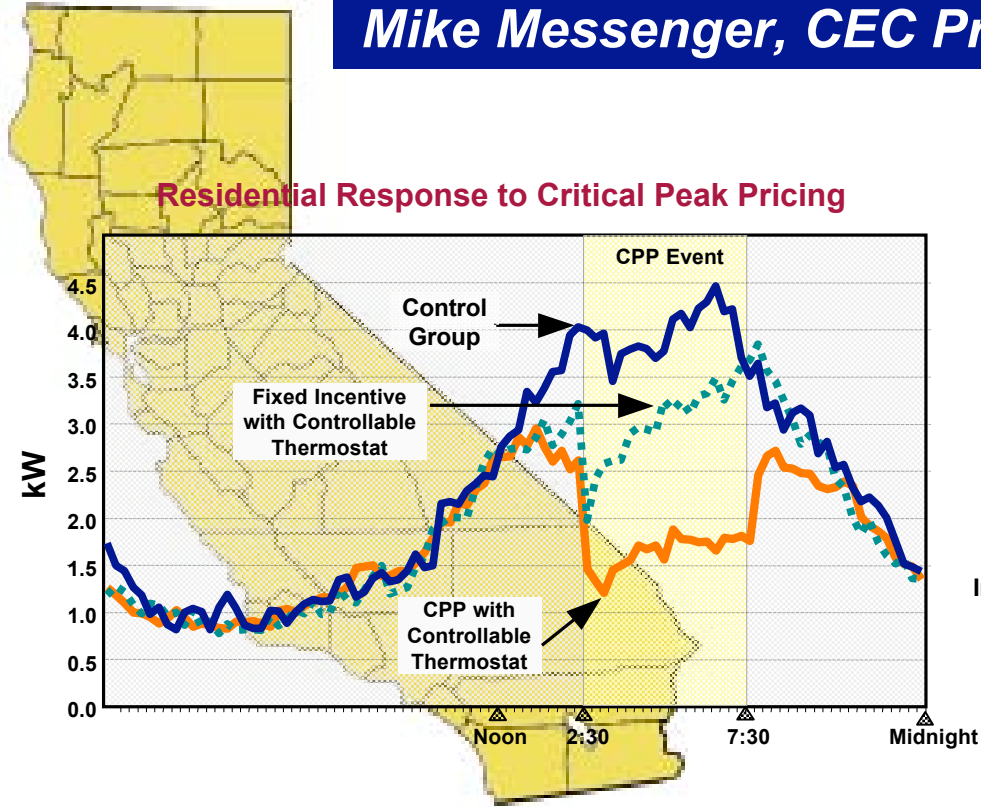


Statewide Pricing Pilot (SPP)

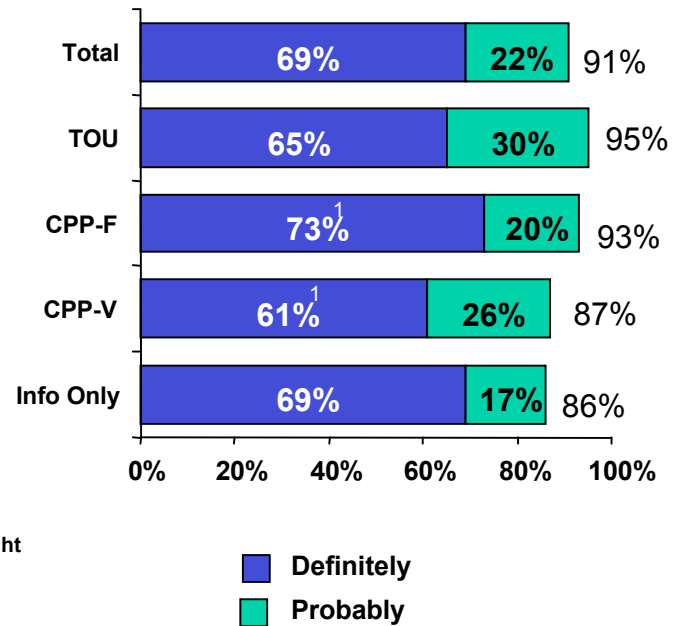
Overview and Results

2003-2004

Mike Messenger, CEC Project Manager



Should dynamic rates be offered to all customers?



Definitions

Demand Response- Actions taken by customers on the demand side of the meter to adjust usage in response to changes in price or system conditions

Dynamic Pricing- Prices that can be dispatched to customers based on predefined price or system condition triggers

Critical Peak Pricing (CPP)-Time-of-use rate with a 'critical peak' (read HIGH) price that can be dispatched up to 15 times each year for up to four hours/day, with day ahead notice.

Outline of Presentation

- What does Critical Peak Pricing look like?
- Why is it Needed?
- Key Results from the Statewide Pricing Pilot
 - Customer Acceptance of Time Varying Rate Forms
 - Load Impacts by Customer Class-Residential and Small Commercial
 - Load Impacts Vary by Weather and Equipment ownership
 - Customer Bill Impacts (\$/yr)
 - Next Steps to make CPP a reality

What does a Critical Peak Pricing rate look like?

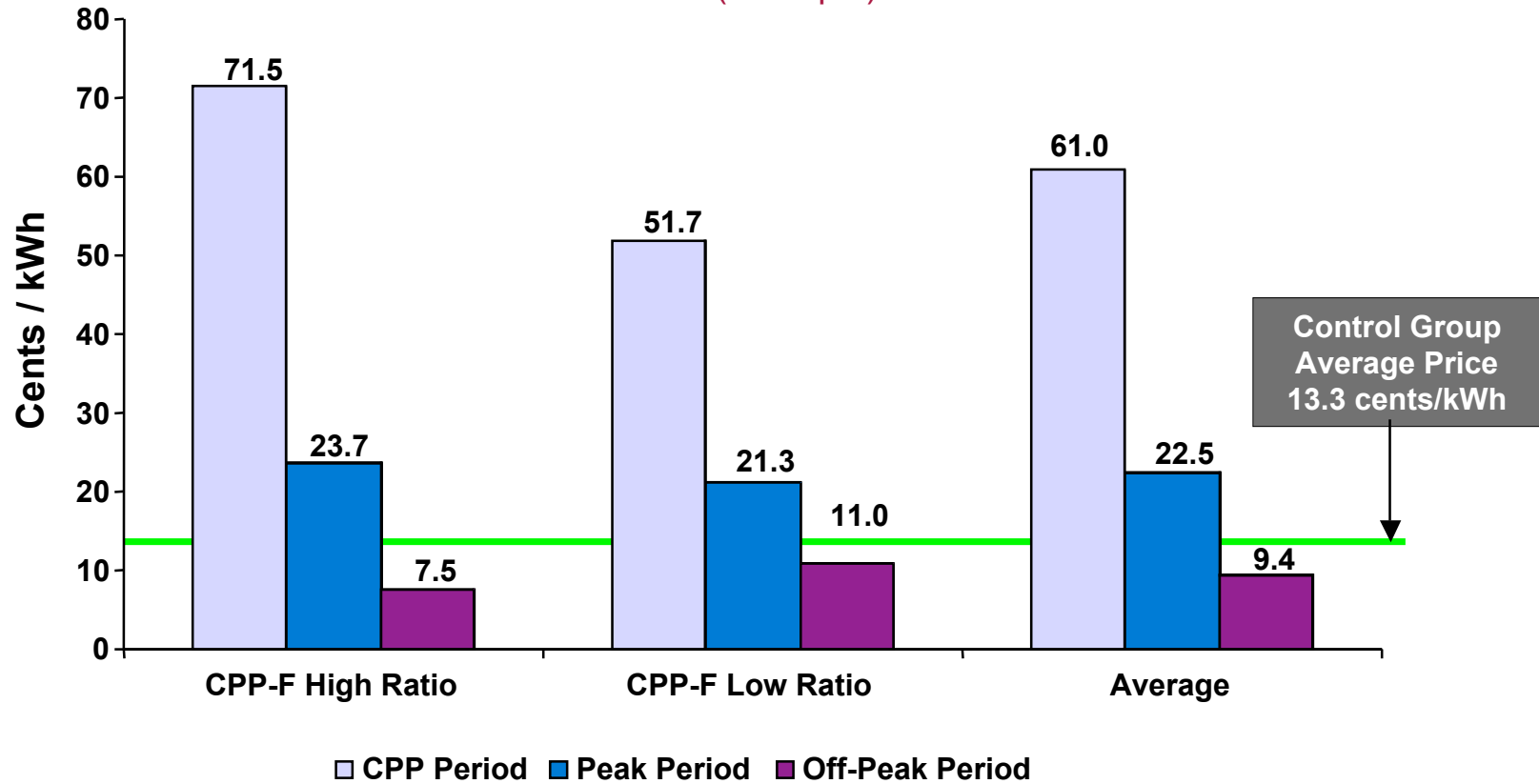
- Time Varying Pricing Structure – see graph next page
- A 40%+rate reduction for most customers for 90% of hours in year
- A rate increase for some customers for up to 10% of the hours during summer peak
- 70% of customers on the pilot had a lower bill in first year

What does a switch to a CPP rate look like to Customers?

Price Period	Rate increase (decrease)	# of hours per year	Fraction of year that rate applies
Off Peak	-43.6%	7240	83.1%
Peak	70.7%	1425	16.3%
Critical Peak*	437.6%	75	0.9%
* Dispatched up to 15 days per year with 24 hr notice			
Rate increase/decrease relative to av rate of 13.3 cents/kwh			

SPP Background / Design

Residential CPP-F Rate Design (Example)



Source: SPP Summer 2003 Update Analysis, Charles River Associates, June 9, 2004.

Why is Critical Peak Pricing needed?

- Inability to transmit price signals from wholesale to retail market during CA crisis contributed to Billions of dollars of damage to our economy during rolling blackouts of 2001
- Time varying rates make more sense to customers and give them more control over their bills
- Current rate structure is un-intelligible and replete with subsidies for on peak consumption
- Will lead to lower wholesale rates and greater asset utilization.
- High peak prices will stimulate customers to purchase more efficient equipment used during peak.

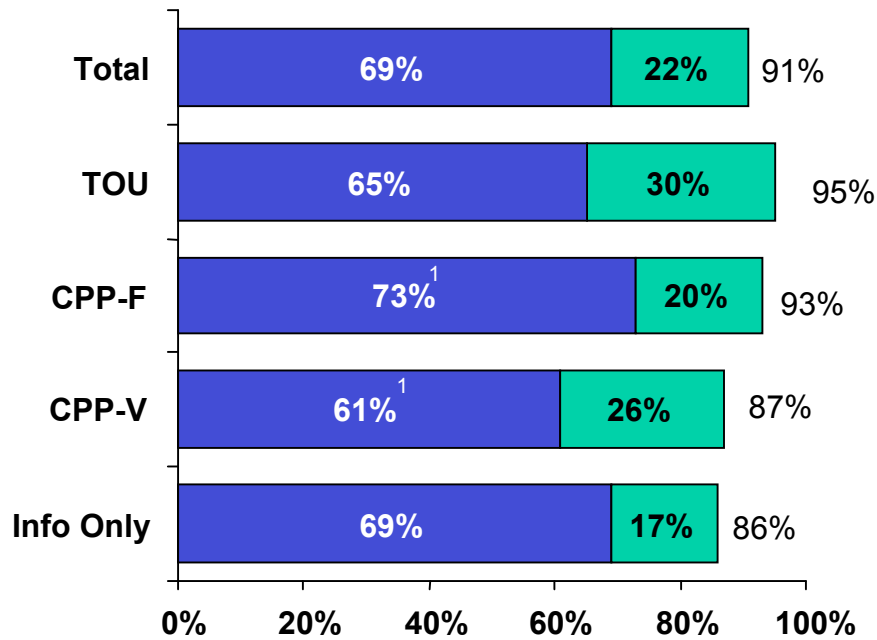
What were the objectives of the Statewide Pricing Pilot?

- Test customer acceptance of dynamic pricing rates and usage feedback
- Measure average load impacts from different types of dynamic rates and notification strategies
- Estimate Price elasticities for different customer types as a function of appliances, weather and notification period
- Evaluate customer use and acceptance of Advanced Demand response systems which automatically reduce load based on price
- Test new forms of information displays that provide notification and feedback to customers
- Evaluate customers willingness to stay on dynamic rates and pay for controls

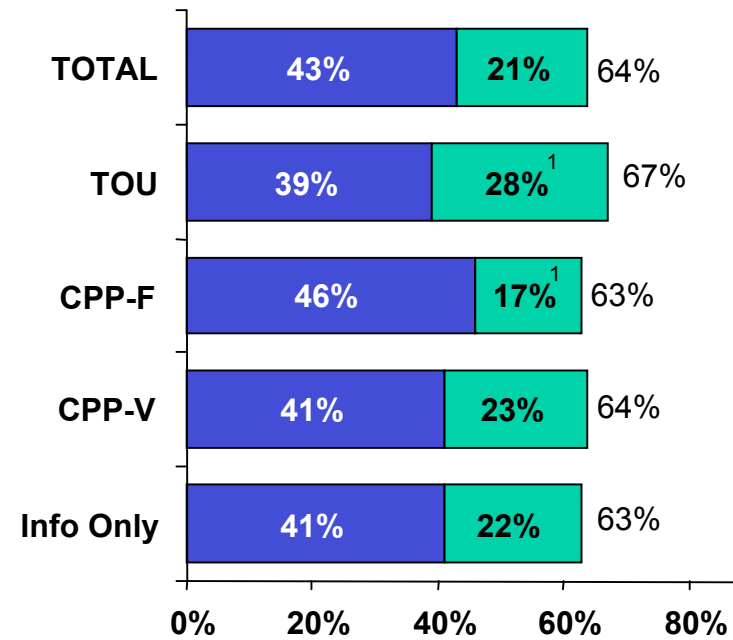
Customer Acceptance

Residential participants express a strong interest in having dynamic rates offered to all customers.

Should dynamic rates be offered to all customers?



Should all customers be placed on a dynamic rate and given an option to switch to another rate?



■ Definitely
■ Probably

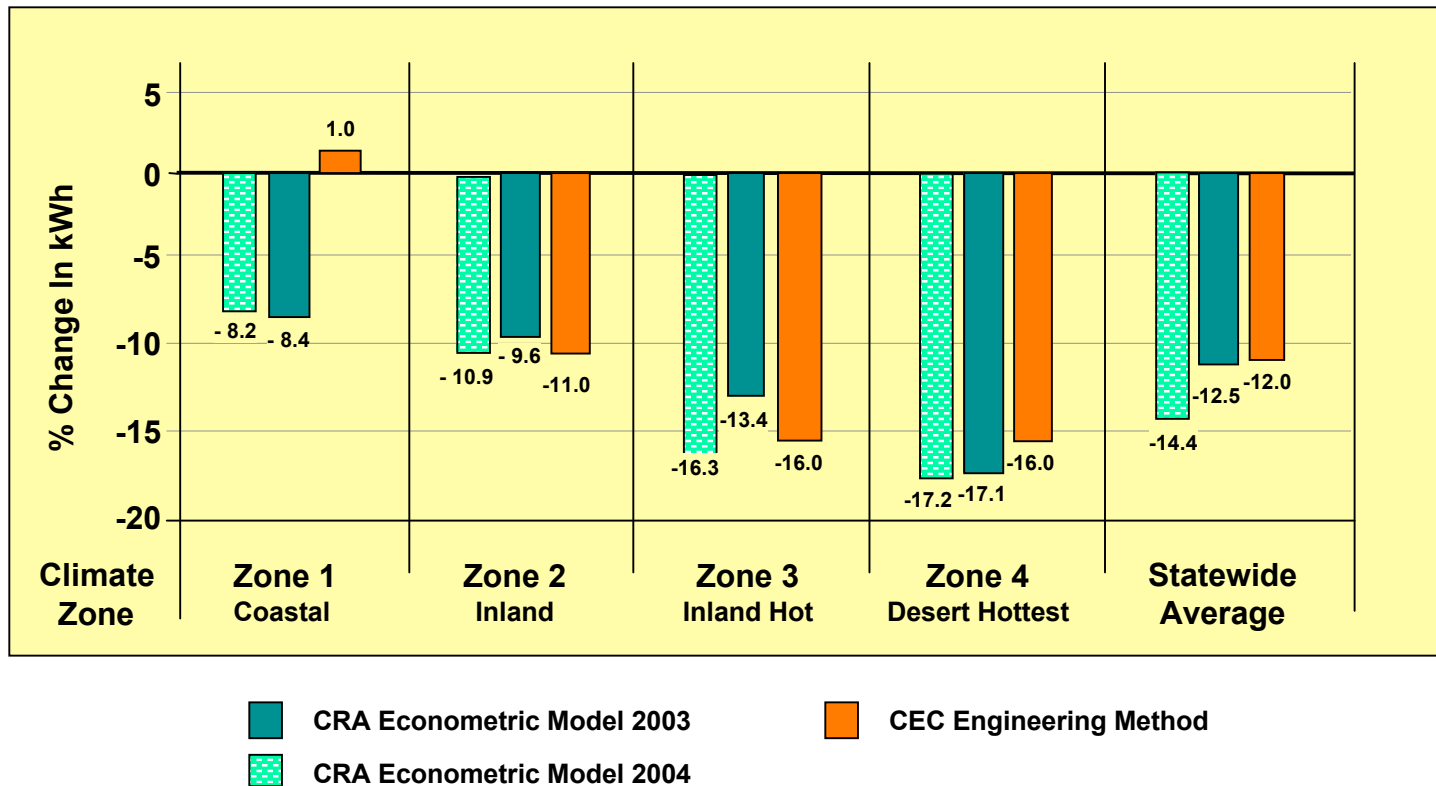
Source: Statewide Pricing Pilot: End-of-Pilot Customer Assessment, December 2004, Momentum Market Intelligence.

Residential Results

- ❑ Residential CPP-F rates reduced peak period (2PM to 7PM) energy use during the critical peak time period (2PM to 7PM) by more than 14% (average).
- ❑ Customers who opted to install and use automatic controls and had air conditioning reduced critical peak energy use on average by 30%.
- ❑ Critical peak Pricing produced stable results-- Residential peak period reductions were almost identical in the summers of 2003 and 2004.
- ❑ Average peak period reductions held steady throughout multiple day peak pricing events usually associated with heat storms.
- ❑ Charts on next page show range in reductions by weather zone, through heat storms and on typical day by hour

Price Elasticity's – Load Impacts

Percent Change In Peak Period Energy Use CPP-F Customers on Critical Peak Days By Weather Zone



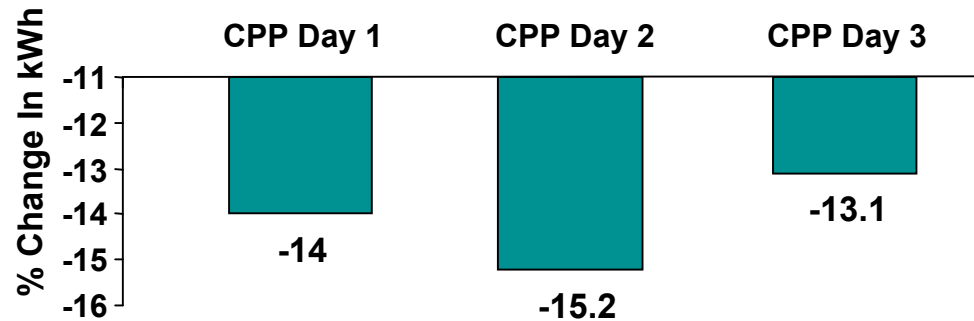
Source:

Statewide Pricing Pilot, Summer 2003 Impact Analysis, Charles River Associates, August 9, 2004, Table 5-4
California's Statewide Pricing Pilot: Update of Results, Charles River Associates, January 7, 2005, Slide 4.

Price Elasticity's – Load Impacts

Percent Change in Residential Energy Use during Peak Periods on Consecutive Event Days

(Average CPP-F Prices and Average 2004 CPP-day weather)



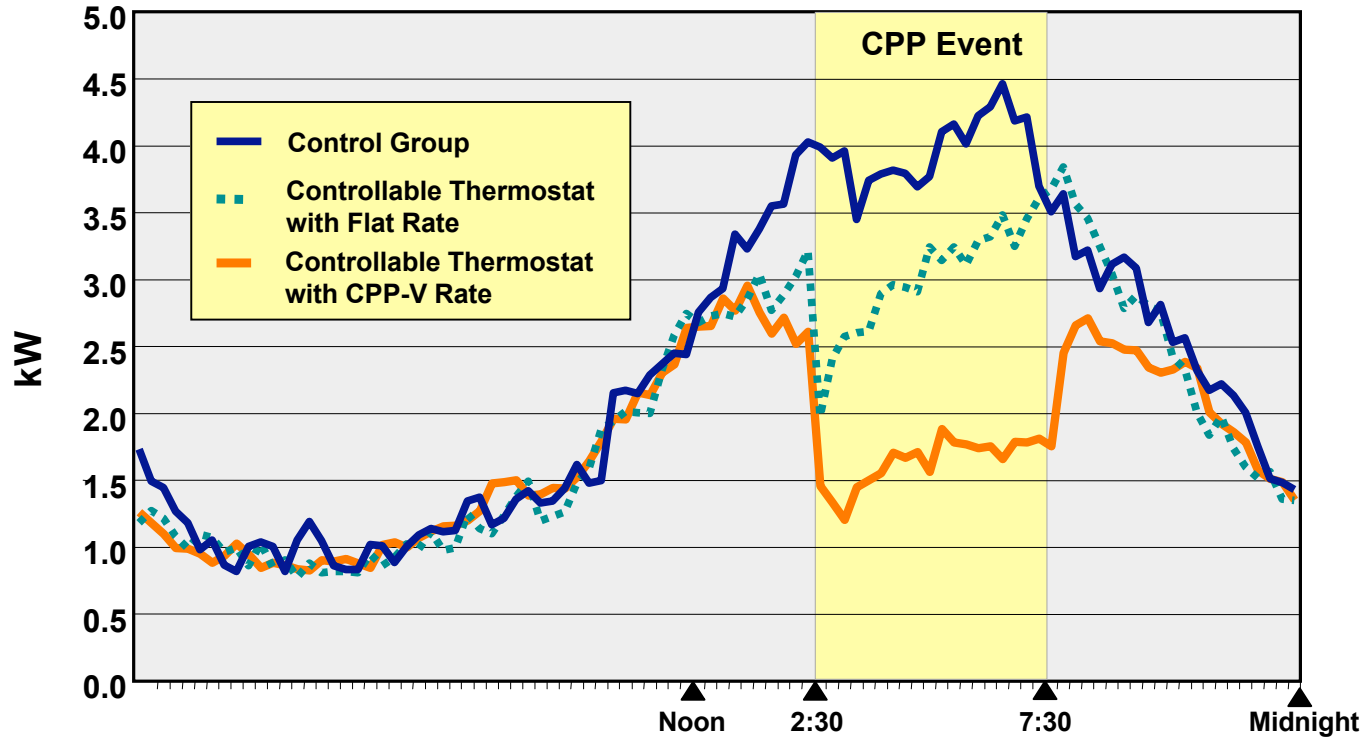
The impact on each CPP day type is significantly different from the non-CPP day impact, but the three day-type impacts are not statistically different from each other based on the Chi-square test.

Source: California's Statewide Pricing Pilot: Update of Results, Charles River Associates, January 7, 2005, Slide 9.

Price Elasticity's – Load Impacts

Residential Response on a typical hot day Control vs. Flat rate vs. CPP-V Rate

(Hot Day, August 15, 2003, Average Peak Temperature 88.5^o)



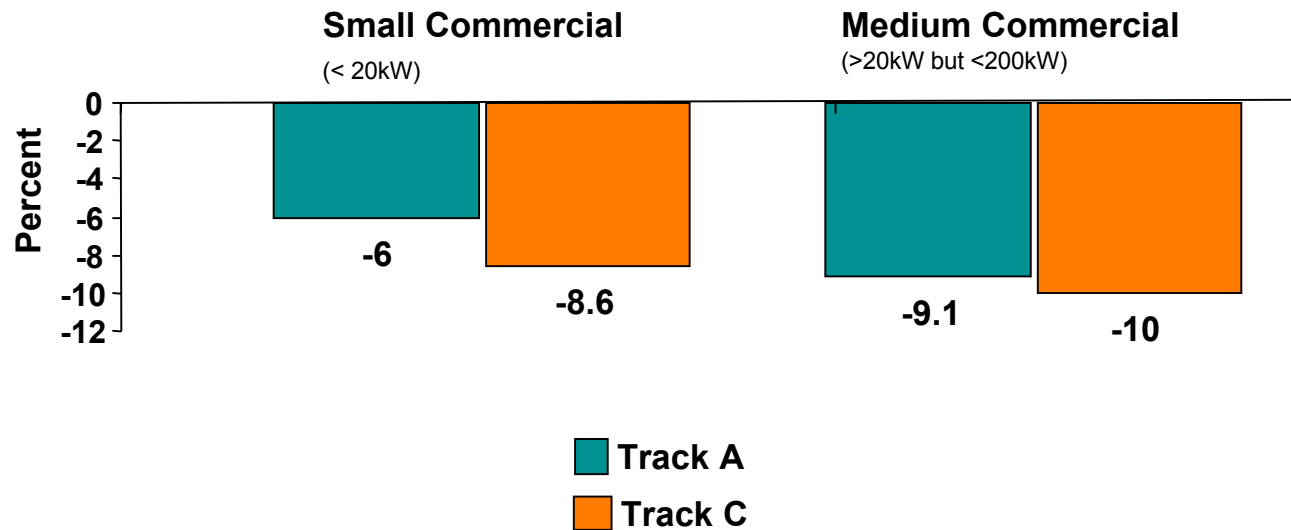
Source: Response of Residential Customers to Critical Peak Pricing and Time-of-Use Rates during the Summer of 2003, September 13, 2004, CEC Report.

Small Commercial Results

- ❑ CPP-V rates reduced peak period energy use during the critical peak time period (2PM to 7PM) by more than 6% for customers <20kW peak and 9.5% for customers between 20 kW and 200 kW (on average).
- ❑ Customers who opted to install and used automatic controls reduced critical peak energy use on average by between 14 and 18 %.
- ❑ Charts on next page show range in reductions for representative customers and no control (Track A) and for customers with option to have controls installed and use them (Track C)

Load Impacts by Class- Commercial

Commercial Customer CPP Day Percent Reduction in Peak Period Energy Use 2004



Source: California's Statewide Pricing Pilot: Update of Results, Charles River Associates, January 7, 2005, Slide 13. Track A= General population with choice of smart thermostat; Track C=load reductions for customer already participating in smart thermostat program

Customer Bill Impacts

Residential Participant Bill Impacts (based on analysis of customer usage with new and old tariffs)

		2003			2004			
		CPPV	CPPF-A	TOU	CPPV	CPPF-A	CPPF-B	TOU
Customers With Bill Savings	Participants (%)	71.1%	73.7%	70.0%	71.9%	74.1%	93.7%	65.7%
	Average Monthly Savings (%)	5.1%	5.5%	4.5%	5.8%	6.2%	8.3%	4.0%
	Average Monthly Savings (\$)	\$6.81	\$3.89	\$3.25	\$8.46	\$4.89	\$4.12	\$3.15
Customers With Bill Increases	Participants (%)	28.9%	26.3%	30.0%	28.1%	25.9%	6.3%	34.3%
	Average Monthly Increase (%)	4.0%	6.2%	3.0%	2.9%	6.0%	2.9%	1.6%
	Average Monthly Increase (\$)	\$5.03	\$4.93	\$3.32	\$5.32	\$5.62	\$0.68	\$0.47

CPPF-A Statewide Representative Sample

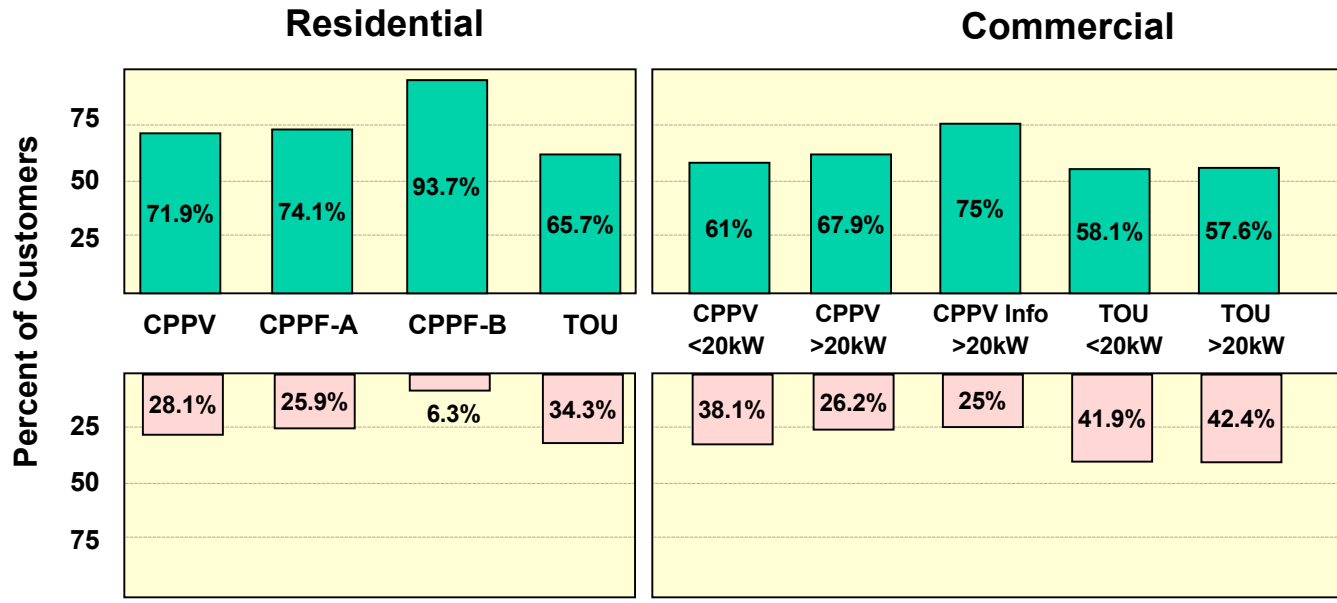
CPPF-B Residential Low Income, SF Hunters Point

Source: Statewide Pricing Pilot, Shadow Bill Results, WG3 report, June 9, 2004 and Joint Utility Bill Analysis, January 12, 2004.

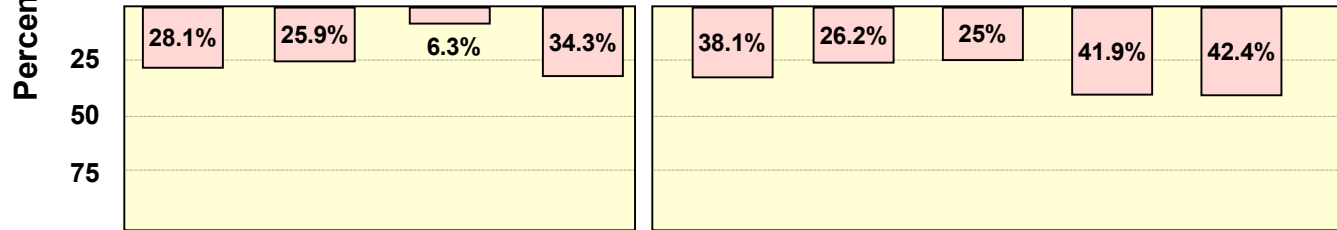
Customer Bill Impacts

Participant Bill Impacts - 2004

Customer Bills Decreased (%)

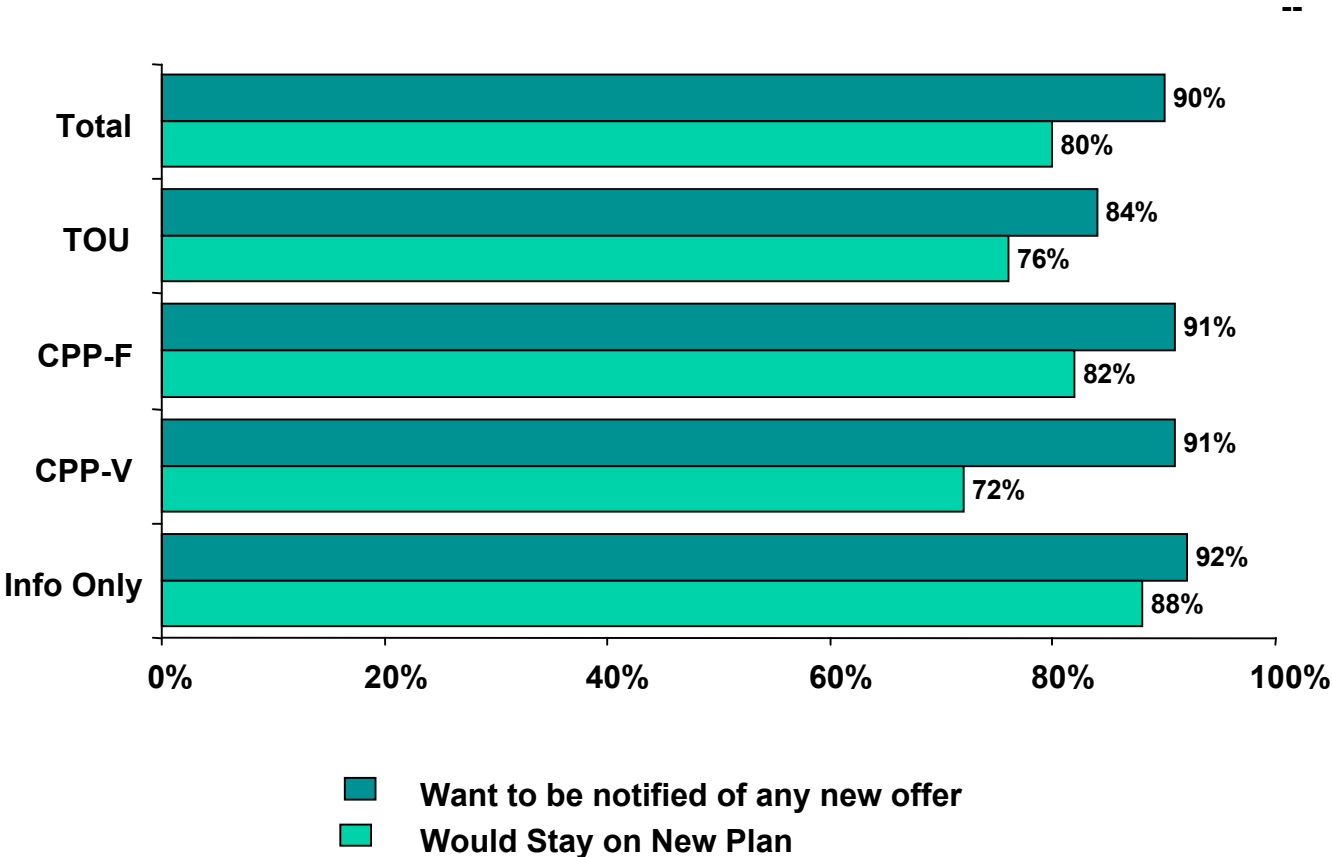


Customer Bills Increased (%)



Customer Acceptance- Customers Want Choice NOW

Residential participants Interested in continuing on a dynamic rate even without a supplementary participation incentive - 2004



Source: Statewide Pricing Pilot: End-of-Pilot Customer Assessment, December 2004, Momentum Market Intelligence.

Next Steps to make CPP rates Available to all Customer

- Install Advanced Metering Networks-
Deployment will start in mid 2006
- Develop critical peak prices as a default
tariff (customers can opt out)
- Install notification networks and educate
customers on how to respond to CPP signals

For More information on the CA Statewide Pricing Pilot

- Visit the following web site address
<http://www.energy.ca.gov/demandresponse/documents/index.html#group3>.
- Or Contact Michael Messenger at 916-654-4774 or email at mmesseng@energy.state.ca.us
- I particularly recommend the Technical_Assessment of Information Display Report and the Customer Survey work from Momentum.