



CITY OF SACRAMENTO

DEPARTMENT OF GENERAL SERVICES

OFFICE OF THE DIRECTOR

FACILITY MAINTENANCE DIVISION
FLEET MANAGEMENT DIVISION
RISK MANAGEMENT & INS. DIVISION
SUPPORT SERVICES DIVISION

March 5, 1986
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CITY MANAGER'S OFFICE
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MAR 4 1986

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: ANNUAL ENERGY REPORT

FILED
MAR 11 1986
BY THE CITY COUNCIL
OFFICE OF THE CITY CLERK

SUMMARY

This report provides the City Council with the FY 1984-85 Annual Energy Report. This report is for information only.

BACKGROUND INFORMATION

The attached document provides an overview of the City's annual energy consumption and energy conservation projects implemented to mitigate spiraling energy costs.

FY 1984-85 City-wide consumption reflected an increase of 7.9% above FY 1983-85. The factors contributing to this increase are identified in the report. This was the first time since FY 1981-82 that consumption showed an increase. Even so, FY 1984-85 consumption remained approximately 20% below that of FY 1981-82, reflecting an annual cost avoidance of approximately \$900,000, based on FY 1984-85 utility rates, in spite of the City's systems expansion (i.e., additional facilities, street lights, traffic signals, etc.).

Energy conservation aside, there are other important benefits being gained, particularly from the lighting relamping/conversion projects; for example, improved lighting levels for the safety of public and employees, significant reduction in maintenance costs resulting from the reduction of the number of lamps (i.e., parking lots by 60%), and the extension of lamp life by 50%.

Overall, I am pleased with the effectiveness of the Energy Conservation Program. The return on the investment has been extremely gratifying.

City Council

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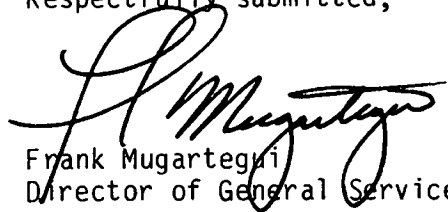
March 5, 1986

The City's Energy Systems Coordinator and SMUD's and PG&E's Conservation Departments are to be commended for their efforts.

RECOMMENDATION

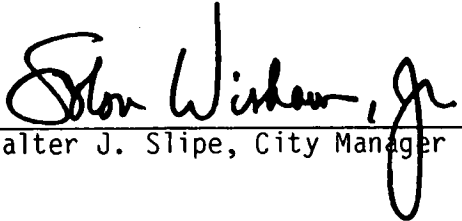
This report is for Council information; no action is required.

Respectfully submitted,


Frank Mugartegui
Director of General Services

FOR COUNCIL INFORMATION ONLY:

March 11, 1986
All Districts

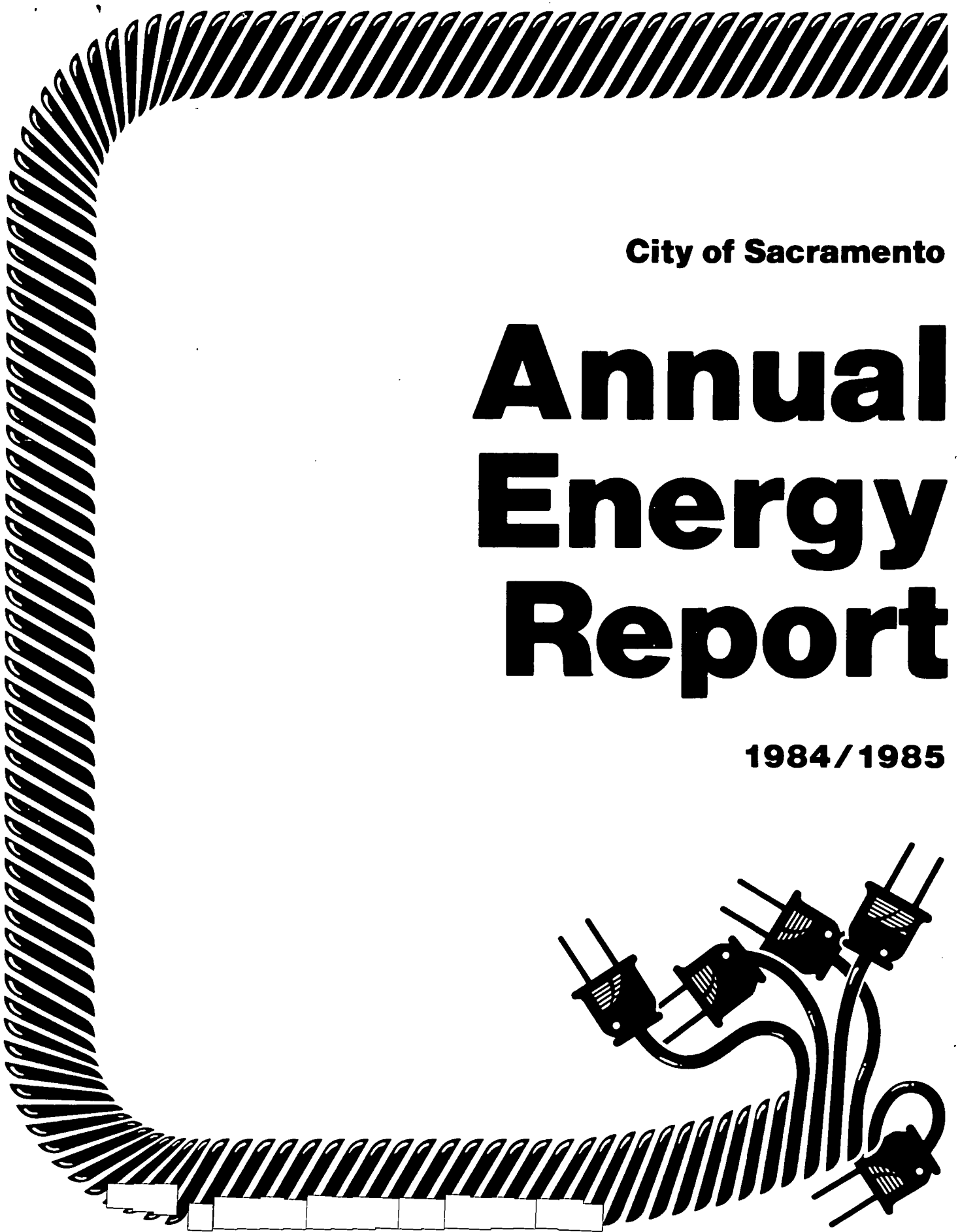

For: Walter J. Slipes, City Manager

cc: SMUD
PG&E
City Department Heads

City of Sacramento

Annual Energy Report

1984/1985

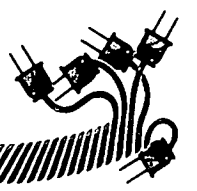


City of Sacramento — 1984/85 Energy Report

ANNUAL ENERGY REPORT
1984--85

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EXECUTIVE SUMMARY

The Annual Energy Report, 1984-85, addresses the goal, objectives, usage highlights, major completed projects, and outstanding projects of the City's energy program.

Goal

- o To mitigate spiraling energy costs through the implementation of energy conservation measures and practices, while meeting the needs of the City, thereby freeing up funding for vitally needed public services.

Objectives

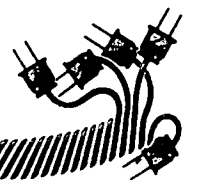
- o To improve the energy efficiency of existing facilities through any practical means available.
- o To design any necessary remodel, expansion or new facility in an energy efficient manner.

Usage Highlights

- o Consumption of energy increased 7%--Electricity 4.9%, and Natural Gas 33.5%. The increase was attributable to the following factors: 1) climatic conditions, 2) system expansion, and 3) employee comfort needs above 68 degrees, particularly reflected in office buildings, 24th Street Corporation Yard, and Police Squad Room usage of natural gas.
- o Electricity and natural gas costs increased 7.5%, with a Sacramento Municipal Utility District (SMUD) rate increase of 17.5% and a Pacific Gas and Electric (PG&E) rate decrease of 3.0%.
- o Fleet operations fuel consumption increased +4.1% as the result of a corresponding mileage increase, while miles per gallon of 8.7 remained constant.

Major Projects Completed

- o Converted fluorescent lighting fixtures to high pressure sodium lights and made switching control modifications in Parking Lots A, B, and H at a cost of \$110,202, which will result in annual savings of \$65,750 and a payback on the investment in 1.7 years.
- o Relamped 9,100 fluorescent lights with energy-efficient fluorescents and received rebates from SMUD and PG&E for relamping and other energy-saving measures totalling \$7011.



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- o Implemented energy conservation audit recommendations on 40 of the 41 audits performed by SMUD and PG&E on various City facilities.
- o Installed automatic timers on the final 14 tennis courts for an annual estimated savings of \$20,000 on an investment of \$16,620.

Upcoming Projects for FY 1985-86

- o Plan and begin conversion of lights in Parking Lots G and E to high pressure sodium lights.
- o Schedule and implement most cost effective (shortest payback on investment) energy conservation measures identified with \$120,000 appropriated for FY 1985-86.

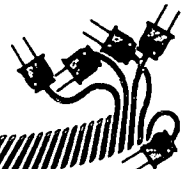
Recognition

- o In May of 1985 the City was the recipient of an "Excellence in Energy Management Award" for its participation in PG&E's commercial incentive and energy management programs which resulted in an annual cost avoidance of \$190,000 from reduced consumption.
- o SMUD and PG&E energy conservation staff continue to be extremely valuable resources to the City with their audits identifying areas where consumption can be reduced without affecting comfort levels, etc. Also, SMUD's assistance in reviewing lighting, layouts, and other energy conservation features for new and remodeled facilities has been very beneficial.

I. INTRODUCTION

The goal of the City's energy program is to mitigate spiraling energy costs through implementation of energy conservation measures and practices, while meeting the needs of the City, freeing funds for other public services. Three consistent factors appear throughout the following presentation of the City's energy consumption and conservation activities for FY 1984-85. Those factors are application of common sense, available technology, and vigilance toward energy issues and problems. By seeking out new opportunities to conserve and encouraging good energy consumption habits, the City has established a viable energy program.

In light of the long-term upward trend in energy rates, a commitment to prudent energy usage is essential. Energy prices have increased 300 to 400% in the last 10 years according to "The Professional Energy Manager" (Newsletter of Association of Professional Energy Managers, November/December, 1985). In the last year Sacramento Municipal Utility District (SMUD) rates have increased 17.5% while Pacific Gas and Electric (PG&E) rates have experienced a short-term decrease of 3%. Forecasts indicate utility costs will continue to climb.



II. BACKGROUND/DISCUSSION OF ENERGY USAGE

A. Climate Factor

Climatic conditions in Sacramento during FY 1984-85 as compared to FY 1983-84 were as follows:

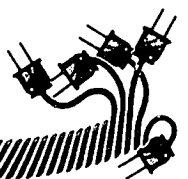
- o Rainfall decreased from 14.53" to 10.66", down 26.6%
- o Heating degree days, based on 65 degrees--an indicator measuring the need for winter space heating--increased 30.6%
- o Cooling degree days, based on 65 degrees--an indicator measuring the need for summer air conditioning--increased 7.2%

Local climatic conditions have a definite effect on energy consumption. Heavy rainfall and hot summers normally increase consumption of electricity to run pumps and air conditioning units, while colder days normally increase consumption of natural gas for space heating. In FY 1984-85 the winter was colder and the summer somewhat warmer than the prior fiscal year. Both of these factors were partially attributable to increased energy consumption.

B. Facility Design Factor

Many of the City's facilities are older structures and inefficient energy users. That being the case, the first objective of the energy program is to improve the energy efficiency of existing facilities through any practical means available. The second objective is to design any remodeled, expanded or new facility in a manner that it will be energy efficient.

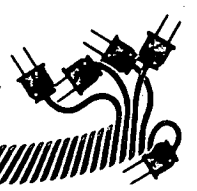
Improving the energy efficiency of existing structures requires determination and creativity. The starting point is a reasonable building temperature policy. The City's policy is to set thermostats no higher than 68 degrees in the winter and no lower than 76 degrees in the summer. The next step is requesting energy audits conducted by SMUD and PG&E, followed by suggested corrective action. City facilities have been audited and have been modified to comply with audit suggestions. In the process improvements have been identified which could be made in energy efficiency beyond required audit items, utilizing new energy technology based on the payback and an effective preventive maintenance program. A successful pilot project testing a new electronic energy management system has been completed in the activity building at the Community Center, and \$120,000 is being budgeted annually for corrective action on upcoming energy conservation projects. Preventive maintenance has been successfully applied to numerous problem areas, including heating, ventilating and air conditioning systems, which reduces energy consumption when units are being properly maintained.



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Whenever designing a remodel, expansion or new facility, energy efficient equipment is incorporated wherever practical. Energy efficient insulation, heating systems, lights and timers are routinely included as design features.

Throughout these activities, the City's Energy Coordinator continues to provide ongoing leadership and coordination of our many-faceted energy program.

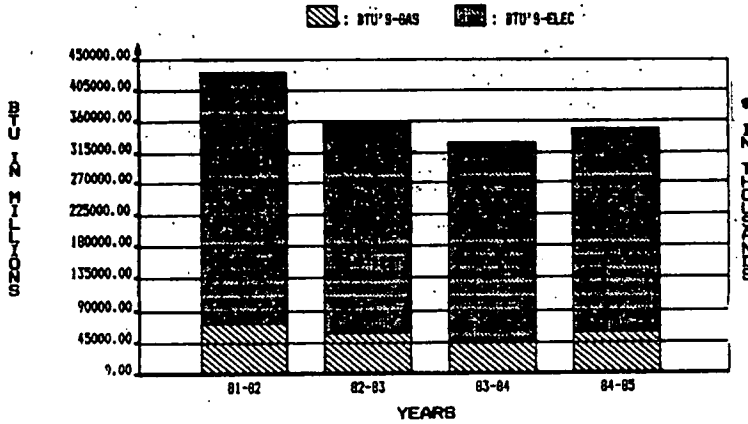


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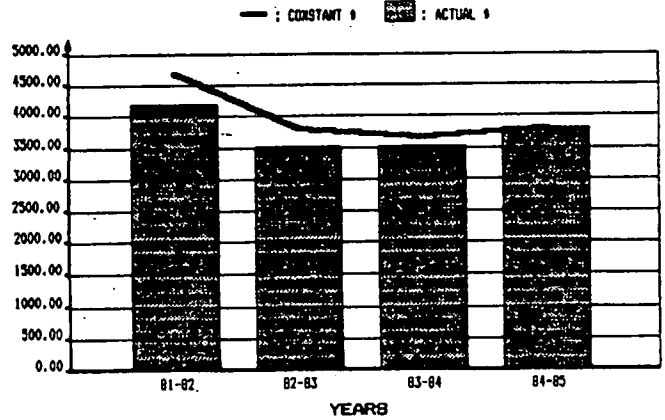
III. ENERGY CONSUMPTION BY ACTIVITY

A. Summary of Operations

SUMMARY OF OPERATIONS: ANNUAL BTU'S



SUMMARY OF OPERATIONS: ANNUAL COSTS



Note: Chart scale modified due to magnitude of units.

FY 1984-85 Compared to FY 1983-84:

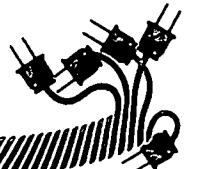
- o City-wide electricity usage up 3.0%
- o City-wide natural gas usage up 33.5%
- o Total energy cost up 7.5%

Consumption Measurements

<u>Period</u>	<u>Total BTU's (Billions)</u>	<u>% Change</u>
FY 1984-85	349.265	+ 7.9
FY 1983-84	326.359	- 9.7
FY 1982-83	361.335	- 16.4
FY 1981-82	432.340	N/A

Highlights

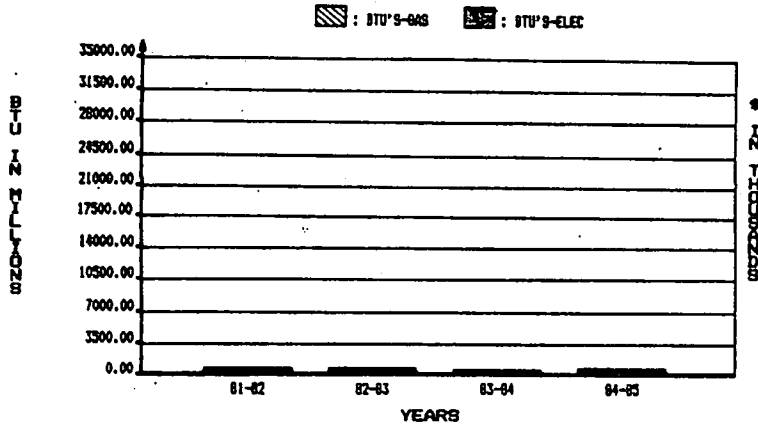
- o For the first time in three years City-wide electricity and natural gas consumption have increased, yet consumption for FY 1984-85 remained approximately 20% below FY 1981-82, reflecting an annual cost avoidance of approximately \$900,000 based on FY 1984-85 utility rates.
- o Climatic conditions, system expansion, increased water production, and employee comfort needs account for the overall 7.0% increase over FY 1983-84 and are addressed in the following functional highlights.



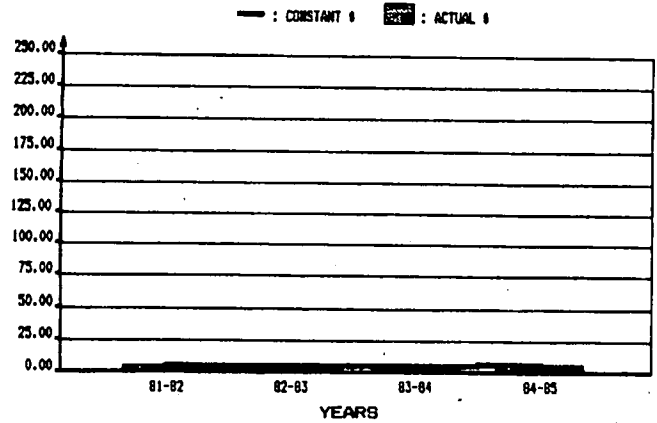
City of Sacramento — 1984/85 Energy Report

B. Animal Control

ANIMAL CONTROL: ANNUAL BTU'S



ANIMAL CONTROL: ANNUAL COSTS



Note: Chart scale modified due to magnitude of units.

FY 1984-85 Compared to FY 1983-84:

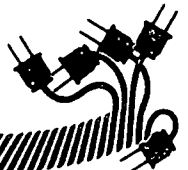
- o Electricity usage down 15.7%
- o Natural gas usage up 53.5%
- o Total energy cost up 21.9%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	137,683.9	+13.9
FY 1983-84	120,908.4	- 7.7
FY 1982-83	131,056.6	- 4.8
FY 1981-82	137,705.2	N/A

Highlights

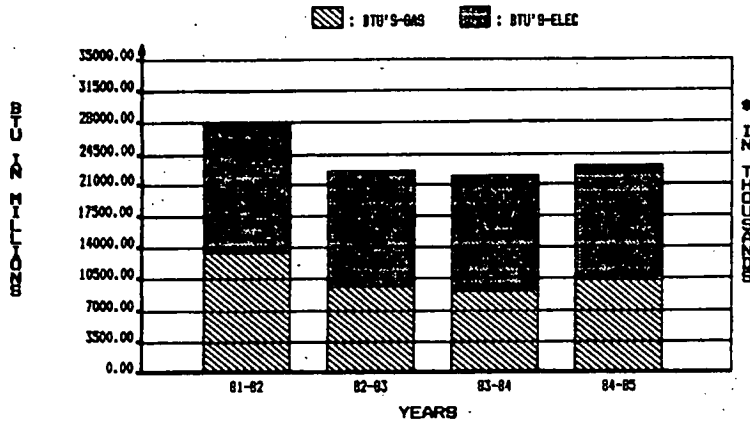
- o Energy consumption up 13.9% due to the significant natural gas increase of 53.5%, which was attributable to increased space heating in the animal kennels and the installation of a shower.



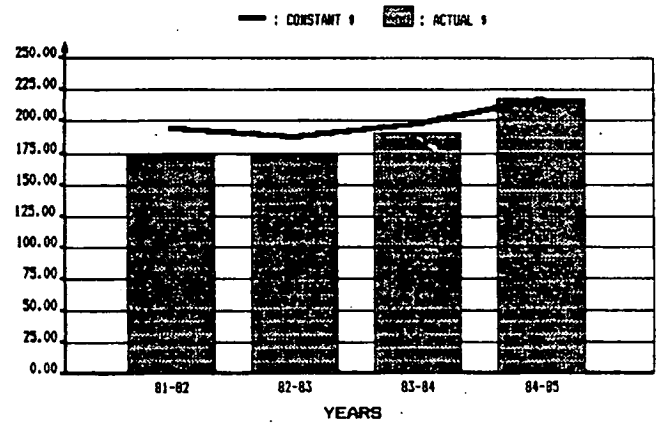
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C. Community Center

COMMUNITY CENTER: ANNUAL BTU'S



COMMUNITY CENTER: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

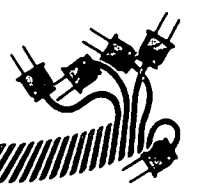
- o Electricity usage down 1.9%
- o Natural gas usage up 13.6%
- o Total energy cost up 14.4%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	89,492.9	+ 4.6
FY 1983-84	85,543.0	- 2.1
FY 1982-83	87,393.0	-20.2
FY 1981-82	109,512.6	+ N/A

Highlights

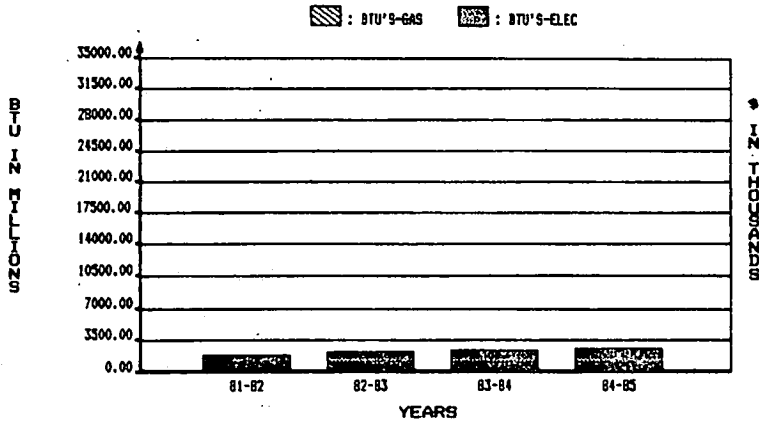
- o Energy consumption up 4.6%, which was attributable to facility utilization increase of 8.4%, increase in catered events of 11%, and climatic conditions.



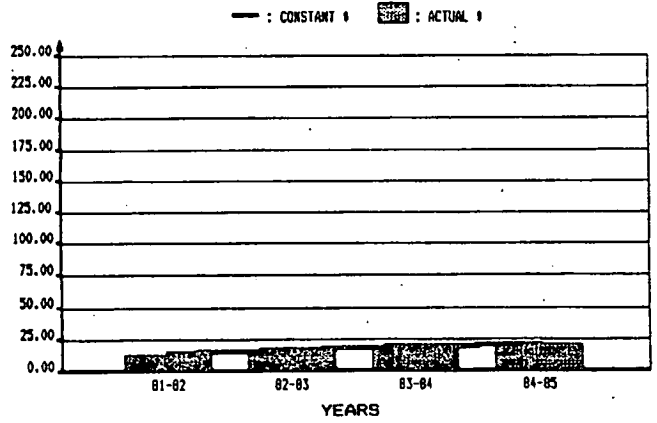
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D. Data Processing

DATA PROCESSING: ANNUAL BTU'S



DATA PROCESSING: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

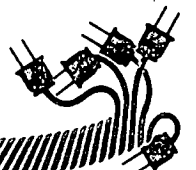
- o Electricity usage up 6.7%
- o Natural gas usage up 81.4%
- o Total energy cost up 14.4%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	411,245.8	+ 9.7
FY 1983-84	374,789.3	+11.4
FY 1982-83	336,398.2	+ 3.0
FY 1981-82	326,651.1	N/A

Highlights

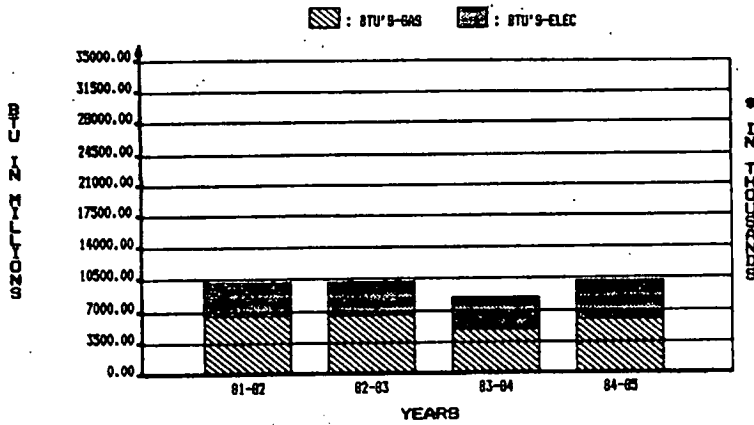
- o Energy consumption up 4.6%, which can be partially attributed to climatic conditions and equipment increases. The significant natural gas increase of 81.4% has to be associated with space heating and MUST be investigated.



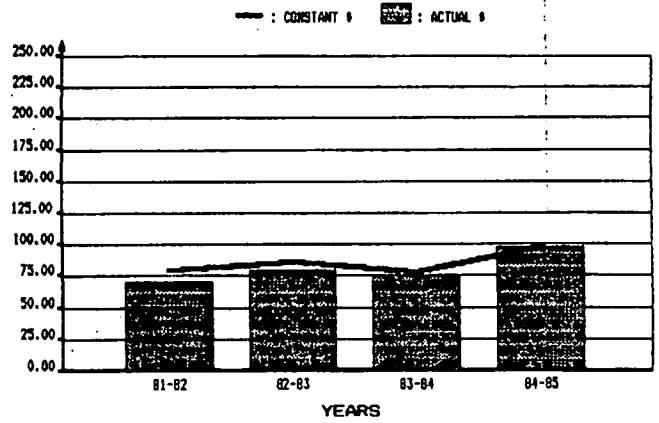
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E. Fire Department

FIRE DEPARTMENT: ANNUAL BTU'S



FIRE DEPARTMENT: ANNUAL COSTS



FY 1984-85 compared to FY 1983-84:

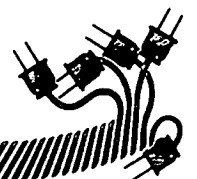
- o Electricity usage up 17.9%
- o Natural gas usage up 22.2%
- o Total energy cost up 30.6%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	90,462.8	+23.0
FY 1983-84	73,526.0	-25.2
FY 1982-83	98,237.0	+ .7
FY 1981-82	97,601.7	N/A

Highlights

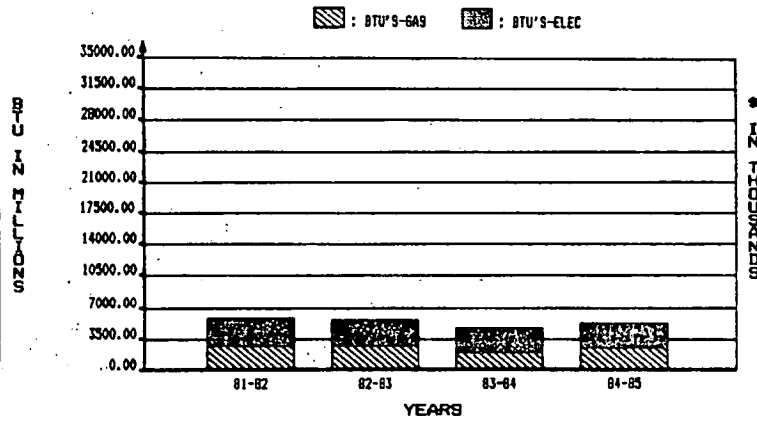
- o Energy consumption up 23.0% due primarily to the addition of three facilities: two Natomas Fire District fire stations and new Fire Training Center.



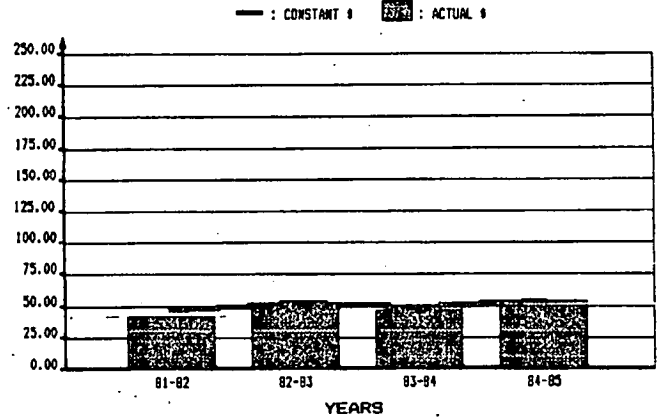
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F. Libraries

LIBRARY DEPARTMENT: ANNUAL BTU'S



LIBRARY DEPARTMENT: ANNUAL COSTS



FY 1984-85 compared to FY 1983-84:

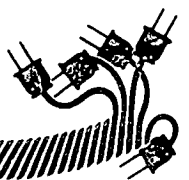
- o Electricity usage up 2.5%
- o Natural Gas usage up 29.5%
- o Total energy cost up 13.5%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	62,279.9	+ 6.9
FY 1983-84	58,258.5	- 3.1
FY 1982-83	60,078.3	+ 1.7
FY 1981-82	59,658.0	+ N/A

Highlights

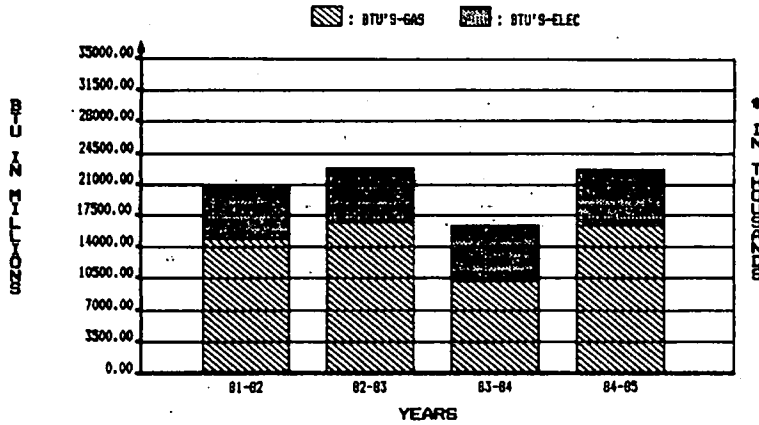
- o Energy consumption up 6.9%, which was attributable to library service hours being increased and climatic conditions.



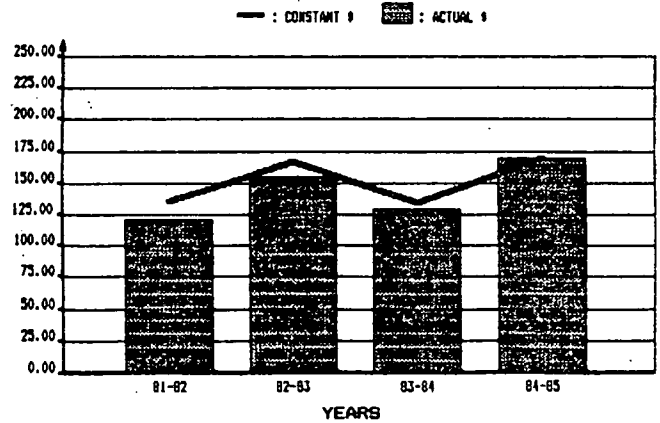
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G. Office Buildings and 24th Street Corporation Yard

OFFICES/CORPORATION YARD: ANNUAL BTU'S



OFFICES/CORPORATION YARD: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

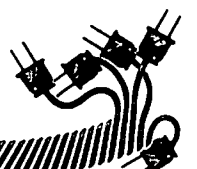
- o Electricity usage up 9.8%
- o Natural gas usage up 58.9%
- o Total energy cost up 31.7%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	98,230.4	+ 32.8
FY 1983-84	73,971.2	- 25.4
FY 1982-83	99,183.2	+ 9.7
FY 1981-82	90,403.6	N/A

Highlights

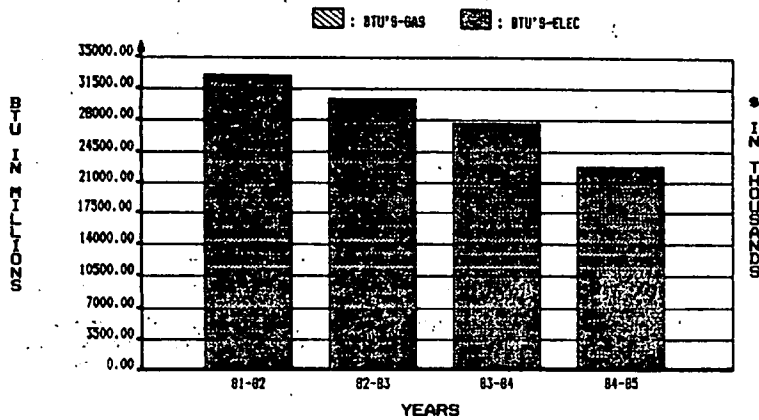
- o Energy consumption up 32.8%, which can be partially attributed to climatic conditions. However, significant increases at the 24th Street Corporation Yard, Richardson Building, and Personnel Building account for the majority of the 58.9% natural gas increase and MUST be investigated.



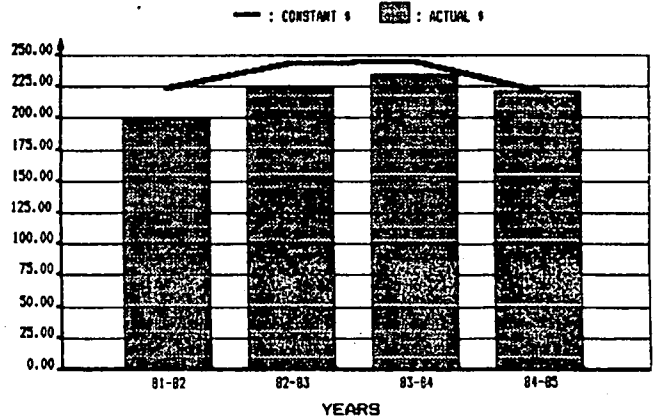
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H. Parking Lots

PARKING LOTS: ANNUAL BTU'S



PARKING LOTS: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

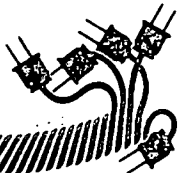
- o Electricity usage down 17.1%
- o Natural gas usage up % N/A
- o Total energy cost down 5.9%

Consumption Measurements

<u>Period</u>	<u># Spaces</u>	<u>BTU's/ Space</u>	<u>% Change</u>
FY 1984-85	8,238	2,779,087	- 17.5
FY 1983-84	8,251	3,367,607	- 2.8
FY 1982-83	8,791	3,464,536	- 8.5
FY 1981-82	8,716	3,787,406	N/A

Highlights

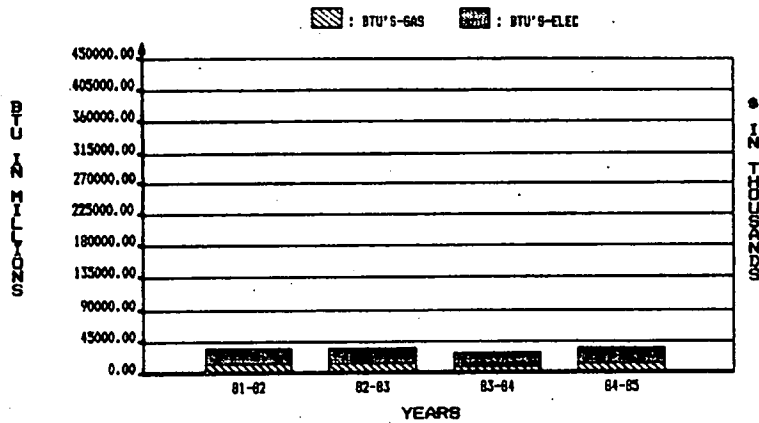
- o Energy consumption down 17.5% for the third consecutive year which is attributable to the conversion of parking lot fluorescent lamps to high pressure sodium lamps and updating the electrical switching. Through June 30, 1985 Lots A, B, and H have been converted. Lots E and G are scheduled for FY 1985-86, Lot K for FY 1986-87, and Lots P and R for FY 1987-88.
- o The conversion program has been very successful in the reduction of electricity consumption, besides improving the lighting levels for the safety of patrons. The return on this program is approximately 1.7 years on dollars invested.
- o Natural gas consumption increased from 58 therms to 206 therms resulting from the conversion of Parking Lot G emergency generator from gasoline to natural gas.



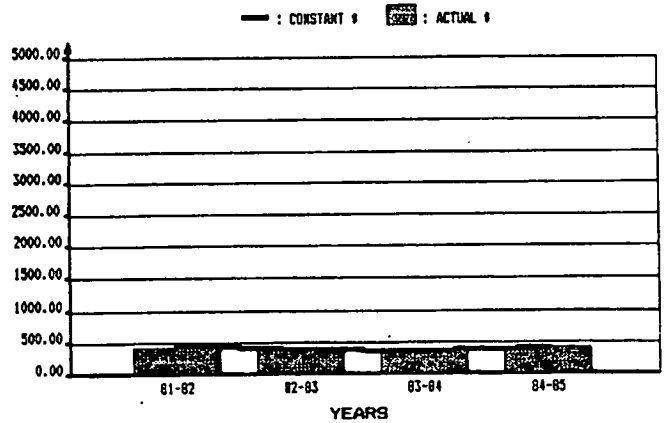
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I. Parks and Community Services

PARKS & COMMUNITY SERVICES: ANNUAL BTU'S



PARKS & COMMUNITY SERVICES: ANNUAL COSTS



Note: Chart scale modified due to magnitude of units.

FY 1984-85 Compared to FY 1983-84:

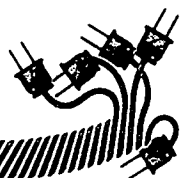
- o Electricity usage up 1.0%
- o Natural gas usage up 29.4%
- o Total energy cost up 16.3%

Consumption Measurements

<u>Period</u>	<u>Total BTU's (Billions)</u>	<u>% Change</u>
FY 1984-85	33.369	+ 10.7
FY 1983-84	30.134	- 12.7
FY 1982-83	34.093	- 1.5
FY 1981-82	34.607	N/A

Highlights

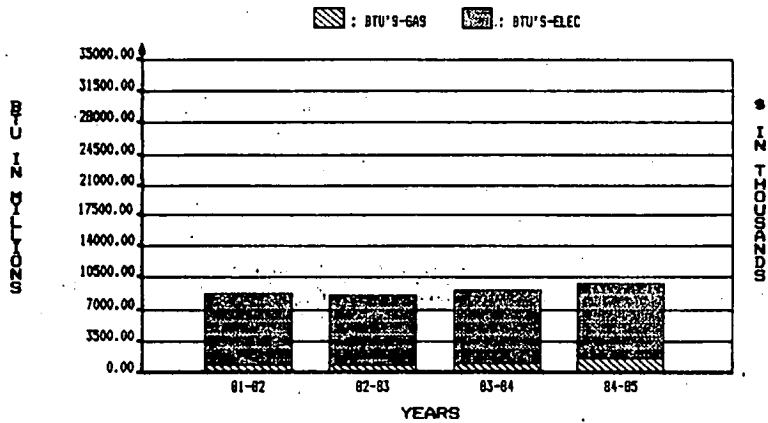
- o Energy consumption increased 10.7% due to natural gas usage increasing 29.4%. The natural gas increases are attributable to the following items: 1) opening of the Museum and History Center; 2) Crocker Museum increase of 79.4%; 3) Zoo increase of 31.7%, and 4) climatic conditions.
- o Electricity consumption increased only 1.0% reflecting conservation measures implemented; such as, relamping, tennis court lighting controls, and installation of time clocks.
- o The above figures do not include Camp Sacramento.



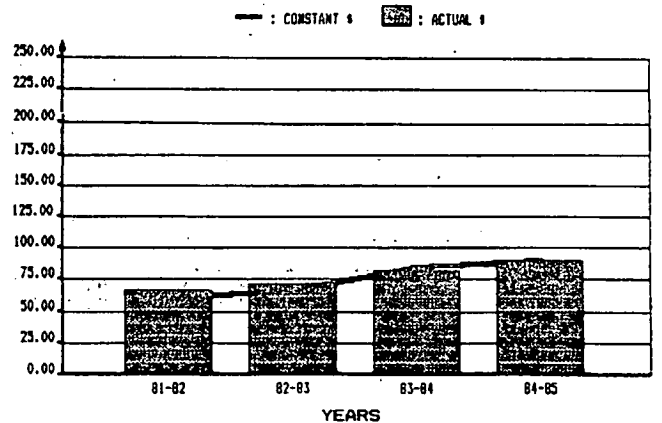
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J. Police Department

POLICE DEPARTMENT: ANNUAL BTU'S



POLICE DEPARTMENT: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

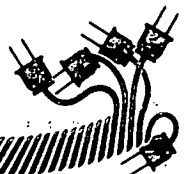
- o Electricity usage up 4.0%
- o Natural gas usage up 50.7%
- o Total energy cost up 9.5%

Consumption Measurements

<u>Period</u>	<u>BTU's/ Sq. Ft.</u>	<u>% Change</u>
FY 1984-85	134,284.3	+ 3.1
FY 1983-84	130,234.1	- 5.1
FY 1982-83	137,266.6	- 2.7
FY 1981-82	141,063.9	N/A

Highlights

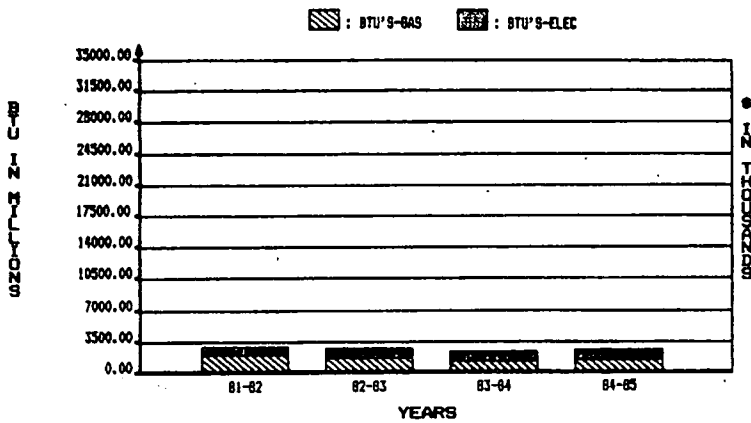
- o Energy consumption up 3.1%, due to the climatic conditions, the first full year's operation of the Communications Center, additional storage space of 6,274 square feet, and the conversion of the old garage at 625 H Street into usable space. However, the increased consumption of natural gas at 625 H Street from 2,006 to 7,821 therms or 289% cannot be totally supported by the above mentioned items and MUST be investigated.



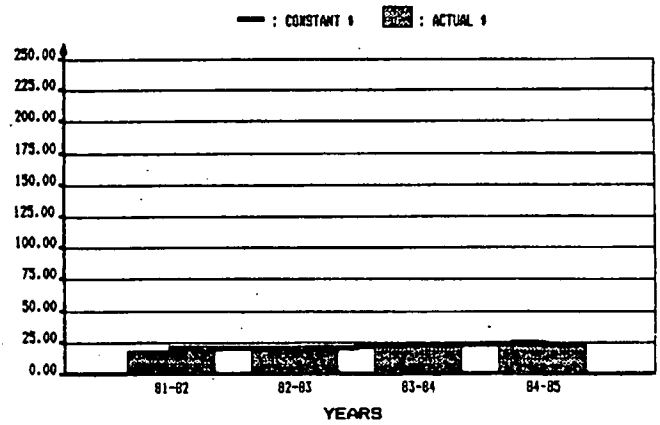
City of Sacramento — 1984/85 Energy Report

K. Solid Waste

SOLID WASTE DIVISION: ANNUAL BTU'S



SOLID WASTE DIVISION: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

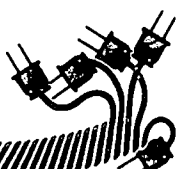
- o Electricity usage up 3.4%
- o Natural gas usage up 9.7%
- o Total energy cost up 18.2%

Consumption Measurements

<u>Period</u>	<u>Total BTU's (Billions)</u>	<u>% Change</u>
FY 1984-85	2.524	+ 6.9
FY 1983-84	2.360	-11.2
FY 1982-83	2.657	-10.7
FY 1981-82	2.975	N/A

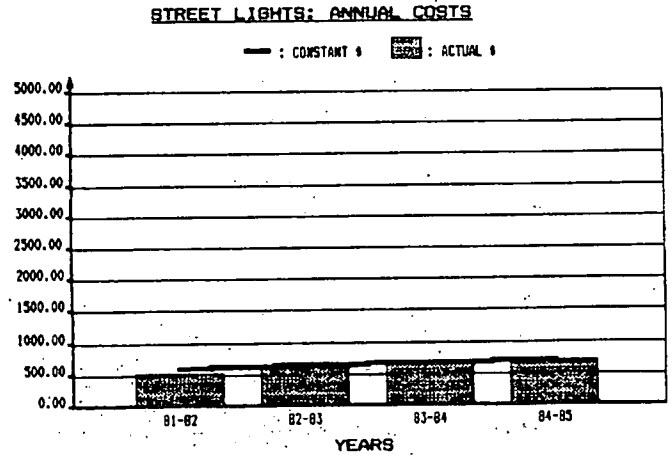
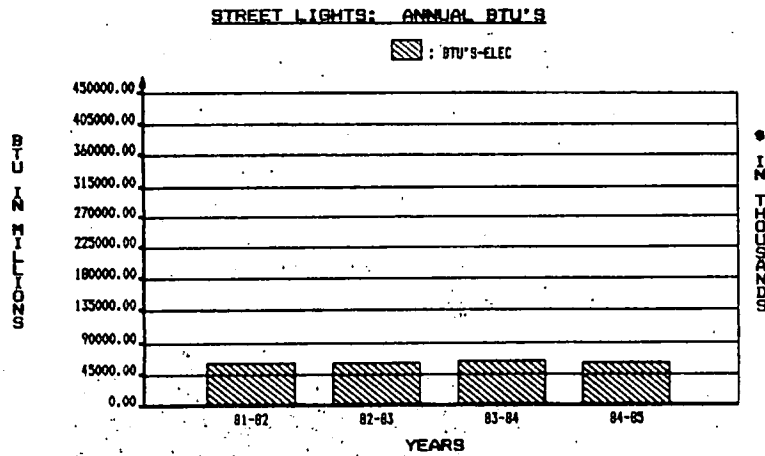
Highlights

- o Energy consumption increased 6.9% due to 1) addition of yard lights at 28th and A Streets to improve security; and 2) climatic conditions.



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L. Street Lights



Note: Chart scale modified due to magnitude of units.

FY 1984-85 Compared to FY 1983-84:

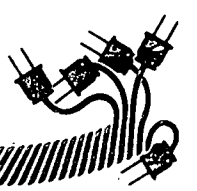
- o Electricity usage down 5.7%
- o Total energy cost up 9.4%

Consumption Measurements

<u>Period</u>	<u># of Street Lights</u>	<u>BTU's / Unit (Millions)</u>	<u>% Change</u>
FY 1984-85	21,356	2.816	- 8.6
FY 1983-84	20,706	3.081	+ .4
FY 1982-83	19,717	3.070	- 2.9
FY 1981-82	18,917	3.163	N/A

Highlights

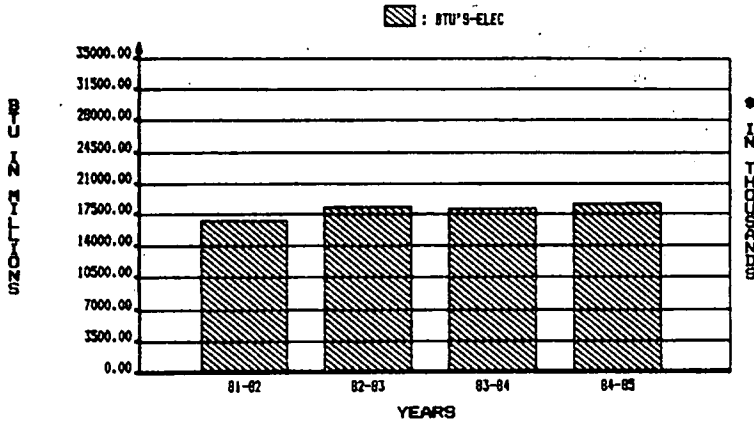
- o The system was increased by 650 additional street lights or 31%, yet electricity consumption decreased 5.7%. This consumption reduction is attributable to the ongoing street light conversion program of changing out mercury vapor to high pressure sodium luminaires.



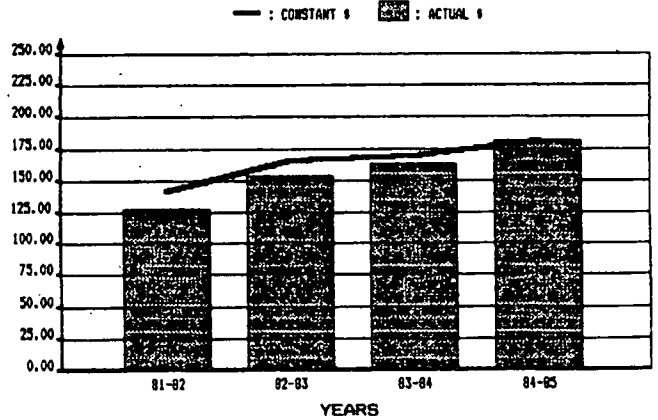
City of Sacramento — 1984/85 Energy Report

M. Traffic Signals

TRAFFIC SIGNALS: ANNUAL BTU'S



TRAFFIC SIGNALS: ANNUAL COSTS



FY 1984-85 Compared to FY 1983-84:

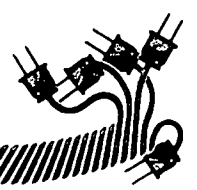
- o Electricity usage up 2.8%
- o Total energy cost up 11.0%

Consumption Measurements

<u>Period</u>	<u># of Signalized Intersections</u>	<u>BTU/Intersection (Millions)</u>	<u>% Change</u>
FY 1984-85	453	40.881	- .7
FY 1983-84	444	40.577	- 2.8
FY 1982-83	436	41.729	+ 6.8
FY 1981-82	427	39.087	N/A

Highlights

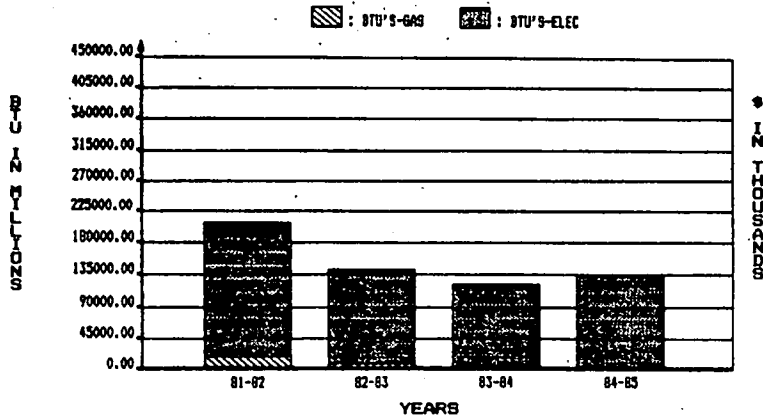
- o Nine new signalized intersections were added to the system in FY 1984-85, expanding the system by 2.0% and increasing electrical consumption by 2.8%.



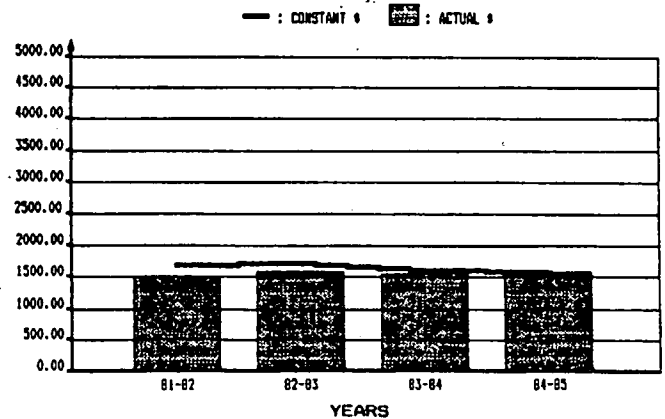
City of Sacramento — 1984/85 Energy Report

N. Water and Sewer

WATER & SEWER DIVISION: ANNUAL BTU'S



WATER & SEWER DIVISION: ANNUAL COSTS



Note: Chart scale modified due to magnitude of units.

FY 1984-85 Compared to FY 1983-84:

- o Electricity usage up 13.2%
- o Natural gas usage up 40.7%
- o Total energy cost up 1.9%

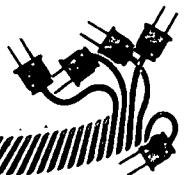
Consumption Measurements

Water Production District:

<u>Period</u>	<u># of Gallons Produced (Billions)</u>	<u>Total BTU's (Billions)</u>	<u>BTU's/ Gallon</u>	<u>% Change</u>
FY 1984-85	34.7	115.140	3.32	+ 16.1
FY 1983-84	32.8	93.742	2.86	- 7.1
FY 1982-83	28.55	88.067	3.08	- 6.7
FY 1981-82	30.35	100.155	3.30	N/A

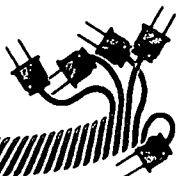
Sewer/Storm Drainage:

<u>Period</u>	<u>Annual Gallonage Flow (Billions)</u>	<u>Total BTU's (Billions)</u>	<u>BTU's/ Gallon</u>	<u>% Change</u>
FY 1984-85	9.984	23.003	2.30	- 25.1
FY 1983-84	8.806	27.001	3.07	- 16.8
FY 1982-83	14.889	54.920	3.69	- 47.6
FY 1981-82	15.477	108.958	7.04	N/A



Highlights

- o Increased consumption is attributable to 1) water production increase of 5.8%; 2) waste water treatment increase of 13.4%; and 3) the City's assumption of operating the combined pumping plant from Regional Sewer at 35th Avenue.



IV. FLEET VEHICLE OPERATIONS

Fuel Consumption and Costs

Year	Gallons Consumed			Cost			Average Cost/ Gal.
	Gas (000)	Diesel (000)	Total (000)	Gas (000)	Diesel (000)	Total (000)	
1985	1,081.1	451.9	1,533.0	\$1,052.2	\$370.1	\$1,422.3	\$0.93
1984	1,094.7	378.1	1,472.8	1,084.5	327.0	1,411.4	0.96
1983	1,141.3	329.4	1,470.7	1,132.3	315.2	1,447.5	0.98
1982	1,160.8	316.7	1,477.5	1,325.6	320.3	1,645.9	1.11
1981	1,263.1	263.5	1,526.5	1,540.4	265.7	1,806.1	1.18

4.1% increase in consumption (60,200 gallons) over a four-year period while mileage increased 9%.

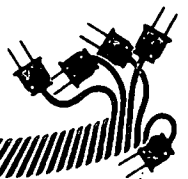
21.3% decline in price per gallon over a five-year period.

Current Fuel Cost/Gallon	
Gasoline	\$0.97/Gallon
Diesel	0.82/Gallon

The City's fuel consumption (total gallonage) increased 4.1% for the period ending June 30, 1985, while fleet utilization went up 159,000 miles (1.5%). The increase in total mileage during this period is attributable to continued demand for services throughout the City. Both the average cost per gallon and the City's total fuel bill decreased again this year.

The Fleet Management Division remains committed to fuel conservation as exemplified by such programs as:

- o Replacing older cars and light trucks with more fuel efficient vehicles.
- o Purchasing diesel powered units instead of larger gasoline powered trucks when it is cost effective.
- o Converting the fleet to radial tires.
- o Improving the preventive maintenance program.



Passenger Cars: Police and Fire

In FY 1984-85, Fleet Management purchased four front wheel drive sedans for use as black and white patrol vehicles. These four vehicles have not been found to be satisfactory or cost effective replacements for the City's current patrol vehicles. Since the existing patrol vehicles account for 26% of the fuel consumed by all City vehicles, the Division will continue to seek a satisfactory, cost effective, and more fuel efficient alternative.

Large Trucks

When the higher initial price could be justified, Fleet Management has replaced several larger gasoline powered trucks with more fuel efficient diesel powered vehicles. (The diesel vehicles have a normal life of 10 to 12 years. Consequently improvement in the fuel economy in this group is anticipated to be gradual.)

Fire Trucks

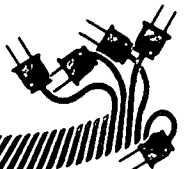
In FY 1984-85, the Fire Department assumed responsibility for the Fruitridge and Natomas Fire Districts while its mileage usage increased 25% (61,000 miles). As a result of this increased activity level, the fuel economy of these vehicles decreased. (When these vehicles are at a fire, their engines drive their pumps, increasing fuel consumption and decreasing the fuel economy.) During this same time period, Fleet Management converted one front line unit from gasoline to diesel power. To date, this conversion has proven very satisfactory. This unit will be monitored to determine whether it would be cost effective to convert other select units. These vehicles represent a large capital investment and have a long service life (20 - 30 years).

Radial Tires

Radial tires can improve fuel economy of a vehicle by 3 to 8%. Where cost effective, Fleet Management is continuing to replace bias ply with radial tires.

Preventive Maintenance Program

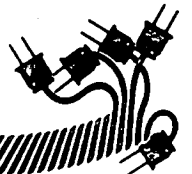
State law mandates that municipal governments inspect and certify the performance of gasoline powered cars and light trucks every two years. In the past year, Fleet Management has taken this opportunity to upgrade and improve its preventive maintenance program. In FY 1984-85, more than 300 vehicles have been inspected and certified. It is anticipated that this program will also improve the overall fuel economy of vehicles.



Forecast for FY 1985-86

The Police Department received fourteen additional black and white patrol vehicles at midyear. These vehicles are expected to add 170,000 miles to total fleet usage.

Fleet Management will be meeting with the City's new training officer to explore a driver training program based on the Federal Department of Energy's Gas Cap Program.



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V. ENERGY CONSERVATION ACTIVITIES

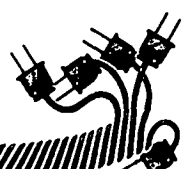
A. Energy Audits

It is the City's policy to take full advantage of SMUD and PG&E energy audits in identifying and correcting areas where energy consumption can be reasonably reduced.

In FY 1984-85 efforts focused on completing audit recommendations identified as energy consumption savings in 40 City facilities audited in prior fiscal years plus one facility audited in FY 1984-85. Two limited term employees were hired in order to implement the recommended modifications, including relamping and delamping (L), lowering temperatures and wrapping hot water tanks (WH), reduction of thermostatic settings (TS), installation of time clocks and resetting time clocks (TC), and modifications to HVAC systems. On audits denoted with an asterisk, additional energy saving work beyond the audit requirements was done.

The audits identified a potential annual cost avoidance of over \$20,000 in consumption of electricity and natural gas. The 41 facilities with audit corrections made are listed below:

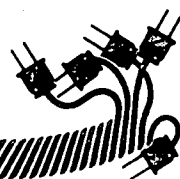
<u>Facility</u>	<u>Inspection Date</u>	<u>Modification Made</u>	<u>Action Completed</u>
Bing Maloney Clubhouse	4/12/84	*L,WH,TS,HVAC	10/31/84
Boat Harbor	5/14/84	L	12/6/84
City Hall	7/27/84	*L	11/10/84
Corporation Yard	3/15/83	*L	11/9/84
Crocker Art Gallery	8/2/84	*L,WH,TC	11/14/84
Data Processing	2/21/84	*L,WH,TS,HVAC	10/10/84
Fire Stations:			
#1, 624 Q St.	3/16/84	L,WH,TS	12/7/84
#4, 3145 Granada Way	3/16/84	*L,WH,TS	1/2/85
#5, 731 Broadway	3/16/84	T,WH,TS	12/11/84
#6, 3301 Sacramento Blvd.	3/16/84	L,WH,TS	12/27/84
#7, 6500 Wyndham Dr.	3/16/84	L,WH,TS	10/31/84
#8, 5990 H St.	3/16/84	L,WH,TS	2/8/85
#9, 5801 Florin-Perkins	3/16/84	L,WH,TS	12/12/84
#10, 5642 66th St.	3/16/84	L,WH,TS	12/13/84
#11, Florin-Havenside	3/16/84	L,WH,TS	1/15/85
#12, 4500 24th St.	3/16/84	L,WH,TS	11/16/84
#13, 1100 43rd St.	3/16/84	*L,WH,TS	12/26/84
#14, 1341 No. C St.	3/16/84	L,WH,TS	12/10/84
#15, 1591 Newborough Dr.	3/16/84	L,WH,TS	1/9/85
#16, 7363 24th St.	3/16/84	*L,WH,TS	12/17/84
#17, 1311 Bell Ave.	3/16/84	L,WH,TS	1/30/85
#19, 1700 Challenge Way	3/16/84	*L,WH,TS	12/19/84
#20, 300 Arden Way	3/16/84	L,WH,TS	2/20/85
#21, 3301 Julliard Dr.	3/16/84	*L,WH,TS	12/28/84



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<u>Facility</u>	<u>Inspection Date</u>	<u>Modification Made</u>	<u>Action Completed</u>
Hagginwood Golf Clubhouse	4/12/84	*L,WH,TS,HVAC	11/14/84
Hall of Justice	5/9/83	*L,WH	9/14/84
Libraries:			
Clunie Memorial/McKinley 601 Alhambra Blvd.	3/12/84	*L,WH,TS,HVAC	11/14/84
Coolidge, 5601 Freeport	5/2/84	L,WH,HVAC	11/20/84
Del Paso, 920 Grand Ave.	5/2/84	L,HVAC	11/27/84
Gillis, 4001 60th St.	5/2/84	*L,WH	12/3/84
M. L. King, 7340 24th St.	5/2/84	*L,WH	12/6/84
McClatchy, 2112 22nd St.	5/2/84	*L,WH	11/29/84
No. Sacramento, 492 Arden	5/2/84	*L	11/21/84
Maintenance Bldg., 28th & A	4/9/84	L,WH	11/30/84
Personnel/Legal Bldg. 801 9th St.	2/20/84	*L,WH,TS,HVAC	10/12/84
Police Squad Room, 625 H St.	2/23/84	*L,TS	9/20/84
Prom Bldg., 812 10th St.	2/23/84	*L,WH,TS,HVAC	9/27/84
Richardson Bldg., 800 10th St.	2/15/84	L,WH,TS,HVAC	9/27/84
Robertson Ctr., 3525 Norwood	4/2/84	L,WH,TS,HVAC	11/29/84
Senior Cit. Ctr., 917 27th St.	3/20/84	L,TS,HVAC	12/13/84
Zoo, Land Park Drive	5/31/84	L,HVAC	3/4/85

At this time all SMUD and PG&E audit compliance actions have been completed except for a PG&E audit of the City Corporation Yard. After completing the one outstanding audit, the emphasis for FY 1985-86 will be on completing energy conservation activities which have been identified and documented by City energy staff.



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B. Grants and Incentives

Although the City received no public agency grants in FY 1984-85, both the Sacramento Municipal Utility District (SMUD) and Pacific Gas and Electric (PG&E) companies offered energy efficient rebate programs.

SMUD

SMUD sponsored a cash rebate program on installed energy-saving lamps whereby rebating 40% of the lamp cost, up to \$1.50 per lamp. Before the program ended on December 31, 1985, 9,100 lamps were replaced at a cost savings of \$5,598 (Net investment: \$8,068).

Facilities Relamped in SMUD's Rebate Program, FY 1984-85:

	<u>Post-Inspection Date</u>
Water Treatment Plant, 101 Bercut Drive	12/31/84
Lot K, 600 K Street	11/8/84
10th & L (Lot H) Parking Lot Office	11/8/84
American River Treatment Plant, 1300 Jed Smith Dr.	12/27/84
City Hall, 915 I Street	11/8/84
Hall of Justice, 610 H Street	11/8/84
Memorial Auditorium, J Street	11/8/84
Community Center, Exhibit Hall Only, 1100 14th St	12/31/84
Police Squad Building, 625 H Street	11/8/84

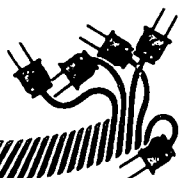
Total SMUD Rebate \$5,598

PG&E

Twenty-five City facilities participated in the PG&E rebate program. Thermostats, timers, water heater insulated jackets, and automatic switches for fire station and Corporation Yard garage heaters were included in the materials purchased through the rebate program saving \$1,413 (Approximate initial investment: \$3550).

PG&E Rebate Program FY 1984-85:

Fire Station #19, 1700 Challenge
Corporation Yard, 5730 24th Street
Fire Station #16, 7363 24th Street
Bing Maloney Clubhouse, 6803 Freeport
Fire Station #13, 1100 43rd Street
Hall of Justice, 813 6th Street
Police Squad Building, 625 H Street
Corcker Art Museum, 110 O Street
Richardson Building, 800 10th Street
Prom Building, 812 10th Street
EDP Building, 819 10th Street
Fire Station #1, 624 Q Street



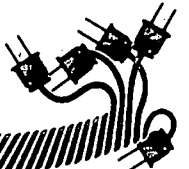
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PG&E Rebate Program FY 1984-85: (continued)

Fire Station #5, 731 Broadway
Fire Station #15, 1591 Newborough
Robertson Community Center, 3525 Norwood
Fire Station #17, 1311 Bell Avenue
Fire Station #7, 6500 Wyndham Drive
Fire Station #14, 1341 North C Street
Dumpster Repair, 28th & A Street
Mc Kinley Library, 601 Alhambra Blvd.
Fire Station #20, 300 Arden Way
Haggin Oaks Clubhouse, 3645 Fulton Ave
Fire Station #8, 5990 H Street
Fire Station #6, 3301 Sacramento Blvd.
Fire Station #10, 5642 66th Street

Total PG&E Rebate \$1,413

While there are currently no available rebate programs, the City does intend to apply for some of the various state energy conservation grants which are planned for FY 1985-86.



C. Energy Conservation Projects

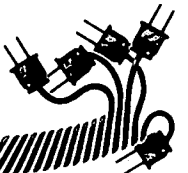
The major projects of the City's Energy Systems Coordinator during Fiscal Year 1984-85 are listed below:

1. General Government Facilities:

- A. Energy Efficient Equipment Used in Remodels and Expansions--It is the City's policy to use energy efficient equipment in all remodeling and expansions. During FY 1984-85, the Revenue Division and Finance Administration areas of City Hall HVAC systems were updated, and the Facility Management's Administrative offices located in Building 1, at 24th Street Yard expanded. Although not primarily energy conservation programs, these projects provided opportunities to install more efficient lighting, heating and air conditioning equipment, while providing a more comfortable environment for City employees and public visitors.
- B. City Hall Boiler--The Fire Station #2 boiler was retired and City Hall use consolidated for safety and efficiency under the remaining City Hall boiler. Total investment: \$16,000, total savings in energy and avoided repairs: \$12,204, payback period: 1.3 years.
- C. 24th Street Corporation Yard Building 5--Replaced fluorescent light fixtures with more efficient metal halide fixtures and improved lighting levels. Total investment: \$6541, total savings: \$1215, payback period: 5.4 years.
- D. 24th Street Corporation Yard Building 13--Installed high pressure sodium fixtures to improve lighting and insulated the building as a test project to determine the effectiveness of insulating metal buildings. No immediate payback on lighting. Total insulation investment: \$3,522, annual savings: \$2,676, payback period: 1 year 4 months.

2. Parking Lots:

- A. Replaced fluorescent fixtures in Parking Lots A, B, and H with high pressure sodium lights and modified the electrical switching. By utilizing City forces and purchasing the necessary high pressure sodium lights at a significant savings, three parking structures were relamped with energy efficient lights during FY 1984-85 for \$110,202, which was \$12,798 below the estimated cost of doing one lot, Lot H, alone.



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2. Parking Lots (Continued):

- A. Parking Lot Conversion (Continued)--The new lights in the three parking structures have reduced energy consumption by approximately 70 percent and improved lighting level for the security of the public using the facilities. Total investment: \$110,202, total annual savings: \$65,750, payback period: 1.7 years.

Five parking structures have been scheduled for installation of high pressure sodium lights over the next three fiscal years at an estimated cost of \$530,000.

In FY 1985-86, \$102,000 has been appropriated for Lot E (13th and I streets) and Lot R (Front and Capitol). Staff will continue to pursue efforts to accelerate the parking lot conversion program. This is the most practical method available to the City to keep down spiraling energy costs associated with operation of the parking garages.

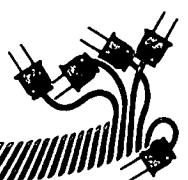
- B. Lot K--The ventilation system at Lot K was 90 percent complete at the end of FY 1984-85, providing adequate ventilation in the parking garage with a substantial energy savings.

3. Parks and Community Services:

- A. Garden and Arts Building--This building was redesigned and, in the process, all interior lights were replaced with energy efficient lights. No immediate cost savings.
- B. Coloma School Office--This facility was remodeled in FY 1984-85, using energy efficient lighting, heating and air conditioning. No immediate cost savings.
- C. Tennis Courts--In Fiscal Year 1984-85 14 new vandal-proof, timers were installed on the court lights to minimize having the lights on during inclement weather and when the courts are not in use. Total investment: \$16,620, with a payback of approximately 6 years.
- D. Hagginwood Community Center--Replaced the heating and air conditioning system and all lighting in the main hall.

4. Library

- A. Martin Luther King Library--Replaced obsolete and damaged lighting fixtures with energy efficient high pressure sodium lights, improving safety and lighting. Total investment: \$3,600.



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D. Energy Conservation Project Expenditures and Commitments

Commitments and expenditures by project are as follows:

1. General Government Energy Conservation Program--C.C. 4381:

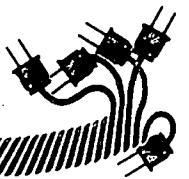
o	Previously reported as of July 1, 1984	\$ 86,559
o	Expenditures for FY 1984-85 (See Section V C for additional information)	<u>170,389</u>
	Total expenditures through June 30, 1985	\$256,948
o	Projects in progress:	
	24th Street Corporation Yard--Implement final half of PG&E audit recommendations	13,300
o	Schedule most cost effective (shortest payback on investment) energy conservation measures identified and estimated to cost in excess of \$500,000 available funding for FY 1985-86.	<u>220,000</u>
	Total Commitments and Expenditures--C.C. 4381	\$490,248 =====

(Note: Appropriations through June 30, 1985 \$490,289)

2. Parking Lot Lighting Replacement Program--C.C. 4378:

o	Expenditures as of June 30, 1985 for the conversion of Parking Lots A, B, and H	\$112,771
o	Projects in progress for FY 1985-86 conversion of Parking Lots E and G	102,000
o	Planned Projects:	
	FY 1986-87--Lot K	\$295,000
	FY 1987-88--Lots P and R	<u>133,000</u>
	Total Commitments and Expenditures--C.C. 4378	\$642,771 =====

(Note: Appropriations through June 30, 1985 \$225,000)



VI. CONCLUSION

A. Recap

The energy consumption increase of 7% in FY 1984-85 was attributable to the following factors: 1) climatic conditions, 2) system expansion, 3) increased water production and treatment, and 4) employee comfort needs.

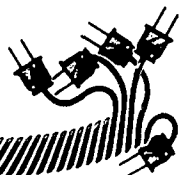
Progress continued in reducing or maintaining energy usage levels in controllable areas. Notable successes were achieved in exterior lighting, with ongoing street light and parking lot conversion programs reducing energy consumption by phasing in use of high pressure sodium lights. Installation of timers on all tennis court lights was also very successful in reducing exterior lighting consumption. Audit compliance action addressed a diverse group of energy improvements which were made at 41 various City locations, ranging from relamping interior fluorescent lights to installing time clocks and insulation.

In regard to energy costs, SMUD rates continued to increase, (up 17.5%); however, the City benefited from a slight decrease in PG&E rates (down 3%) in FY 1984-85 and a slight decrease in the average cost of vehicle fuel per gallon (down 3.1%).

B. Focus for 1985-86

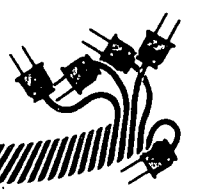
In FY 1984-85 the Department of General services will continue its efforts within the available funding to mitigate spiraling energy costs through the implementation of energy conservation measures and practices using the following methods:

- o Apply common sense and creativity in identifying and implementing energy conservation measures.
- o Seek out and take advantage of available energy audits, grants, and incentives.
- o Practice life-cycle procurement practices (i.e., vehicles, electrical, and mechanical).
- o Encourage use of common sense conservation practices by all City employees.
- o Seek out and test new technologies to assist in cost avoidance, with emphasis on electronic control systems.



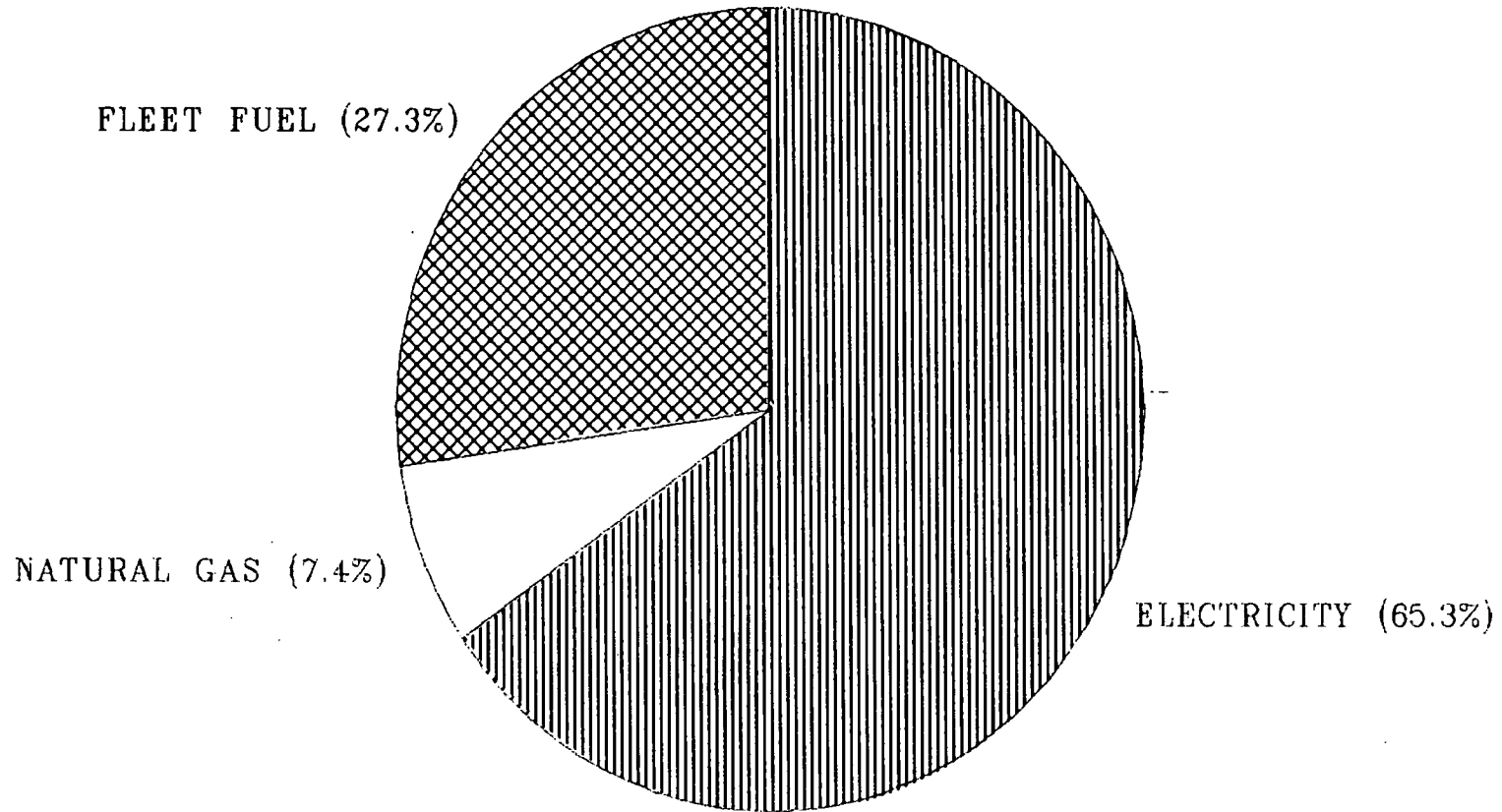
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ENERGY COST BY TYPE

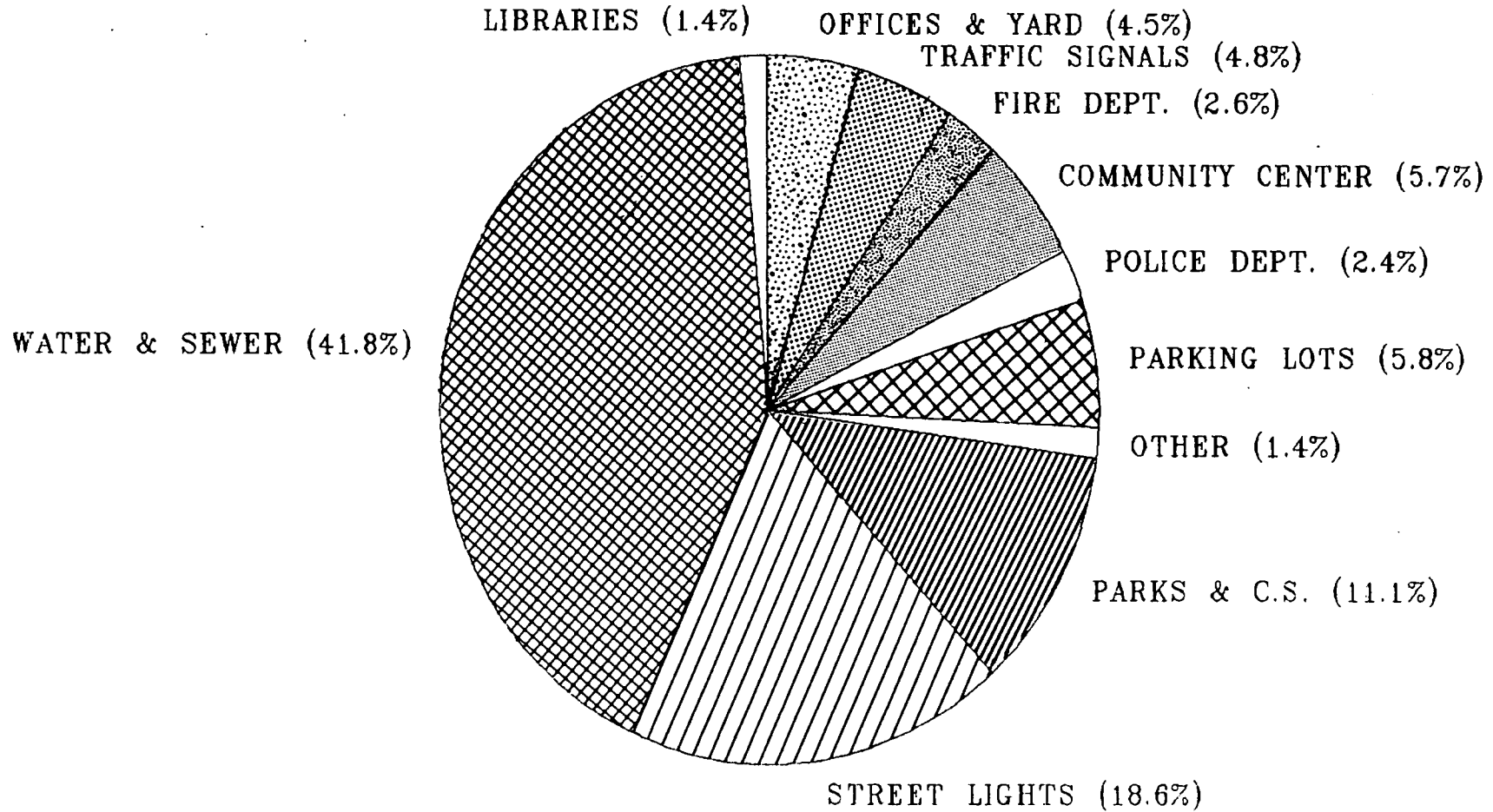
AS % OF TOTAL ENERGY COST, \$5,212,485



UTILITY COST BY FUNCTION

ELECTRICITY AND NATURAL GAS

AS A % OF TOTAL UTILITY COST, \$3,790,143



VEHICLE FUEL COST BY VEHICLE TYPE

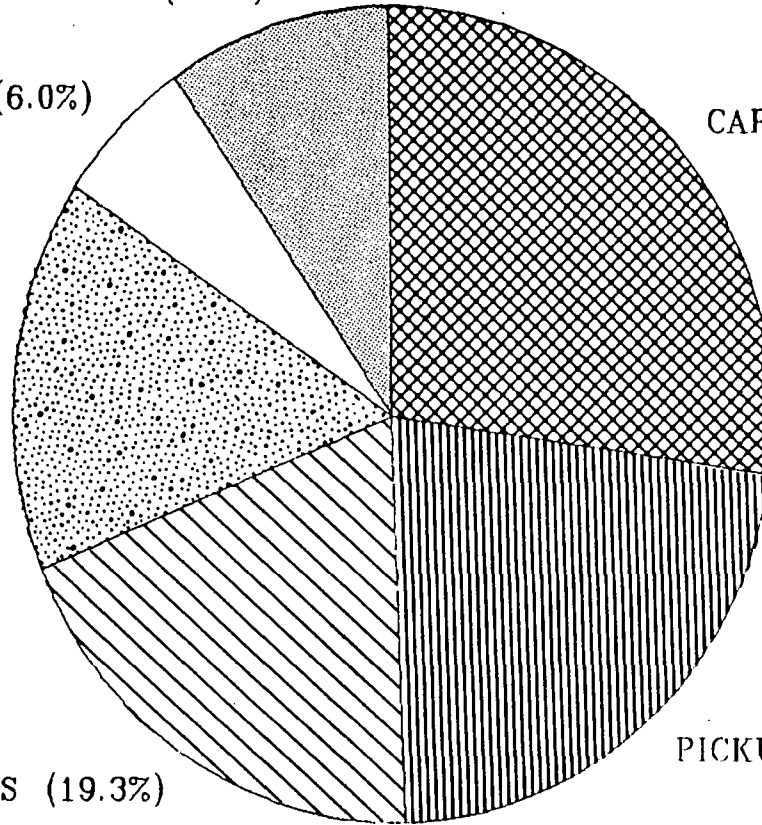
AS A % OF TOTAL FUEL COST, \$1,422,342

CARS: NON-PUBLIC SAFETY (9.5%)

FIRE TRUCKS (6.0%)

CARS: POLICE & FIRE (27.2%)

REFUSE TRUCKS (15.6%)



ACTIVITY: SUMMARY OF OPERATIONS

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	823	85,348,193	2.96%	\$3,406,323	4.86%	96	579,719	33.49%	\$383,820	38.88%
FY 1983-84	807	82,898,355	-6.53%	\$3,248,511	2.33%	96	434,265	-25.94%	\$276,363	-19.22%
FY 1982-83	815	88,688,912	-15.63%	\$3,174,590	-16.96%	97	586,398	-20.28%	\$342,117	-4.70%
FY 1981-82	782	105,121,413	N/A	\$3,823,078	N/A	97	735,604	N/A	\$359,007	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
291,293,382,709	57,971,900,000	349,265,282,709	\$3,790,143	\$3,790,143
282,932,085,615	43,426,500,000	326,358,585,615	\$3,524,874	\$3,665,869
302,695,256,656	58,639,800,000	361,335,056,656	\$3,516,707	\$3,798,044
358,779,382,569	73,560,400,000	432,339,782,569	\$4,182,085	\$4,683,935

ACTIVITY: ANIMAL CONTROL

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	1	81,255	-15.67%	\$3,786	6.68%	1	3,764	53.51%	\$2,405	57.19%
FY 1983-84	1	96,359	1.67%	\$3,549	5.22%	1	2,452	-17.94%	\$1,530	-8.77%
FY 1982-83	1	94,772	0.79%	\$3,373	10.84%	1	2,988	-10.24%	\$1,677	3.84%
FY 1981-82	1	94,030	N/A	\$3,043	N/A	1	3,329	N/A	\$1,615	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
277,323,315	376,400,000	653,723,315	\$6,191	\$6,191
328,873,267	245,200,000	574,073,267	\$5,079	\$5,282
323,456,836	298,800,000	622,256,836	\$5,050	\$5,454
320,924,390	332,900,000	653,824,390	\$4,658	\$5,217

ACTIVITY: COMMUNITY CENTER

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	2	3,669,415	-1.85%	\$150,775	14.11%	3	104,177	13.62%	\$66,306	15.20%
FY 1983-84	2	3,738,549	0.45%	\$132,137	10.82%	3	91,692	-5.47%	\$57,555	5.28%
FY 1982-83	2	3,721,977	-12.42%	\$119,238	10.86%	3	97,000	-28.51%	\$54,669	-17.40%
FY 1981-82	2	4,249,998	N/A	\$107,561	N/A	3	135,682	N/A	\$66,185	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
12,523,713,395	10,417,700,000	22,941,413,395	\$217,081	\$217,081
12,759,667,737	9,169,200,000	21,928,867,737	\$189,692	\$197,280
12,703,107,501	9,700,000,000	22,403,107,501	\$173,907	\$187,820
14,505,243,174	13,568,200,000	28,073,443,174	\$173,746	\$194,596

ACTIVITY: DATA PROCESSING

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	1	683,028	6.67%	\$19,934	12.03%	1	1,692	81.35%	\$1,082	86.55%
FY 1983-84	1	640,322	13.71%	\$17,793	20.65%	1	933	-24.39%	\$580	-16.43%
FY 1982-83	1	563,112	0.68%	\$14,748	17.80%	1	1,234	60.05%	\$694	83.11%
FY 1981-82	1	559,314	N/A	\$12,519	N/A	1	771	N/A	\$379	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
2,331,174,564	169,200,000	2,500,374,564	\$21,016	\$21,016
2,185,418,986	93,300,000	2,278,718,986	\$18,373	\$19,108
1,921,901,256	123,400,000	2,045,301,256	\$15,442	\$16,677
1,908,938,682	77,100,000	1,986,038,682	\$12,898	\$14,446

ACTIVITY: FIRE DEPARTMENT

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	26	1,205,503	17.89%	\$53,844	25.82%	23	59,525	22.19%	\$44,430	37.00%
FY 1983-84	23	1,022,596	-6.19%	\$42,795	4.73%	20	48,714	-25.18%	\$32,430	-15.97%
FY 1982-83	26	1,090,121	2.23%	\$40,861	12.37%	19	65,110	-0.23%	\$38,593	12.58%
FY 1981-82	25	1,066,368	N/A	\$36,363	N/A	20	65,259	N/A	\$34,279	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
4,114,381,739	5,952,500,000	10,066,881,739	\$98,274	\$98,274
3,490,120,148	4,871,400,000	8,361,520,148	\$75,225	\$78,234
3,720,582,973	6,511,000,000	10,231,582,973	\$79,454	\$85,810
3,639,513,984	6,525,900,000	10,165,413,984	\$70,642	\$79,119

ACTIVITY: LIBRARY DEPARTMENT

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	11	819,326	2.47%	\$36,685	6.50%	9	26,266	29.50%	\$16,791	32.49%
FY 1983-84	11	799,542	-7.75%	\$34,445	6.29%	9	20,282	-27.90%	\$12,673	-21.20%
FY 1982-83	11	866,711	-3.10%	\$32,408	12.17%	9	28,131	5.04%	\$16,083	25.45%
FY 1981-82	11	894,406	N/A	\$28,892	N/A	9	26,782	N/A	\$12,820	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
2,796,359,638	2,626,600,000	5,422,959,638	\$53,476	\$53,476
2,728,836,846	2,028,200,000	4,757,036,846	\$47,118	\$49,003
2,958,084,643	2,813,100,000	5,771,184,643	\$48,491	\$52,370
3,052,607,678	2,678,200,000	5,730,807,678	\$41,712	\$46,717

ACTIVITY: OFFICE BUILDINGS AND 24TH STREET CORPORATION YARD

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	5	1,807,808	-1.10%	\$70,615	9.84%	6	163,528	58.91%	\$98,921	53.55%
FY 1983-84	4	1,827,928	2.45%	\$64,288	12.51%	6	102,908	-38.32%	\$64,422	-33.88%
FY 1982-83	4	1,784,194	5.64%	\$57,142	18.47%	4	166,836	11.28%	\$97,438	34.22%
FY 1981-82	4	1,688,925	N/A	\$48,235	N/A	5	149,929	N/A	\$72,594	N/A

TOTALS				
ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
6,170,048,704	16,352,800,000	22,522,848,704	\$169,536	\$169,536
6,238,718,264	10,290,800,000	16,529,518,264	\$128,710	\$133,858
6,089,454,122	16,683,600,000	22,773,054,122	\$154,580	\$166,946
5,764,301,025	14,992,900,000	20,757,201,025	\$120,829	\$135,328

ACTIVITY: PARKING LOTS

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	15	6,701,880	-17.68%	\$220,971	-5.93%	1	206	255.17%	\$132	266.67%
FY 1983-84	19	8,140,862	-8.77%	\$234,904	4.06%	2	58	-19.44%	\$36	-16.28%
FY 1982-83	23	8,923,626	-7.74%	\$225,729	13.01%	2	72	24.14%	\$43	-4.44%
FY 1981-82	25	9,671,805	N/A	\$199,747	N/A	2	58	N/A	\$45	N/A

TOTALS				
ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
22,873,516,440	20,600,000	22,894,116,440	\$221,103	\$221,103
27,784,762,006	5,800,000	27,790,562,006	\$234,940	\$244,338
30,456,335,538	7,200,000	30,463,535,538	\$225,772	\$243,834
33,009,870,465	5,800,000	33,015,670,465	\$199,792	\$223,767

ACTIVITY: PARKS AND COMMUNITY SERVICES

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	228	5,853,755	0.99%	\$320,478	9.22%	31	133,899	29.35%	\$98,504	47.49%
FY 1983-84	229	5,796,115	-3.58%	\$293,411	3.81%	32	103,520	-23.76%	\$66,788	-16.99%
FY 1982-83	227	6,011,112	-3.29%	\$282,648	-20.40%	35	135,775	1.38%	\$80,459	22.89%
FY 1981-82	223	6,215,538	N/A	\$355,080	N/A	33	133,929	N/A	\$65,474	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
19,978,865,815	13,389,900,000	33,368,765,815	\$418,982	\$418,982
19,782,140,495	10,352,000,000	30,134,140,495	\$360,199	\$374,607
20,515,925,256	13,577,500,000	34,093,425,256	\$363,107	\$392,156
21,213,631,194	13,392,900,000	34,606,531,194	\$420,554	\$471,020

ACTIVITY: POLICE

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	7	2,425,765	4.02%	\$78,504	6.17%	5	17,139	50.69%	\$10,817	41.53%
FY 1983-84	9	2,332,104	4.40%	\$73,940	22.93%	4	11,374	19.24%	\$7,643	32.85%
FY 1982-83	8	2,233,845	-3.73%	\$60,147	12.62%	3	9,539	10.82%	\$5,753	-8.90%
FY 1981-82	7	2,320,376	N/A	\$53,408	N/A	3	8,608	N/A	\$6,315	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
8,279,135,945	1,713,900,000	9,993,035,945	\$89,321	\$89,321
7,959,470,952	1,137,400,000	9,096,870,952	\$81,583	\$84,846
7,624,112,985	953,900,000	8,578,012,985	\$65,900	\$71,172
7,919,443,288	860,800,000	8,780,243,288	\$59,723	\$66,890

ACTIVITY: SOLID WASTE

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	10	313,210	3.39%	\$15,989	21.90%	2	14,550	9.70%	\$9,296	12.41%
FY 1983-84	9	302,935	2.33%	\$13,116	28.82%	2	13,264	-19.97%	\$8,270	-11.14%
FY 1982-83	8	296,051	1.29%	\$10,182	11.76%	3	16,574	-16.22%	\$9,307	-3.34%
FY 1981-82	8	292,269	N/A	\$9,111	N/A	3	19,783	N/A	\$9,629	N/A

TOTALS				
ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
1,068,985,730	1,455,000,000	2,523,985,730	\$25,285	\$25,285
1,033,917,155	1,326,400,000	2,360,317,155	\$21,386	\$22,241
1,010,422,063	1,657,400,000	2,667,822,063	\$19,489	\$21,048
997,514,097	1,978,300,000	2,975,814,097	\$18,740	\$20,989

ACTIVITY: STREET LIGHTS

ELECTRICITY						TOTALS			
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	ELECTRICITY IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
FY 1984-85	11	17,621,048	-5.72%	\$704,263	9.39%	60,140,636,824	60,140,636,824	\$704,263	\$704,263
FY 1983-84	7	18,689,524	5.37%	\$643,795	5.25%	63,787,345,412	63,787,345,412	\$643,795	\$669,547
FY 1982-83	7	17,737,753	1.19%	\$611,706	16.08%	60,538,950,989	60,538,950,989	\$611,706	\$660,642
FY 1981-82	7	17,529,995	N/A	\$526,961	N/A	59,829,872,935	59,829,872,935	\$526,961	\$590,196

ACTIVITY: TRAFFIC SIGNALS

ELECTRICITY						TOTALS			
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	ELECTRICITY IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
FY 1984-85	329	5,425,949	2.79%	\$181,078	10.98%	18,518,763,937	18,518,763,937	\$181,078	\$181,078
FY 1983-84	322	5,278,640	-0.98%	\$163,159	6.17%	18,015,998,320	18,015,998,320	\$163,159	\$169,685
FY 1982-83	315	5,330,925	9.01%	\$153,683	21.02%	18,194,447,025	18,194,447,025	\$153,683	\$165,978
FY 1981-82	288	4,890,130	N/A	\$126,986	N/A	16,690,013,690	16,690,013,690	\$126,986	\$142,224

ACTIVITY: WATER AND SEWER

ELECTRICITY						NATURAL GAS				
YEAR	# OF ACCOUNTS	KWH	% CHANGE	COST	% CHANGE	# OF ACCOUNTS	THERMS	% CHANGE	COST	% CHANGE
FY 1984-85	177	38,740,251	13.17%	\$1,549,401	1.19%	14	54,973	40.70%	\$35,136	43.79%
FY 1983-84	173	34,232,869	-14.51%	\$1,531,179	-2.02%	16	39,070	-38.12%	\$24,436	-34.66%
FY 1982-83	182	40,044,713	-28.04%	\$1,562,725	10.43%	17	63,139	-67.04%	\$37,401	-58.29%
FY 1981-82	180	55,648,259	N/A	\$1,415,172	N/A	17	191,554	N/A	\$89,672	N/A

TOTALS

ELECTRICITY IN BTU'S	NATURAL GAS IN BTU'S	TOTAL BTU	TOTAL COST	CONSTANT \$ COST
132,220,476,663	5,497,300,000	137,717,776,663	\$1,584,537	\$1,584,537
116,836,781,897	3,907,000,000	120,743,781,897	\$1,555,615	\$1,617,840
136,672,605,469	6,313,900,000	142,986,505,469	\$1,600,126	\$1,728,136
189,927,507,967	19,155,400,000	209,082,907,967	\$1,504,844	\$1,685,425

CITY OF SACRAMENTO

Fleet Management Division

SUMMARY of VEHICLES BY TYPE, CONSUMPTION, MILEAGE & MPG

Type of Vehicle	NO. of Vehicles			Gallons Used			Total Mileage			Miles / Gallon		
	82-83	83-84	84-85	82-83	83-84	84-85	82-83	83-84	84-85	82-83	83-84	84-85
<u>Cars: non-Safety</u>												
Sub-compact	53	55	57	22,701	24,672	30,127	606,117	605,065	630,980	26.7	24.5	20.9
Compact	133	123	132	86,007	83,255	66,234	1,277,472	1,218,288	1,080,249	14.8	14.6	16.3
Intermediate	20	16	14	19,419	18,046	13,956	193,521	153,745	146,700	9.9	8.5	10.5
Standard	8	6	6	3,537	4,309	5,482	63,768	77,562	66,657	18.0	18.0	12.2
Sub-total	214	200	209	131,664	130,282	115,799	2,140,878	2,054,660	1,924,586	16.2	15.8	16.6
<u>Cars: Police & Fire</u>												
Sub-compact	1	4	4	546	2,759	5,091	7,497	36,905	66,596	13.7	13.4	13.1
Compact	106	115	112	289,089	309,392	320,629	2,917,380	3,062,858	3,053,808	10.0	9.9	9.5
Intermediate	9	4	4	12,237	8,263	4,653	111,879	80,022	51,552	9.1	9.7	11.1
Standard	4	3	0	6,792	3,839	0	61,449	36,441	0	9.0	9.5	0
Sub-Total	120	126	120	308,664	324,253	330,373	3,098,205	3,216,226	3,171,956	10.0	9.9	9.6
<u>Pick-Ups</u>												
Sub-compact	133	135	185	58,079	70,390	80,256	1,157,590	1,433,210	1,654,572	19.9	20.4	20.6
Standard	207	215	201	149,542	183,826	189,839	1,610,126	1,851,751	1,823,054	10.6	10.1	9.6
Sub-Total	340	350	386	207,621	254,216	270,095	2,767,716	3,284,961	3,477,626	13.3	12.9	12.9
<u>Trucks</u>												
	171	181	166	216,756	219,473	234,155	975,177	1,034,899	1,070,615	4.5	4.7	4.6
<u>Refuse Trucks</u>												
Gas	11	0	2	45,674	0	1,309	77,249	0	2,225	1.7	0	1.7
Diesel	96	101	106	178,288	235,857	221,589	572,905	852,916	894,298	3.2	3.6	4.0
Sub-Total	107	101	108	223,962	235,857	222,898	650,154	852,916	896,523	2.9	3.6	4.0
<u>Fire Trucks</u>												
Gas	29	30	29	37,353	35,102	41,203	115,794	129,194	156,573	3.1	3.7	3.8
Diesel	24	29	26	27,663	28,577	37,082	113,418	118,151	152,035	4.1	4.1	4.1
Sub-Total	53	59	55	65,016	63,679	78,285	229,212	247,345	308,608	3.5	3.9	3.9
Totals	1,005	1,017	1,044	1,153,683	1,227,760	1,251,605	9,861,342	10,691,007	10,849,914	8.5	8.7	8.7

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Appendix E--Fleet Data

RECAP OF SMUD DATA
CITY PARKING STRUCTURES
LOTS A, B & H

LOT H - 10th & L Sts. (Exhibit I.A)

	<u>KWH</u>	<u>DEMAND</u>	<u>CURRENT \$</u>
Highest Bill	225,600	330	\$ 6,709.76
Most Recent Bill	- <u>73,920</u>	- <u>155</u>	- <u>2,519.80</u>
Monthly Savings	151,680	175	\$ 4,189.96

LOT A - 7th & L Sts (Exhibit I.B)

Highest Bill	33,240	60	\$ 1,071.55
Most Recent Bill	- <u>9,200</u>	- <u>0</u>	- <u>433.93</u>
Monthly Savings	24,040	60	\$ 637.62

LOT B - 10th & I Sts. (Exhibit I.C)

Highest Bill	34,400	60	\$ 1,097.77
Most Recent Bill	- <u>9,400</u>	- <u>0</u>	- <u>445.07</u>
Monthly Savings	25,000	60	\$ 652.70

SUMMARY OF ABOVE

Highest Bill	293,240	450	\$ 8,879.08
Most Recent Bill	- <u>92,520</u>	- <u>155</u>	- <u>3,398.80</u>
Monthly Savings	200,720	295	\$ 5,480.28
or	68.5%	65.5%	61.7%
Annualized Savings	2,408,640	3,540	65,763.36

NOTE: Lots A & B after retrofit have been changed from Demand Rate
Schedule 47 to Rate Schedule 27.