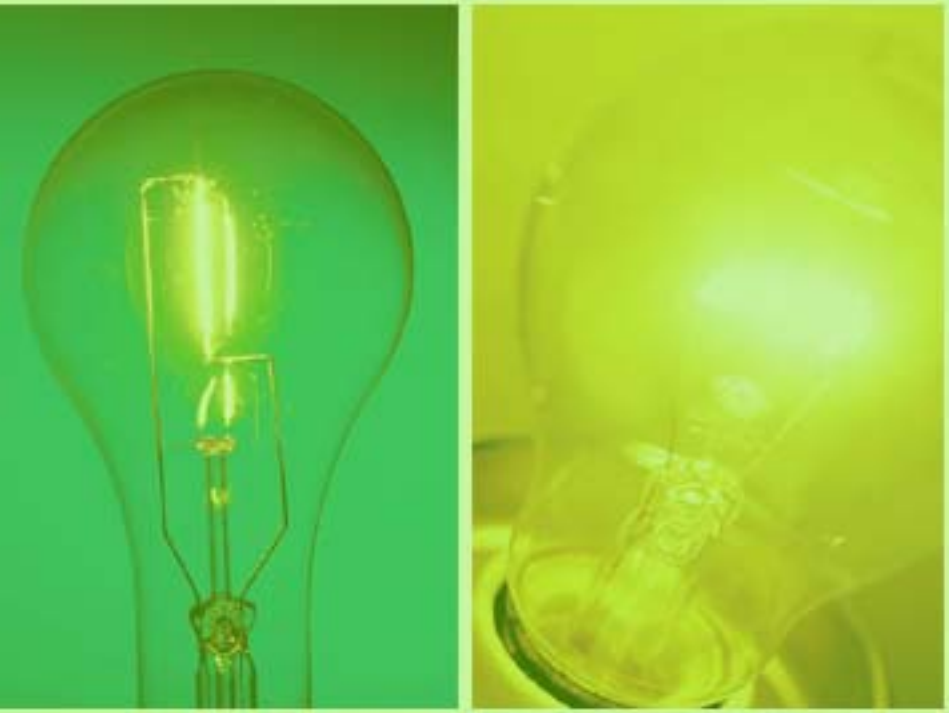
UCSB ENERGY
FY 2005



Annual Report

Jim Dewey – Campus Energy Manager

Summary

Fiscal year 2005 was another active year for our energy team. We continued upgrading our high-voltage electrical system, providing our campus with a more efficient and reliable electrical distribution system. We also completed several large energy efficiency projects which helped offset the additional energy use of the new Engineering Sciences and Life Sciences buildings.

Energy prices continued to fluctuate this year. The price of electricity increased 8.8%, while natural gas prices fell 4.6% for the campus.

Energy conservation continues to improve. Our energy team has reduced our electrical usage per square foot by 30% since our peak in FY '98, and reduced our campus natural gas usage per square foot by 25% since our peak in FY '99. The team has also secured more than $3 million in grants and rebates over the past 4 years.

ELECTRICITY

Continuing the Fight for Savings

Electrical Supply

Due to better pricing from our electrical utility, our campus made plans to leave Direct Access electrical service with Arizona Public Service Energy Services (APSES), and made a commitment to return to “Bundled” electrical service for a period of three years with Southern California Edison (SCE).

UCSB will begin service with SCE in November, 2005, and will continue until October 2008, when we will need to make a decision whether to return to Direct Access service or stay with SCE.

Return to Bundled Decision

HISTORY

- April 1998 - Begin Direct Access with Enron – Price: 6.4 cent/kWh (average)
- April 2002 – Direct Access contract with APSES Begins thru June 2005
- Summer 2002 – Historic Procurement Charges (HPC) and DWR Bond payments charged adding 2.7 cents per kWh – Price: 9.6 cents/kWh (average)
- May 2004 – New Bundled electrical account for 12 kV electrical infrastructure. 1-cent HPC not imposed on this account until all electrical load is transferred to the new 12 kV service
- April 2005 – Bids for Direct Access 12-month pricing average 7.2 cents/kWh compared to present commodity price of 6.1 cents/kWh—an extra cost of $700k for the campus – Total price: 11 cents/kWh (average)
- May 2, 2005 – Filed “Six Month Notice to Return to Bundled Portfolio Service” with SCE, alerted UCOP to procure energy from July ’05 thru October ’05. Begin Bundled Portfolio Service (BPS) with SCE in 11/05 – Price 9.1 cents/kWh

IMPLICATIONS

- FY 05/06 Savings of $900k over D.A., $120k savings over FY 04/05
- Committed to BPS for 3 years—provide a six-month notice to return to D.A.

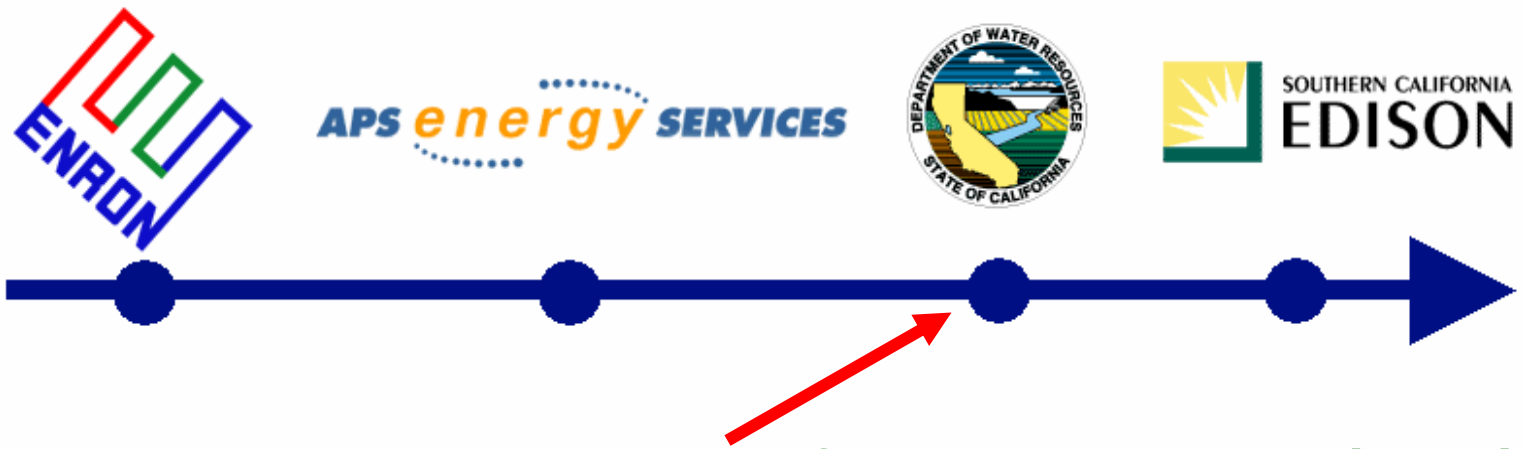
Electrical Supply History

- **April, 1998- Enron electricity contract begins**
- **Electricity cost At 6.4 Cents/kWh (Total Average)**

Electrical Supply History

- **Enron contract ends 4/1/2002**
- **APSES contract begins, providing electrical commodity ($/kWh) to UCSB through June 2005.**
- **SCE collects Demand Charges ($/kW)**

Electrical Supply History



- **Summer 2002 – Department of Water Resources (DWR) starts assessing fees to pay for expensive long-term power contracts. Fees collected by SCE.**
- **DWR bond payments and SCE Historic Procurement Charges increase our electrical costs by 2.7 cents per kWh**
- **Fees will continue for at least 10 years**

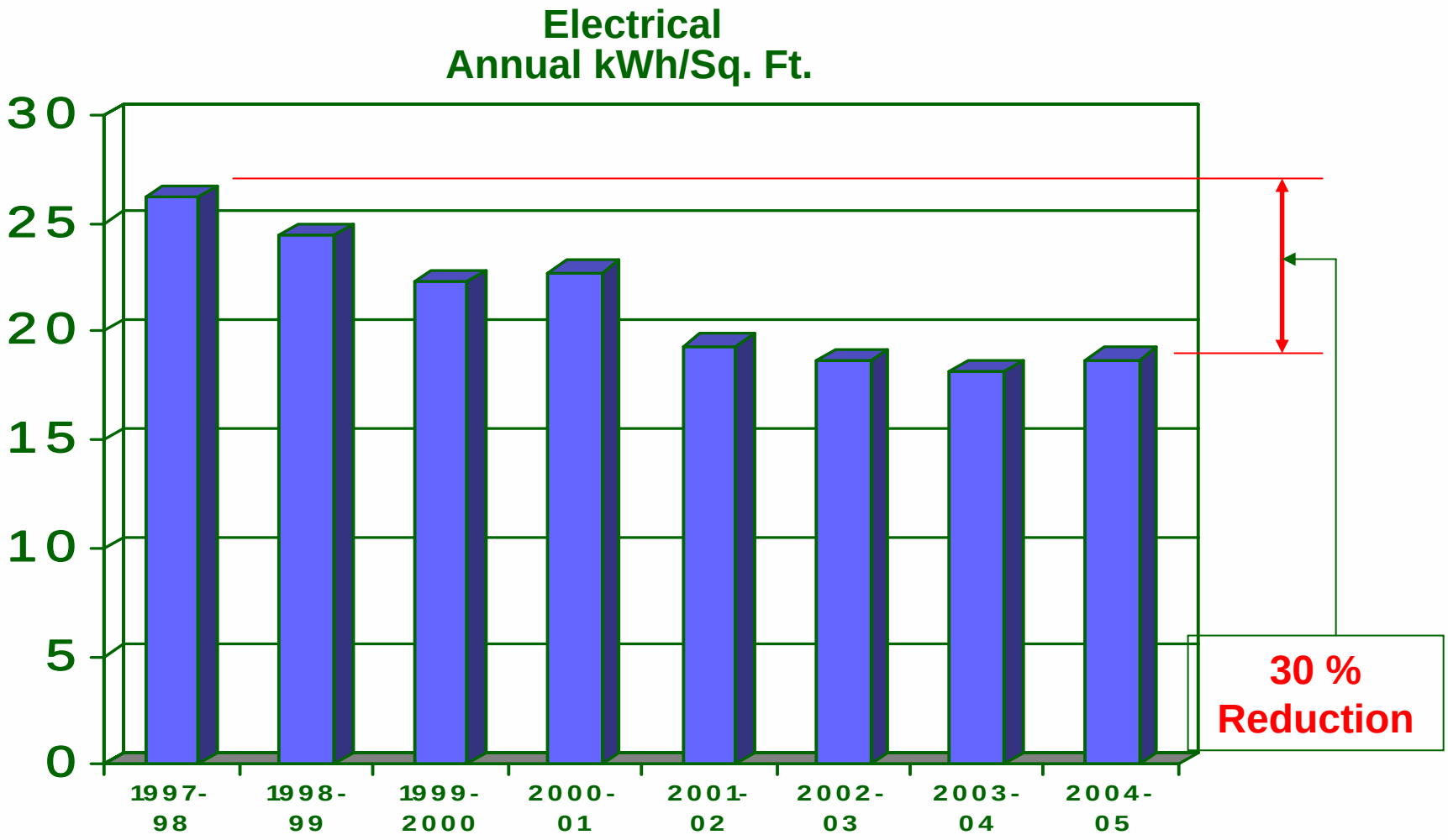
Electrical Supply History

- **November 2005 – UCSB returns to Southern California Edison for our electrical generation. UCSB commits to 3-year contract with SCE for all electrical service.**

Electrical Cost Increase

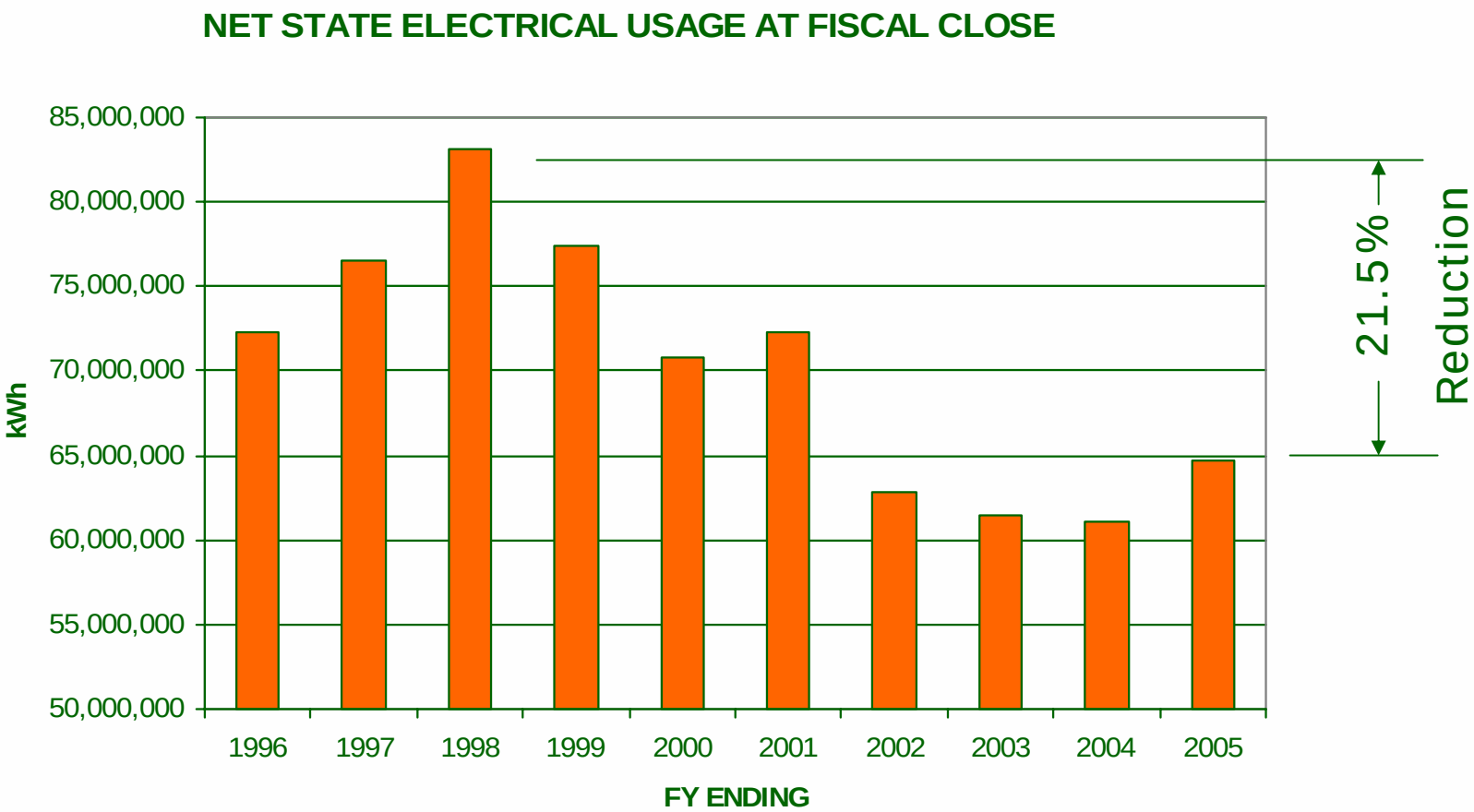
- Average Cost of Electricity from FY 1996 to 2001 was 6.4 cents/kWh
- 2005 Electricity Costs rise to over 11 cents per kWh (average), a 74% increase over 1996-2001, and a 9% increase over 2004 (10.2 cents average).
- 2006 should see a decrease in our electrical rate due to the switch from Direct Access service to Bundled service with SCE.

Electrical Conservation Results per Square Foot



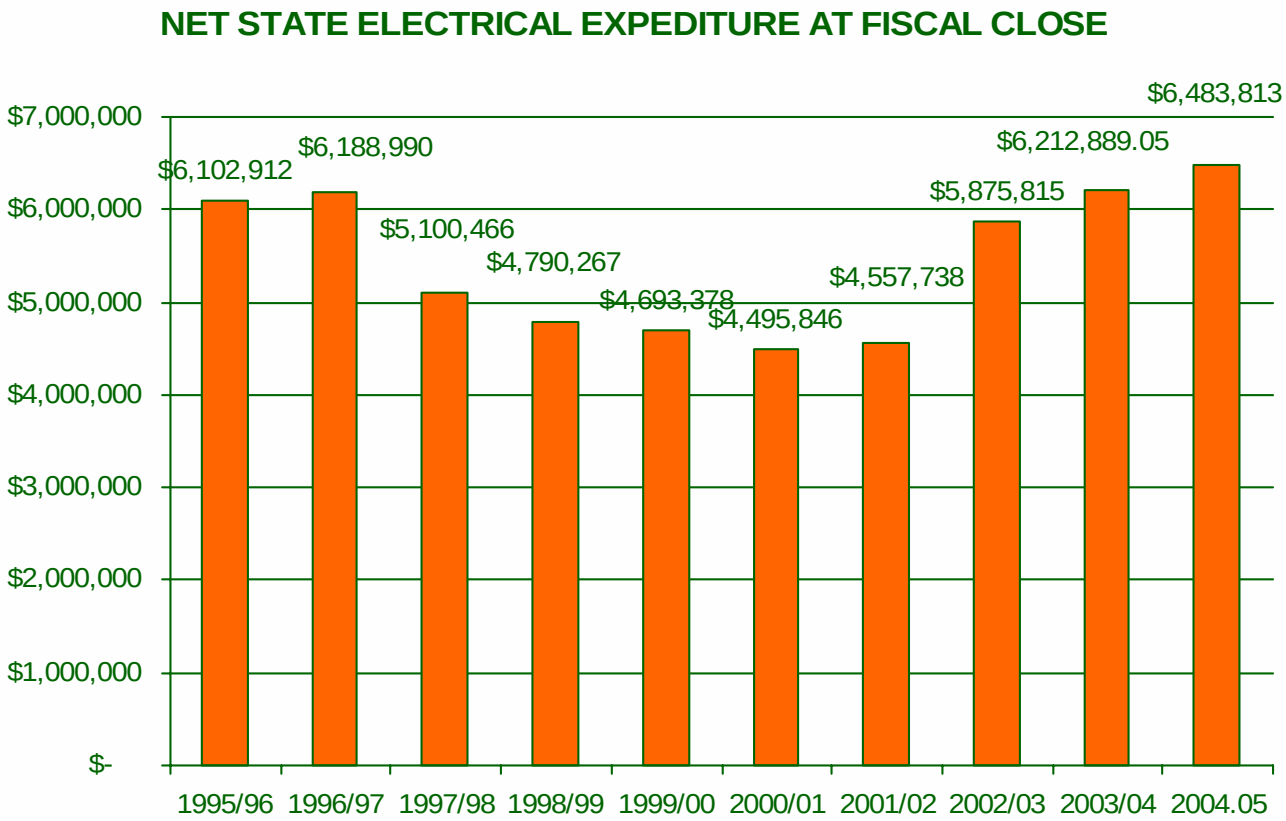
State funded “Core” buildings

UCSB Core Electrical Usage



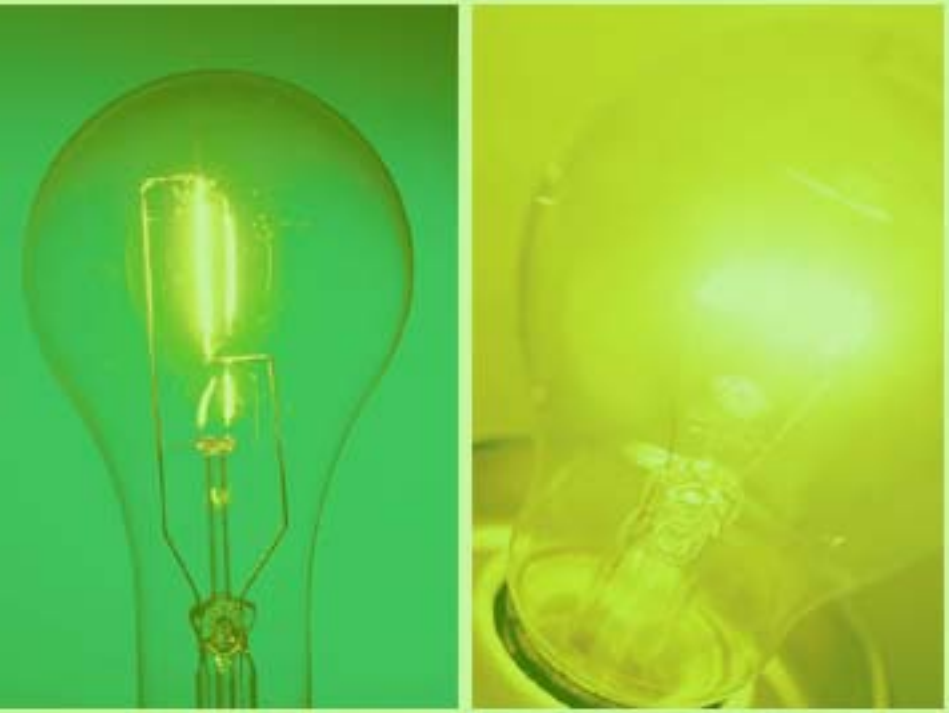
Annual Electrical Usage for All State Supported Campus Programs. (2005 increase due to addition of Engineering Sciences and Life Science buildings)

Core Electrical Costs



UCSB paid an historically high electricity bill this year ($6.5 million for State funded programs). As prices increase, continued conservation yields greater savings, and helps offset the added costs.

Natural Gas



Gas Prices Find New Baseline

Natural Gas

As demand for Natural gas and crude oil increases, so do prices. Uncertainty in the Middle East and increased demand from India and China are driving gas prices to a new level.

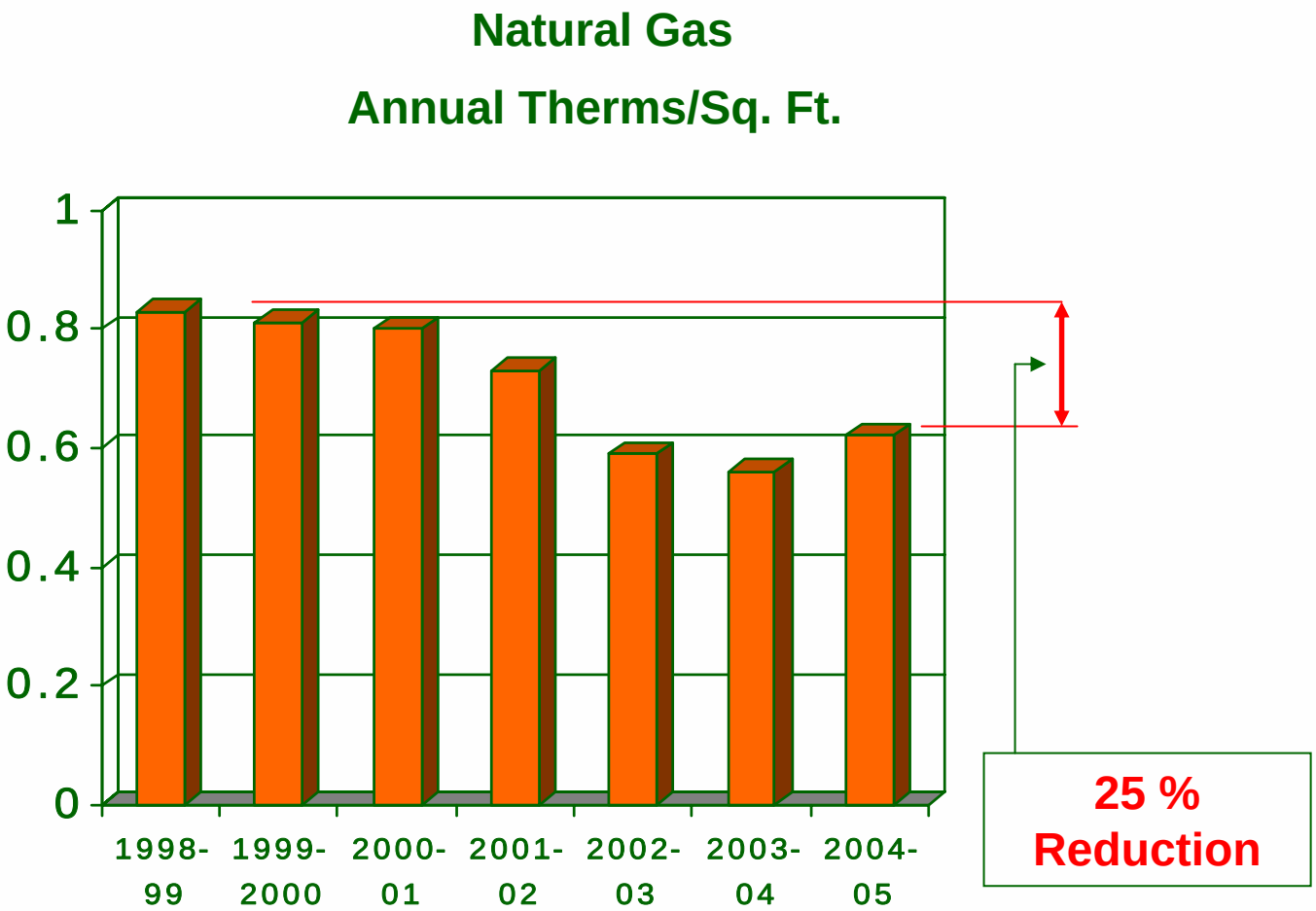
Gas usage on campus increased this year due to the addition of energy-intensive buildings like Engineering Sciences and Life Sciences.

This year's average gas price was 75.3 cents per Therm compared to 33.3 cents per Therm in 1997

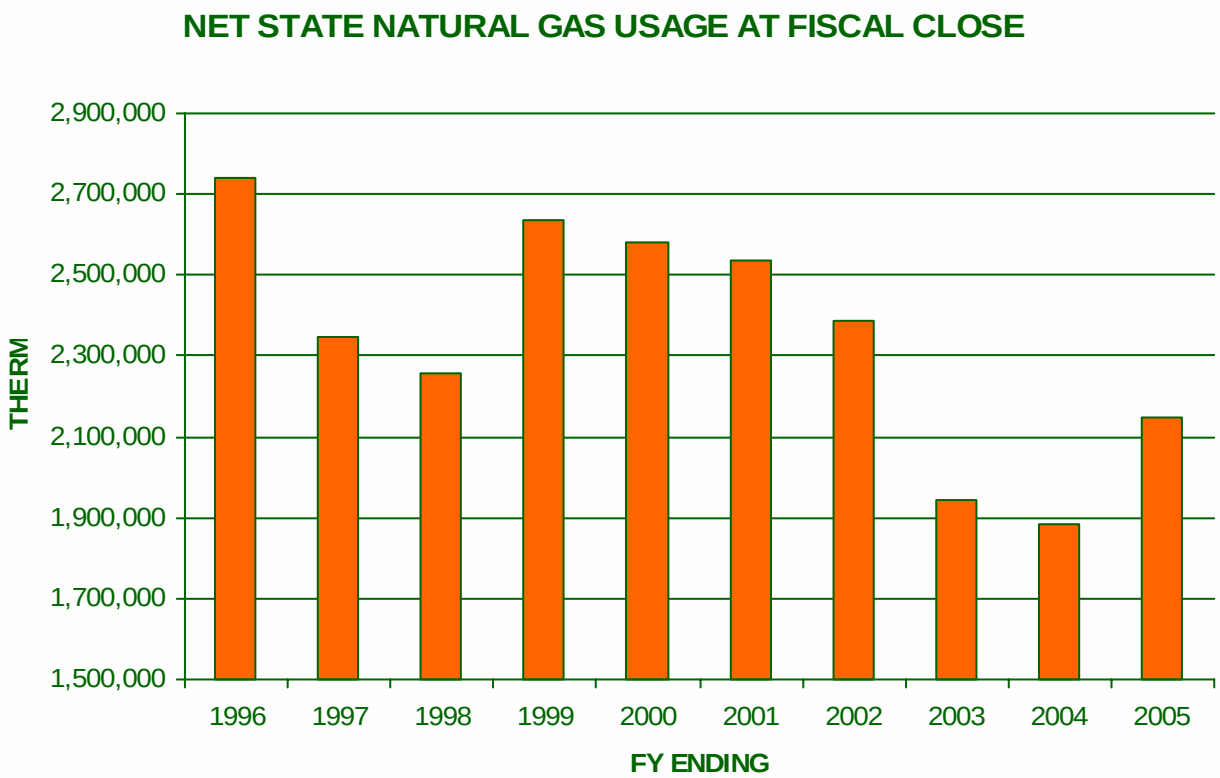
Natural Gas

- UCSB's gas prices fell from 79 cents per therm to 75 cents per therm this year
- With growing demand, gas prices will likely never fall below 65 cents per therm.
- Based on market forecasts, we expect gas prices for our campus to increase to around 90 cents for the coming year

Natural Gas Conservation

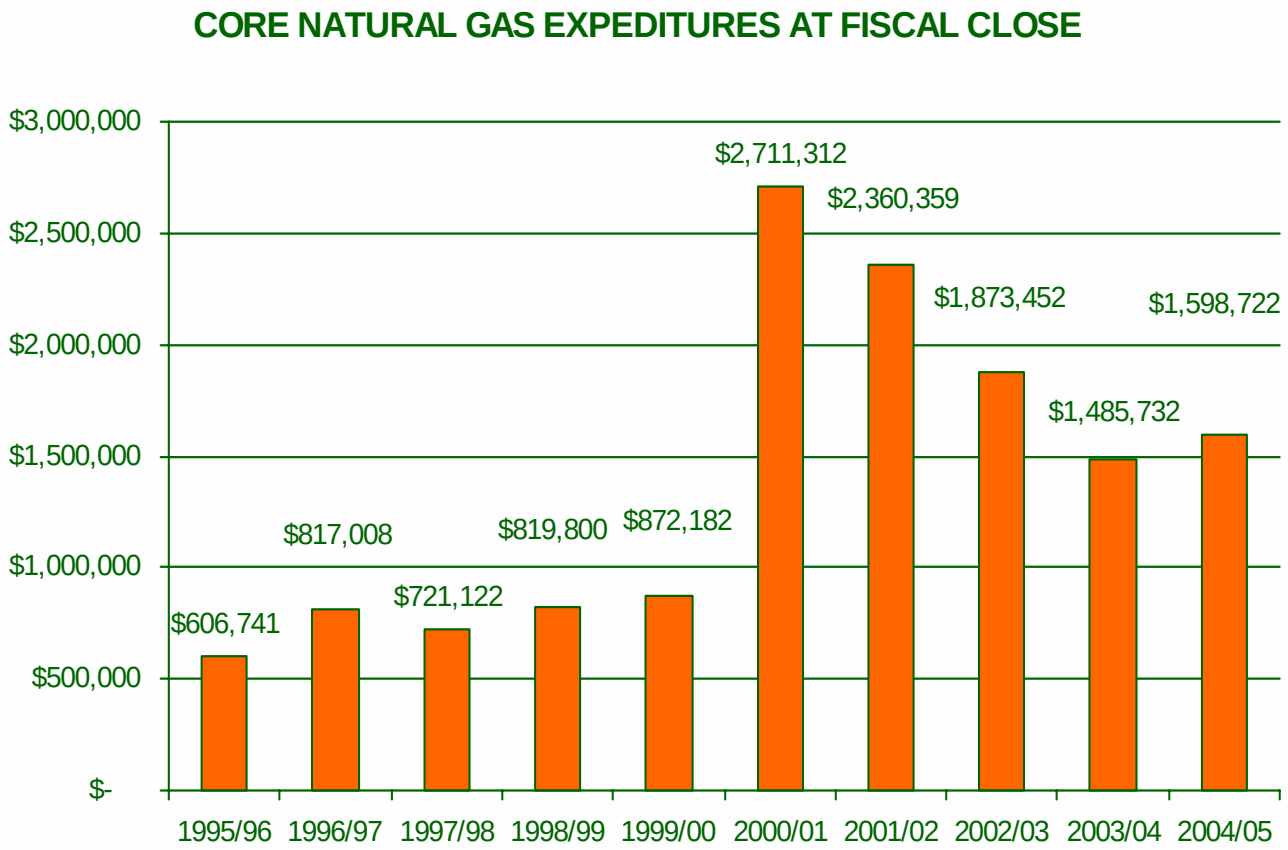


Core Natural Gas Usage



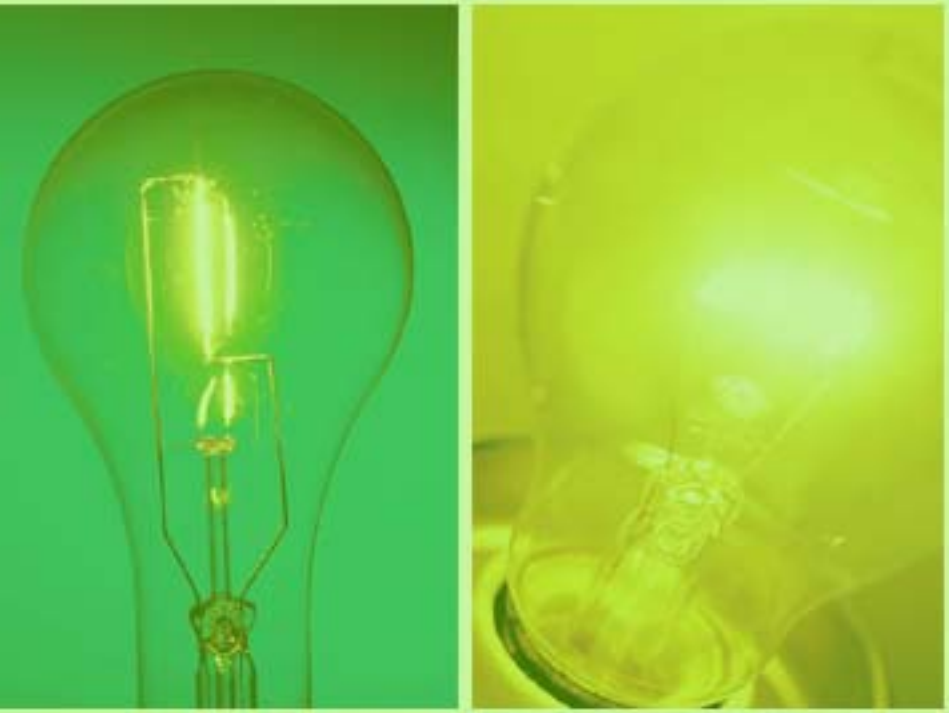
Natural Gas Usage increased despite energy conservation this year. The addition of 14,000 square feet of clean room space at Engineering Science and other lab space on campus has increased natural gas demand due to the energy needed to maintain precise temperature and humidity requirements

Core Natural Gas Expenditures



Conservation continues to offset much of the increased gas demand on campus.

Water and Sewer



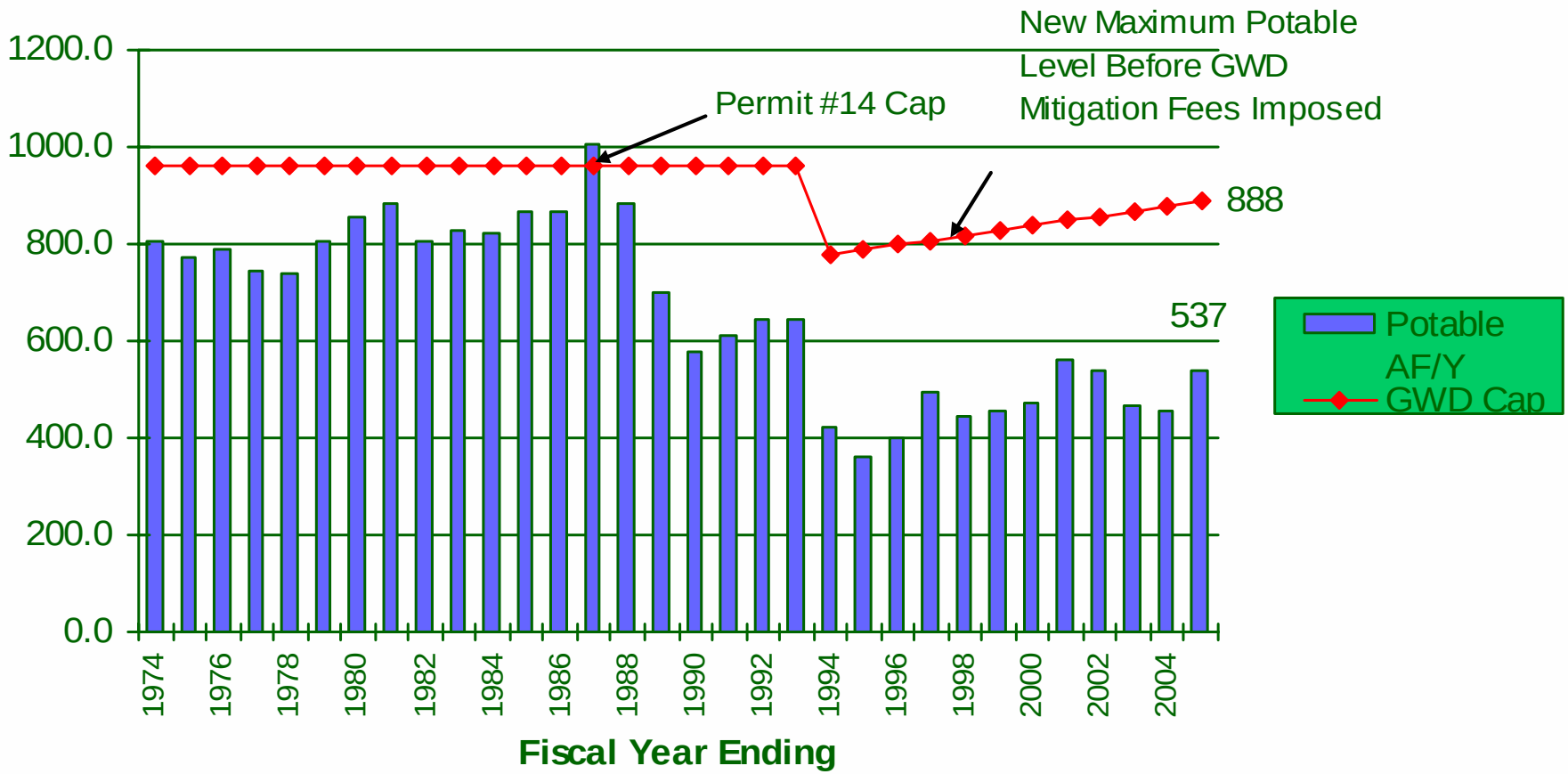
Potable Water

This year, UCSB's main campus used 537 acre feet of water, which is about 65% of our campus' total yearly allotment.

Despite this fact, water conservation remains a very important key to maintaining our future water requirements and securing a reliable water supply for the community

UCSB MAIN CAMPUS YEARLY POTABLE WATER USE VS. GOLETA WATER DISTRICT CAP

(Acre Feet)



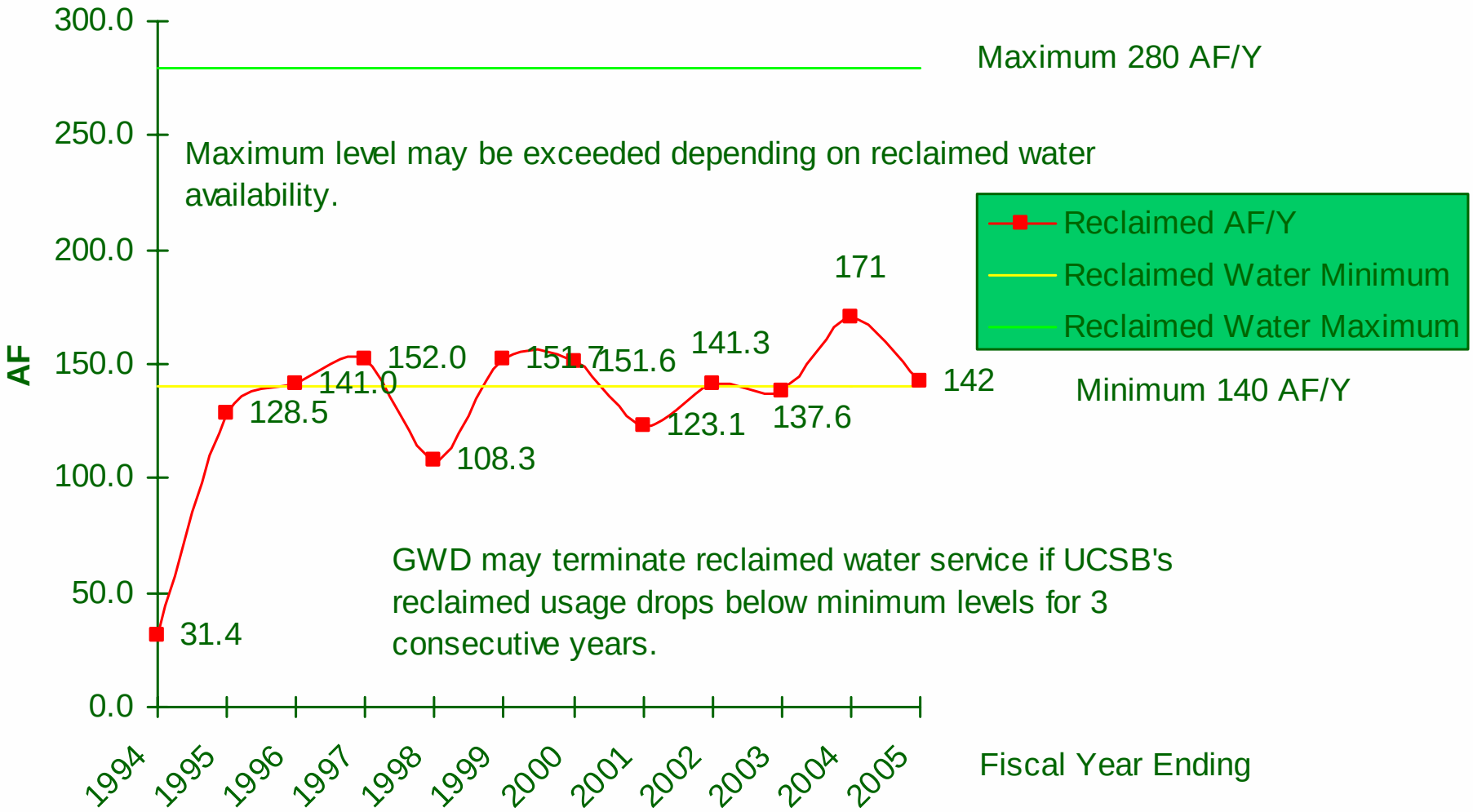
Reclaimed Water

IN FY 2005 Housing and Residential Services added some of its East Housing lawn areas to our reclaimed water system. Reclaimed water remains a great alternative to irrigating with potable water at one-third the cost.

Reclaimed Water

UCSB's reclaimed water contract requires that we use at least 140 acre-feet per year. Our reclaimed water usage is just above our minimum, at 142 acre-feet this year. With Housing and Residential Services moving more of their irrigation to reclaimed water, our campus should remain permanently above the 140 acre-feet minimum usage.

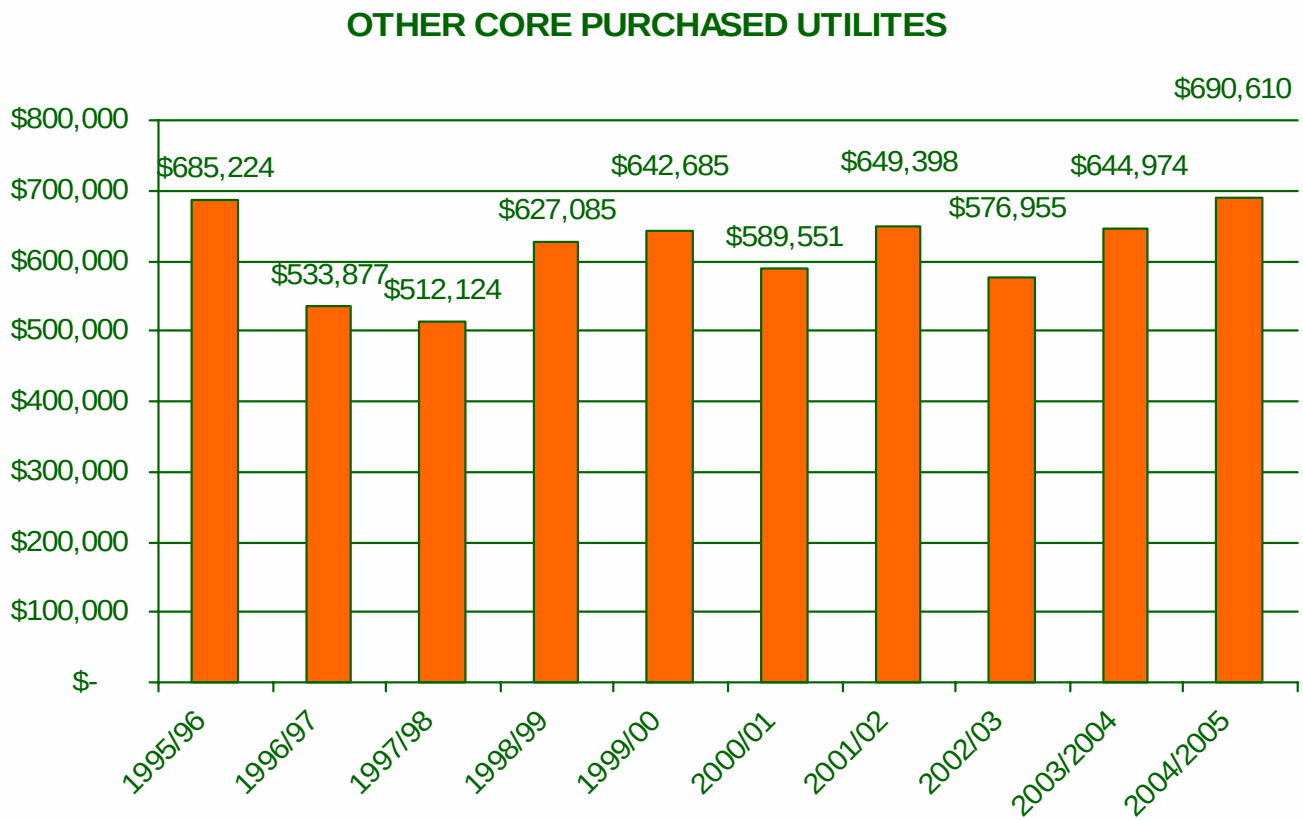
Reclaimed Water Usage vs. Min/Max Levels
UCSB Main Campus



Sewer

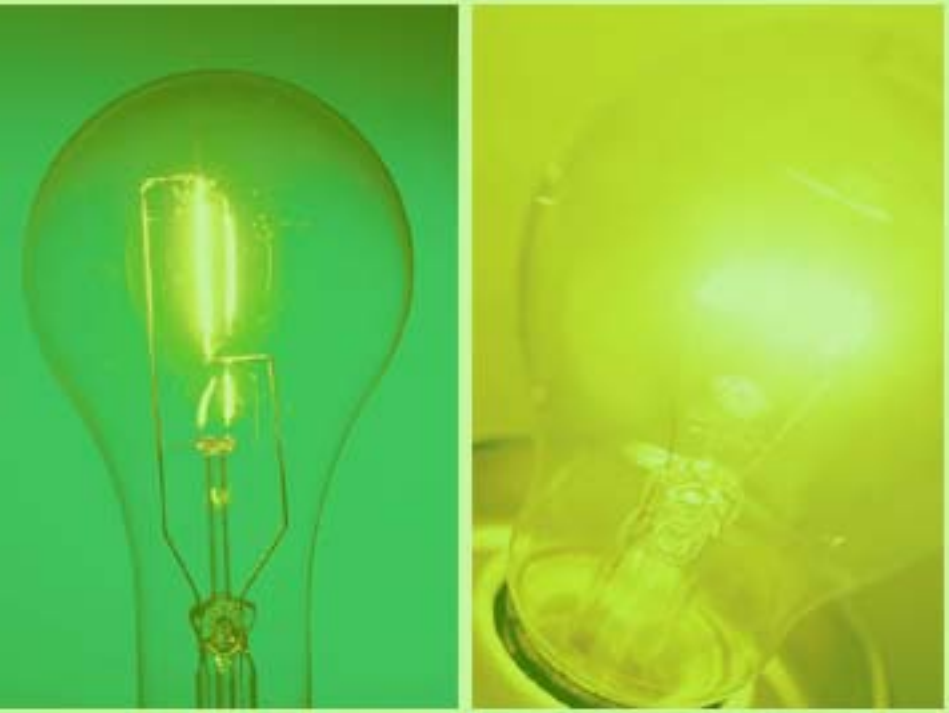
Sewer flows from the Main and West campuses are directly related to our potable water use. Water conservation helps lower our total sewer costs and the amount of raw sewage the Goleta Sanitary District must treat.

Other Core Purchased Utility Costs



The total costs of water, sewer, propane and other utilities have remained relatively stable over the past decade.

Energy Conservation Program



More Buildings . . .

More opportunities

PF Energy Team Projects

The PF Energy Team has redoubled our efforts to conserve energy to offset the additional requirements of our new energy-intensive buildings. This year, we implemented a number of energy conservation projects including:

- Lighting system upgrades at the Library and Music buildings, and installation of 250 occupancy sensors in campus restrooms to turn off lights when not occupied
- Installation of Equipment Cooling Heat Exchangers using our Campus Chilled Water loop to cool industrial processes
- Installation of Variable Frequency Drives on numerous campus fan systems to reduce energy demand and usage

PF Energy Team Projects

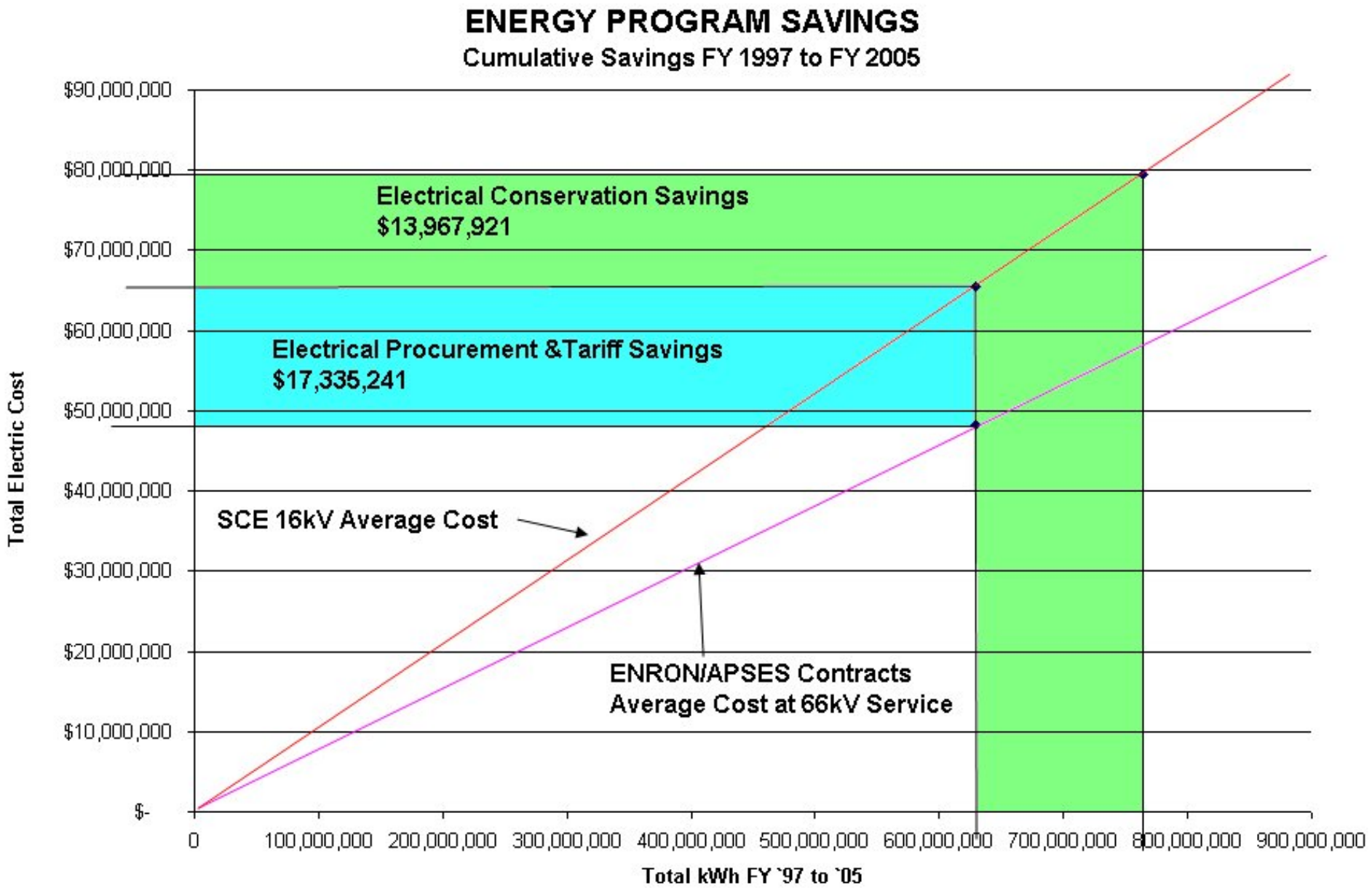
- Mark Peppers continues to develop our campus energy program, planning for the next several years, and is working with the UC/CSU Partnership for Energy Conservation and our utilities to secure grants and rebates for our projects

Energy Conservation Results

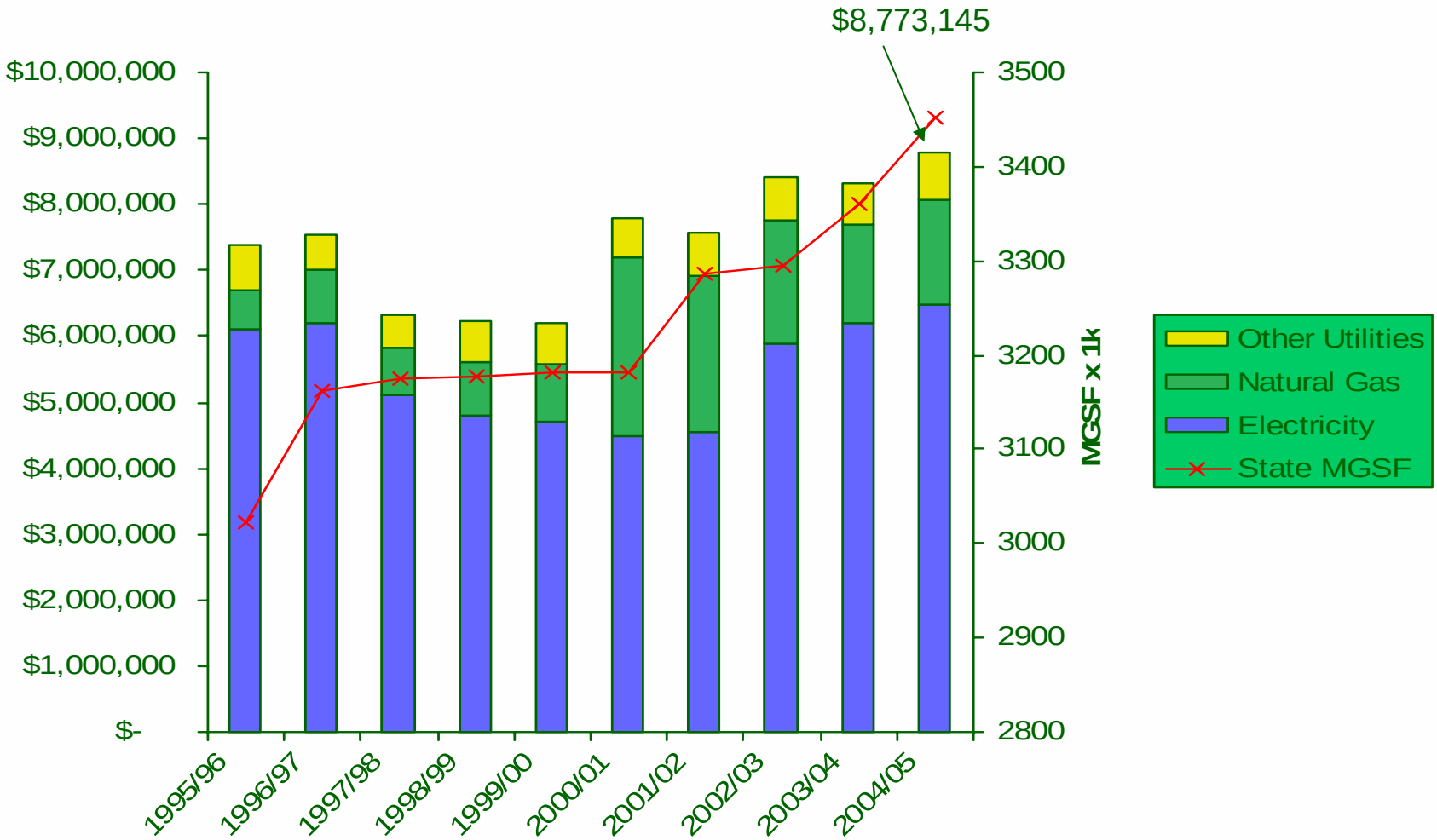
UCSB's energy program has saved over $31.3 Million in electrical costs since FY 1997, most of these savings coming in the last 4 years. The savings are a result of:

- Aggressive energy conservation
- Joint UC/CSU Direct Access electrical contracts
- 66 kV high voltage electrical conversion
- New technologies and innovation

$31.3 Million in Savings!!



Core Purchased Utilities Total Expenditures & Core Building Growth



Conclusion

Thanks to the support of the campus administration and the Physical Facilities department, as well as the students, staff and faculty of UCSB, we have been able to accomplish great things this year.

With the addition of several new, high energy use buildings coming on-line over the next few years, UCSB's electrical demand will increase by several Megawatts. Energy prices will continue to rise, and we will need to continue to carryon the fight to conserve our precious resources.

I want to thank everyone who has contributed to our program and for your patience with us as we negotiate our way through these difficulties.

-Jim Dewey

Physical Facilities Energy Team

- Barry Colwell
- Jim Dewey
- Marc Fisher
- Paul Gawronik
- David Gonzales
- George Lewis
- David McHale
- Mark Peppers
- Doug Riedo
- Alan Williams
- Fred Ziesenhenne
- Perrin Pellegrin
- Sandro Sanchez

Special Thanks

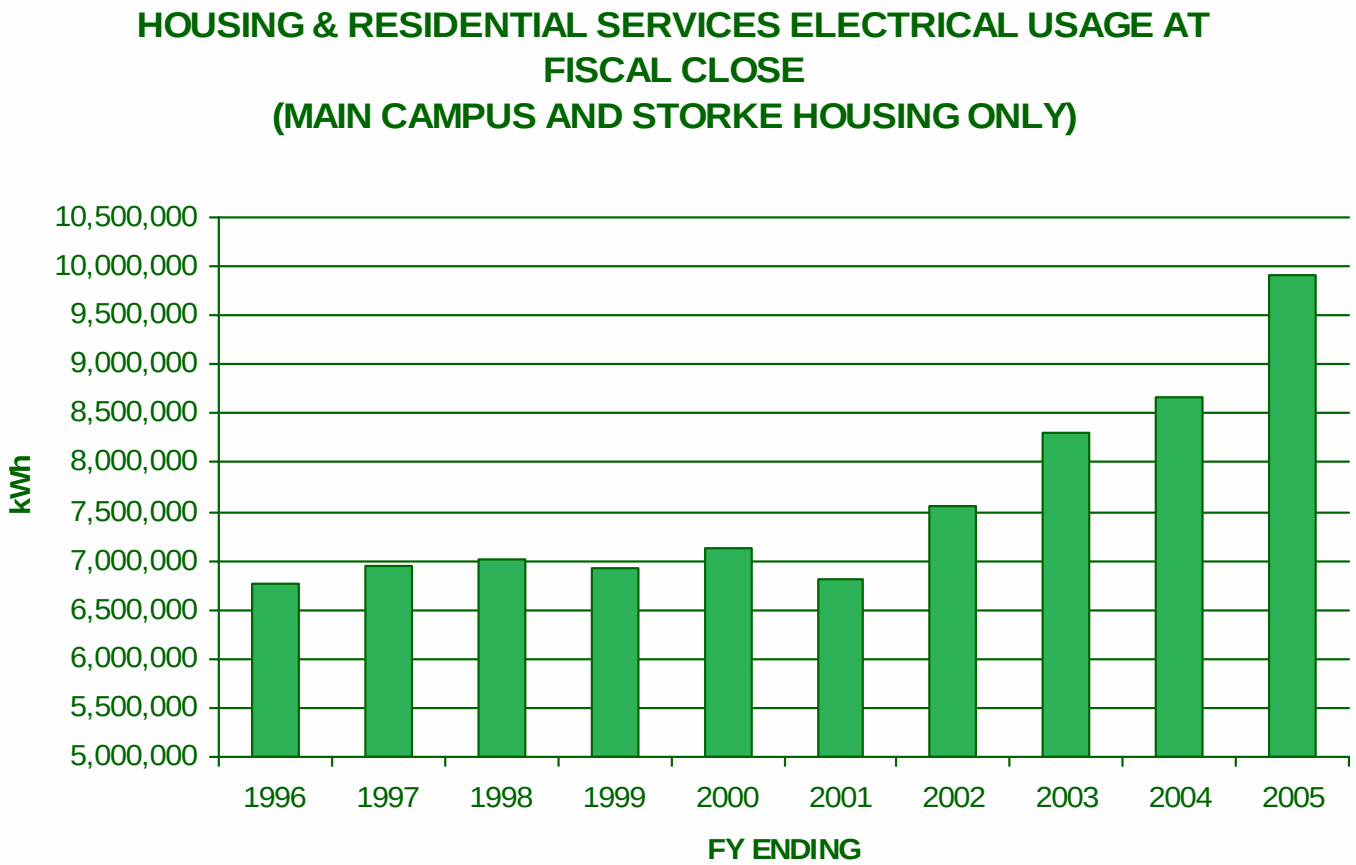
- Todd Lee – UCSB Budget Director
- Maric Munn – UCOP Director of Energy & Utilities
- Ed Marini – Design and Construction PM
- Mark Rousseau – H&RS Environmental and Energy Manager
- Jack Wolever – Director of Design and Construction Services
- All UC and CSU Energy Managers for your innovative ideas

Non State Funded Energy

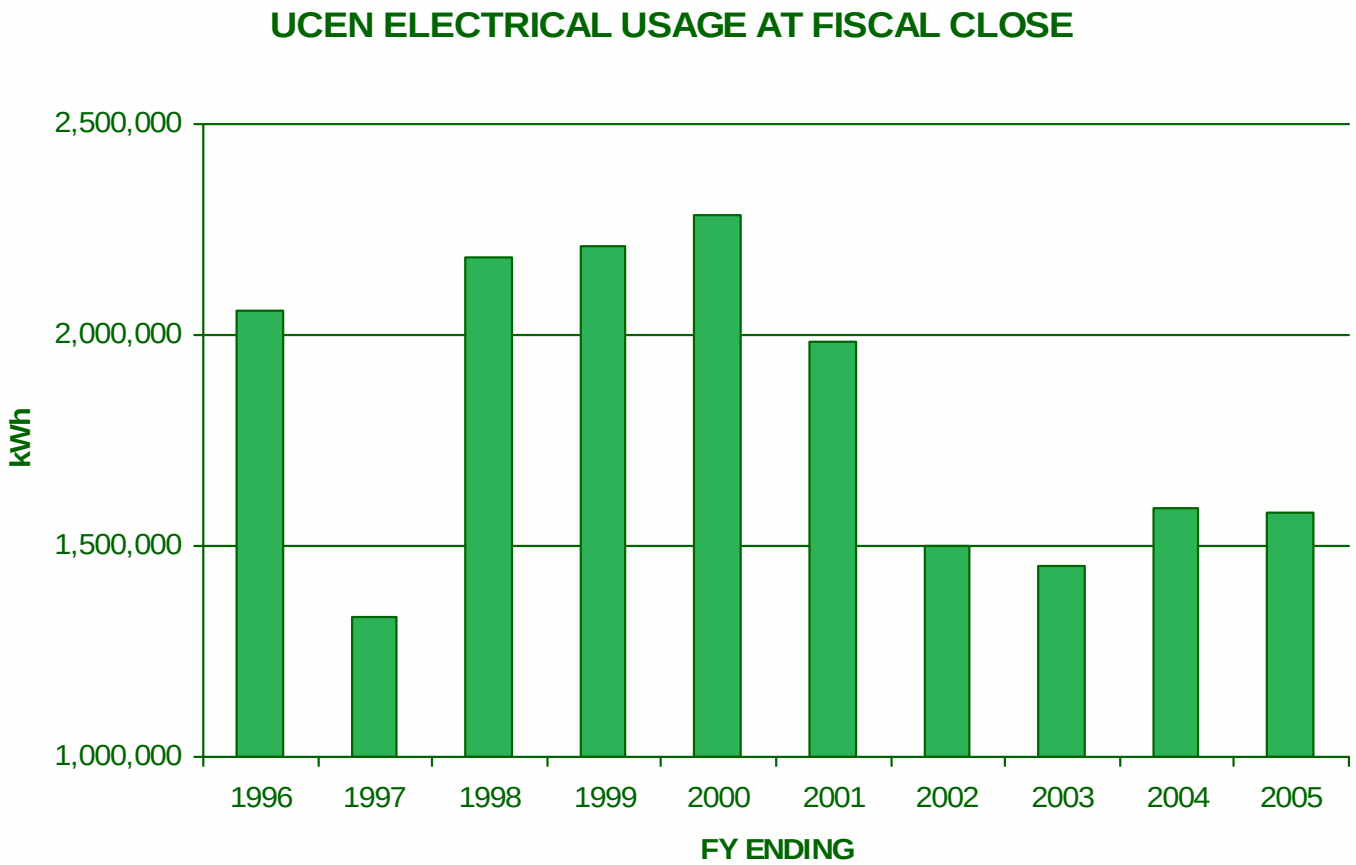
The non state-funded entities or auxiliaries, like Housing and Residential Services, the UCEN, and the Faculty Club, located on the main campus are recharged for their utilities, but manage their own energy programs.

The following energy data are from auxiliaries and other non core buildings.

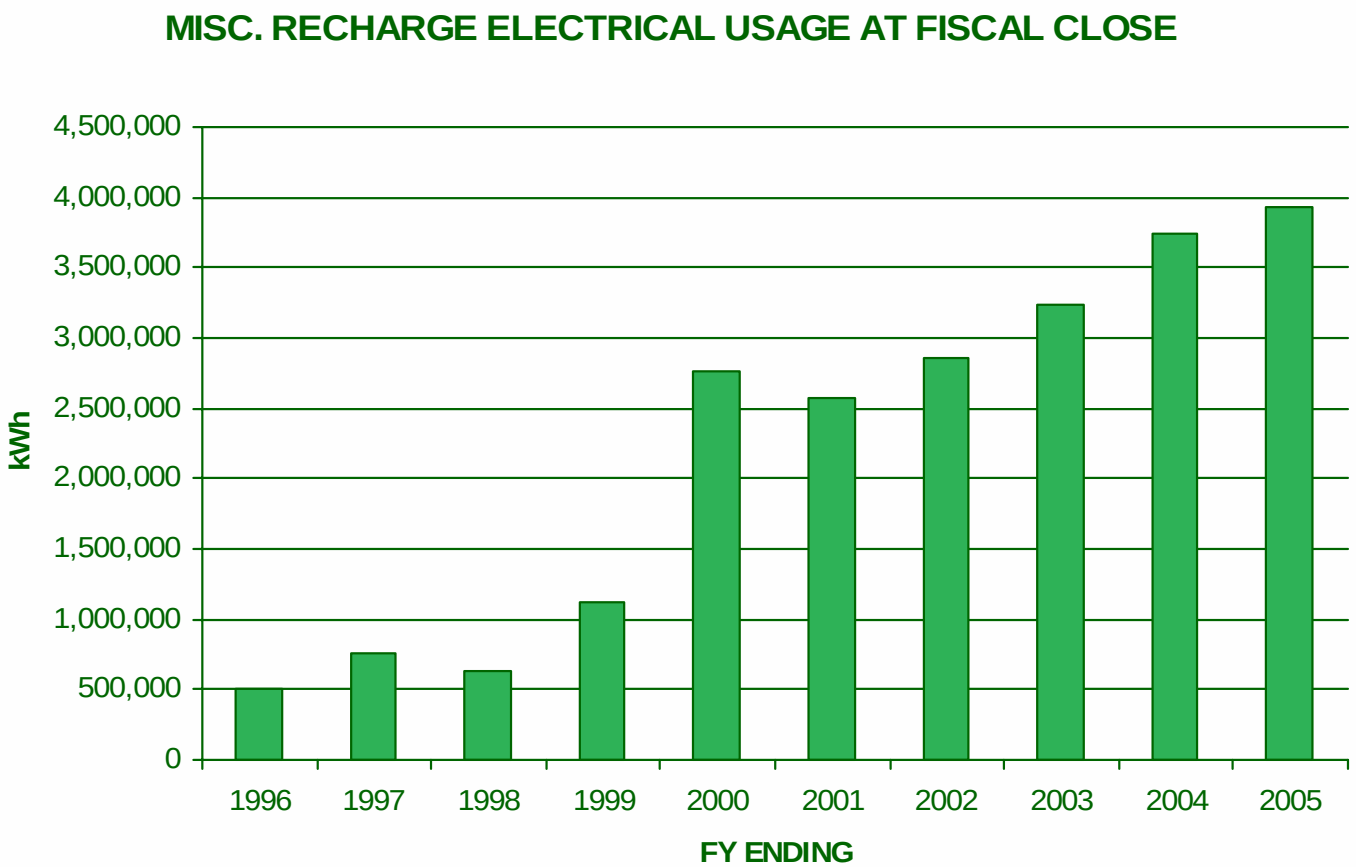
Housing Electrical Usage



UCEN Electrical Usage

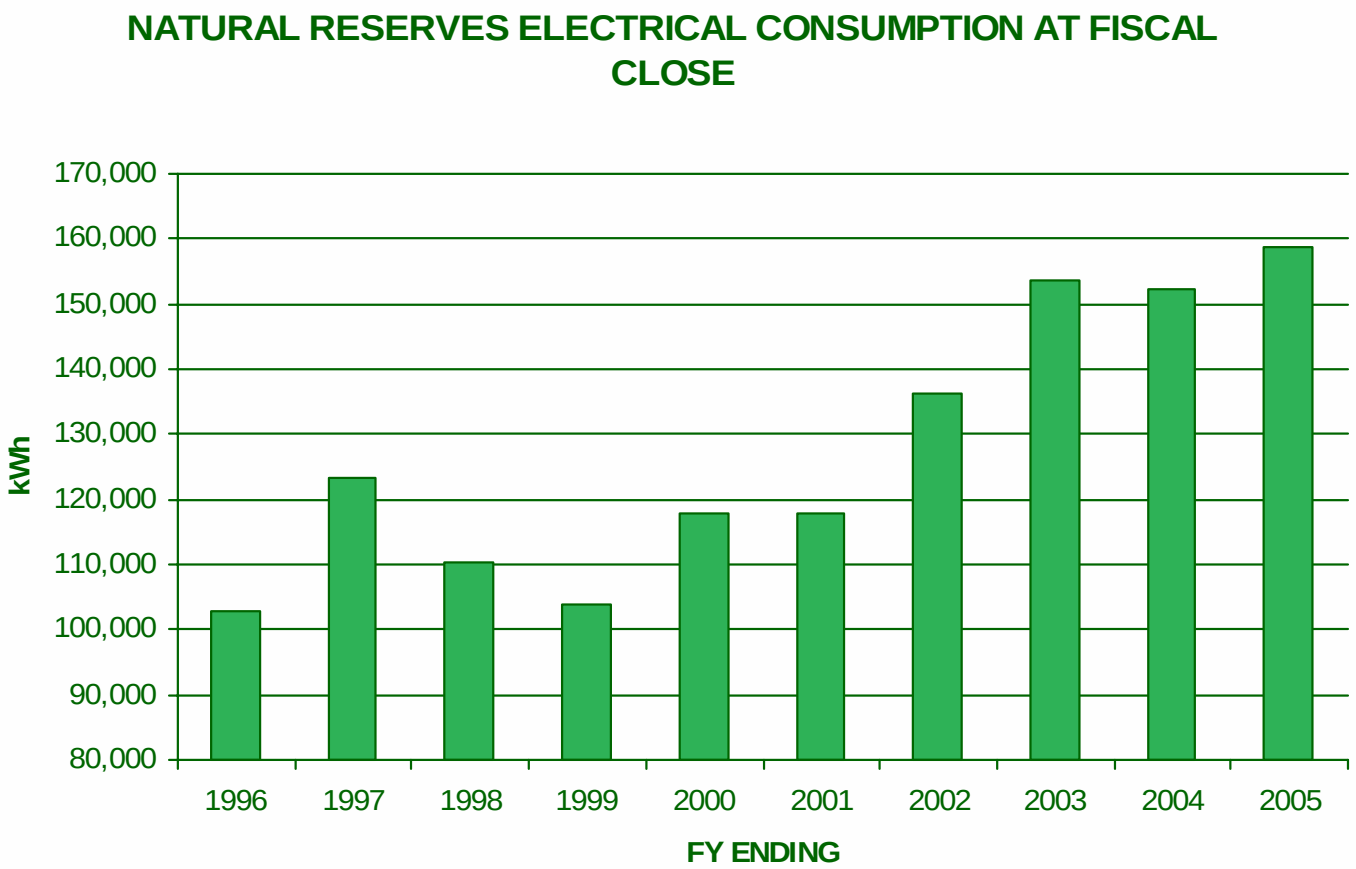


Misc. Campus Electrical Usage



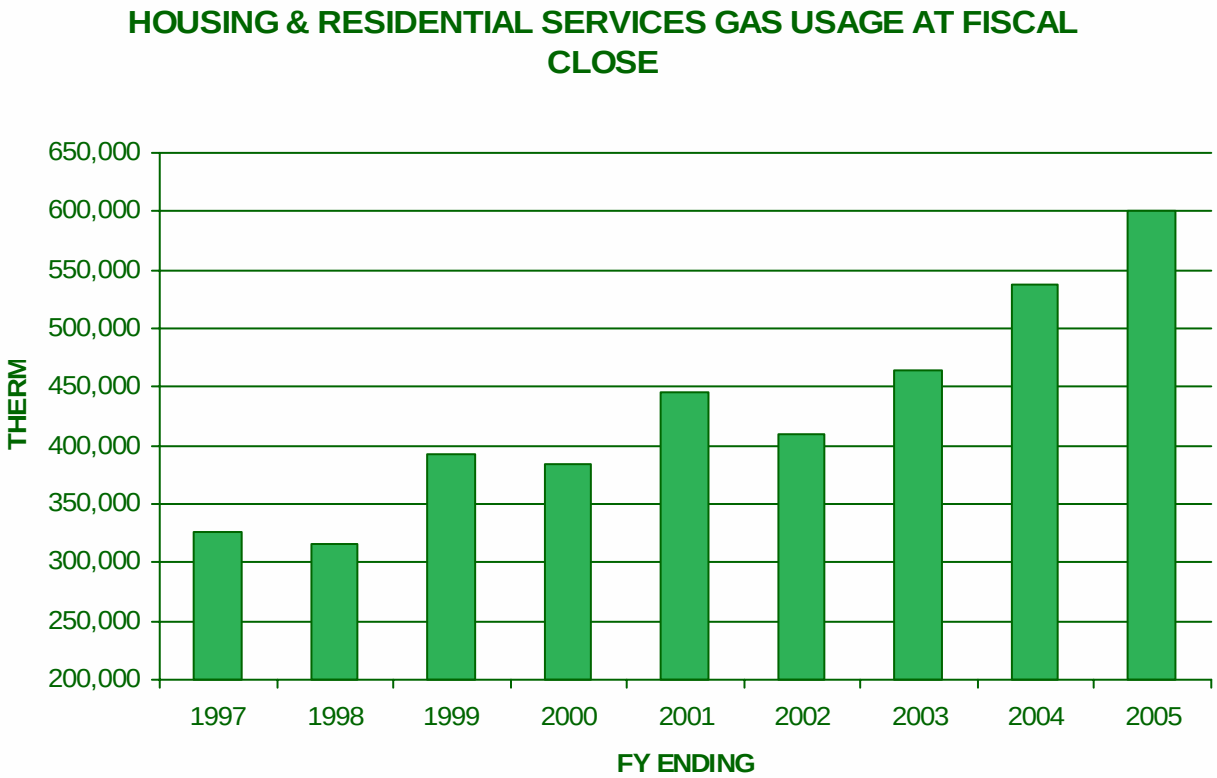
This Chart shows the combined usage among Garamendi funded buildings, Faculty Club, Parking Services and other non state funded entities.

Natural Reserves Electrical Usage



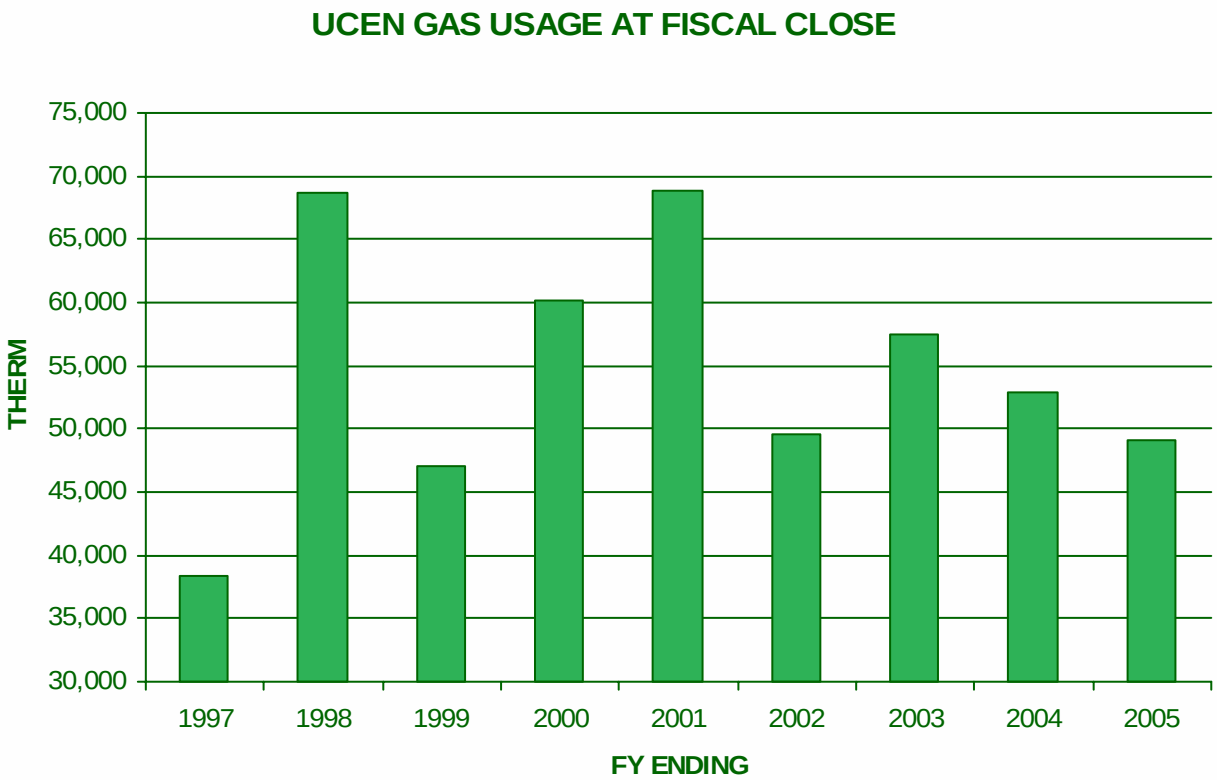
The Natural Reserves, who have no funding of their own for utilities, are being funded by State Funds and have shown a steady increase in electrical usage as well as propane.

Housing Natural Gas Usage



Housing and Residential Services Natural Gas usage for Main Campus buildings.

UCEN Natural Gas Usage



UCEN Natural Gas usage