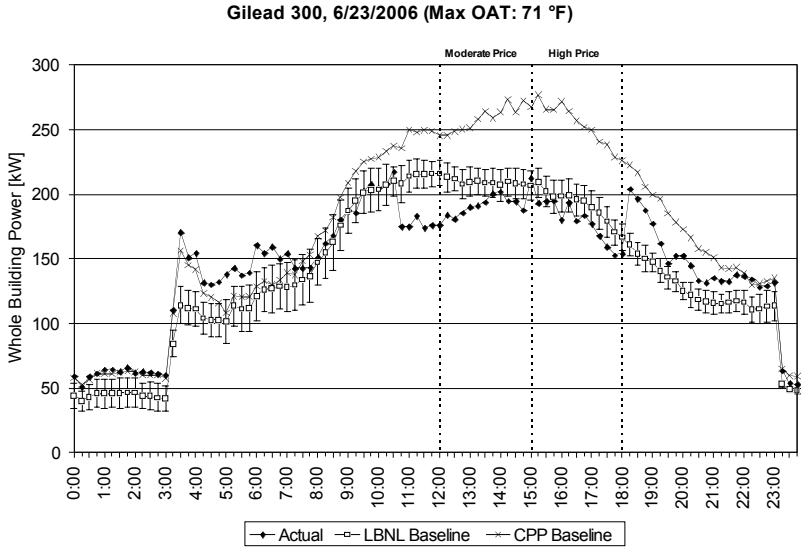
Auto-CPP System Summary

Communication Method		Relay w/WAN	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=No High=No Notification=Yes	
Shed Strategies	**Pre-event**	_ Shed control starts at 11 am.	
	Moderate Price	_ AHU increase SAT from 55°F to 65 °F.	
	High Price	_ Same as moderate price.	
	Slow Recovery	None.	

Event Results

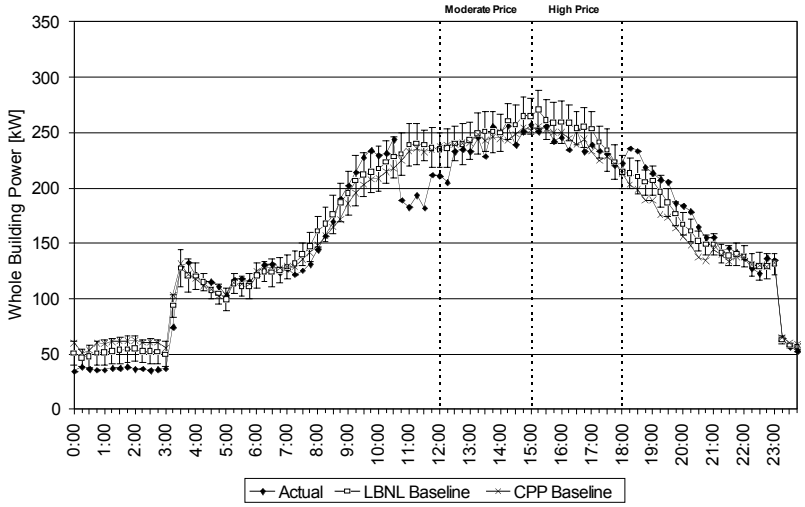
Event Date	Participation	Event Date	Participation
21-Jun	No event	**22-Jun**	No event
23-Jun	Succeeded	**26-Jun**	No event
17-Jul	Not visible	**18-Jul**	Not visible
20-Jul	No event	**21-Jul**	Not visible
24-Jul	Not visible	**25-Jul**	No event
26-Jul	No event	**9-Aug**	Not visible
31-Aug	Not visible	**1-Sep**	Succeeded
22-Sep	Failed (1)		

* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



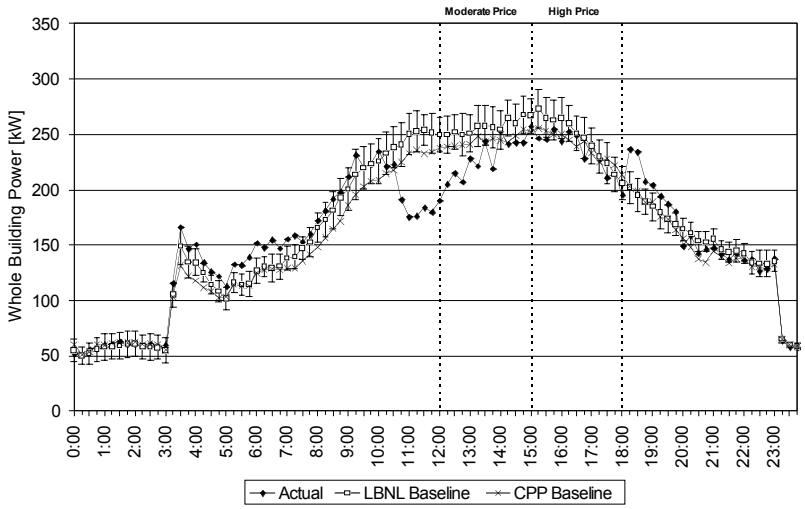
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	**Moderate Price**	34	19	0.41	0.23	16%	9%
	High Price	22	16	0.27	0.19	12%	8%

Gilead 300, 7/17/2006 (Max OAT: 83 °F)



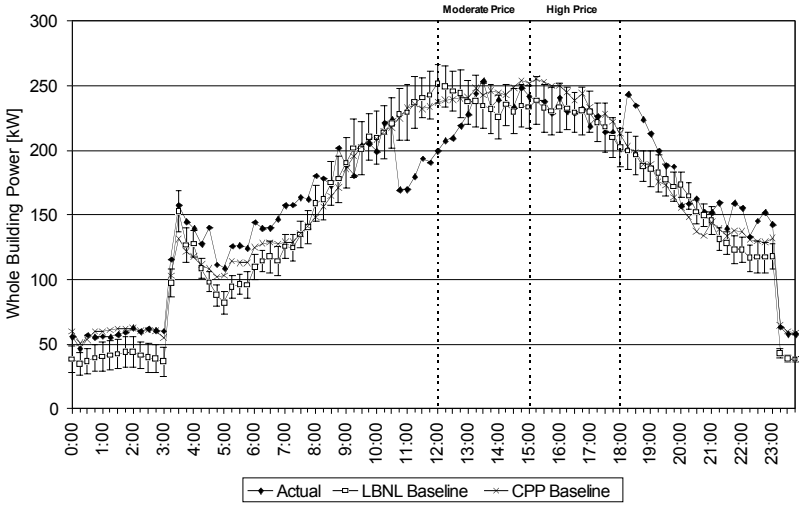
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	35	13	0.42	0.16	14%	5%
	High Price	27	14	0.33	0.16	10%	5%

Gilead 300, 7/18/2006 (Max OAT: 83 °F)



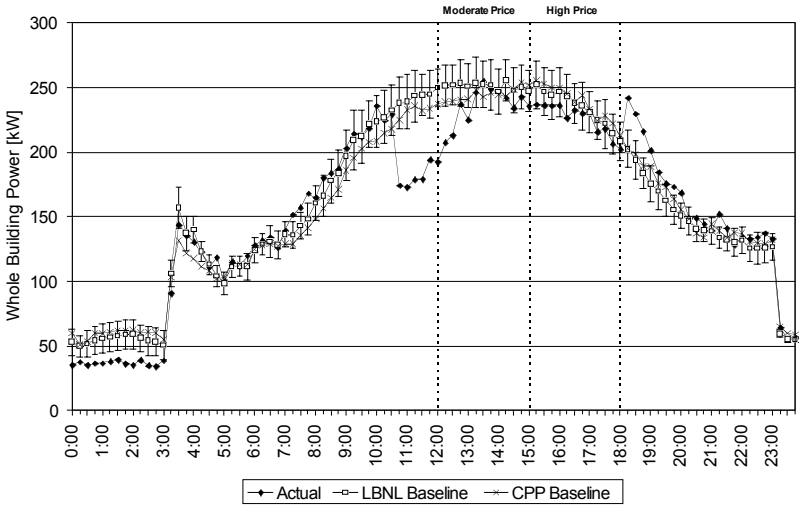
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	48	30	0.58	0.36	19%	12%
	High Price	31	14	0.37	0.17	11%	6%

Gilead 300, 7/21/2006 (Max OAT: 82 °F)



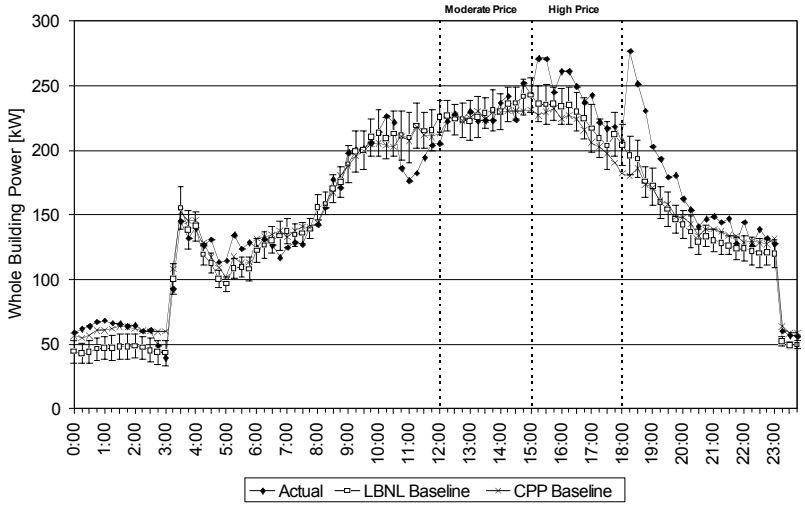
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	47	8	0.56	0.10	18%	3%
	High Price	16	4	0.19	0.05	7%	2%

Gilead 300, 7/24/2006 (Max OAT: 83 °F)



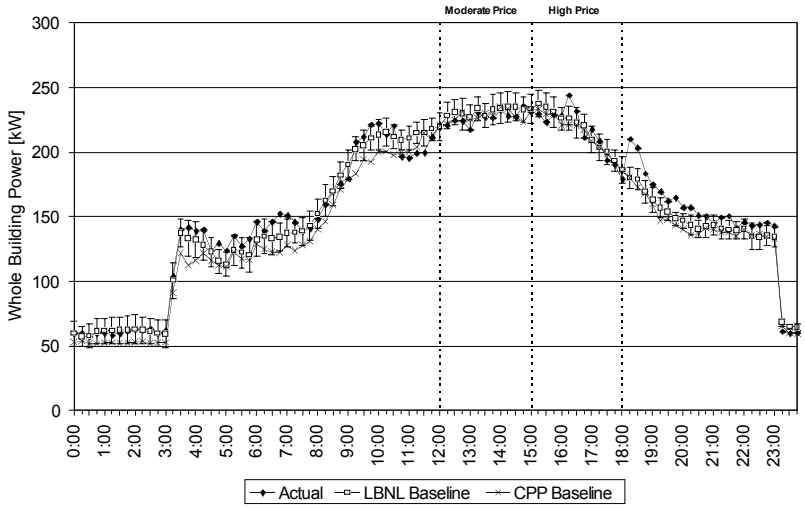
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	49	20	0.59	0.24	19%	8%
	High Price	22	14	0.27	0.16	9%	6%

Gilead 300, 8/9/2006 (Max OAT: 86 °F)



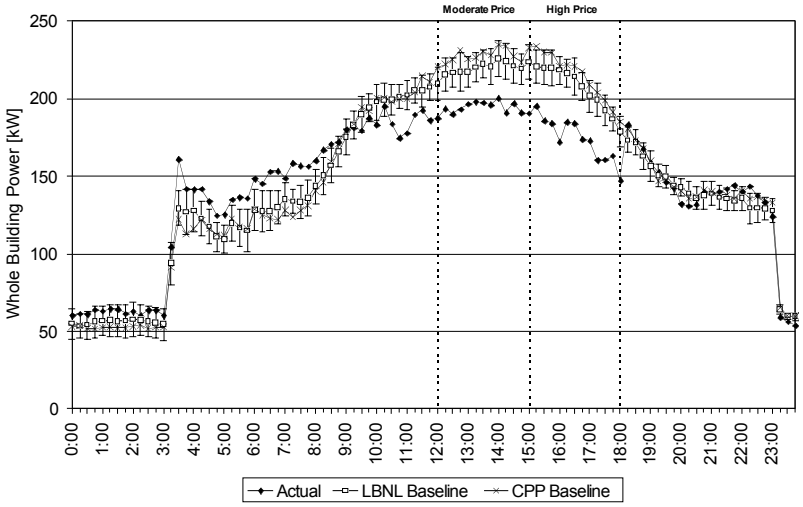
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-09	Moderate Price	15	2	0.18	0.02	6%	1%
	High Price	0	-17	0.00	-0.20	0%	-7%

Gilead 300, 8/31/2006 (Max OAT: 75 °F)



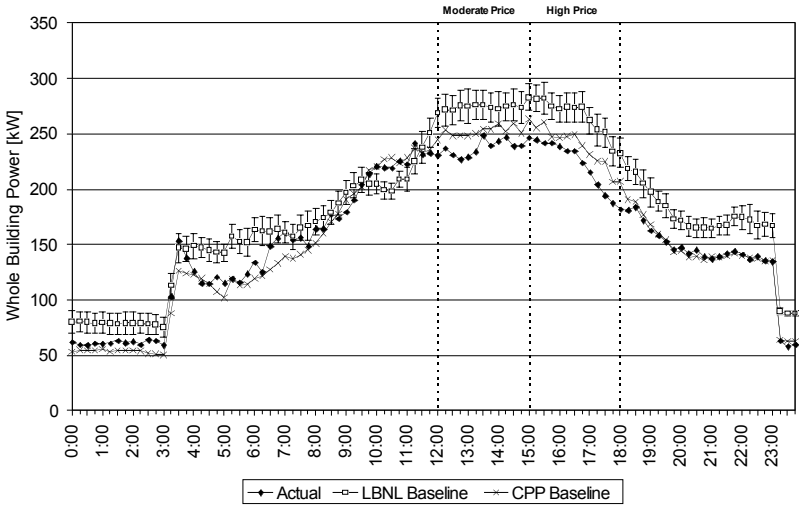
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-31	Moderate Price	11	6	0.13	0.07	5%	2%
	High Price	12	1	0.15	0.02	5%	1%

Gilead 300, 9/1/2006 (Max OAT: 68 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-01	Moderate Price	35	28	0.42	0.34	16%	13%
	High Price	48	35	0.58	0.42	22%	17%

Gilead 300, 9/22/2006 (Max OAT: 76 °F)



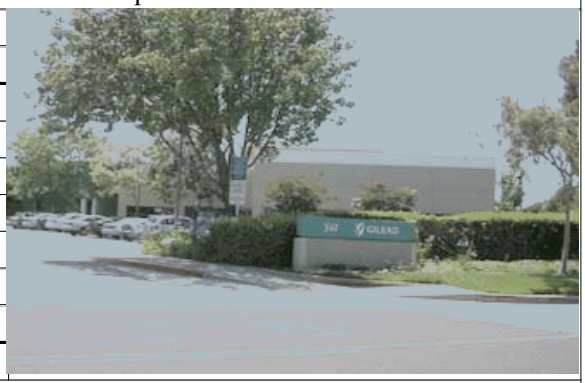
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-22	Moderate Price	47	35	0.57	0.42	17%	13%
	High Price	56	42	0.67	0.51	22%	16%

D.9. Gilead Science, 342 Lakeside Dr.

Gilead Science, 342 Lakeside Dr.

Site Summary

Building Use	Office, Lab
Industry Classification	Life Sciences Research and Development
City	Foster City, CA
Gross Floor Area	32,000 ft_
Conditioned Area	32,000 ft_
# of Buildings, floor	1-building, 1-floor
Peak Load kW	464 kW
Peak W/ft_	14.5 W/ft_
Tenant Type	Company employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri
Non-weekday Schedule	Sat&Sun
Building Details	The building is 40% office, 60% lab space.



HVAC System Summary

Air Distribution Type	Variable Air Volume, Zone setpoint 70~75 °F.
Air Handler Unit	(4) VFD AHUs.Supply air temp 55 °F.
Cooling Plant	(2) 125 ton chillers.
Heating Plant	N/A
HVAC Control System	Siemens
DDC Zone Control	Yes
Other Details	None.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	None.

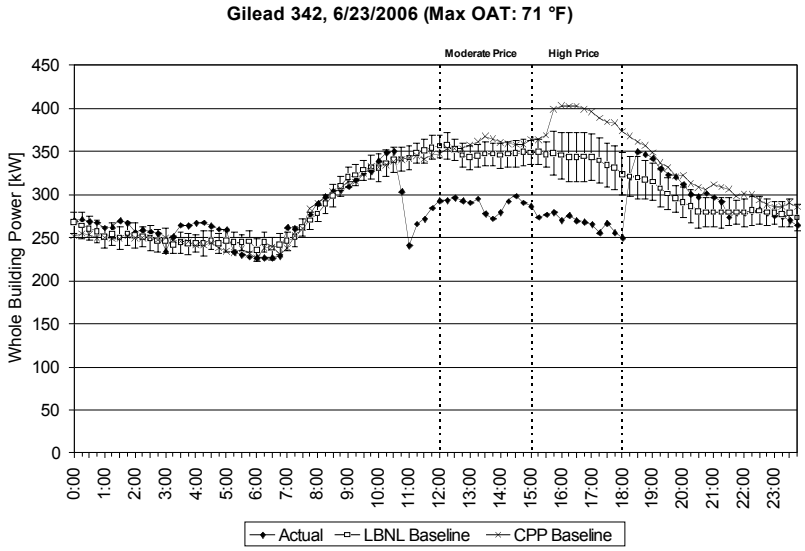
Auto-CPP System Summary

Communication Method		Relay w/WAN	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=No High=No Notification=Yes	
Shed Strategies	**Pre-event**	_ Shed control starts at 11 am.	
	Moderate Price	_ AHU increase SAT from 55°F to 65 °F. _ Zone setpoint increase to 75°F (70 ~ 75 °F normal).	
	High Price	_ Same as moderate price.	
	Slow Recovery	None.	

Event Results

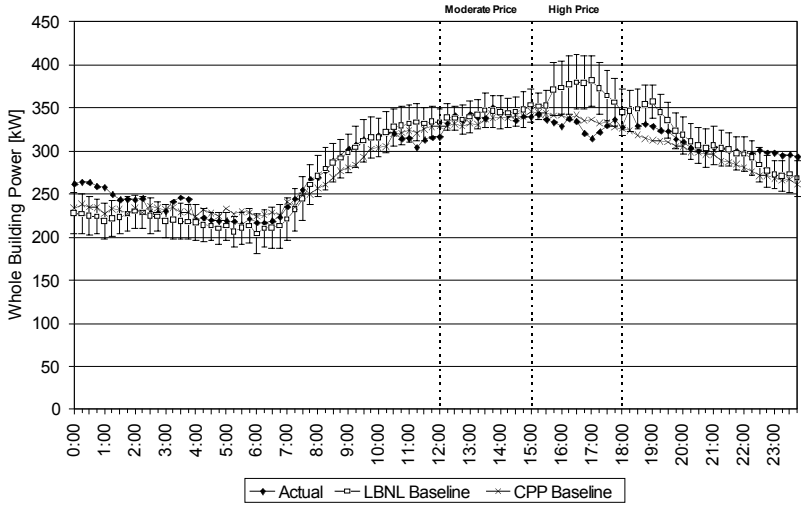
Event Date	Participation	Event Date	Participation
21-Jun	No event	**22-Jun**	No event
23-Jun	Succeeded	**26-Jun**	No event
17-Jul	Succeeded	**18-Jul**	Not visible
20-Jul	No event	**21-Jul**	Not visible
24-Jul	Not visible	**25-Jul**	No event
26-Jul	No event	**9-Aug**	Not visible
31-Aug	Succeeded	**1-Sep**	Succeeded
22-Sep	Failed (1)		

* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



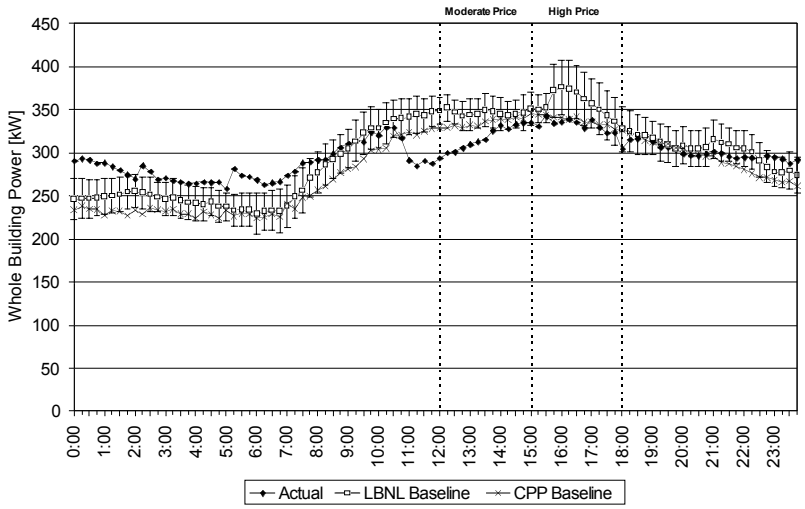
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	**Moderate Price**	78	62	2.43	1.94	22%	18%
	High Price	87	77	2.71	2.39	25%	22%

Gilead 342, 7/17/2006 (Max OAT: 83 °F)



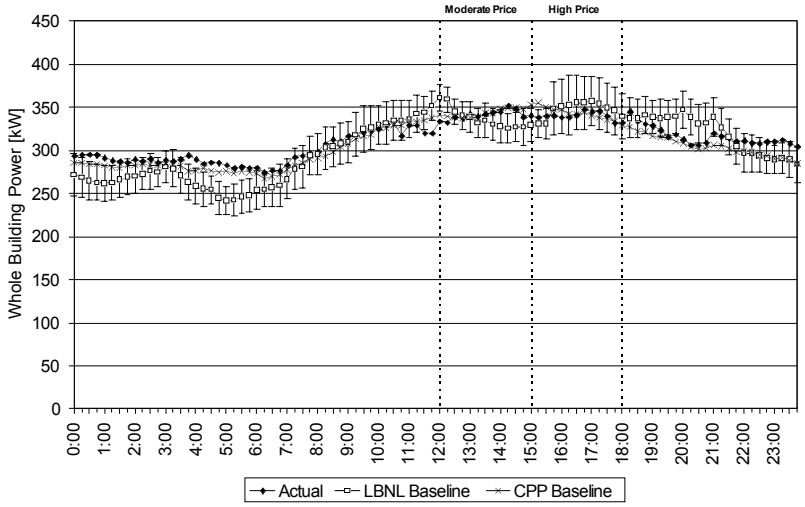
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	14	5	0.45	0.14	4%	1%
	High Price	68	38	2.13	1.18	18%	10%

Gilead 342, 7/18/2006 (Max OAT: 83 °F)



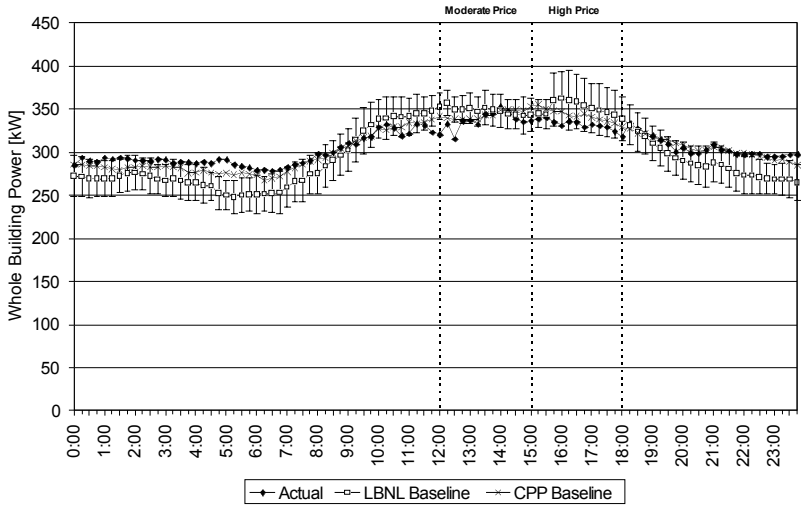
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	54	29	1.69	0.91	15%	8%
	High Price	42	27	1.32	0.86	11%	8%

Gilead 342, 7/21/2006 (Max OAT: 82 °F)



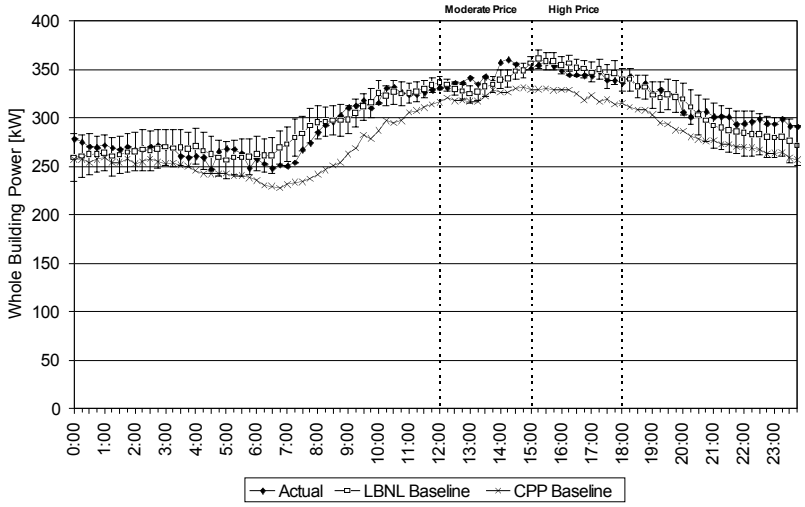
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	28	-6	0.88	-0.18	8%	-2%
	High Price	16	9	0.50	0.28	5%	2%

Gilead 342, 7/24/2006 (Max OAT: 83 °F)



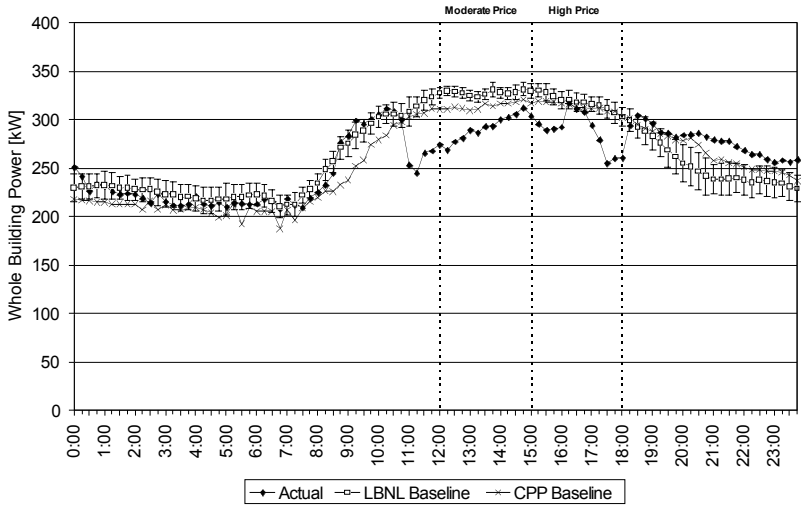
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	36	12	1.12	0.37	10%	3%
	High Price	33	21	1.04	0.66	9%	6%

Gilead 342, 8/9/2006 (Max OAT: 86 °F)



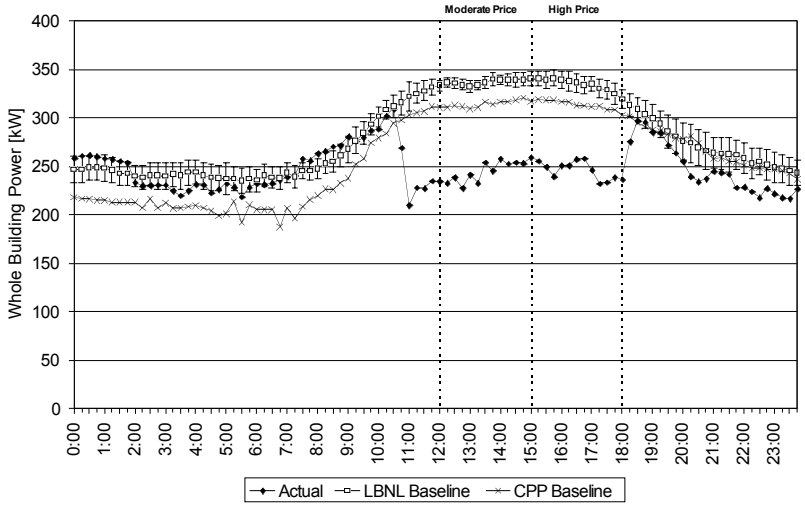
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-09	Moderate Price	5	-8	0.15	-0.24	1%	-2%
	High Price	12	5	0.37	0.16	3%	1%

Gilead 342, 8/31/2006 (Max OAT: 75 °F)



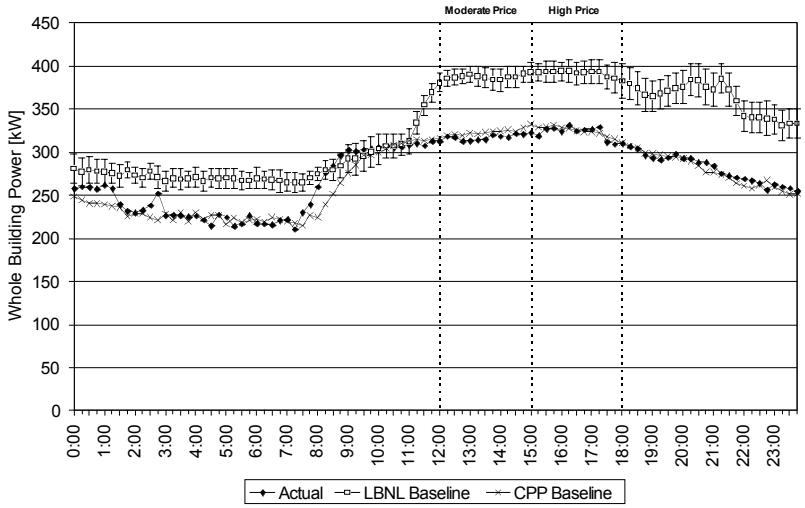
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-31	Moderate Price	61	35	1.91	1.11	19%	11%
	High Price	57	30	1.77	0.94	18%	9%

Gilead 342, 9/1/2006 (Max OAT: 68 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-01	Moderate Price	110	95	3.44	2.97	33%	28%
	High Price	105	92	3.28	2.87	30%	27%

Gilead 342, 9/22/2006 (Max OAT: 76 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-22	Moderate Price	77	70	2.39	2.18	20%	18%
	High Price	77	69	2.39	2.15	20%	18%

D.10. Gilead Science, 357 Lakeside Dr.

Gilead Science, 357 Lakeside Dr.

Site Summary

Building Use	Office, Lab
Industry Classification	Life Sciences Research and Development
City	Foster City, CA
Gross Floor Area	33,000 ft_
Conditioned Area	33,000 ft_
# of Buildings, floor	1-building, 1-floor
Peak Load kW	664 kW
Peak W/ft_	20.12 W/ft_
Tenant Type	Company employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri
Non-weekday Schedule	Sat&Sun
Building Details	The building is 40% office, 60% lab space.

HVAC System Summary

Air Distribution Type	Variable Air Volume
Air Handler Unit	VFD AHUs. Supply air temp 55 °F.
Cooling Plant	(1) 225 ton chiller (1) 325 ton chiller
Heating Plant	N/A
HVAC Control System	Siemens
DDC Zone Control	Yes
Other Details	None.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	None.

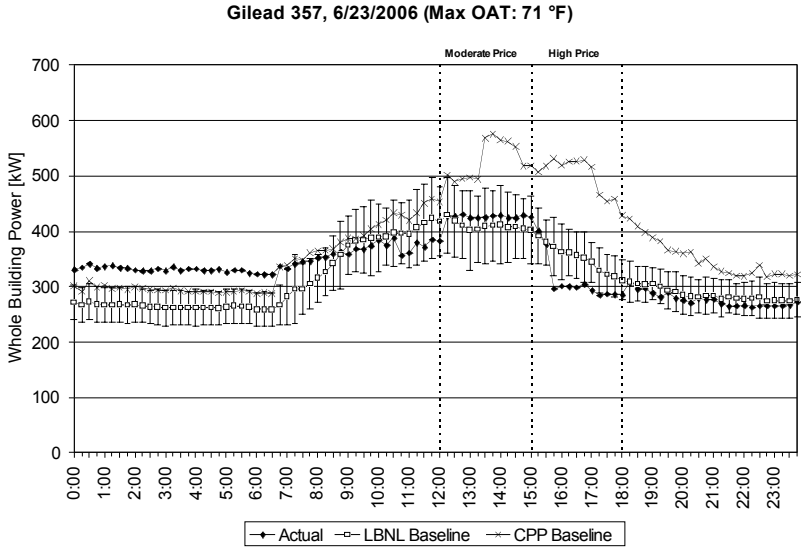
Auto-CPP System Summary

Communication Method		Relay w/WAN	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=No High=No Notification=Yes	
Shed Strategies	**Pre-event**	_ Shed control starts at 11 am.	
	Moderate Price	_ AHU SAT increased from 55°F to 65 °F. _ Zone setpoint increased to 75°F (70 ~ 75 °F normal).	
	High Price	_ Same as moderate price.	
	Slow Recovery	None.	

Event Results

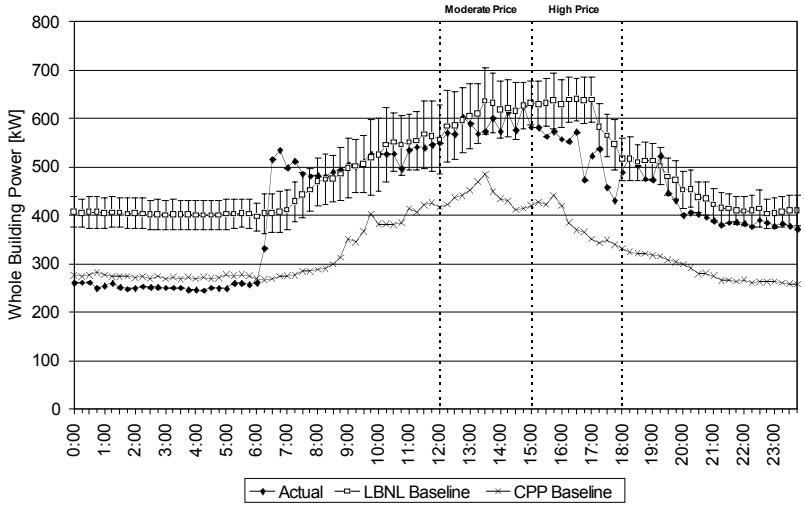
Event Date	Participation	Event Date	Participation
21-Jun	No event	**22-Jun**	No event
23-Jun	Not visible	**26-Jun**	No event
17-Jul	Succeeded	**18-Jul**	Not visible
20-Jul	No event	**21-Jul**	Not visible
24-Jul	Not visible	**25-Jul**	No event
26-Jul	No event	**9-Aug**	Not visible
31-Aug	Not visible	**1-Sep**	Not visible
22-Sep	Failed (1)		

* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



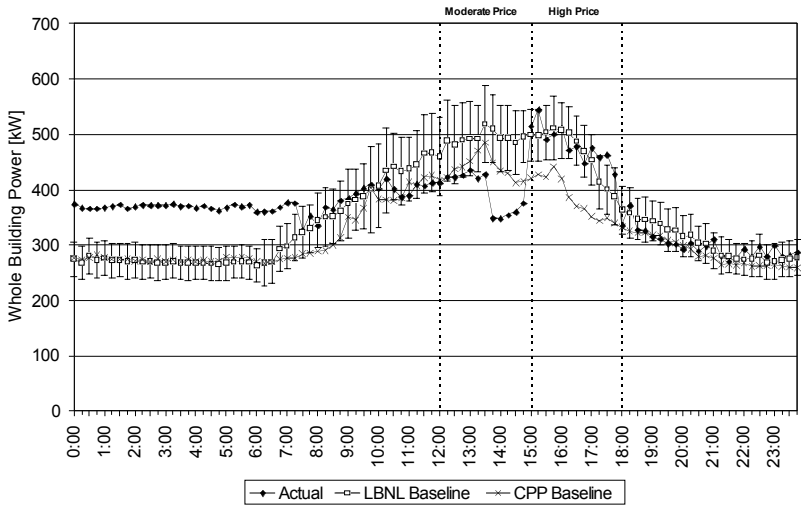
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	5	-14	0.14	-0.42	1%	-3%
	High Price	79	44	2.39	1.32	21%	12%

Gilead 357, 7/17/2006 (Max OAT: 83 °F)



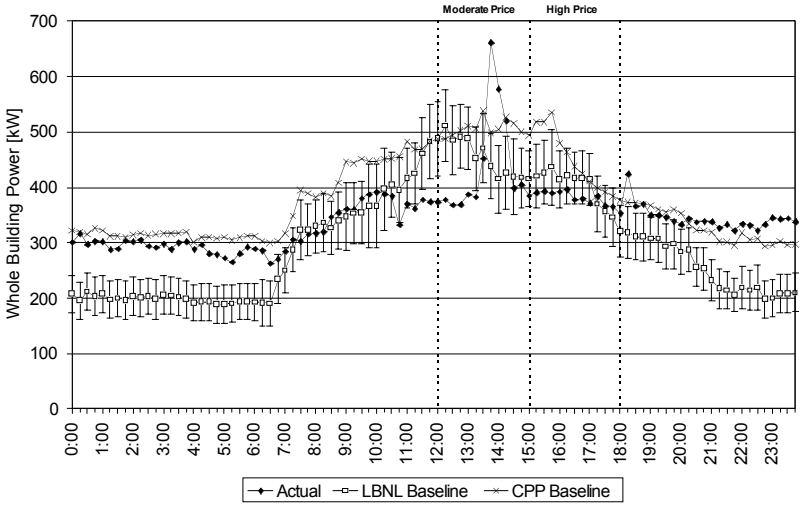
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	67	30	2.02	0.92	10%	5%
	High Price	167	86	5.06	2.59	26%	14%

Gilead 357, 7/18/2006 (Max OAT: 83 °F)



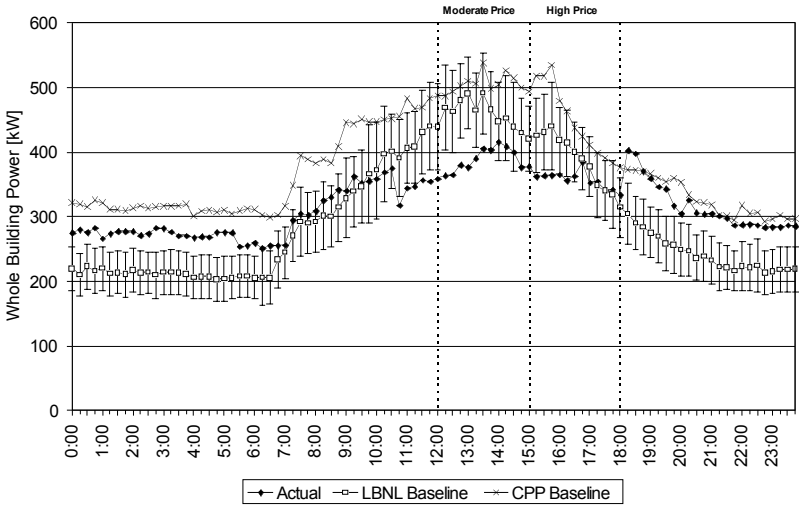
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	165	94	5.00	2.84	32%	19%
	High Price	35	-5	1.07	-0.15	9%	-1%

Gilead 357, 7/21/2006 (Max OAT: 82 °F)



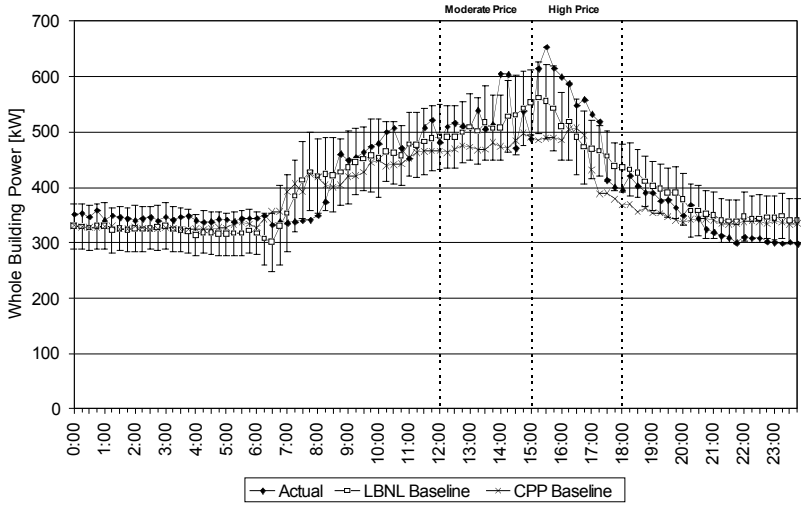
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	138	17	4.20	0.51	27%	3%
	High Price	52	22	1.58	0.66	12%	5%

Gilead 357, 7/24/2006 (Max OAT: 83 °F)



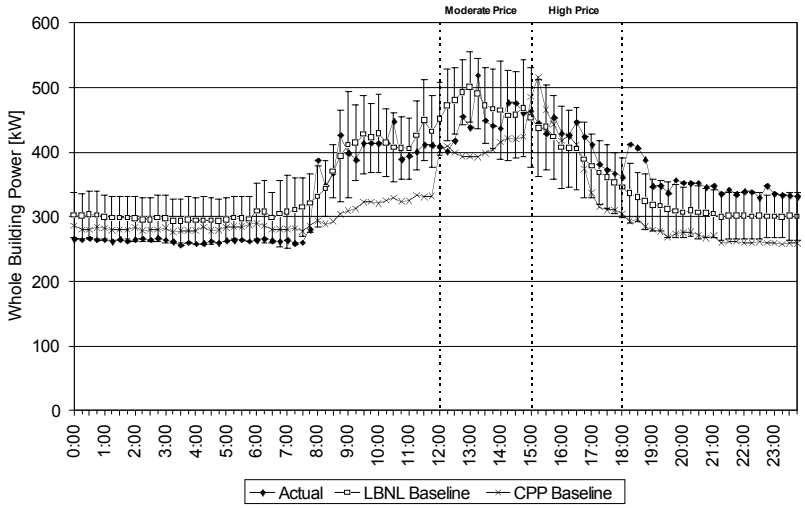
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	120	77	3.65	2.33	24%	16%
	High Price	82	35	2.48	1.06	18%	8%

Gilead 357, 8/9/2006 (Max OAT: 86 °F)



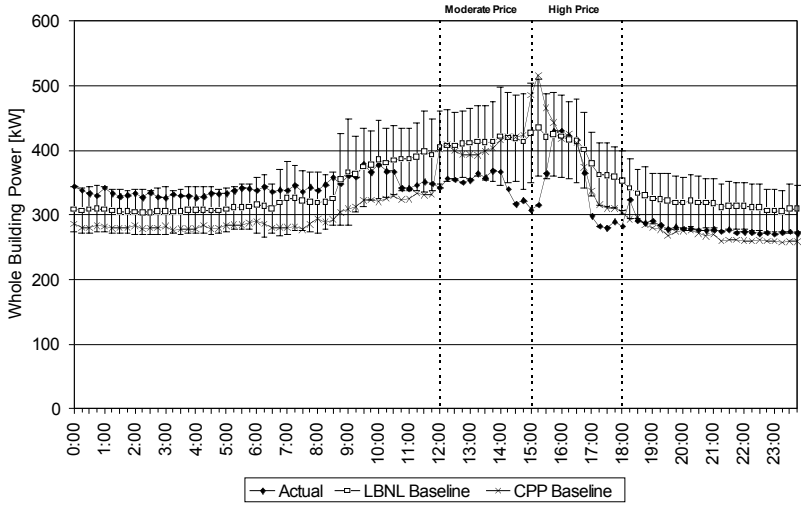
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-09	Moderate Price	65	-12	1.97	-0.36	12%	-2%
	High Price	42	-45	1.26	-1.36	9%	-9%

Gilead 357, 8/31/2006 (Max OAT: 75 °F)



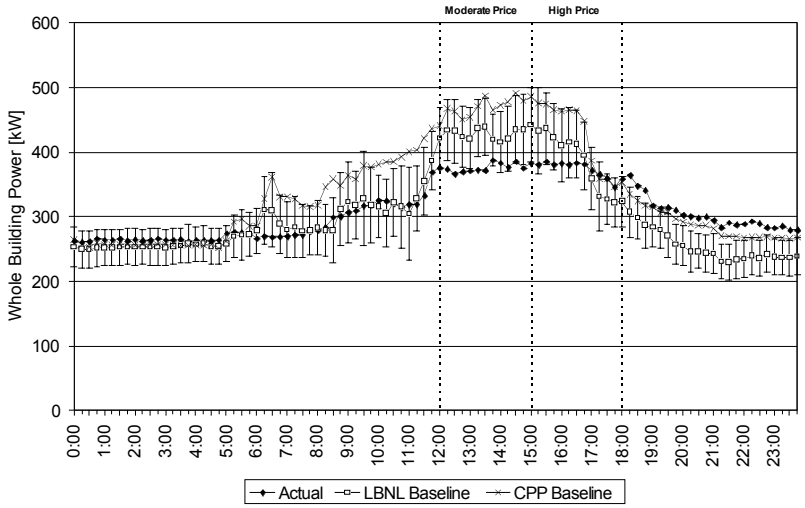
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-31	Moderate Price	72	21	2.18	0.65	15%	4%
	High Price	11	-18	0.33	-0.56	2%	-5%

Gilead 357, 9/1/2006 (Max OAT: 68 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-01	Moderate Price	122	71	3.68	2.16	28%	17%
	High Price	123	51	3.74	1.55	28%	13%

Gilead 357, 9/22/2006 (Max OAT: 76 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-22	Moderate Price	67	53	2.03	1.61	15%	12%
	High Price	52	9	1.58	0.28	12%	1%

D.11. IKEA, East Palo Alto Store

IKEA, East Palo Alto Store

Site Summary

Building Use	Furniture retail
Industry Classification	Furniture store
City	East Palo Alto, CA
Gross Floor Area	300,000 ft_
Conditioned Area	300,000 ft_
# of Buildings, floor	1-building, 2-floor
Peak Load kW	2238 kW
Peak W/ft_	7.46 W/ft_
Tenant Type	Customers, employees
Facility Management	Company-owned
Weekday Schedule	4am-10pm (Customers from 10am-9pm)
Non-weekday Schedule	None
Building Details	Two-story building with a large sales area on both floors with a cafeteria and a restaurant on site. Smaller office space on the second floor with larger storage spce in the first floor. The facility has an attached two-story garage.

HVAC System Summary

Air Distribution Type	Multi-zone Variable Air Volume
Air Handler Unit	(43) Rooftop DX cooling units. DDC.
Cooling Plant	-
Heating Plant	-
HVAC Control System	NOVAR System
DDC Zone Control	Yes
Other Details	There are incandescent lights for store hours, and fluorescent lights for non-store hours. The lighting system is controlled by schedules offered by smart panels.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	The EMCS collects the following data for each RTU: percentage (supply fan, cooling stages 1 and 2, heating stages 1 and 2, damper position), space and supply air temperatures.

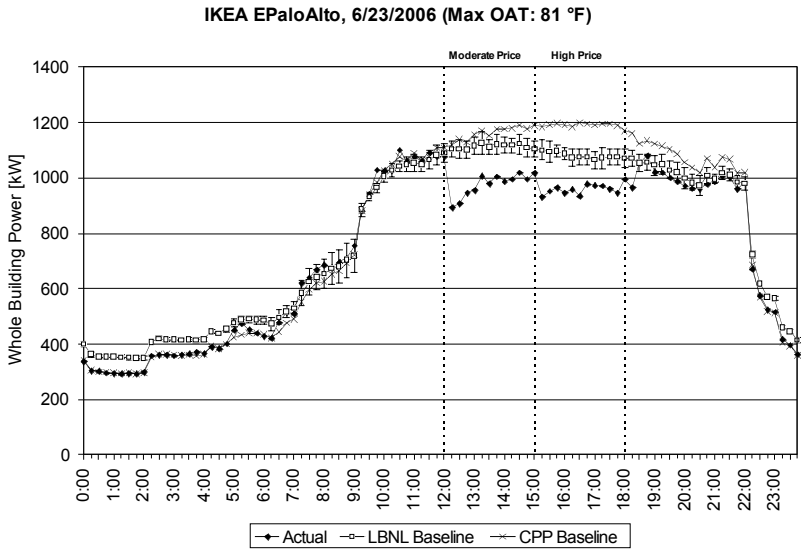
Auto-CPP System Summary

Communication Method		Relay at site	
Gateway/Relay Device	ADAM6060	**Client Host Location**	DRAS Co-Lo
Price Client Host	DRAS	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=Yes High=No Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ Zone setpoint increased 2 °F at each RTU.	
	High Price	_ Zone setpoints increased to 76 °F.	
	Slow Recovery	None.	

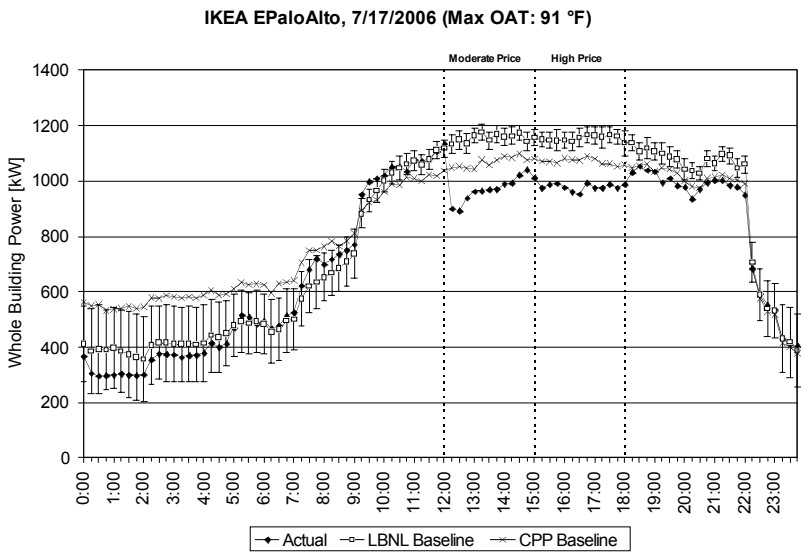
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	No event	**22-Jun**	No event
23-Jun	Succeeded	**26-Jun**	No event
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	No event	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	No event
26-Jul	No event	**9-Aug**	Not visible
31-Aug	Not visible	**1-Sep**	Not visible
22-Sep	Succeeded		

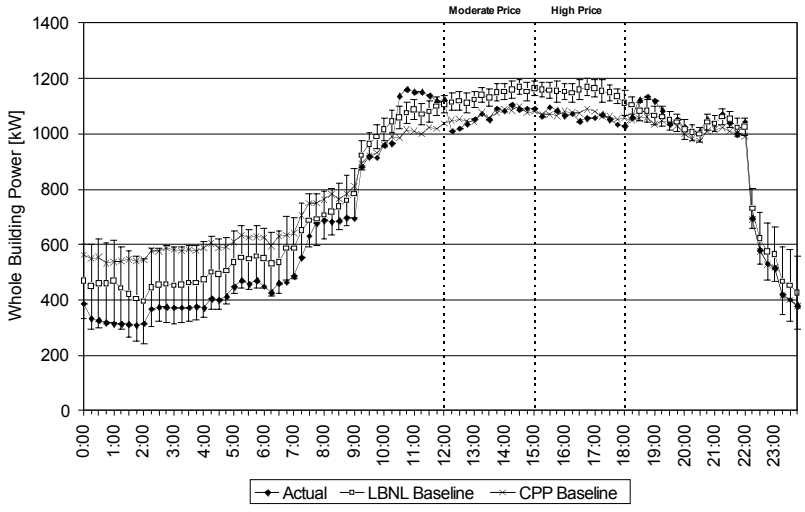
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



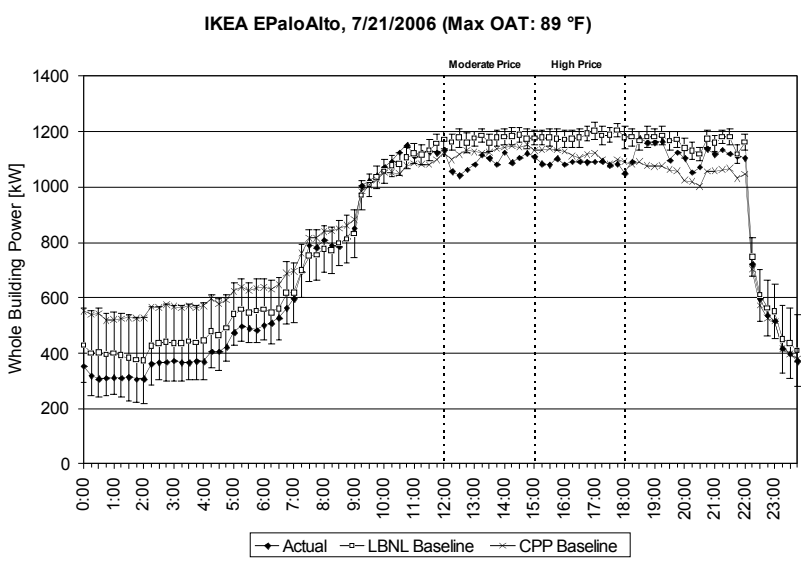
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	**Moderate Price**	211	137	0.70	0.46	19%	12%
	High Price	167	120	0.56	0.40	15%	11%



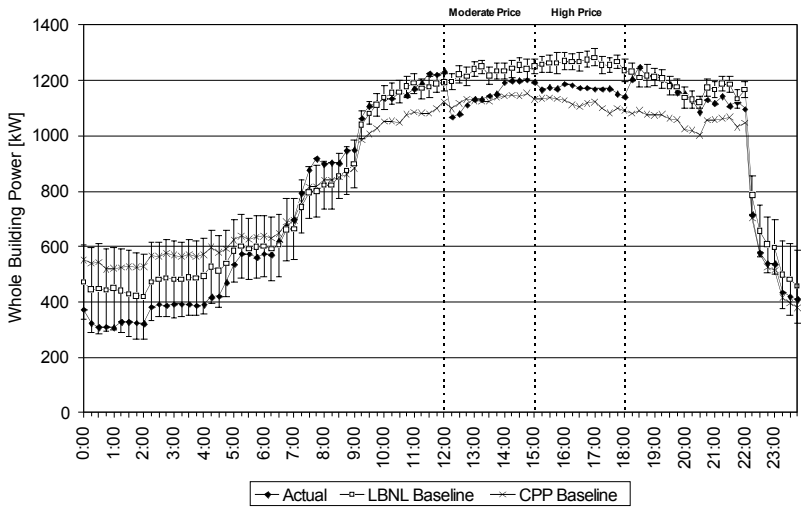
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	256	184	0.85	0.61	22%	16%
	High Price	204	175	0.68	0.58	18%	15%



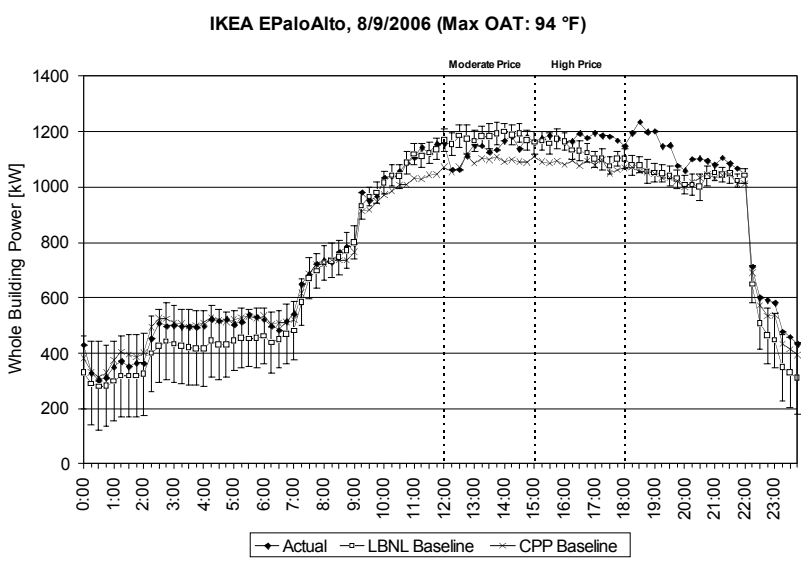
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	104	74	0.35	0.25	9%	6%
	High Price	113	90	0.38	0.30	10%	8%



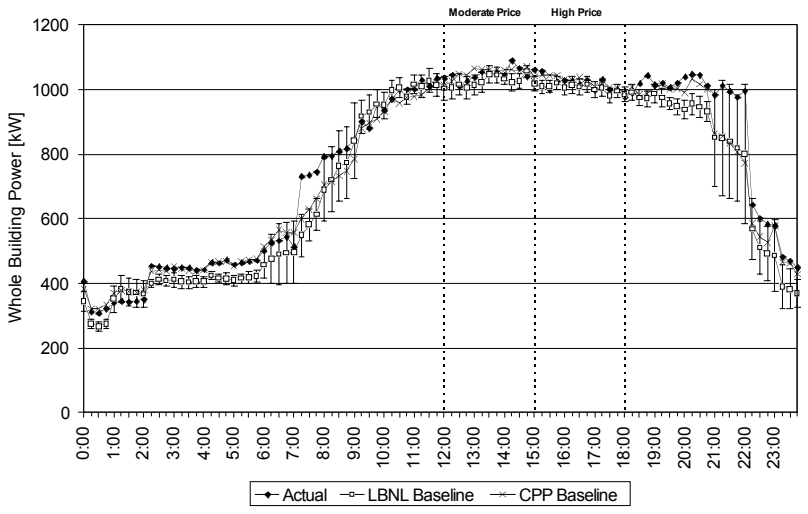
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	135	83	0.45	0.28	11%	7%
	High Price	128	98	0.43	0.33	11%	8%



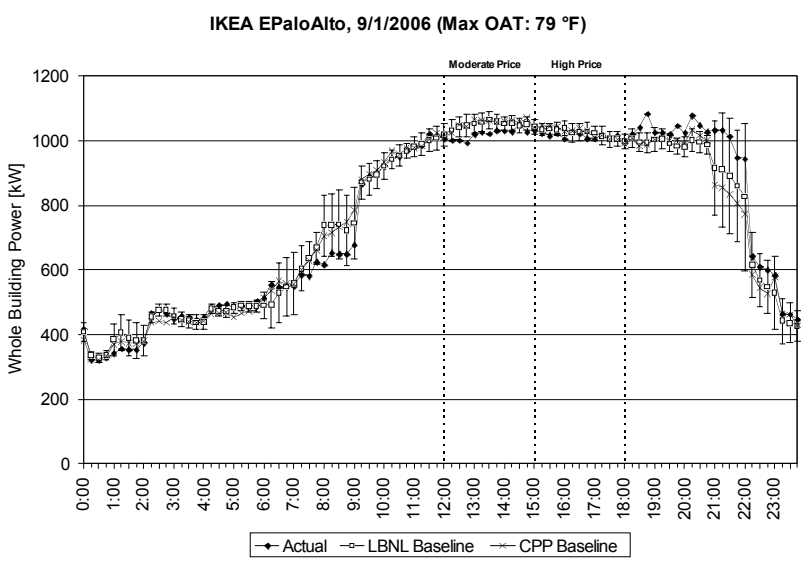
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	142	82	0.47	0.27	12%	7%
	High Price	116	93	0.39	0.31	9%	7%



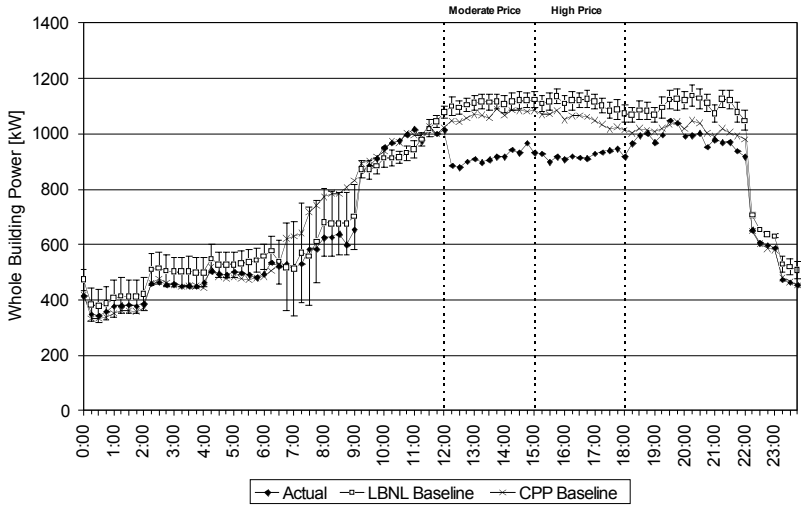
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-09	Moderate Price	122	43	0.41	0.14	10%	4%
	High Price	1	-49	0.00	-0.16	0%	-4%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Aug-31	Moderate Price	16	-22	0.05	-0.07	1%	-2%
	High Price	9	-12	0.03	-0.04	1%	-1%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-01	Moderate Price	36	9	0.12	0.03	3%	1%
	High Price	23	-5	0.08	-0.02	2%	0%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Sep-22	Moderate Price	123	100	0.41	0.33	12%	10%
	High Price	118	94	0.39	0.31	12%	9%

D.12. Oracle Corporation, Rocklin

Oracle Corporation, Rocklin

Site Summary

Building Use	Office
Industry Classification	Software publisher
City	Rocklin, CA
Gross Floor Area	100,061 ft_
Conditioned Area	100,061 ft_
# of Buildings, floor	2-building, 3-floor
Peak Load kW	552 kW
Peak W/ft_	5.52 W/ft_
Tenant Type	Company employees
Facility Management	Company-owned
Weekday Schedule	Mon-Fri: 7am - 6pm
Non-weekday Schedule	Sat&Sun
Building Details	Single building, occupied by Oracle only. Two full floors plus a concourse area with a 20,000 sqft. footprint. Standard office use with one small lab (444sqft.)

HVAC System Summary

Air Distribution Type	Variable Air Volume
Air Handler Unit	(6) Roof-top units (6) return fans. DDC.
Cooling Plant	N/A
Heating Plant	(1) 3000 Mbtu/h gas hot water boiler . Hot water temp: 160 °F. Heating lockout when OAT is over 80 °F.
HVAC Control System	Tracer Summit. Viewable onsite and offsite.
DDC Zone Control	Yes.
Other Details	N/A

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	None.

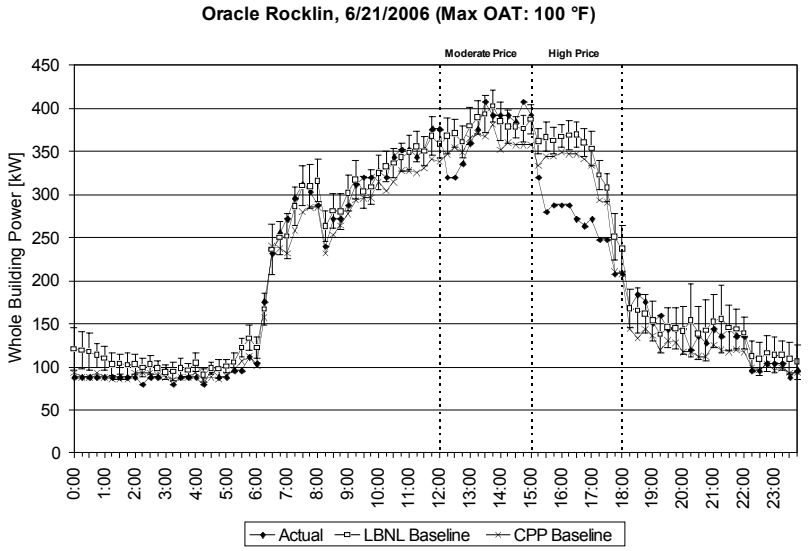
Auto-CPP System Summary

Communication Method		CLIR	
Gateway/Relay Device	CLIR	**Client Host Location**	Onsite
Price Client Host	CLIR	**Client Hosted at Co-Lo**	No
Price Signal Use		Mod=Yes High=Yes Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ DSP reduced 20% at supply fans.	
	High Price	_ Zone setpoints increased 3°F.	
	Slow Recovery	None.	

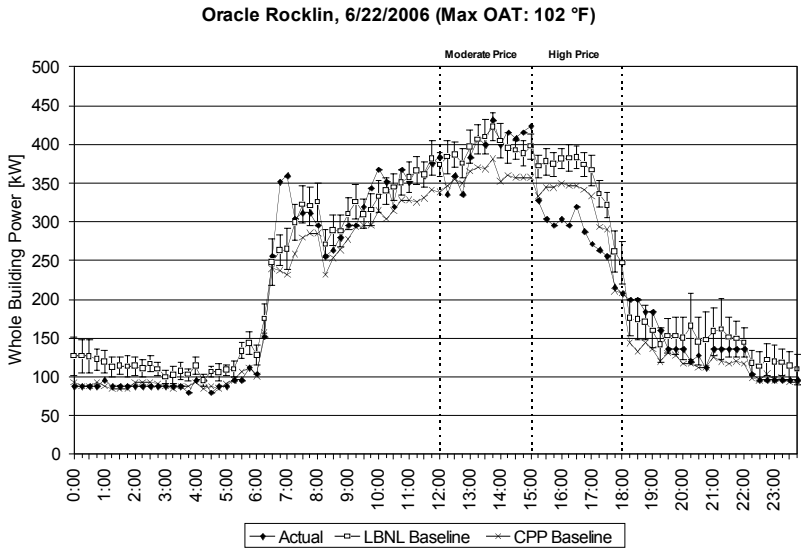
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Succeeded	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

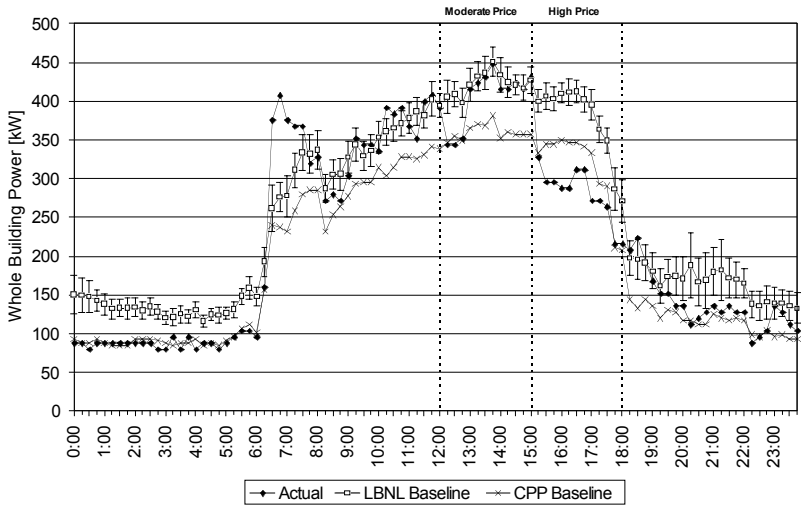
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	**Moderate Price**	55	12	0.55	0.12	15%	3%
	High Price	102	74	1.02	0.74	28%	22%

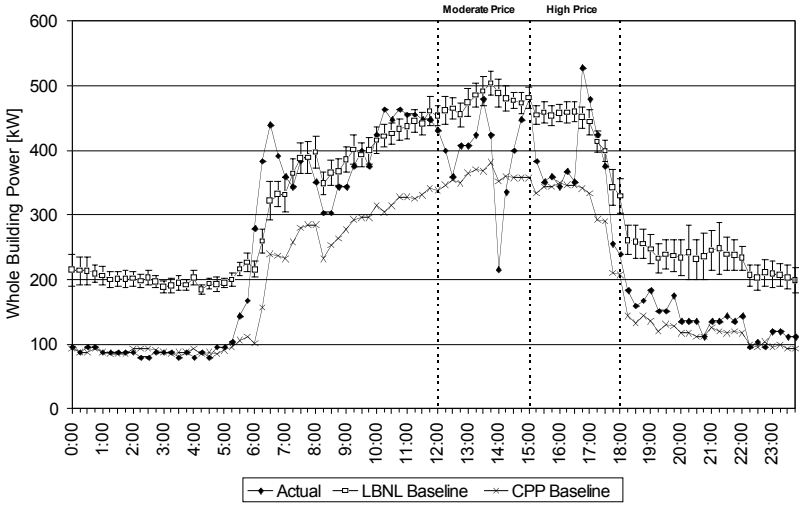


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	52	7	0.52	0.07	13%	2%
	High Price	99	73	0.99	0.73	27%	21%



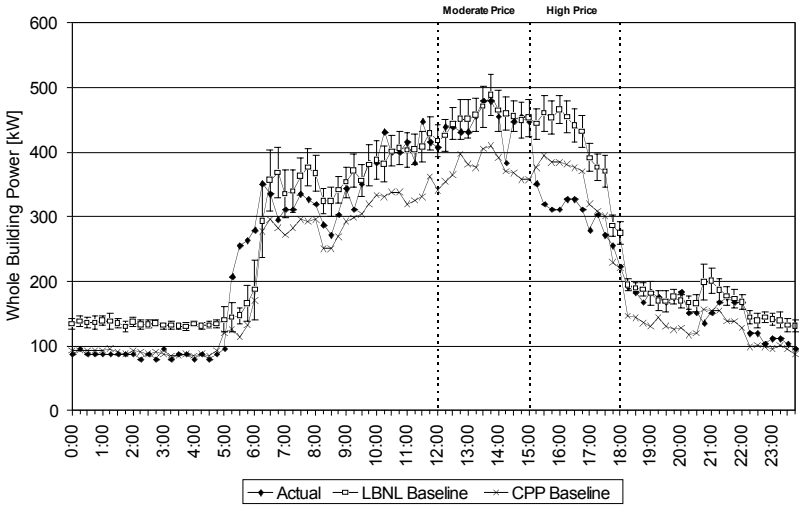
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	70	23	0.70	0.23	17%	5%
	High Price	128	101	1.28	1.01	32%	26%

Oracle Rocklin, 6/26/2006 (Max OAT: 99 °F)



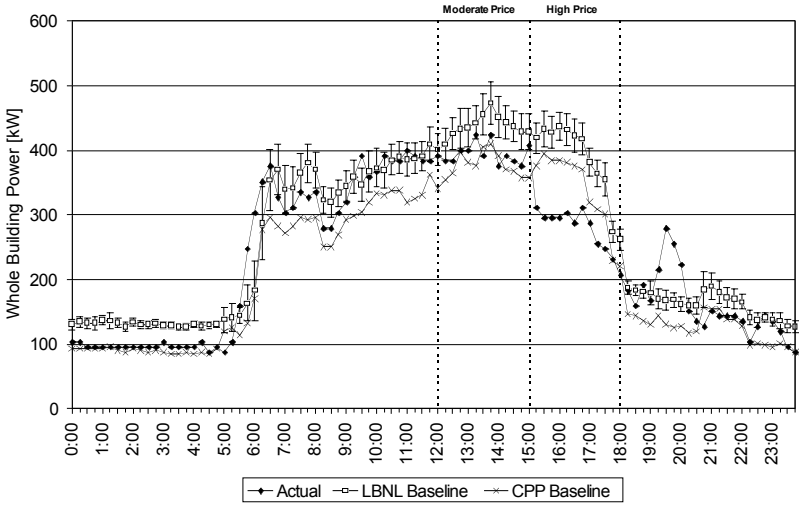
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	278	85	2.78	0.85	56%	17%
	High Price	119	60	1.19	0.60	28%	14%

Oracle Rocklin, 7/17/2006 (Max OAT: 106 °F)



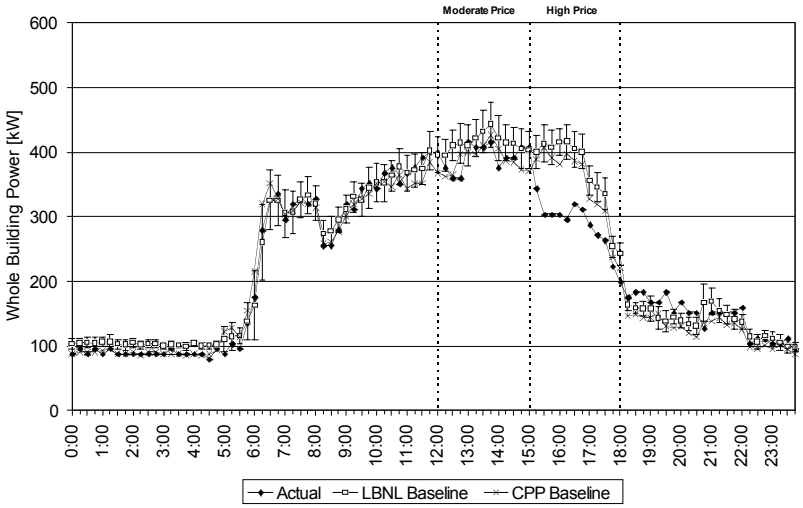
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	74	9	0.74	0.09	16%	2%
	High Price	153	103	1.53	1.03	33%	25%

Oracle Rocklin, 7/18/2006 (Max OAT: 102 °F)



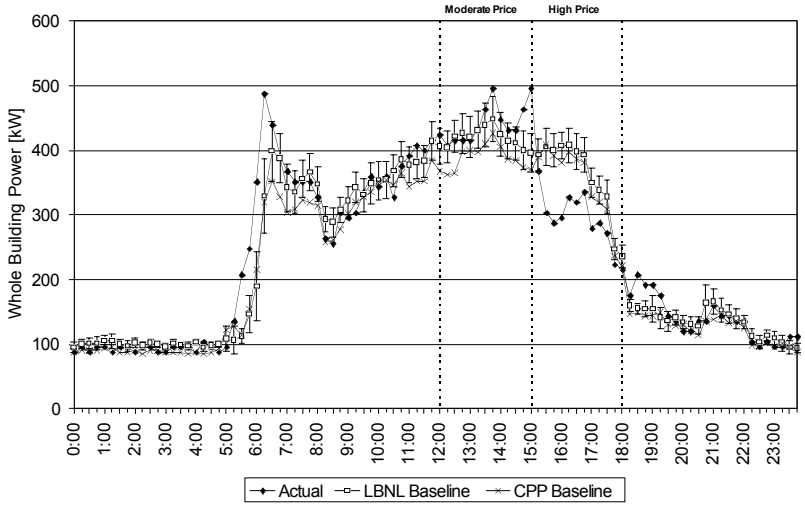
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	77	46	0.77	0.46	17%	10%
	High Price	143	110	1.43	1.10	33%	28%

Oracle Rocklin, 7/20/2006 (Max OAT: 103 °F)



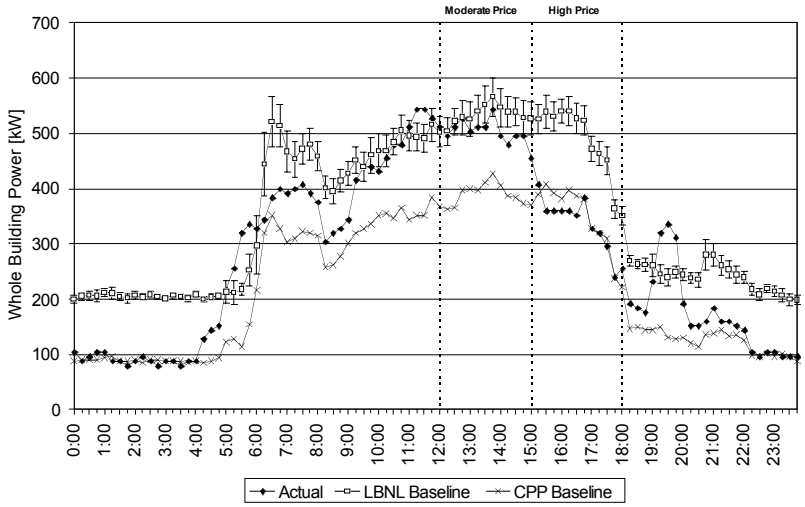
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	56	24	0.56	0.24	13%	6%
	High Price	122	82	1.22	0.82	29%	22%

Oracle Rocklin, 7/21/2006 (Max OAT: 101 °F)



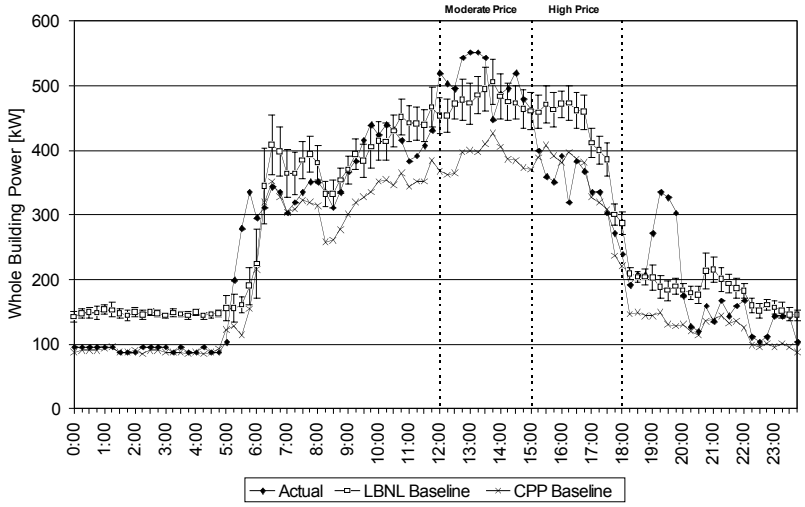
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	11	-23	0.11	-0.23	2%	-6%
	High Price	112	65	1.12	0.65	28%	17%

Oracle Rocklin, 7/24/2006 (Max OAT: 106 °F)



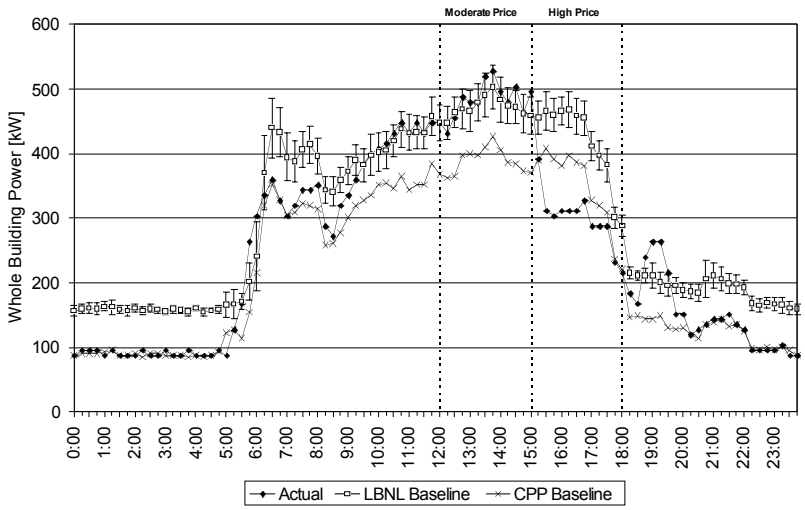
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	72	33	0.72	0.33	14%	6%
	High Price	181	151	1.81	1.51	34%	31%

Oracle Rocklin, 7/25/2006 (Max OAT: 105 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	54	-35	0.54	-0.35	11%	-7%
	High Price	149	78	1.49	0.78	32%	18%

Oracle Rocklin, 7/26/2006 (Max OAT: 102 °F)



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	17	-11	0.17	-0.11	4%	-2%
	High Price	157	120	1.57	1.20	34%	28%

D.13. Svenhard's Swedish Bakery

Site Summary

Building Use	Bakery
Industry Classification	Bakery
City	Oakland, CA
Gross Floor Area	101,000 ft_
Conditioned Area	101,000 ft_
# of Buildings, floor	1-building, 2 -floor
Peak Load kW	kW
Peak W/ft_	. W/ft_
Tenant Type	Bakery workers
Facility Management	Company Owned
Weekday Schedule	
Non-weekday Schedule	
Building Details	Industrial Facility - No HVAC or Lighting Shed s

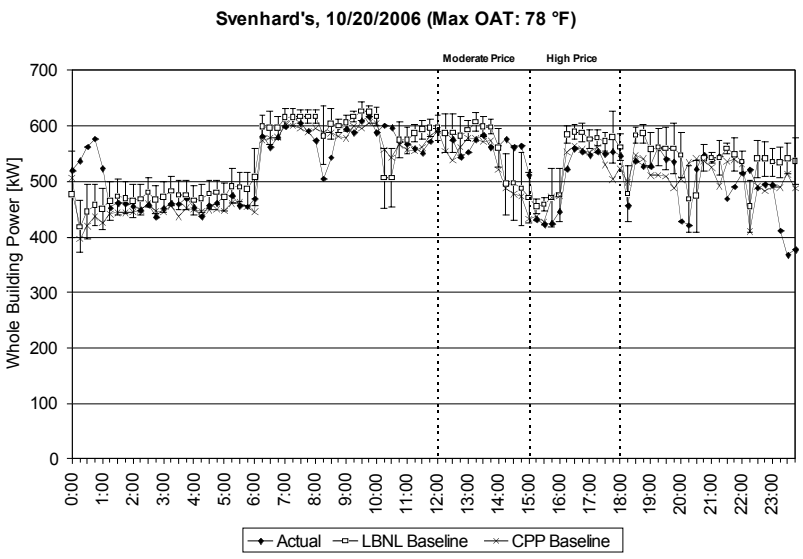
Auto-CPP System Summary

Communication Method		Relay at site	
Gateway/Relay Device	CLIR	**Client Host Location**	Oakland, CA
Price Client Host	CLIR	**Client Hosted at Co-Lo**	No
Price Signal Use		Mod=No High=Yes Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ No DR	
	High Price	_ Turning off the 170 kW pan washer	
	Slow Recovery	None.	

This site participated in a mock CPP event to test the automation and load shed amount.

Event Results

Event Date	Participation	Event Date	Participation
Aug-08	Manual	**Sep-22**	Manual
Sep-29	Manual	**Oct-06**	Manual
Oct-13	Manual	**Oct-20**	Succeeded



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Oct-20	Moderate Price	39	-9	0.39	-0.08	7%	-2%
	High Price	62	31	0.61	0.31	11%	6%

D.14. Target, Hayward Store

Target, Hayward Store

Site Summary

Building Use	Retail
Industry Classification	Retail store
City	Hayward, CA
Gross Floor Area	130,000 ft_
Conditioned Area	130,000 ft_
# of Buildings, floor	1-building, 1-floor
Peak Load kW	428 kW
Peak W/ft_	3.29 W/ft_
Tenant Type	Customers, employees
Facility Management	Company-owned
Weekday Schedule	Sun-Sat: 8am - 10pm
Non-weekday Schedule	None
Building Details	One-story building with large sales area supported with storage area, offices, food sales area and restrooms.

HVAC System Summary

Air Distribution Type	Constant volume
Air Handler Unit	(23) CV Roof-top units. 74 °F cooling, 70 °F heating setpoint.
Cooling Plant	N/A
Heating Plant	N/A
HVAC Control System	ALC. Controllable and programmable offsite.
DDC Zone Control	No
Other Details	2x4 fluorescent fixtures in sales areas.Every fourth fixture is circuited together.

Data Trending

DDC Zone Control	InterAct=Yes EMCS Trends=Yes Submeter=No
Data Trending Detail	EMCS collects start/stop of each roof-top units.

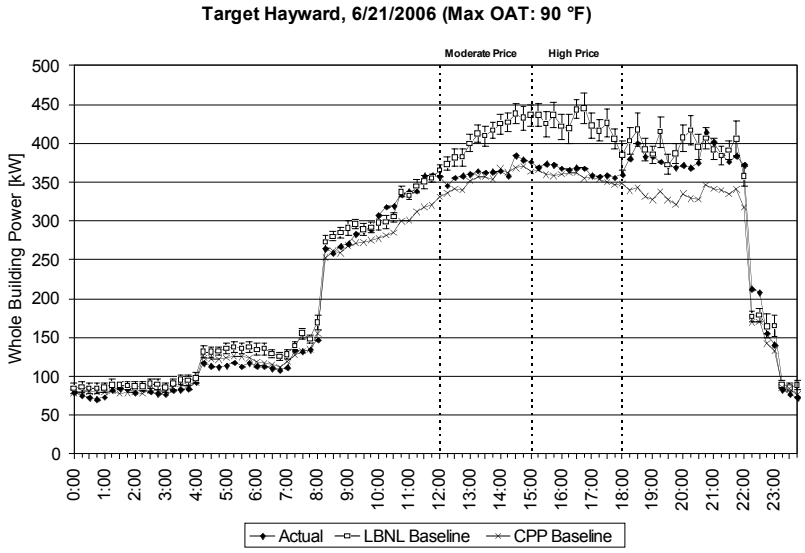
Auto-CPP System Summary

Communication Method		Software client	
Gateway/Relay Device	Canon Technologies	**Client Host Location**	Minesota
Price Client Host	Target	**Client Hosted at Co-Lo**	Yes
Price Signal Use		Mod=Yes High=Yes Notification=No	
Shed Strategies	**Pre-event**	None.	
	Moderate Price	_ Shut off 3 of 12 RTUs in the sales area (building has 23 RTUs total). _ Shut off 5 RTUs in the sales area after October 6th.	
	High Price	_ Turn off every fourth light fixture in the sales area.	
	Slow Recovery	None.	

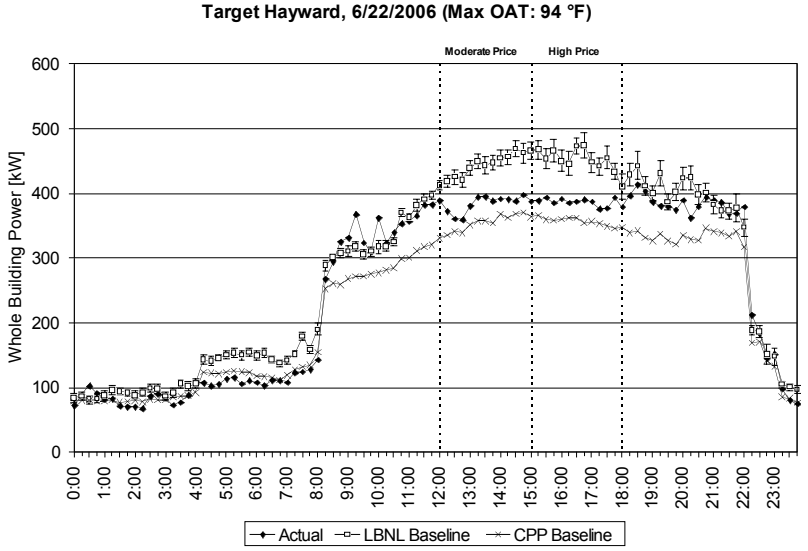
Event Results

Event Date	Participation	Event Date	Participation
21-Jun	Succeeded	**22-Jun**	Succeeded
23-Jun	Succeeded	**26-Jun**	Succeeded
17-Jul	Succeeded	**18-Jul**	Succeeded
20-Jul	Succeeded	**21-Jul**	Succeeded
24-Jul	Succeeded	**25-Jul**	Succeeded
26-Jul	Succeeded	**9-Aug**	No event
31-Aug	No event	**1-Sep**	No event
22-Sep	No event		

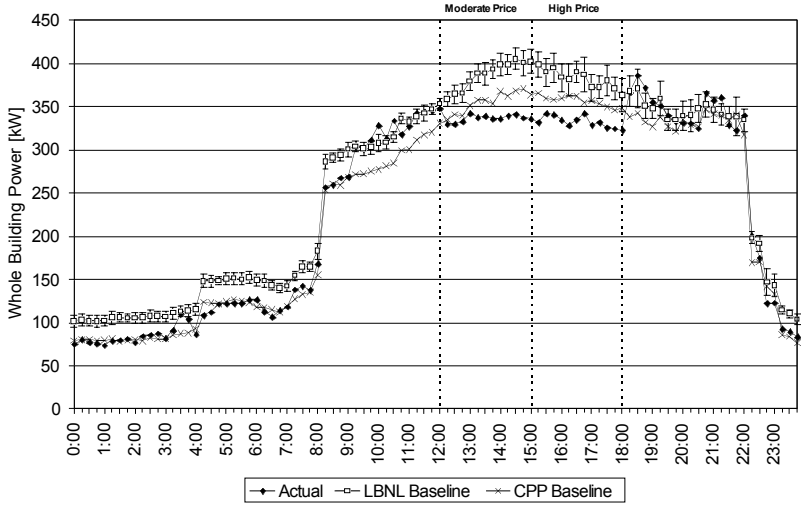
* See Section 3.3.3 "Successfulness of participation " of the main report for result definition.



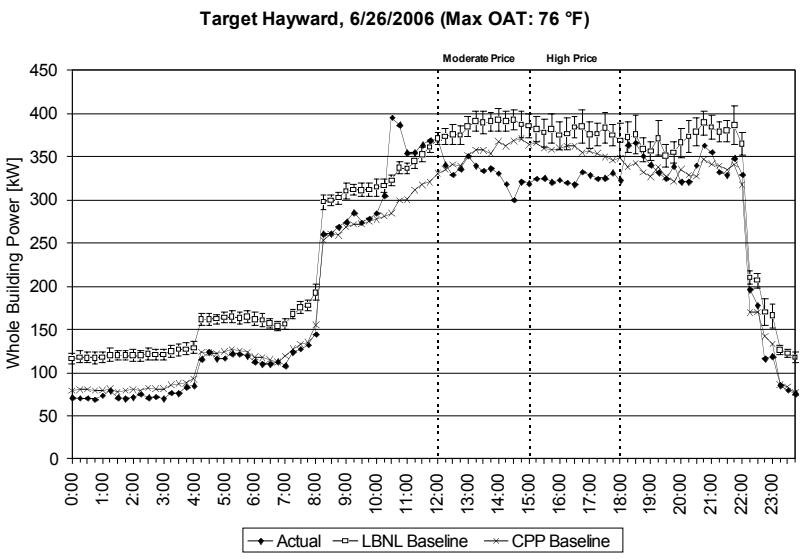
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-21	**Moderate Price**	71	49	0.55	0.38	17%	12%
	High Price	79	61	0.61	0.47	18%	14%



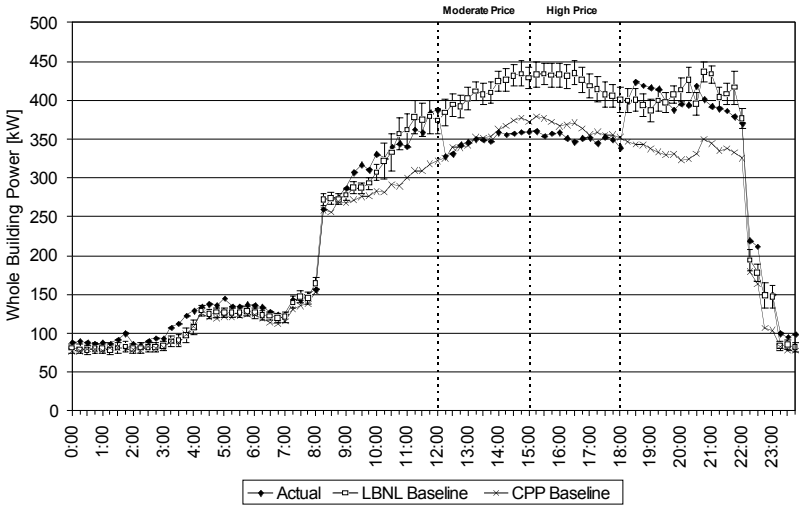
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-22	Moderate Price	84	66	0.65	0.51	18%	15%
	High Price	89	69	0.69	0.53	19%	15%



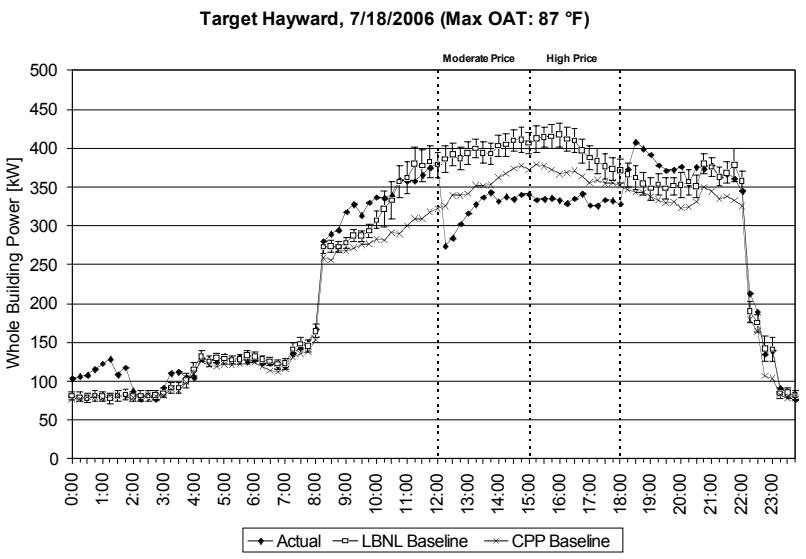
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-23	Moderate Price	69	53	0.53	0.41	17%	13%
	High Price	69	52	0.53	0.40	17%	13%



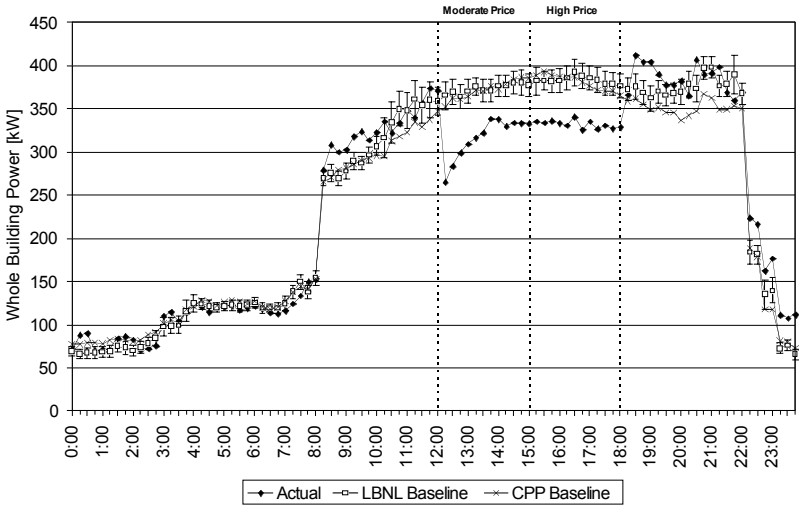
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jun-26	Moderate Price	95	59	0.73	0.45	24%	15%
	High Price	68	56	0.53	0.43	18%	15%



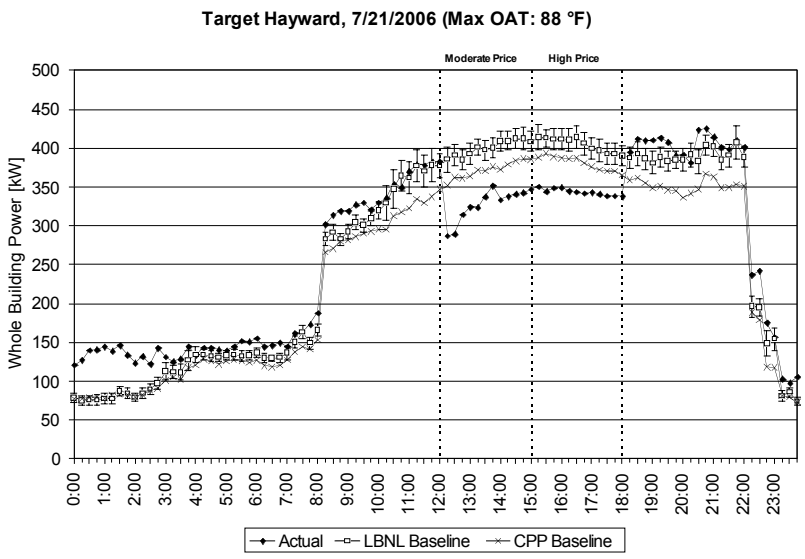
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-17	Moderate Price	80	68	0.61	0.52	18%	16%
	High Price	93	76	0.71	0.58	21%	18%



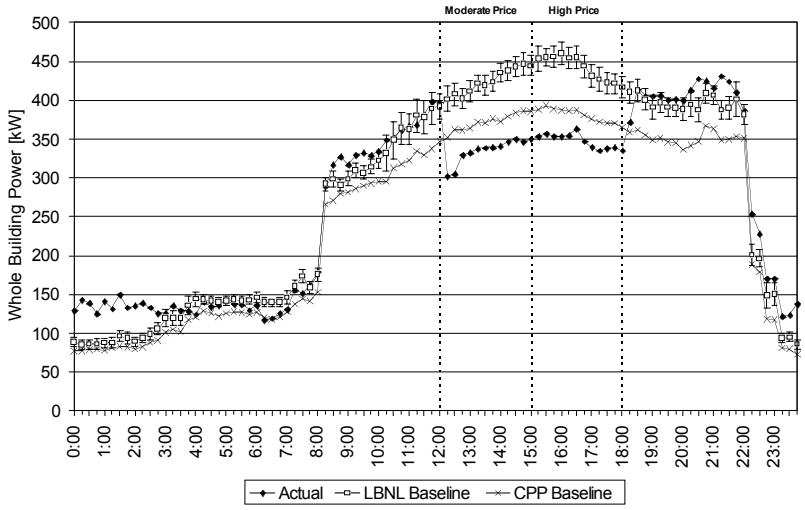
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-18	Moderate Price	121	85	0.93	0.65	31%	21%
	High Price	94	74	0.72	0.57	22%	18%



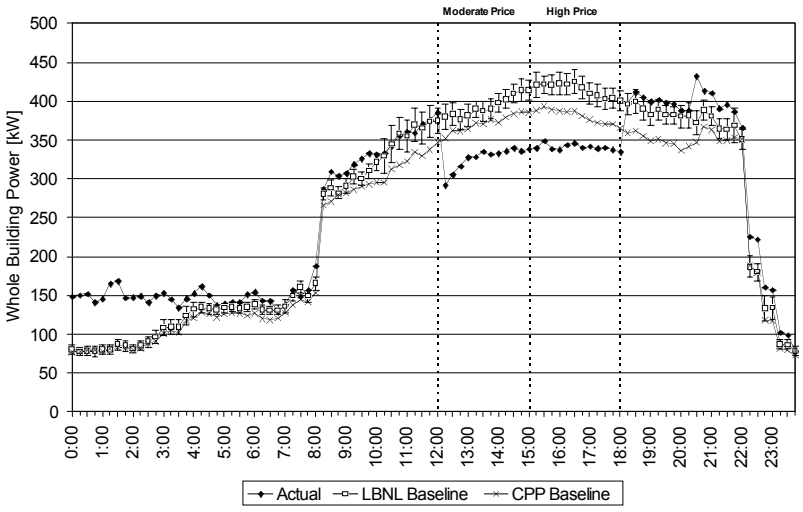
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-20	Moderate Price	109	65	0.84	0.50	29%	17%
	High Price	70	59	0.54	0.46	18%	15%



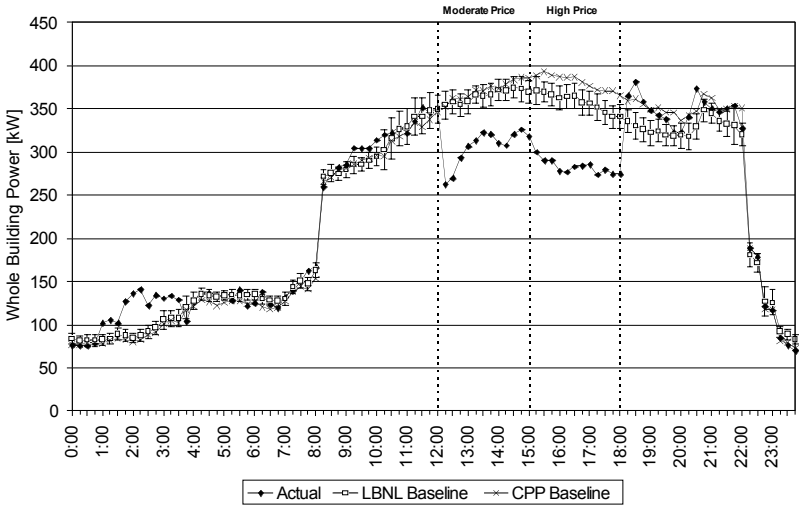
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-21	Moderate Price	109	81	0.84	0.62	27%	20%
	High Price	78	69	0.60	0.53	19%	17%



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-24	Moderate Price	111	98	0.85	0.75	27%	23%
	High Price	115	102	0.89	0.79	25%	23%

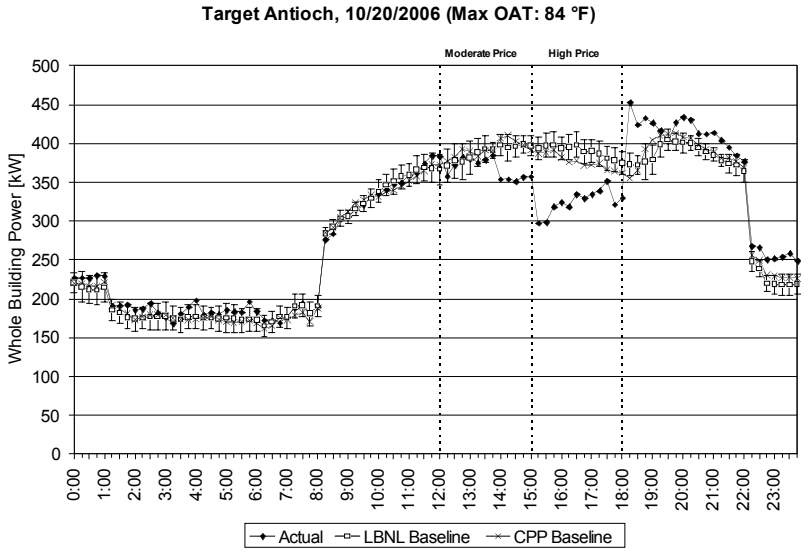


Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-25	Moderate Price	95	75	0.73	0.57	25%	19%
	High Price	93	81	0.71	0.62	22%	19%



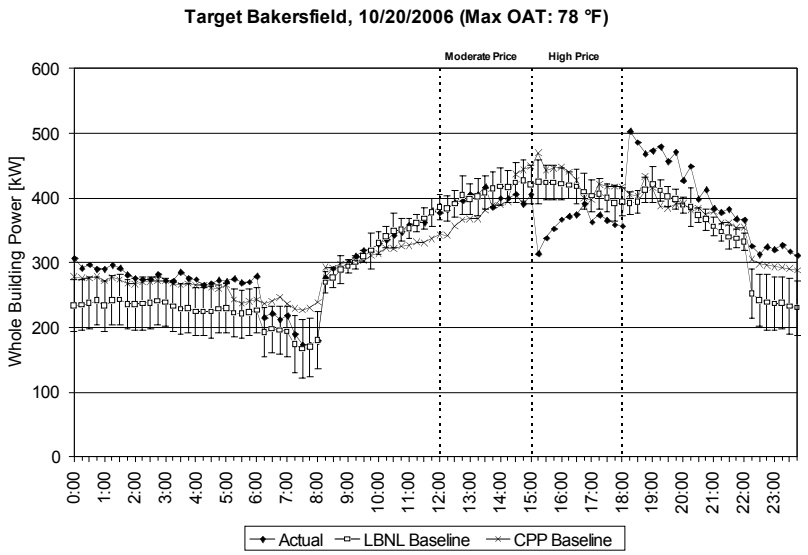
Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Jul-26	Moderate Price	100	67	0.77	0.51	27%	18%
	High Price	95	83	0.73	0.64	26%	23%

D.15. Target, Antioch Store



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Oct-20	Moderate Price	46	23	-	-	12%	6%
	High Price	99	66	-	-	25%	17%

D.16. Target, Bakersfield Store



Date	Price Level	kW		W/ft_		WBP%	
		Max	Ave	Max	Ave	Max	Ave
Oct-20	Moderate Price	36	10	-	-	8%	2%
	High Price	111	51	-	-	26%	12%

Appendix E. Summary of Sites' DR Control Strategies

Site name	DR mode	DR control strategies
ACWD	**Pre-event**	None.
	Moderate Price	□Disable boiler. □Raise CHW setpoint to 50°F. □Current limiting to 70%. □Increase SAT from 55°F to 65°F for AHUs 1, 2, 3 and Lab AHU. □Decrease DSP setpoint from 1.5" to 1.0." □Increase zone setpoints to 75°F.
	High Price	□Increase zone setpoints to 78°F.
	Slow Recovery	□Extend shed control 2 hours (until 8 p.m.).
Office/Data Center	**Pre-event**	None.
	Moderate Price	None.
	High Price	□Reduce DSP from 2.2" to 1.4." □Lock fan VFD 3 minutes after the DSP reset. □CHW setpoint increased 5°F at the secondary loop. □Lock cooling valve position at the AHU.
	Slow Recovery	None.
Chabot	**Pre-event**	□Free cooling when the OAT is below 62°F. □Pre-cooling until noon at 70 °F average zone temp.
	Moderate Price	□Drift zone setpoints to 74°F, 4/3 °F each hour.
	High Price	□Drift zone setpoints to 78°F, 4/3 °F each hour.
	Slow Recovery	None.
2530 Arnold	**Pre-event**	None.
	Moderate Price	□Zone setpoints increased 2°F. (76°F to 78°F).
	High Price	□Increase zone setpoints 4°F (to 80°F).
	Slow Recovery	□Release VAV boxes one at a time over a short time interval.
50 Douglas	**Pre-event**	None.
	Moderate Price	□Increase zone setpoints 2°F (76°F to 78°F).
	High Price	□Increase zone setpoints 4°F (to 80°F).
	Slow Recovery	□Release VAV boxes one at a time over a short time interval.
MDF	**Pre-event**	None.
	Moderate Price	□Increase zone setpoints 2°F (76°F to 78°F).
	High Price	□Increase zone setpoints 4°F (to 80°F).
	Slow Recovery	□Release VAV boxes one at a time over a short time interval.

Site name	DR mode	DR control strategies
Echelon	**Pre-event**	None.
	Moderate Price	□Turn off hallway lighting where there is ambient light. □Turn off daylit office lights. □Dim inner office lights to 20%.
	High Price	□Turn off 1 of 3 RTUs. □Reduce DSP from 1.5" to 0.8" □Increase SAT from 55 to 65°F.
	Slow Recovery	None.
Centerville	**Pre-event**	□Precooling to 72 °F until 11:50 a.m.
	Moderate Price	□Raise temperature to 78°F until 2:50 p.m.
	High Price	□Turn off systems at 2:50 p.m. (School closes at 3 p.m.) Let office areas drift.
	Slow Recovery	None.
Irvington	**Pre-event**	□Precooling to 72°F until 11:50 a.m.
	Moderate Price	□Raise temperature to 78°F until 2:50 p.m.
	High Price	□Turn off systems at 2:50 p.m. (School closes at 3 p.m.) Let office areas drift.
	Slow Recovery	None.
Gilead 300	**Pre-event**	□Start shed control at 11 a.m.
	Moderate Price	□Increase AHU SAT from 55°F to 65°F.
	High Price	□Same as Moderate Price.
	Slow Recovery	None.
Gilead 342	**Pre-event**	□Start shed control at 11 a.m.
	Moderate Price	□Increase AHU SAT from 55°F to 65°F. □Increase zone setpoints to 75°F (70 ~ 75 °F normal).
	High Price	□Same as Moderate Price.
	Slow Recovery	None.
Gilead 357	**Pre-event**	□Start shed control at 11 a.m.
	Moderate Price	□Increase AHU SAT from 55°F to 65°F. □Increase zone setpoints to 75°F (70 ~ 75 °F normal).
	High Price	□Same as Moderate Price.
	Slow Recovery	None.
IKEA EPaloAlto	**Pre-event**	None.
	Moderate Price	□Increase zone setpoints 2°F at each RTU.
	High Price	□Increase zone setpoints to 76°F.
	Slow Recovery	None.

Site name	DR mode	DR control strategies
Oracle Rocklin	**Pre-event**	None.
	Moderate Price	□Reduce DSP 20% at supply fans.
	High Price	□Increase zone setpoints 3°F.
	Slow Recovery	None.
Safeway Stockton	**Pre-event**	None.
	Moderate Price	□Decrease sales area lighting by 1/3. □Turn off case lights.
	High Price	□Decrease sales area lighting by 2/3.
	Slow Recovery	None.
Solectron	**Pre-event**	None.
	Moderate Price	□Increase zone setpoints 2°F. □Turn off 2/3 of lights in Building #07.
	High Price	□Increase zone setpoints 3°F.
	Slow Recovery	None.
Svenhard's	**Pre-event**	None.
	Moderate Price	None.
	High Price	□Turn off pan washer.
	Slow Recovery	None.
Sybase	**Pre-event**	None.
	Moderate Price	□Turn off all day light zones, art lights, core wall washers, a group of public areas, and the remaining perimeter lights on all floors.
	High Price	□Same as Moderate Price.
	Slow Recovery	None.
Target Hayward	**Pre-event**	None.
	Moderate Price	□Shut off 3 of 12 RTUs in sales area (on 6/21, 6/22) (building has 23 RTUs total). □Shut off 5 RTUs in sales area (after 6/23). □Increase zone setpoints 2°F (after 7/17)
	High Price	□Turn off every fourth light fixture in sales area (after 7/26).
	Slow Recovery	None.
Target Antioch	**Pre-event**	None.
	Moderate Price	□Shut off 5 RTUs in sales area. □Increase zone setpoints 2°F.
	High Price	□Same as Moderate Price.
	Slow Recovery	None.
Target Bakersfield	**Pre-event**	None.
	Moderate Price	□Shut off 5 RTUs in sales area. □Increase zone setpoints 2°F.
	High Price	□Same as Moderate Price.
	Slow Recovery	None.

Site name	DR mode	DR control strategies
Walmart Fresno	**Pre-event**	None.
	Moderate Price	□Increase zone setpoints 2°F for 1/2 of RTUs.
	High Price	□Increase zone setpoints 2°F for all RTUs.
	Slow Recovery	None.

□SAT: Supply Air Temperature □AHU: Air Handling Unit □RTU: Rooftop Unit
□ VAV: Variable Air Volume □ DSP: Duct Static Pressure
□ CHWT: Chilled Water Temperature □OAT: Outside Air Temperature
□VFD: Variable Frequency Drive

Appendix F. Aggregated Demand Savings Results

F.1. CPP Event on June 21st, 2006

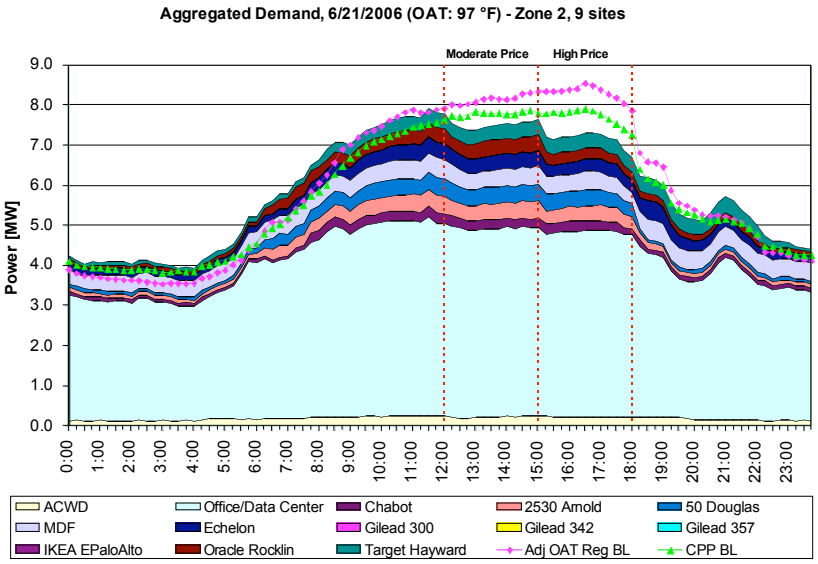


Figure 2: Aggregated Demand, June 21st, 2006

F.2. CPP Event on June 22nd, 2006

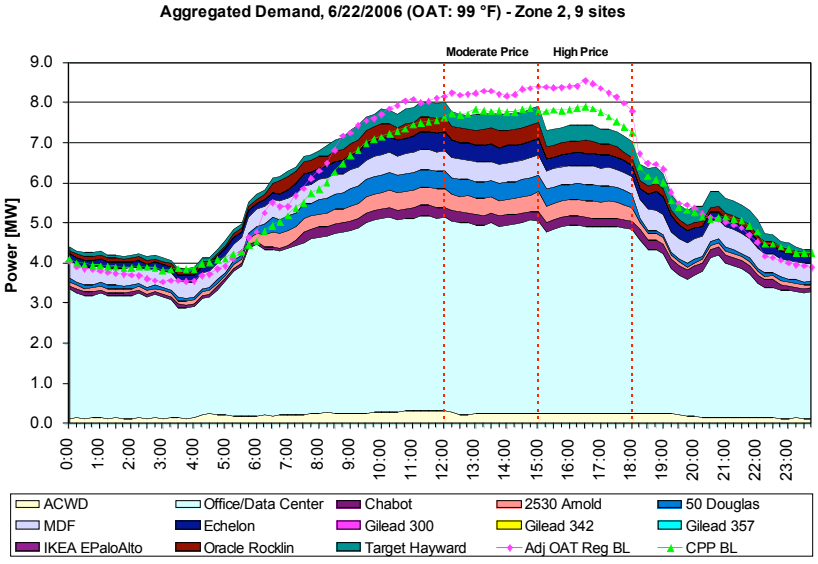


Figure 3: Aggregated Demand, June 22nd, 2006

F.3. CPP Event on June 26th, 2006

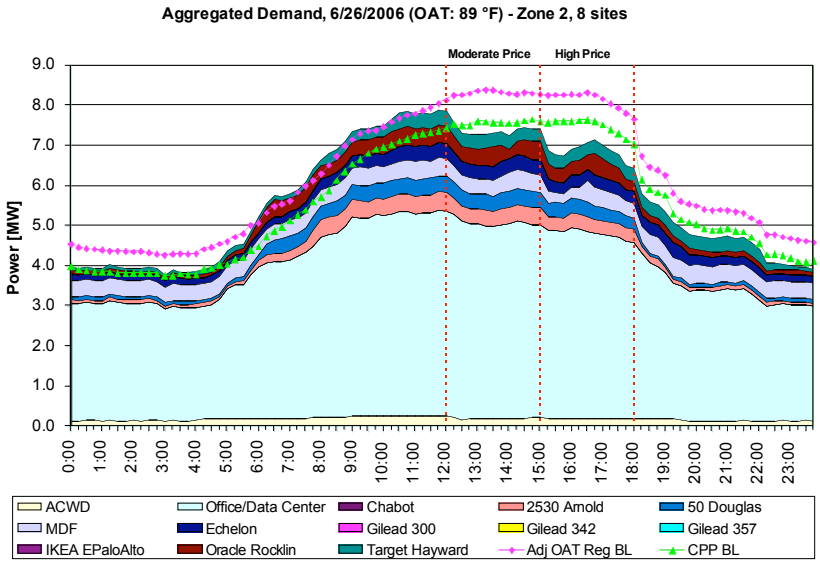


Figure 4: Aggregated Demand, June 26th, 2006

F.4. CPP Event on July 20th, 2006

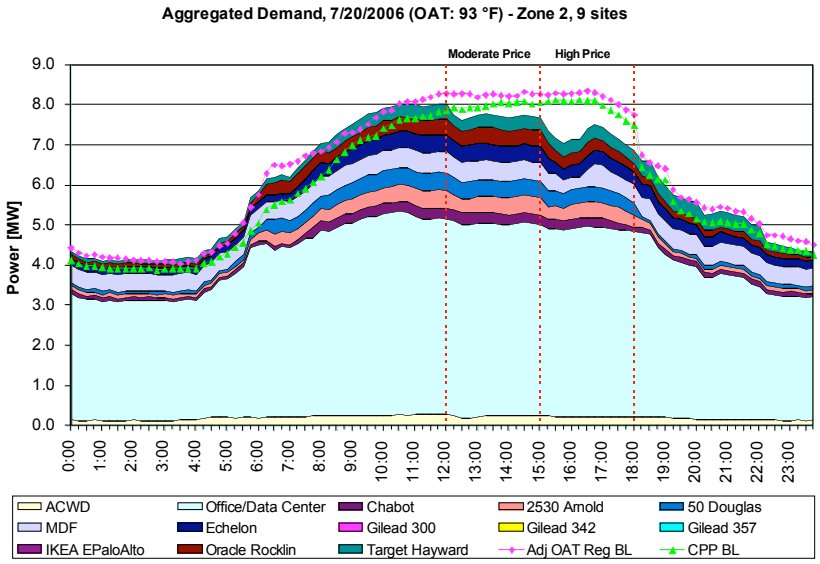


Figure 5: Aggregated Demand, July 20th, 2006

F.5. CPP Event on July 21st, 2006

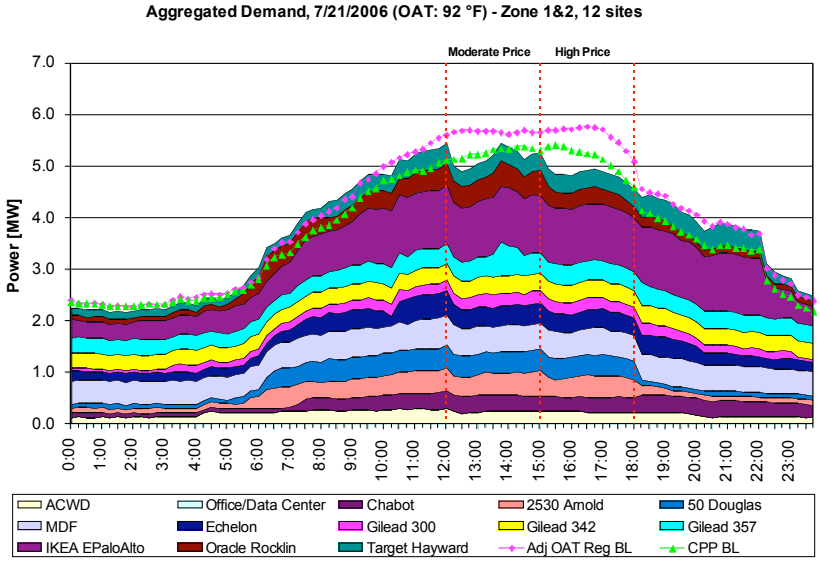


Figure 6: Aggregated Demand, July 21st, 2006

F.6. CPP Event on July 25th, 2006

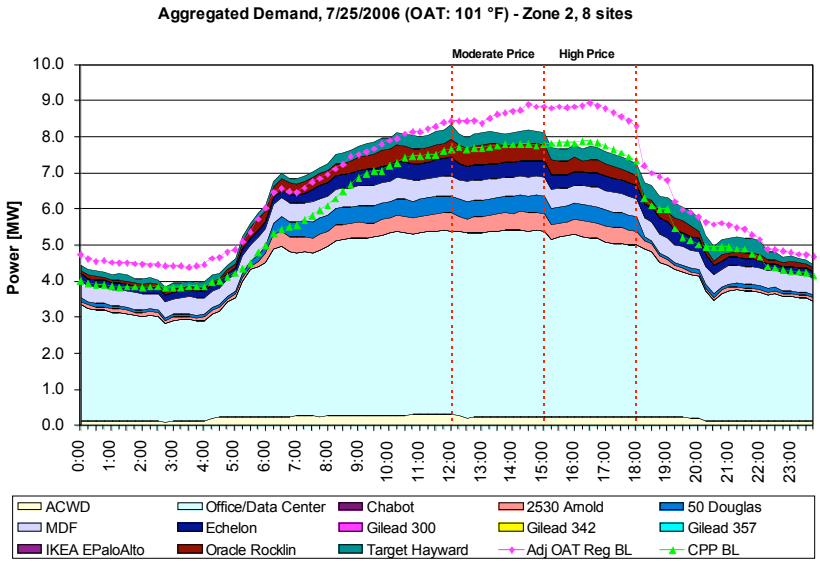


Figure 7: Aggregated Demand, July 25th, 2006

F.7. CPP Event on July 26th, 2006

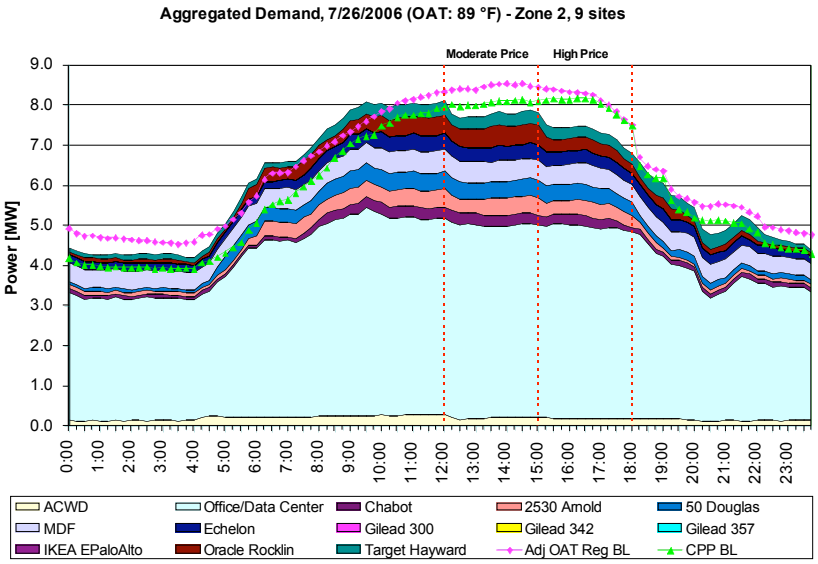


Figure 8: Aggregated Demand, July 26th, 2006

F.8. CPP Event on August 9th, 2006

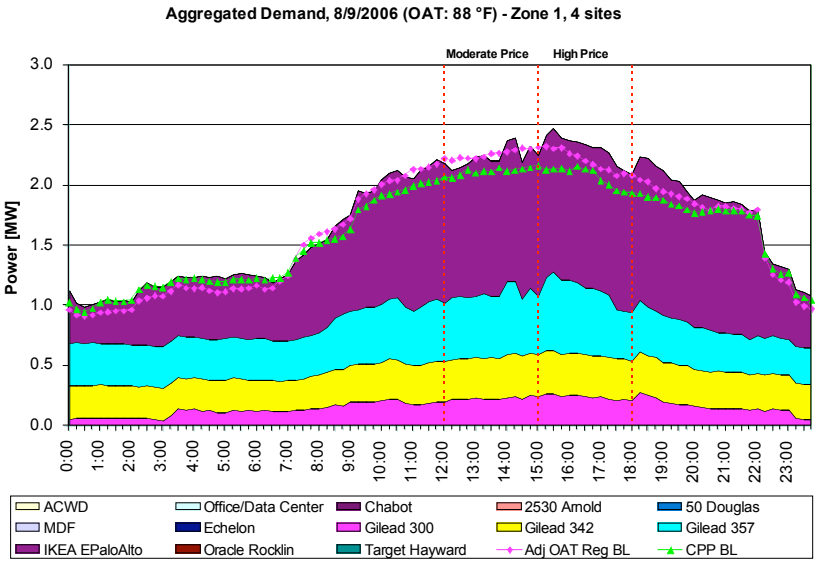


Figure 9: Aggregated Demand, August 9th, 2006

F.9. CPP Event on August 31st, 2006

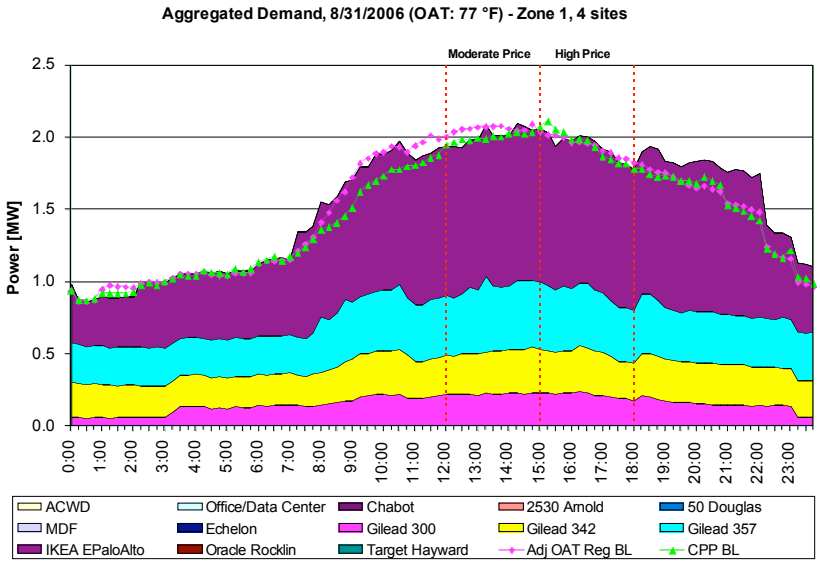


Figure 10: Aggregated Demand, August 31st, 2006

F.10. CPP Event on September 1st, 2006

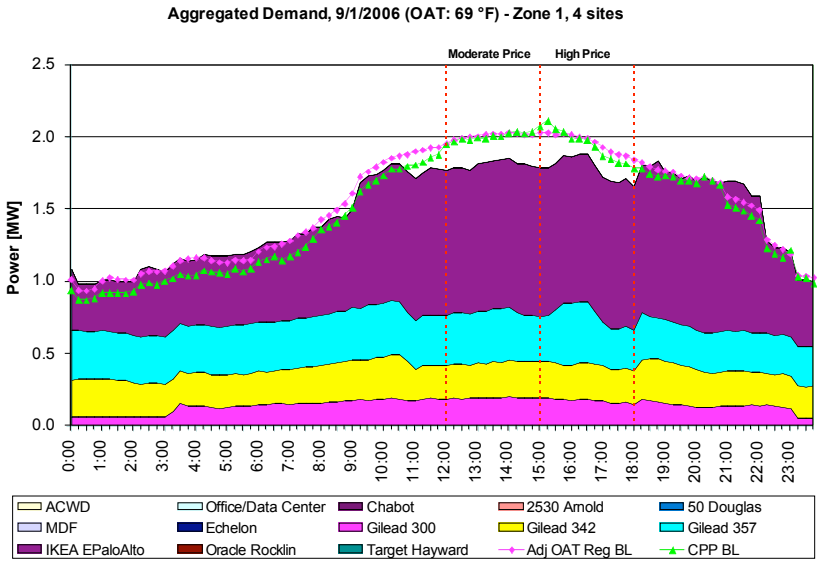


Figure 11: Aggregated Demand, September 1st, 2006

F.11. CPP Event on September 22nd, 2006

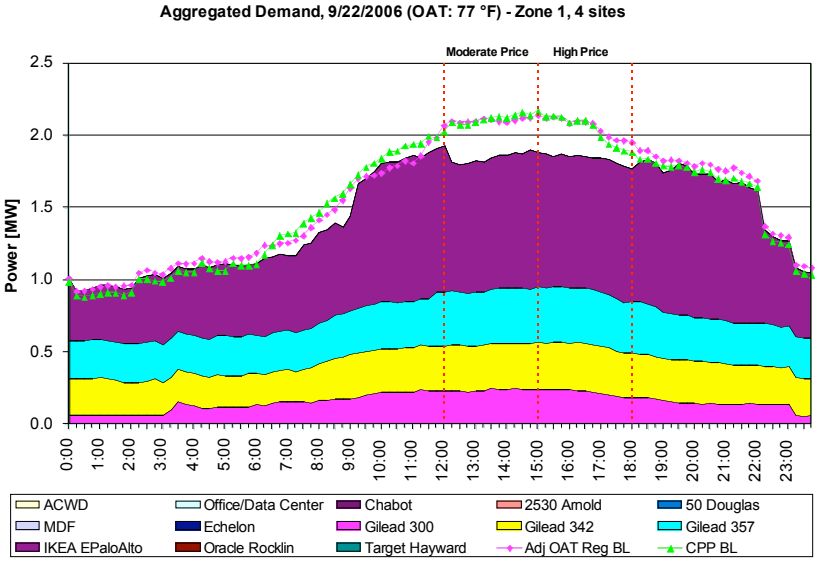


Figure 12: Aggregated Demand, September 22nd, 2006

Appendix G. Post-Event Surveys

Following are the post-event survey responses from each site.

Site	Office/Data Center	Your Name	Bill Young (by NAM)	Date of CPP Event	6/21/2006	Today's Date	6/22/2006
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes. By notification e-mail and EMCS interface.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Yes. All the strategies on both Honeywell and Trane system worked perfectly as planned. Estimated saving is over 400 kW.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				N/A			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				The operators couldn't perform their normal tasks to supervise the event, and troubleshoot the complaints.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				N/A			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				N/A			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				N/A			
Any other comments?				Comparing to the amount of money spent to use operators time, and slight reduction of service to 3000 occupants, the money saved by DR operation is too small to justify. I had a meeting with the manager, and there were concerns and frustration about the program feasibility. If we have better control system to be able to program pre-cooling, at least we can reduce the complaint from occupants. Current system has serious limitation in control flexibility.			
Site	**Alameda County Water District HQ**	**Your Name**	**Greg Watson**	**Date of CPP Event**	**7/17/06, 7/18/06, 7/20/06, 7/21/06 and 7/24/06**	**Today's Date**	**7/25/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes, I received a pager and email notification from PG&E for all of the CPP events to date. I even received a pager notification for the event 7/25/06 event while I was in the Losa Angeles area.			
Did you notify your employees, occupants, or				Yes, I have snet out or had another staff			

customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)	membersa send out noticies for each of the last 6 events. The notices are sent out wiothin two hours of the notification which usually comes at about 2:00 p.m. the day before. It is important that I send the notice early as we have staff on multiple schedules and if I wait for 4:00 p.m. I will have missed some of the staff that leave before 4:00 p.m.
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?	When the temperature is above 92 degress F there is less of a noticable difference than when the temp is in the upper 70's as during some of the test days. During the high temp days the HVAC system will come on to maintain the 75 vor 78 degree temps. On lower temp days the HVAC system may not have to come on to maintain temp and the air in the building gets very stagnant.
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)	It is a mixed bag. Some staff is very tuned into to temperature variations others can not tell.
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)	Yes. Although I just received a true up billing from PG&E and I was supreised to see that our savings was not a high as I expected. It appears that on some days that we actually paid the excessive demand charges because we did not shed enough. I also noted that our sheds were greatest on Mondays and Fridays when we have staff on alternate schedules not at the office. On Tuesdays and Wednesdays our use was much higher.
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.	None of any measure. They havestarted asking questions if we can override specific areas so that when they have meetings the areas are still cool for outside visitors. I have had to explain to them that if the temp in these areas exceed the 75 or 78 degree setpoints that the HVAC system will come on and cool the area. This seems to satisfy their concerns.
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?	None during these recent CPP days.
Any other comments?	The one day that I did not notify staff, 7/17/06, caused a probelm with management. They felt left out of the loop. They could not answer when questioned if it was or was not a CPP day. I had specifically not told anyone so that the system could respond without outside influence. I determined that whether staff knows or not the system will still shed about the same amount of energy. Monday was probably not the best day to do this as it is a reduced staff day.

Site	Hayward Target	Your Name	Scott Williams	Date of CPP Event	6/20-22/06	Today's Date	6/22/2006
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				We were informed ahead of time by LBNL and PGE rep via email and also the PGE orb changed color.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Do to changes in our energy management system this year, and also vacation for key team member, we decided to limit the initial strategy to shutdown of 3 RTUs on sales floor 6/20 & 6/21 and shutdown 5 RTUs 6/22. No lighting was shut off. As expected, shutoff of 3 RTUs had minimal impact initially because not all RTUs were operational at the time. We still need to review 5 RTU shutdown strategy.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				N/A			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				Functionally, it looked like systems operated as expected.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				N/A			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				N/A			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				N/A			
Any other comments?				N/A			
Site	**Gilead Sciences**	**Your Name**	**Eric giles**	**Date of CPP Event**	**07/17/06 & 07/18/06**	**Today's Date**	**7/20/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes, email, PG&E orb, BAS notification			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Yes, all automatic systems made corrected adjustments. The manual buildings were adjusted.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				Yes, but within acceptable limits.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				Everyone is awre of the slight changes. There have been no recorded or reported complaints.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				Yes, they worked as designed.			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				No			

Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				No, Everything operated as planned			
Any other comments?				N/A			
Site	**Echelon**	**Your Name**	**Richard Hair (by NAM)**	**Date of CPP Event**	**6/21, 6/22, 6/23, 6/26**	**Today's Date**	**6/28/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes, by PG&E e-mail.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Yes, by visual and interface observation.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				N/A			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				I didn't know the automation has been already in effect, so I turned on DR mode manually at the EMCS. However, the automation connectivity has been running, I am not sure whether I or automation initiated the DR. For the first 3 hours, common area light went off, and office lights were dimmed. But the demand saving result was not significant for all four days. The rebound avoidance strategy hasn't been programmed yet. The building demand had high rebound peak after the DR operation.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				N/A			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				N/A			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				N/A			
Any other comments?				Will be working on DR strategy improvement to avoid; - some zones to get too high - rebound peak			
Site	**IKEA East Palo Alto**	**Your Name**	**Rick Betten (by NAM)**	**Date of CPP Event**	**6/23/2006**	**Today's Date**	**7/9/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				I WAS AWARE BUT NOT THE EMPLOYEES.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				N/A			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				N/A			

Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				NO PROBLEMS OCCURED.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				N/A			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				N/A			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				N/A			
Any other comments?				N/A			
Site	**Contra Costa County**	**Your Name**	**Andy Green**	**Date of CPP Event**	**N/A**	**Today's Date**	**N/A**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes, notified by PG&E, orb, e-mail and text message			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				No.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				not in facility			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				In the three facilities, they figured it our because of the multiple days in a row. they were saying why isn't getting any cooler in the afternoon. Jail did not notice anything but others did.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				For the most part. They are doing what we enticipated, we are making adjustments interms of delays, etc. Jail evaluation is not clear and Andy will look at it closely.			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Small problems in non-CPP bildings.			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				No. Scheduling has some problems he'll have to check internally.			
Any other comments?				Sheriff said they did not even know. 10 buildings are being used. 17 on DBP. CPP baseline not happy about it. Moneytary value is not justified.			
Site	**Oracle Rocklin**	**Your Name**	**Chris Wilson**	**Date of CPP Event**	**7/17-7/26**	**Today's Date**	**8/3/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes, via e-mail and paging from PG&E			
Did you notify your employees, occupants, or				No, we have yet to develop a marketing			

customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)	message to our employees.
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?	During the most severe heat, there was definitely a noticeable change in temperature.
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)	Modifications were made to the strategy during the later CPP days as customer complaints were made during early CPP days with temperatures rising too fast.
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)	The demand strategies available worked as expected. Future programming will be implemented to refine the strategies, such as subcooling and more gradual temperature changes.
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.	A couple of employee in corner offices with double sun exposure and conference rooms with additional load requirements caused some complaints. Changes were made to the program to remove those rooms from a portion of the load reduction program.
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?	One of the units had a supply fan failure and a cooling circuit that continued to trip throughout the day. A sprinkler had to be placed in the unit to constantly put water on the condensing coil. It is possible that the warmer internal return air temperatures and the slow down of the air across the coil from slowing the motor, may have actually increased load on the unit causing the failures.
Any other comments?	N/A

Site	**Contra Costa County**	**Your Name**	**Andy Green (typed by Arran)**	**Date of CPP Event**	**July 24-26**	**Today's Date**	**8/3/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				all three -> text message, e-mail, orb.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				no.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				He is not on site.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				yes. they were slightly hotter.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				yes. When really hot, the strategies worked but not as long. He knows it worked by looking at the load shapes.			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Not many. And varied. Jail was fine. Office buildings more subject to climate conditions. (A few more complaints.)			
Were there any operational issues in the				No. Everything worked pretty well. Nothing			

demand response strategy itself, or as a result of the compromised service due to the strategy execution?				broke.			
Any other comments?				Not sure that they are saving any money. So he asks himself 'why go through the hastel if I don't save money?' More complaints on bidding program than CPP.			
Site	**IKEA E. Palo Alto, Ca.**	**Your Name**	**Rick Betten**	**Date of CPP Event**	**8/31/2006**	**Today's Date**	**9/4/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes. PG&E notification. Text message on cell phone. and E-mail			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				No.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				Yes in certain areas of the store I could feel hotter zone temps.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				I had several coworkers complain of their areas being too warm. No complaints from customers			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				Yes. I logged on to my Electrical Management System to watch the activation.			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Several employees complained of warm areas in the store.			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				No			
Any other comments?				So far this program seems to occur without any major problems or discomforts to our customers.			
Site	**CSSC**	**Your Name**	**Dean Sparks**	**Date of CPP Event**	**N/A**	**Today's Date**	**7/31/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				PG&E notification via text message & signal			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				All staff members & engineering team are in the loop on all CPP issues & events			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				VERY cool inside the facility in the morning. However, by the end of the day, the temperature was on the verge of being uncomfortable (feeback from staff & public)			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				Other than the temp. issues, no			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				N/A			

Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Again, the only building system(s) which were affected to the point that people took notice was the temperature issue(s) (HVAC)			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				Fortunately, no			
Any other comments?				none			
Site	**ACWD**	**Your Name**	**robert shaver**	**Date of CPP Event**	**7/24/2006**	**Today's Date**	**7/25/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes, internal e-mail from ACWD office staff.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				See above.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				Yes.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				Yes. Received a few complaints.			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				Yes.			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Yes. Too warm after 3:00 p.m.			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				No.			
Any other comments?				N/A			
Site	**Alameda County Water District**	**Your Name**	**Paul Piraino**	**Date of CPP Event**	**7/20 through 7/25/06**	**Today's Date**	**7/25/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				Yes--via internal email notification.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Yes--same as above.			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				Slight change in temp, but not uncomfortable.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				Unsure			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				Yes--through internal notification from program coordinator Greg Watson.			

Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Unaware of any.			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				No.			
Any other comments?				N/A			
Site	**Sybase, Inc.**	**Your Name**	**Greg Bush**	**Date of CPP Event**	**July 21, 24, 25, 26**	**Today's Date**	**Jult 31 2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				PG&E text message to my cell, Orb and the email notifications			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Campus global email			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				Yes, the reduced lighting had a 'quieting' effect even though I raised the discharge air reset tables 2 deg, f.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				Employees general liked the lighting reduction and they continue turning lights off in some areas even today			
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)				Yes, i reviewed my consumption history the next day			
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.				Several people went balistic to think Sybase want's them 'in the dark' just because it is a 'sopre the air' day. Not too well informed, that one. Others simple turned the lights pack on in their zones. This became moor prevelent as the CCP days kept going.			
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?				I experimented with different reset schedules and have been developing strategies to put into automation driven by the clock.			
Any other comments?				N/A			
Site	**Irvington**	**Your Name**	**Richo Parez (Written by Arran)**	**Date of CPP Event**	**July 17th - 26th**	**Today's Date**	**7/31/2006**
Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)				email and text on cell phone.			
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)				Don't know (He thinks the likely answer is that the majority don't know.)			
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?				He is not physically present at the sites.			
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)				No.			

Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)	Yes. They monitor the energy level.
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.	No.
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?	Automation program still has some bugs. (So currently some load sheds are still done manually.)
Any other comments?	buildings have very few occupants during the summer. Very minor staff. Just admin staff in most locations. Some activities such as summer school (about 8am to 1pm) - just in American (aka not Irvington). Irvington - just chinese school.

Site	**Svenhards Swedish Bakery**	**Your Name**	**Joshua Svenhard**	**Date of CPP Event**	**N/A**	**Today's Date**	**10/24/2006**

Were you aware of the CPP event? If you were, how did you know? (e.g. PG&E notification e-mail, orb, phone call)	We were made aware by direct phone call and by the Orb.
Did you notify your employees, occupants, or customers about the event? If so, how? (e.g. e-mail, audio announcement, poster)	I notified my employees verbally
Did you physically notice the difference in service (lighting change, zone temperature, etc) during the CPP event?	noticed that the machine affected (panwasher) didn't operate when the start button was pushed. normal operation resumed after expected downtime was completed.
Do you think your employees, occupants, or customers noticed the difference in service? (If you don't know, just say 'I don't know'.)	Very little, there were some questions but no disruption of operation.
Do you think the demand response strategies worked as planned? If so, how did you know? (ex; by checking EMCS interface)	the reduction was successful in shutting down that load cause the machine was not running at all.
Were there any complaints, concerns from employees, occupants, or customers? If yes, please describe.	nope
Were there any operational issues in the demand response strategy itself, or as a result of the compromised service due to the strategy execution?	We had to match the schedule of the panwasher operation to the expected downtime.
Any other comments?	N/A