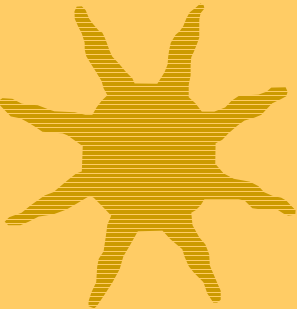




City of Palo Alto Utilities



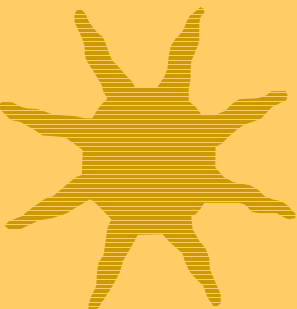
Palo Alto PV Partners
“The Little Hardware Store That Could”

by

Lindsay Joye, Marketing Engineer
City of Palo Alto Utilities

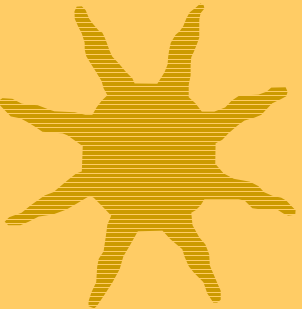
at

CA Solar Forum
November 20, 2003





Overview



★ Market Challenges for Solar

★ Key Players in Palo Alto

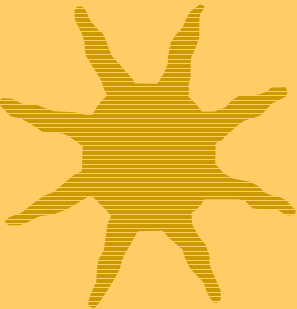
★ Accomplishments

★ Lessons Learned





Market Challenges in Palo Alto



★ Economic Climate

- low electric rates, high cost of living, heavy tree canopy



★ Product Complexity

- complex product, limited access to qualified solar contractors



★ Regulatory Environment

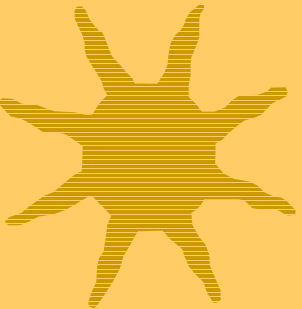
- difficult permit process, high fees, untrained inspectors, net metering issues

★ Solar Credibility

- poor reputation, many SDHW systems installed in 80's have failed, vendors out of business

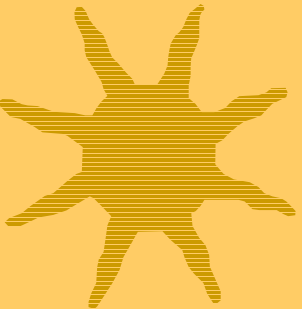


The Palo Alto Troika



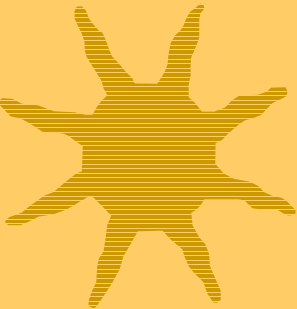
Three key players in our success story:

- ★ Palo Alto community - unique
- ★ City of Palo Alto Utilities - benefits of public power
- ★ Palo Alto Hardware store - a new PV delivery method

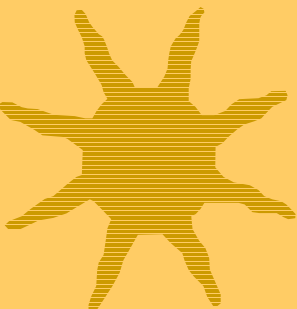




Unique Palo Alto Community



★ Highly educated community, neighboring with Stanford University



★ Active environmental leaders, green community

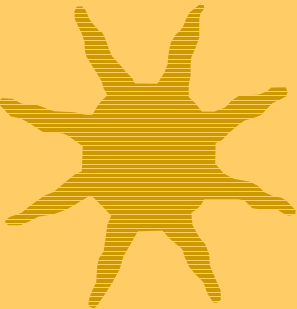
- 5% signed up for Green Power in 5 months
- 8% installed solar thermal systems in 1980s



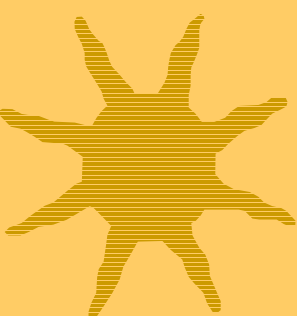
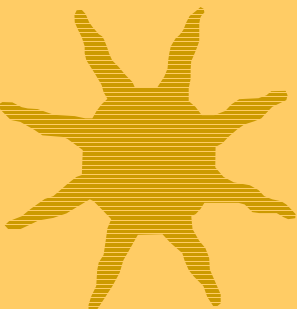
★ Technically-savvy early adopters, heart of Silicon Valley



City of Palo Alto Utilities

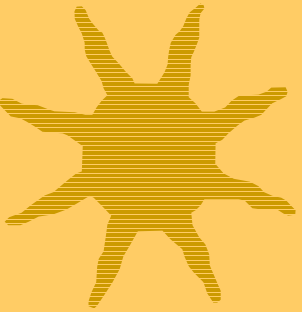


- ★ 100+ years of municipally-operated utility
 - electricity, gas & water within city borders
- ★ 20+ years of offering efficiency & renewable energy programs
- ★ 3% (\$2M) of electric revenues on public benefit programs annually
- ★ Close ties with City Building, Planning & Fire
- ★ Local control & policy setting by City Council





CPAU Support



- ★ 1998 Started with five demonstration projects

- \$4.50/watt incentives

- ★ 1999 Developed PV Partners program

- \$4/watt incentives

- ★ Educated community

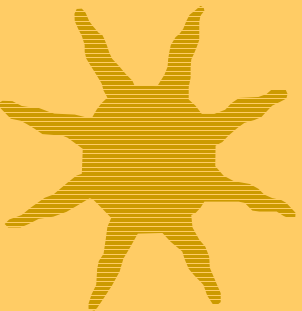
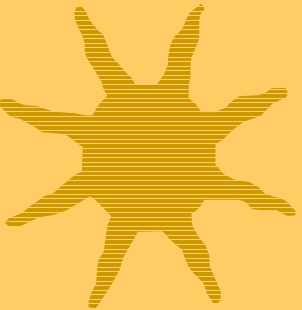
- solar homes tours, presentations at fairs, neighborhood associations & schools

- ★ Provided regional inspector training

- 20 inspectors from 9 jurisdictions

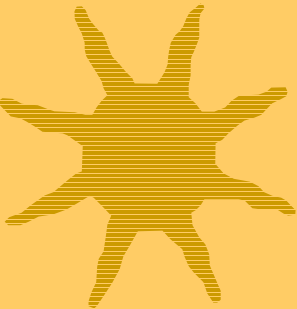
- ★ Collaborated with others

- Bay Area Solar Consortium was first MSR partner to achieve goal!

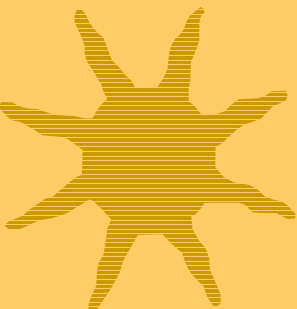




Palo Alto Hardware Store

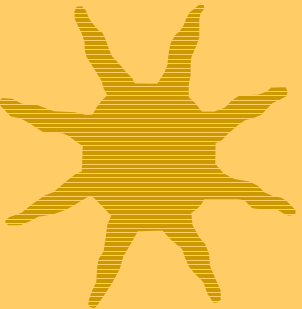


- ★ Established in SF Bay Area
- ★ Family owned for 3 generations
 - 50 years, 10 years at Palo Alto location
- ★ Successful
 - ACE Hardware top sales per square foot
- ★ Environmental leader
 - First Green Business in county
 - Among 1st to install PV, produces ~95% of store's annual electricity



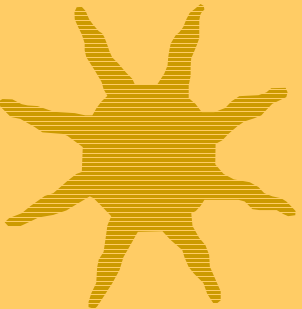


PAH Business model



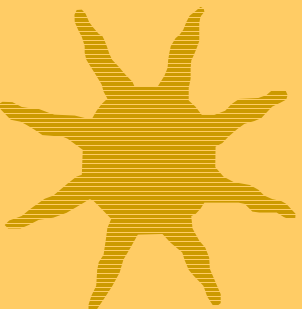
★ Credibility

- trusted local family owned business
- led by example with 30 KW system on store



★ Product

- offered simplified pre-engineered product with a quick installation time by locally trained electricians for lowest cost!



★ Regulatory

- well connected owner influenced permit and inspection process

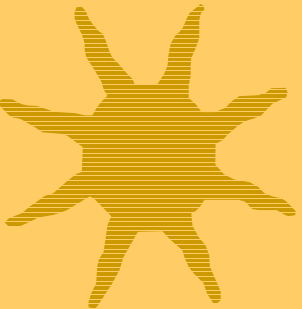


Lessons Learned- PAH



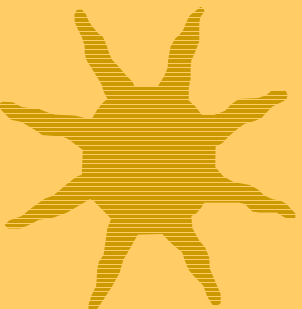
★ Learning curve

- from no PV knowledge to capturing 45% of local PV sales



★ Product offering

- continue to refine/improve, now have expertise to build own PV kits

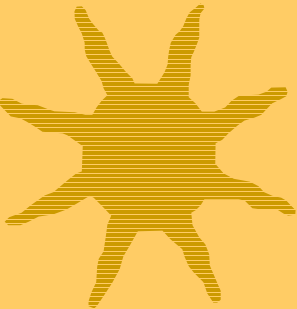


★ Building permit issues

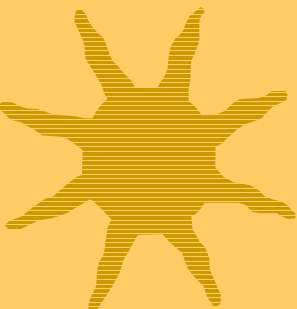
- had to train installers
- dealt with difficult building inspectors
- had to use influence (of owner) to encourage Mayor to fix building permit problems



Lessons Learned for CPAU



★ Address net metering & utility billing problems



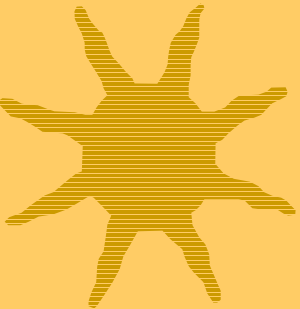
★ Reduce building permit costs
– from >\$1,000 to \$100
– now reimbursed by PV Partners rebate



★ Shorten permit approval to one day
★ Monitor 5 PV systems to get accurate energy generation data



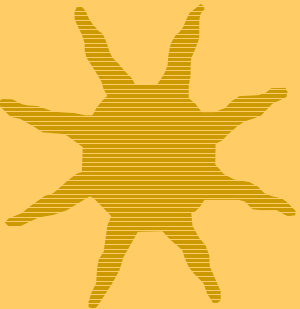
Accomplishments



★ SEPA Award for Development of a Solar Community

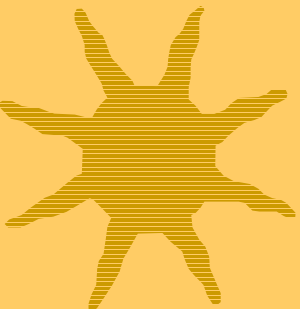
★ 75 systems installed

– 70 homes, 2 office buildings, 2 schools and 1 retail store



★ 245 kilowatts of PV generation

– Over 4 watts per capita

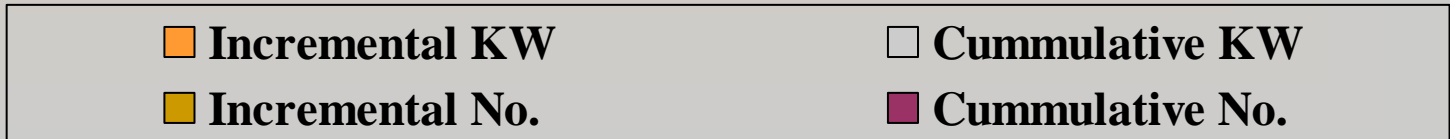
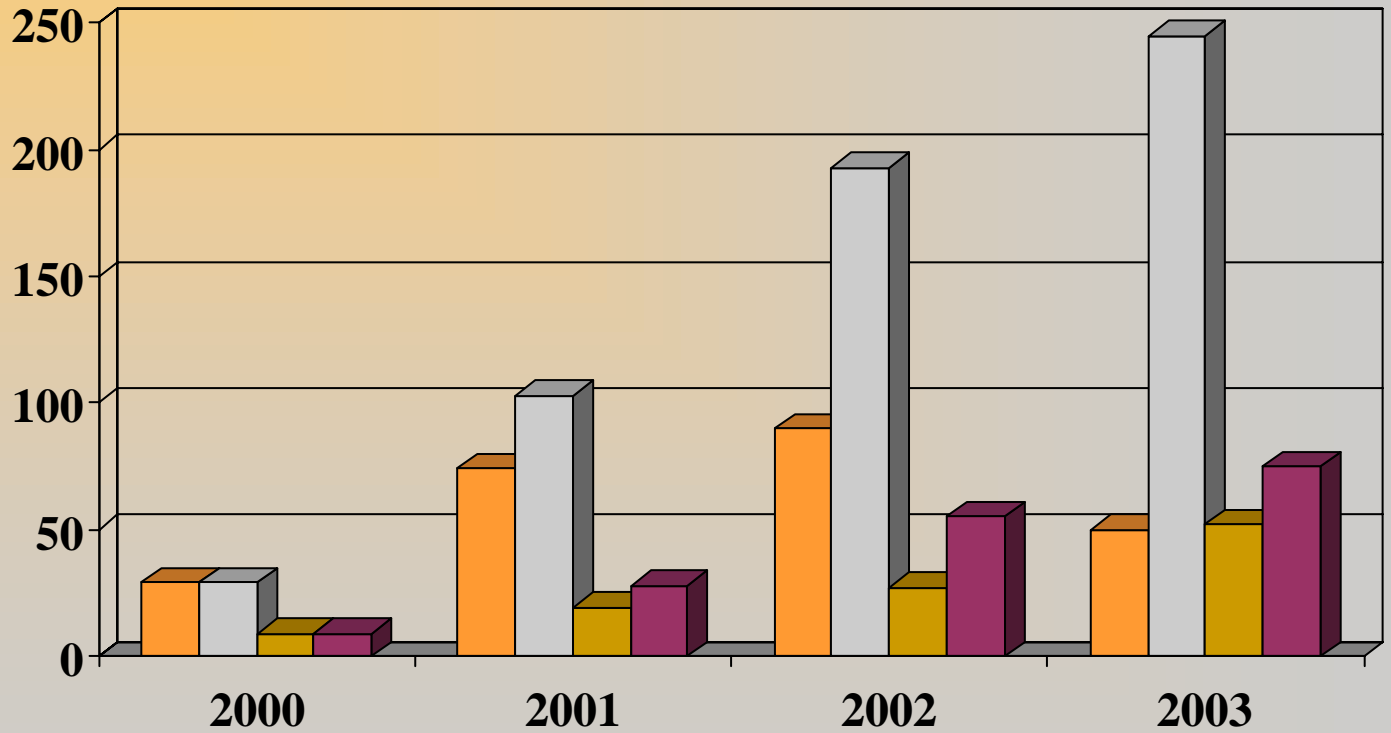
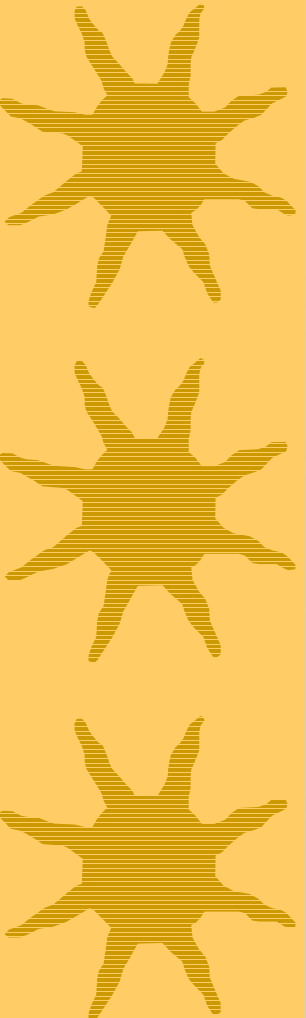


★ Solar Homes tour, workshop & vendor fair

– 200 people attended & toured 19 PV homes last month

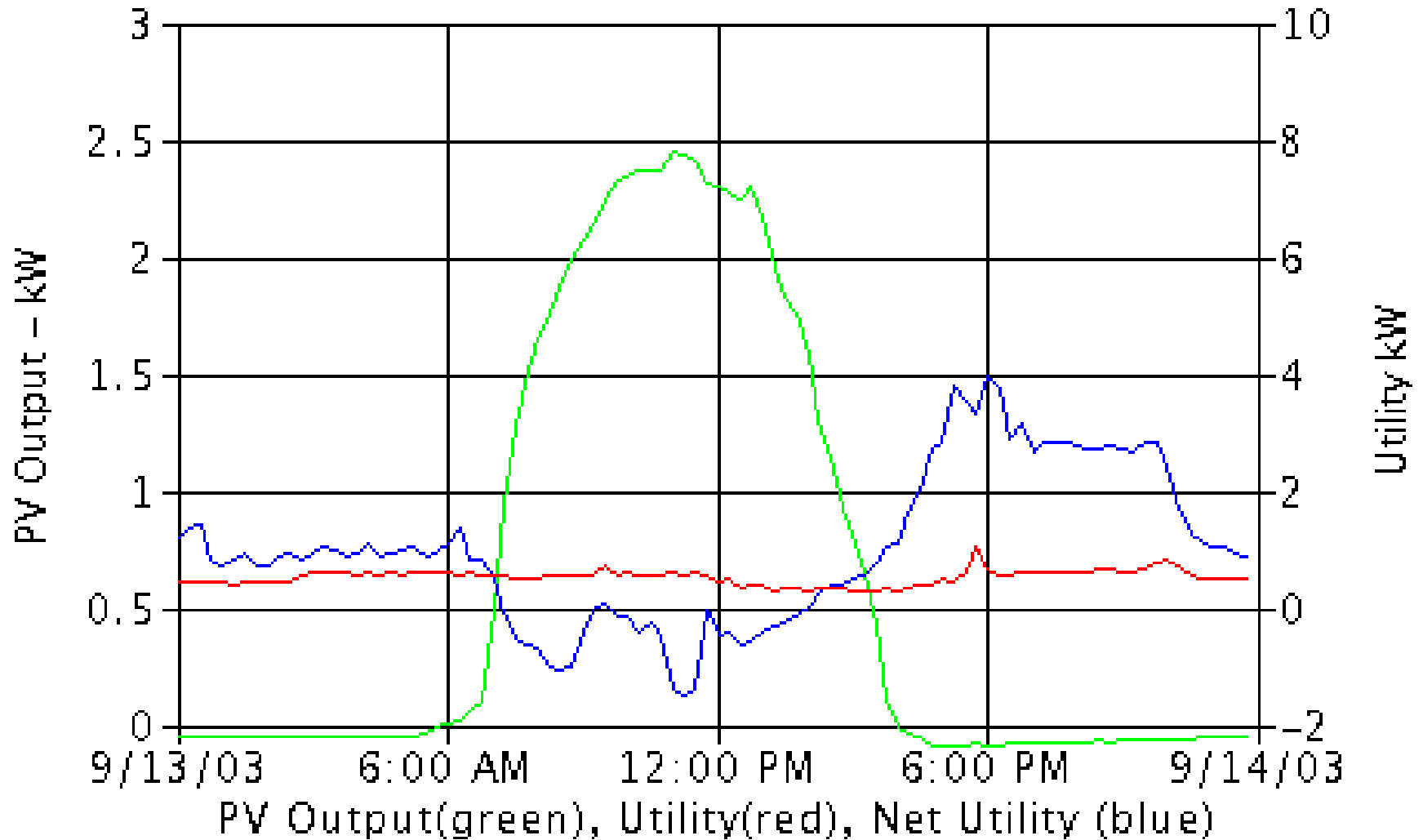


PA PV Installations



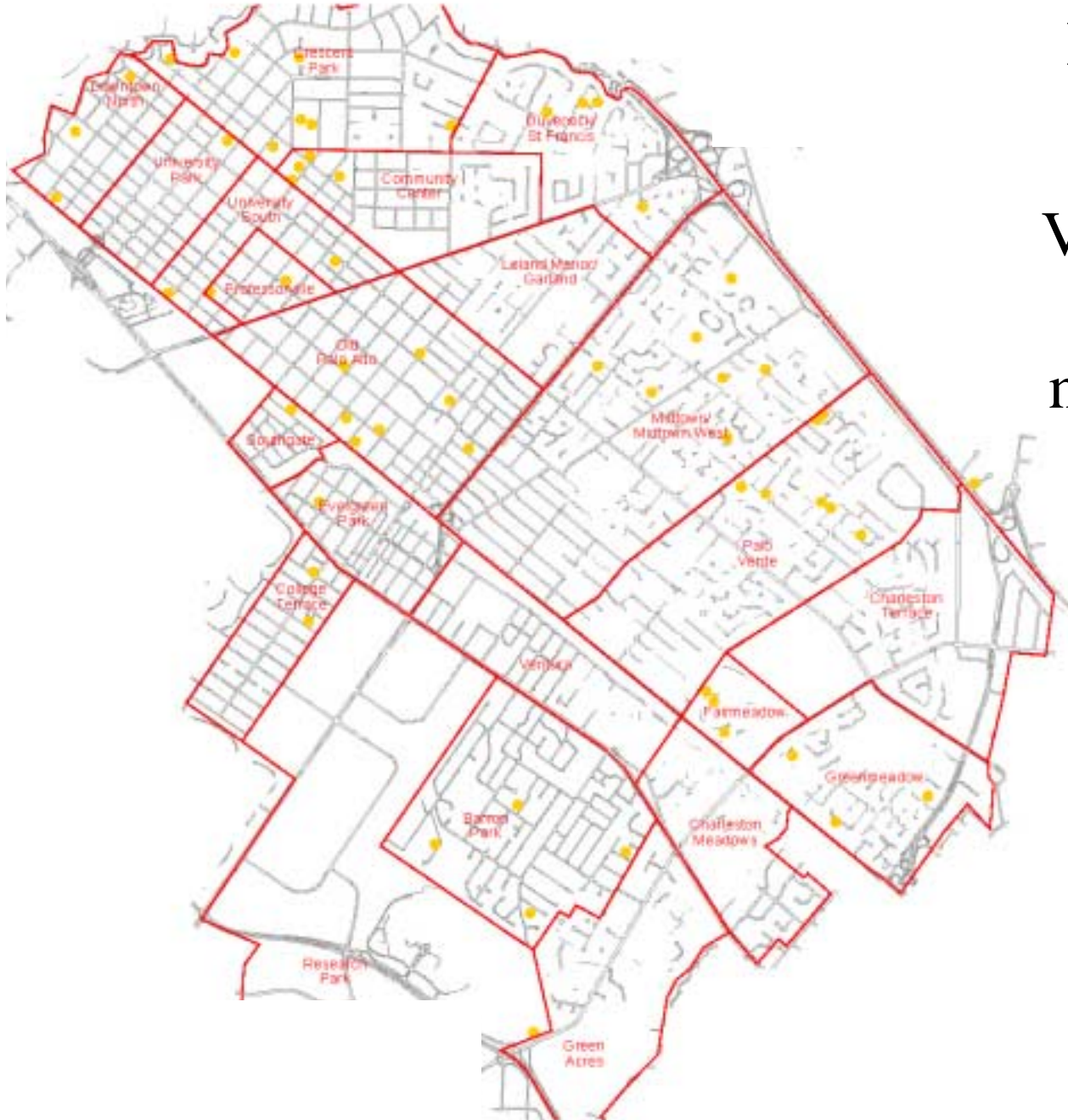
PV Monitoring System Graph

Gyr/Friedman Home - 09/13/03



Palo Alto PV Installations

Visit the one in
your
neighborhood!





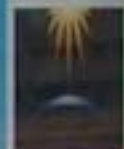






Henry M. Gunn High School **ENVIROMETER**

SOLAR



UTILITY



The Electricity Being Produced Right Now Will Power...

Amount of Pollution Reduced Each Year (Carbon Dioxide)

Sponsored by the Palo Alto Unified School District and the City of Palo Alto Utilities Department

The 5 kilowatt solar photovoltaic system on the roof of this building generates clean, non-polluting electricity from sunlight.

This **ENVIROMETER** shows the actual electricity being produced right now, and the corresponding environmental benefits.





Contact Information

For additional questions or information:

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