



CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

AGENDA DATE: June 17, 2014

TO: Mayor and Councilmembers

FROM: Facilities Division, Public Works Department

SUBJECT: 2013 Annual Energy Report

RECOMMENDATION:

That Council receive a status report on the City's energy conservation and efficiency efforts.

DISCUSSION:

The Annual Energy Report summarizes energy-related activities that took place during the 2013 calendar year. City staff uses the report to inform Council and the public about recent activities and current energy trends. Key issues discussed in the 2013 Annual Energy Report are summarized below.

- The City's total electricity usage for the year remained relatively flat at 25.94 million kwh despite increases due to the ozone project at Cater Water Treatment Plant and the reopening of the Airport's historic terminal. Through energy efficiency projects, rate restructuring and other measures, the City was able to mitigate these increases and reduce the City's expenditure on electricity by approximately .5% in 2013.
- In 2013, the City's total natural gas usage increased by about 4% to 162,000 therms. This is largely due to aging HVAC infrastructure at the Police Department and the Cabrillo Arts Pavillion. Both of these buildings are slated for remodeling in the next few years, which includes the installation of upgraded systems.
- The cogeneration system at the El Estero Wastewater Treatment Plant has been in operation since December 2013. This system can supply up to 75% of the Plant's electrical needs and is expected to save the City approximately \$55,000 annually in electricity costs.
- The City completed the construction of the Fats, Oils and Grease receiving facility, which will eliminate a significant amount of truck trips to far-away disposal sites, as well as provide additional fuel for the cogeneration system at the Plant.

- The City's involvement in Southern California Edison's Direct Install Program is an excellent example of a successful energy project. In 2013, the City received \$146,000 in lighting upgrades and retrofits that will save the City roughly \$30,000 per year in electrical costs.

In summary, this year's energy projects have continued to manage and offset the City's growing electrical and natural gas demand and save the City dollars. The energy efforts performed by the City's energy team since its inception in 2008 have resulted in a 2.5 million kWh energy reduction and \$465,000 in annual cost savings. City staff is looking forward to building on the 2013 efforts in the coming year.

The Annual Energy Report has been made available for review at the City Clerk's Office.

PREPARED BY: Jim Dewey, Facilities & Energy Manager/AP/mh

SUBMITTED BY: Rebecca Bjork, Public Works Director

APPROVED BY: City Administrator's Office



2013 Energy Report

City of Santa Barbara

June 17, 2014 – Santa Barbara City Council Meeting
Jim Dewey – Facilities and Energy Manager

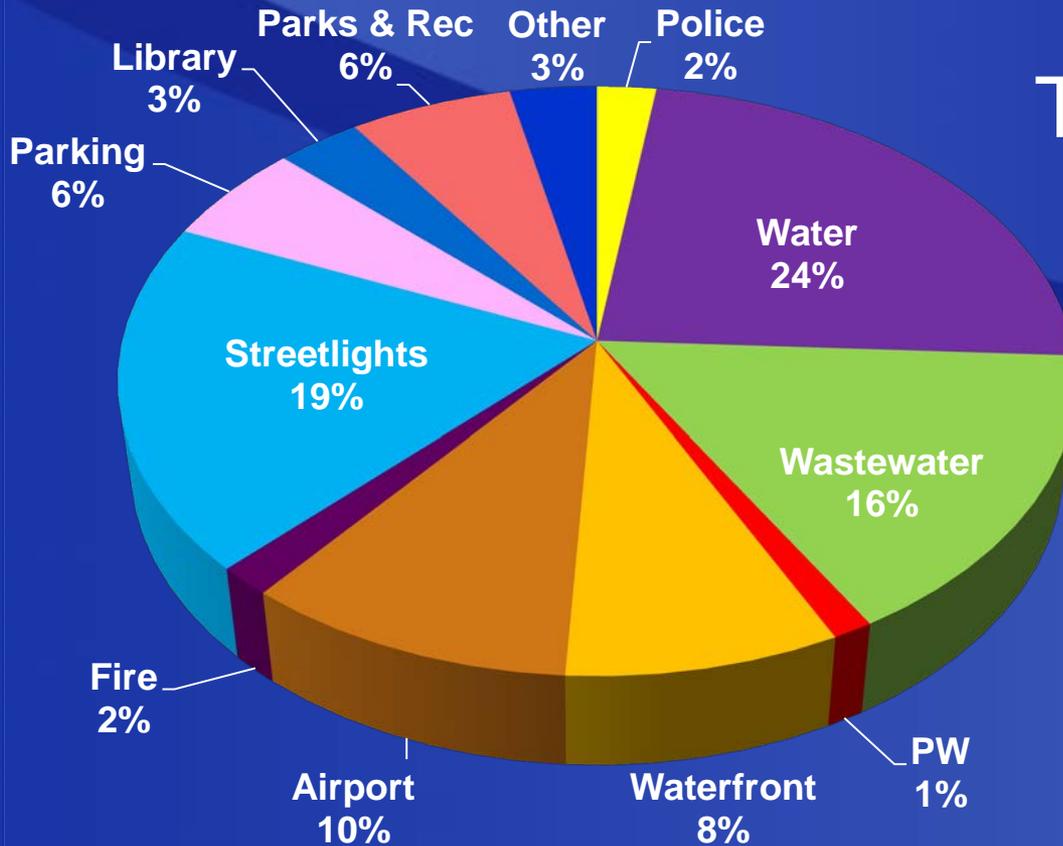
Electricity



FY 2013 Electricity Expense

Electricity cost by percentage of total FY 2013 expenditures for City departments or major use areas

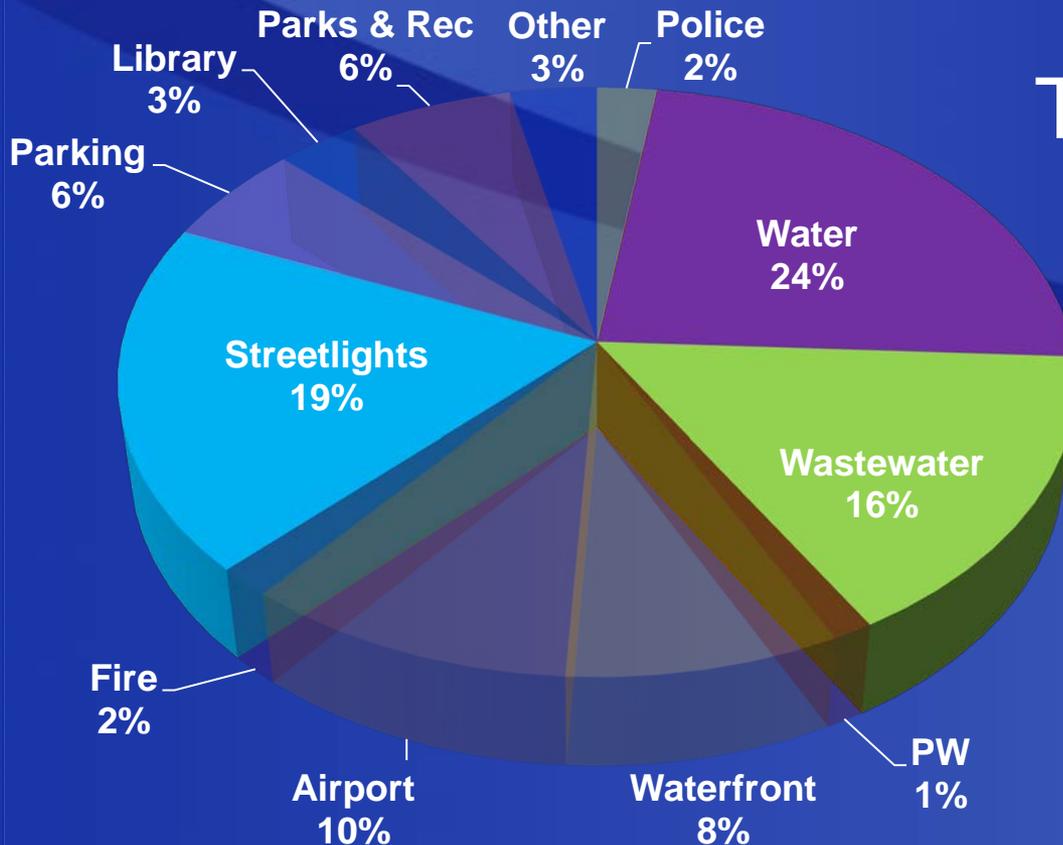
Total \$3,413,080



FY 2013 Electricity Expense

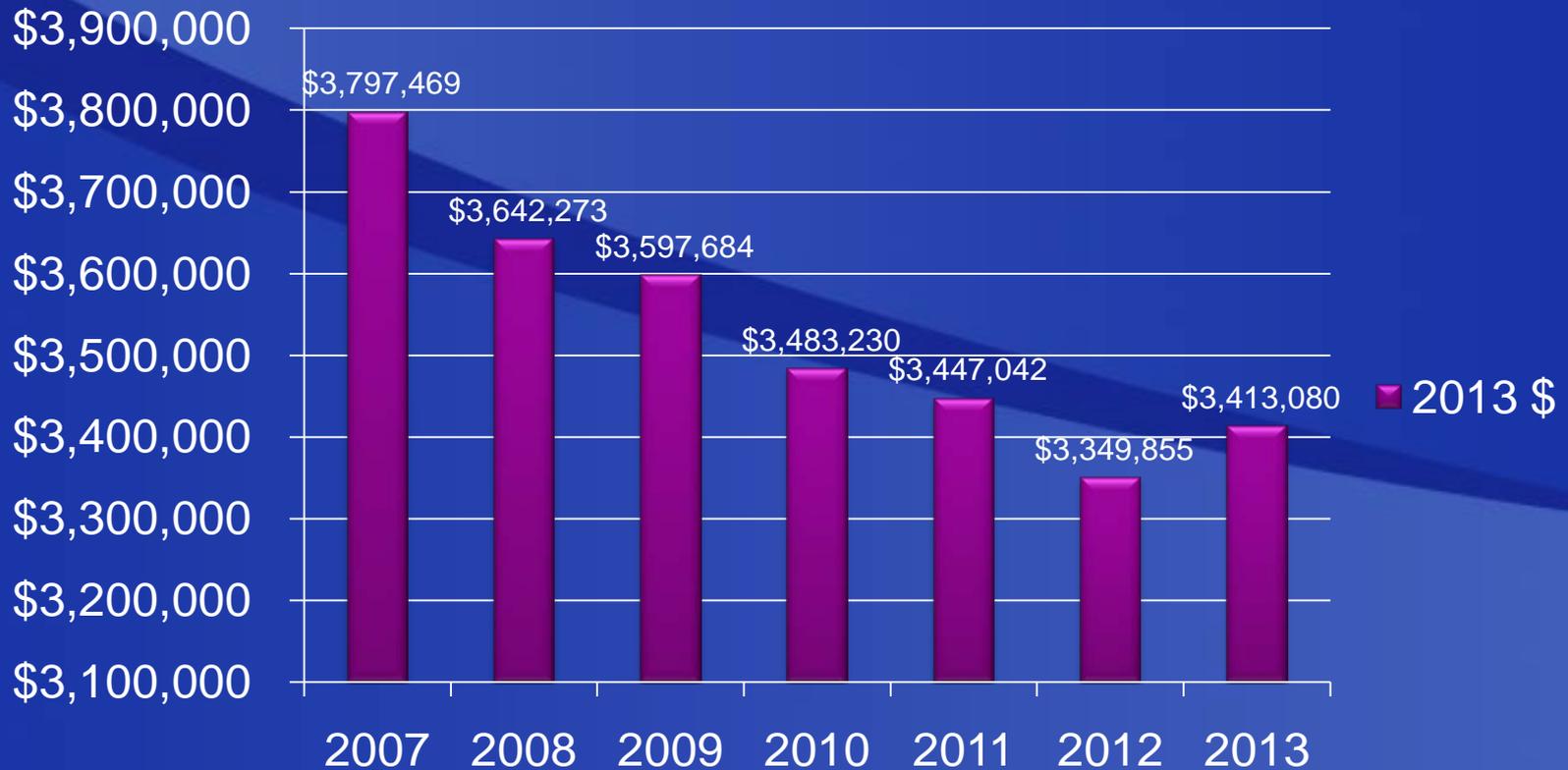
Electricity cost by percentage of total FY 2013 expenditures for City departments or major use areas

Total \$3,413,080



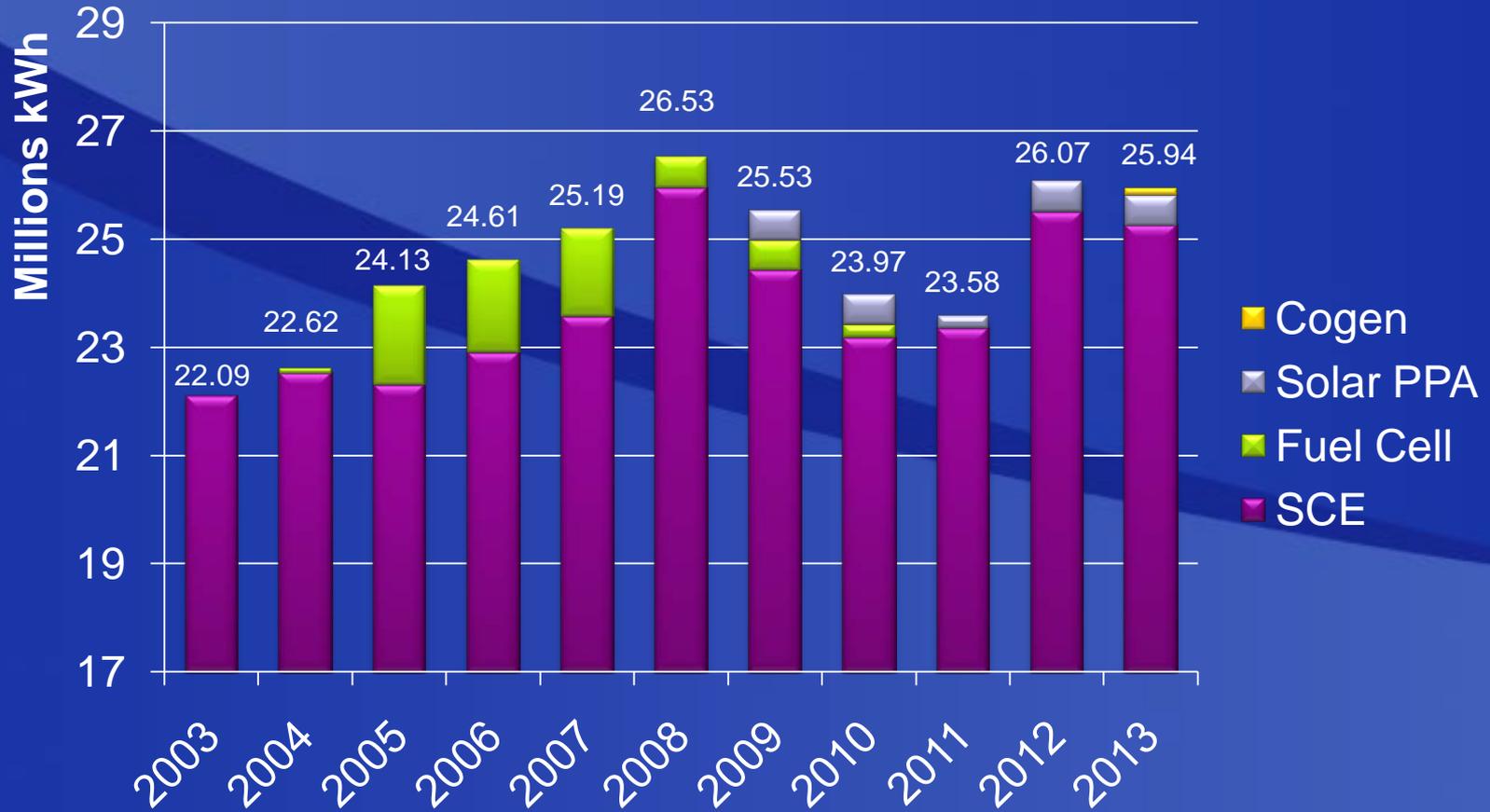
Purchased Electricity in 2013 Dollars

City of Santa Barbara Purchased Electricity



ADJUSTED BY CPI

Purchased Electricity



Largest Electrical Increases Since Last Year (2013)

SCE Account	2013 Usage	2012 Usage	% Increase
Cater	2,737,112	2,449,070	12%
La Mesa Pump Station	260,286	98,299	160%
Los Robles Well	169,638	27,595	515%
Sheffield Reservoir	641,100	522,260	23%
Airport	1,890,036	1,779,094	6%

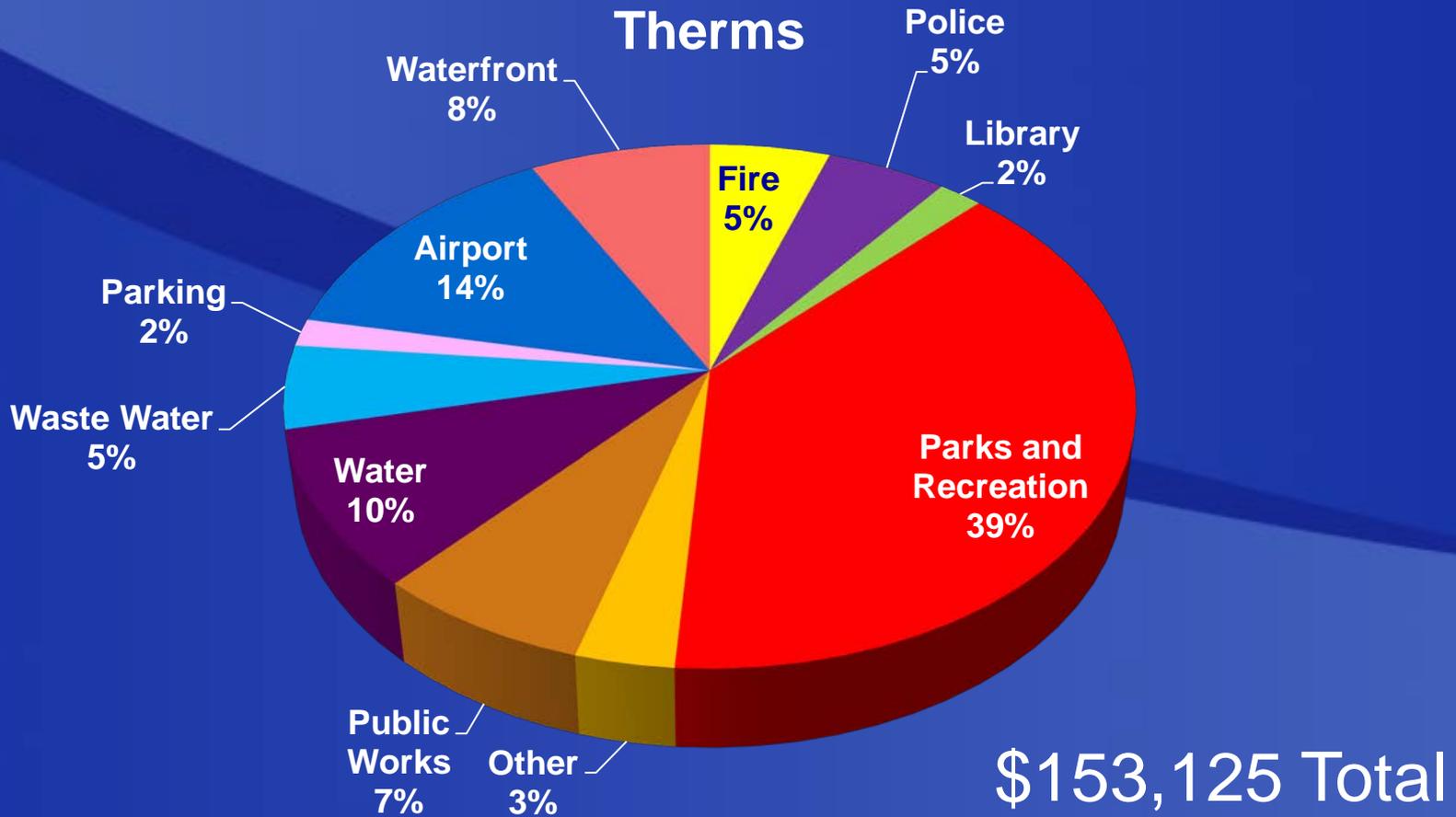
Biggest Electricity Users

SCE Account	2013 Annual kWh	2012 Annual kWh	% Change
El Estero Wastewater Treatment Plant	7,024,194	7,055,712	 0.5%
Cater Water Treatment Plant	2,737,112	2,449,070	 12%
Airport	1,890,036	1,779,094	 6%
Marina 1	985,516	934,878	 5%
Ornamental Street Lighting – Downtown	855,648	855,626	No Change
Police Department	652,901	642,143	 1.5%

Natural Gas

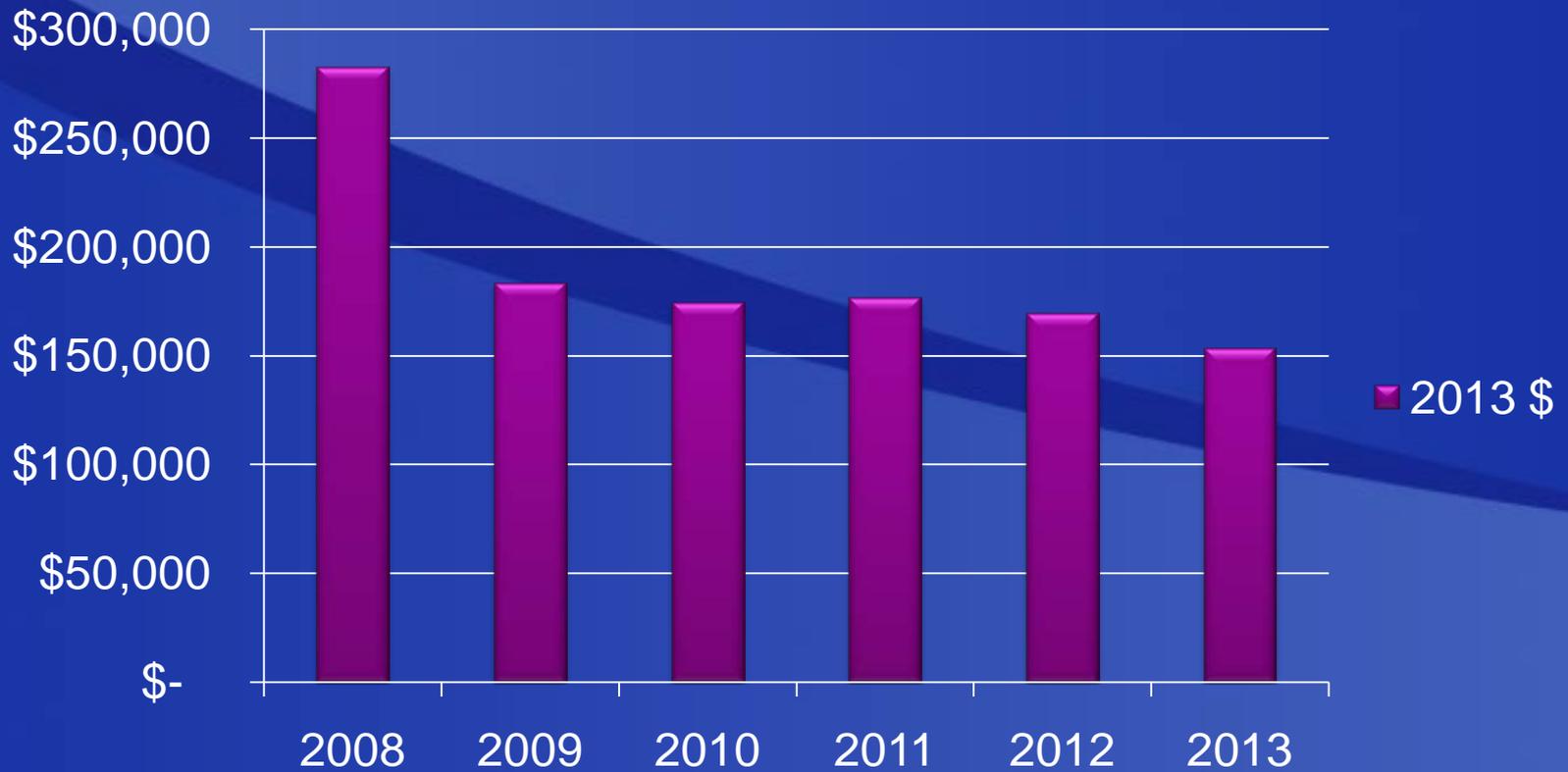


FY 2013 Natural Gas Expenditures

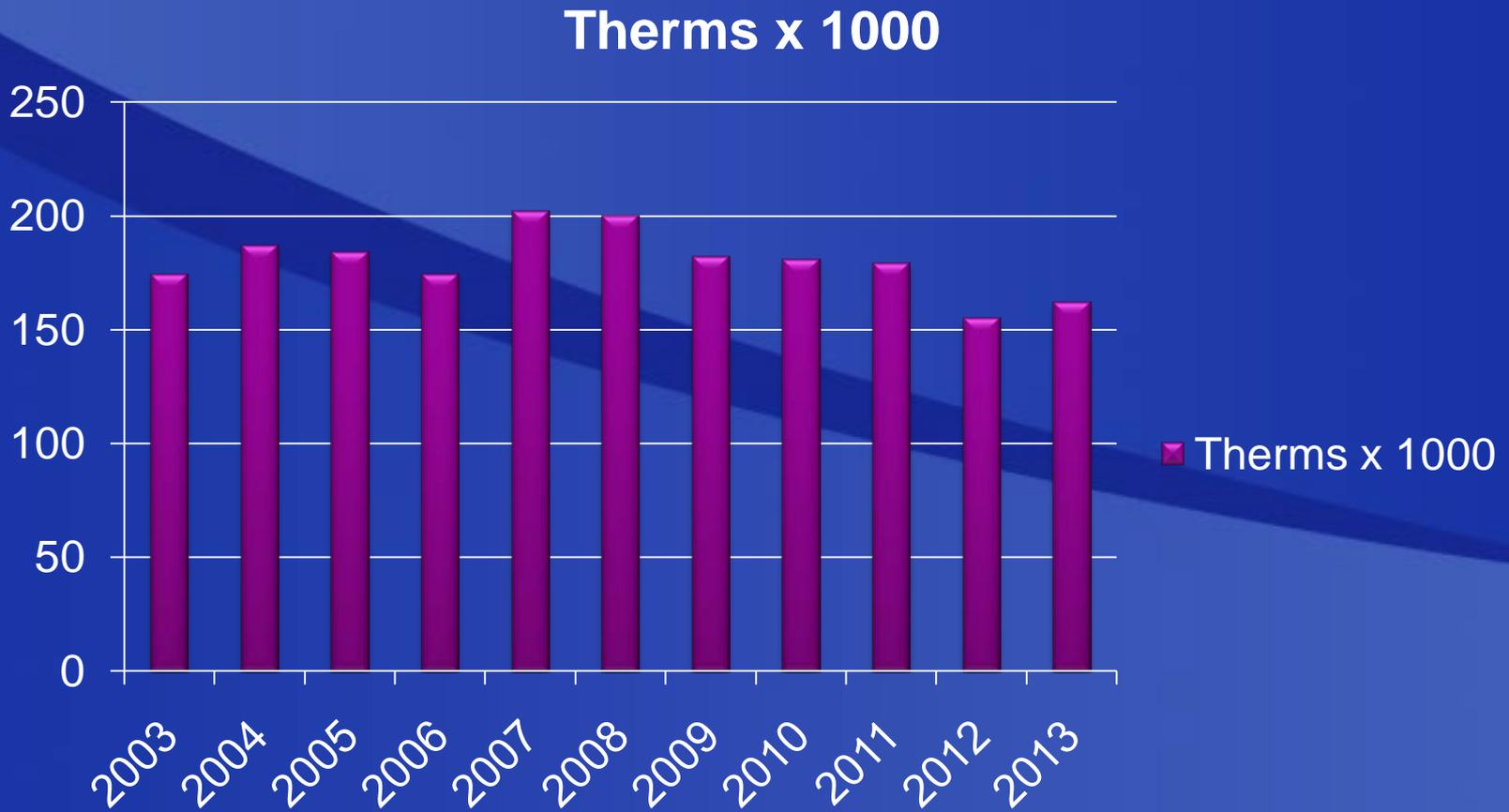


Gas Cost by Year

2013 \$ Natural Gas



Natural Gas Usage by Year



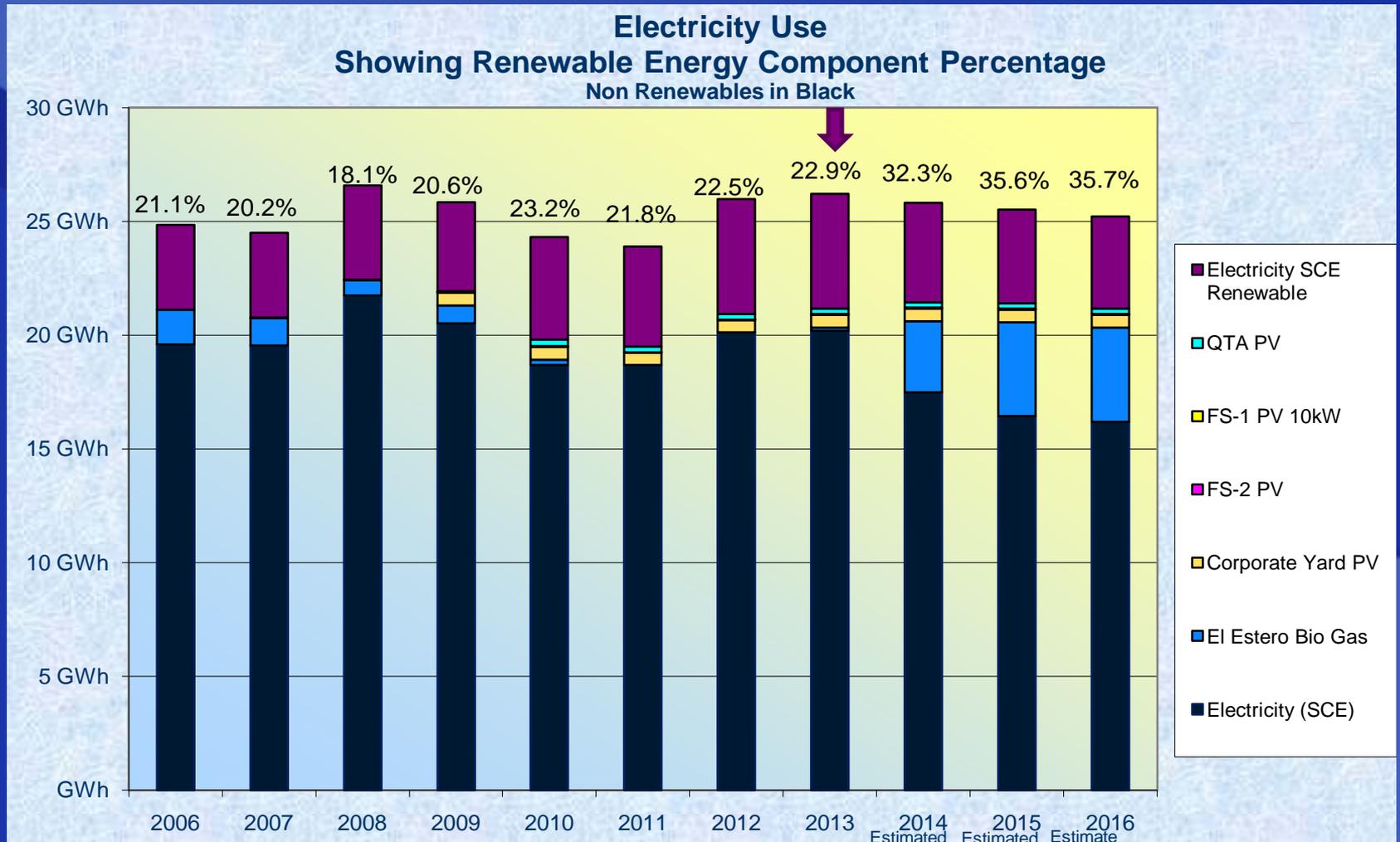
Largest Natural Gas Users

Location	2013 Annual Therms	% Change From 2012
Los Baños Del Mar Pool	33,989	↓ 7%
Airport	17,814	↓ 2%
625 Laguna (Public Works)	13,218	↓ 7%
Police Department	12,928	↑ 43%
Cabrillo Arts Pavilion	12,376	↑ 41%

Renewable Energy



Renewable Percentage of Electricity City Operations



Solar Photovoltaic Projects

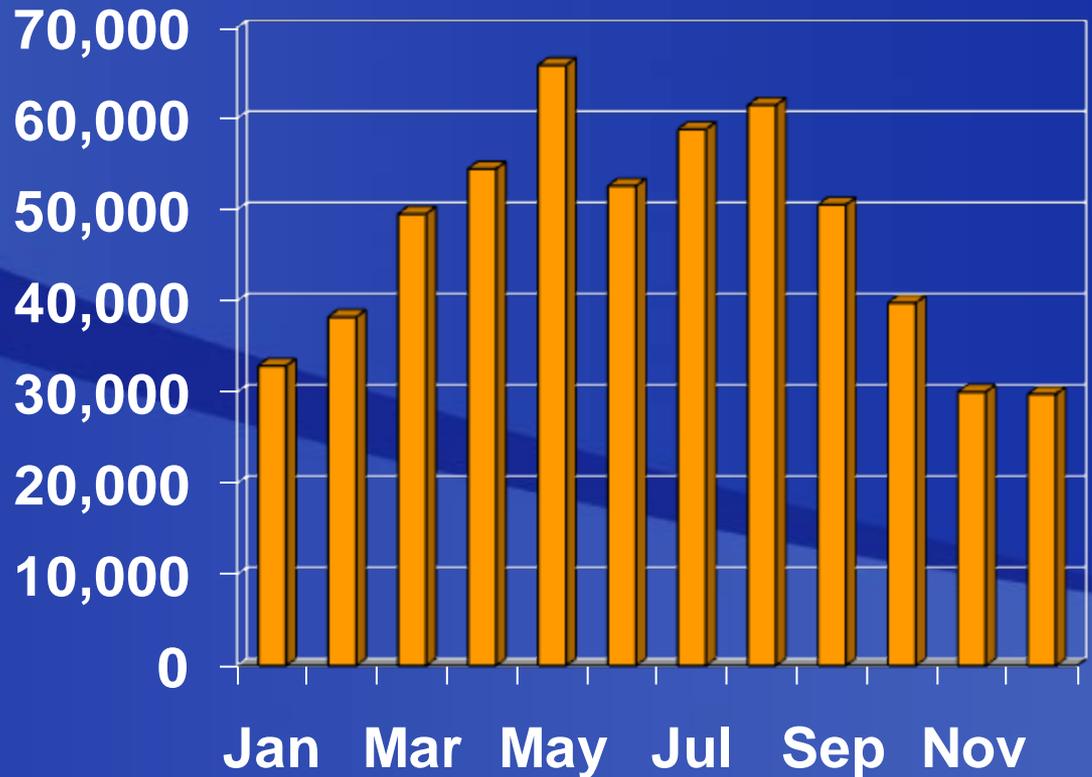
850,000 kWh - enough energy to power 150 local area homes.

Project	Year Installed	kW (size)	Annual kWh
PW Corporate Yard PV	2008	302	564,124
Airport QTA PV	2010	190	233,819
Fire Station 2 PV	2007	15	28,000
Fire Station 1 PV	2009	10.2	24,000

2013 Corporate Yard Power Production

564,124 kWh Total

■ kWh

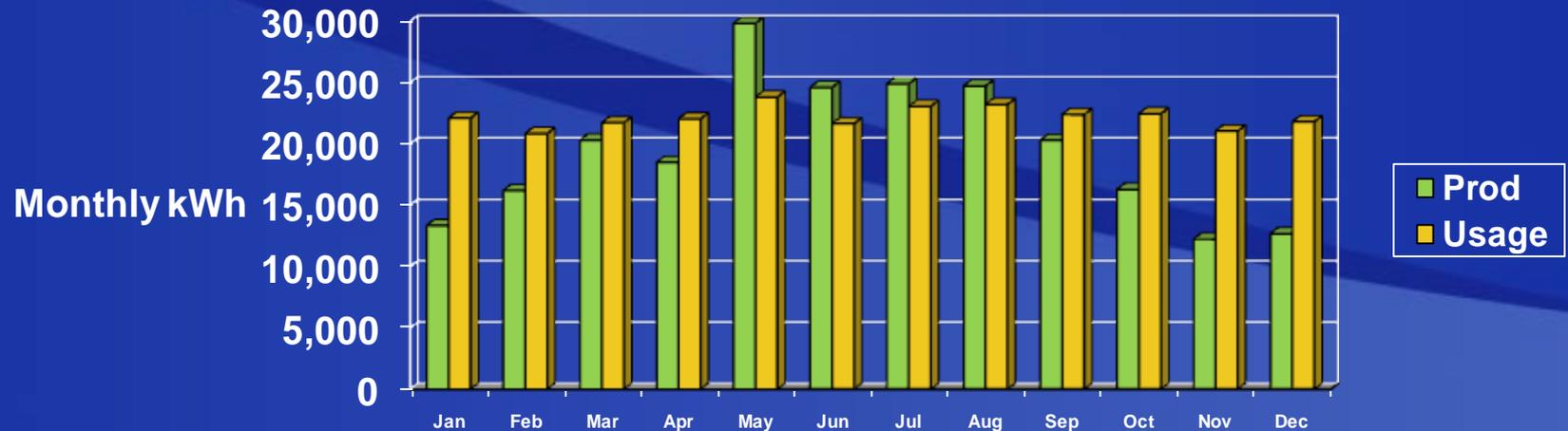


Provided 99% of the electrical needs for the Garden Street and Laguna Street Complexes!

Airport QTA PV System



2013 PV Production and Electrical Usage



Supplied 88% of the electrical needs at the QTA facility!

2013 Total Production – 233,819 kWh

2013 Total Usage – 266,070 kWh

Net Utility Supplied Electricity 2013 – 32,251 kWh

FOG Station



FOG Station: The First Year

- ◆ Total FOG materials received: 465,997 gallons
- ◆ 93 Truck trips to Kern County avoided (roughly 100MT of CO2e avoided)
- ◆ Performing as expected
 - No negative effects on plant
 - Ready to increase amount of material received

Digester Feedstock (gal)



FOG: The First Year

% Methane in the Biogas



11% increase in Bio Gas produced by the Plant

Success Story: Direct Install

Measures installed at City Facilities:

- High efficiency T-8s Fluorescent lighting
- Motion Sensors
- LED Lighting
- Window Film (Tint)

Buildings that benefited from Direct Install in 2013:

- City Hall
- Central Library
- Corporate Yard
- 630 Garden St.
- Cabrillo Arts Pavilion
- Westside Center
- Police Department
- Westside Center
- Cater
- City Attorney's Office
- Carrillo Rec Center
- All 8 Fire Stations
- Los Baños Pool

Direct Install 2013

- ◆ Value of lighting retrofits: \$146,368
- ◆ kWh savings: 216,620
- ◆ kW savings: 51.96
- ◆ Saves an estimated \$30,000 in electrical costs per year!



Before



After



Energy Team Savings

One Time Savings 2013

- ◆ Rebates – \$ 35,891
- ◆ Grants - \$ 62,520
- ◆ Direct Install Funding - \$146,368

Ongoing Annual Savings*

- ◆ Annual Conservation Savings – \$ 340,000
- ◆ Annual Electrical Rate Savings – \$ 125,000

Total- \$ 465,000

* From actions taken FY 2008 through FY 2013

Future Energy Projects



- ◆ El Estero Influent Pumps Upgrade
- ◆ Micro Hydro
- ◆ Police Department HVAC Replacement
- ◆ El Estero Outdoor Lighting Project
- ◆ Energy Efficiency Revolving Fund Study
- ◆ Airport Long-Term Parking Photovoltaic PPA ~ 800 kW

GHG Emissions



CO₂e Emissions from City Operations

CO₂e Emissions by Type
as reported to the CCAR and CAR (2014, 2015, 2016 Estimated)

