



Department of Sustainability & Energy Management (SEM)



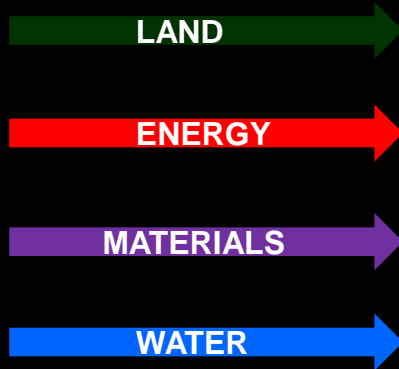
About SEM

SEM leads the initiative to advance sustainability in campus operations and is directly responsible for the campus programs with the largest environmental impacts. This mission is accomplished with strategic assistance from the Office of Sustainability and the support of LBRE Finance & Administration. Key programs include:

- Parking & Transportation
- Water & Civil Services
- Energy Services

The Stanford Ecosystem

Resources Used



Environmental Impacts



Sustainability: Meeting the needs of today without compromising the ability to meet the needs of the future

SEM mission is to help guide Stanford to sustainability

THE COLLEGE SUSTAINABILITY REPORT CARD

REPORT CARD COMPARE GET INVOLVED ABOUT MY RESEARCH



Stanford at top of its class
Stanford is the only school in California to earn an A- and is 1 of just 15 schools overall to get an A-.

LEARN MORE

Latest Report Card profiles 300 leading schools
GreenReportCard.org is the first website to provide in-depth sustainability profiles for hundreds of colleges in all 50 U.S. States and Canada. [See the results](#)




**SUSTAINABLE
STANFORD**



COMMUNITY
WORKING TOGETHER



LAND USE
MAINTAINING
NATURAL RICHES




TRANSPORTATION
GOING THE EXTRA MILE



**GREEN
BUILDING**
SHOWCASING INNOVATION



ENERGY
MOVING TO A
BRIGHTER FUTURE



WATER
CONSERVING
PRECIOUS RESOURCES



WASTE
REDUCING AND
RECYCLING



STUDENTS
HOPE AND
INSPIRATION

Sustainability and Energy Management (SEM)



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Facilities
Energy
Management



Robert Reid,
Energy
Services



Dean Murray,
Thermal
Energy
Distribution



Rich Bitting,
Power Systems

Office of Sustainability

Institutionalizing Sustainability through Programs, Evaluations, Education and Outreach

1. Strategic Planning
2. Evaluations & Reporting
3. Communication & Education
4. Academic Integration
5. Behavioral Programs
6. Participation Campaigns



LEARN MORE



SUSTAINABLE
STANFORD

A YEAR IN REVIEW

2009-2010



Need Funding for Your "Green" Project Idea?

Sample Project Ideas:

- ✓ Reduce water use
- ✓ Sustainable awareness
- ✓ Lower your dorm's electricity use
- ✓ Solar panels
- ✓ Create a "green" lecture series



The Stanford Green Fund has
\$30,000

for student-driven
sustainable projects at
Stanford.

Electricity Consumption (Daily Average kWh)
(Readings are mid-month)



Office of Sustainability



SEM Finance & Administration

- ❖ **General Funds Budget Management**
- ❖ **Service Center Business Management**
- ❖ **Utility Rate Making**
- ❖ **Utility Metering & Billing**
- ❖ **Business Systems**
- ❖ **Capital Accounting**
- ❖ **Management Analysis**

SEM Finance & Administration

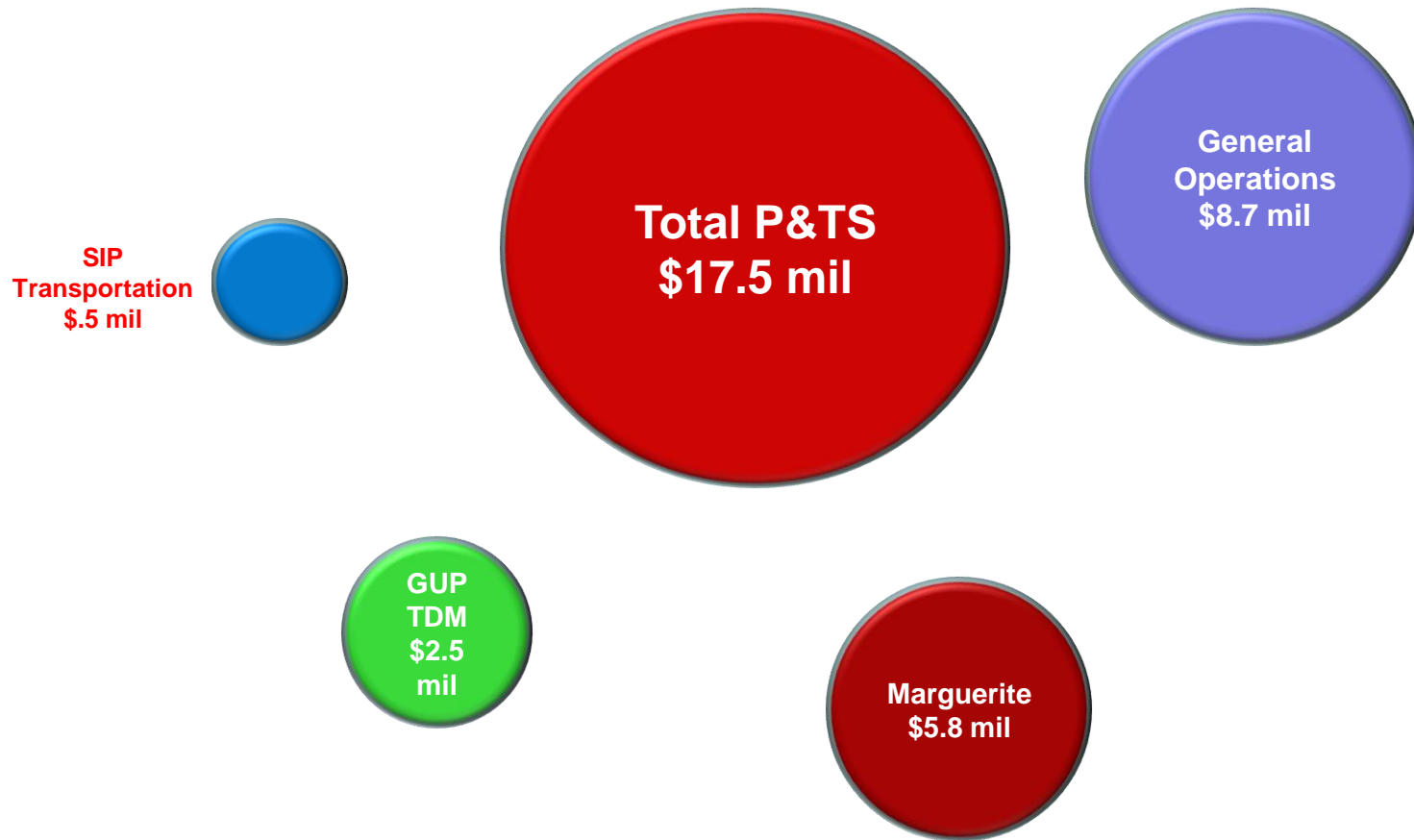


Parking & Transportation Services



We provide a comprehensive, responsive, and balanced system of access and mobility for the Stanford University community.

Stanford Parking & Transportation Services



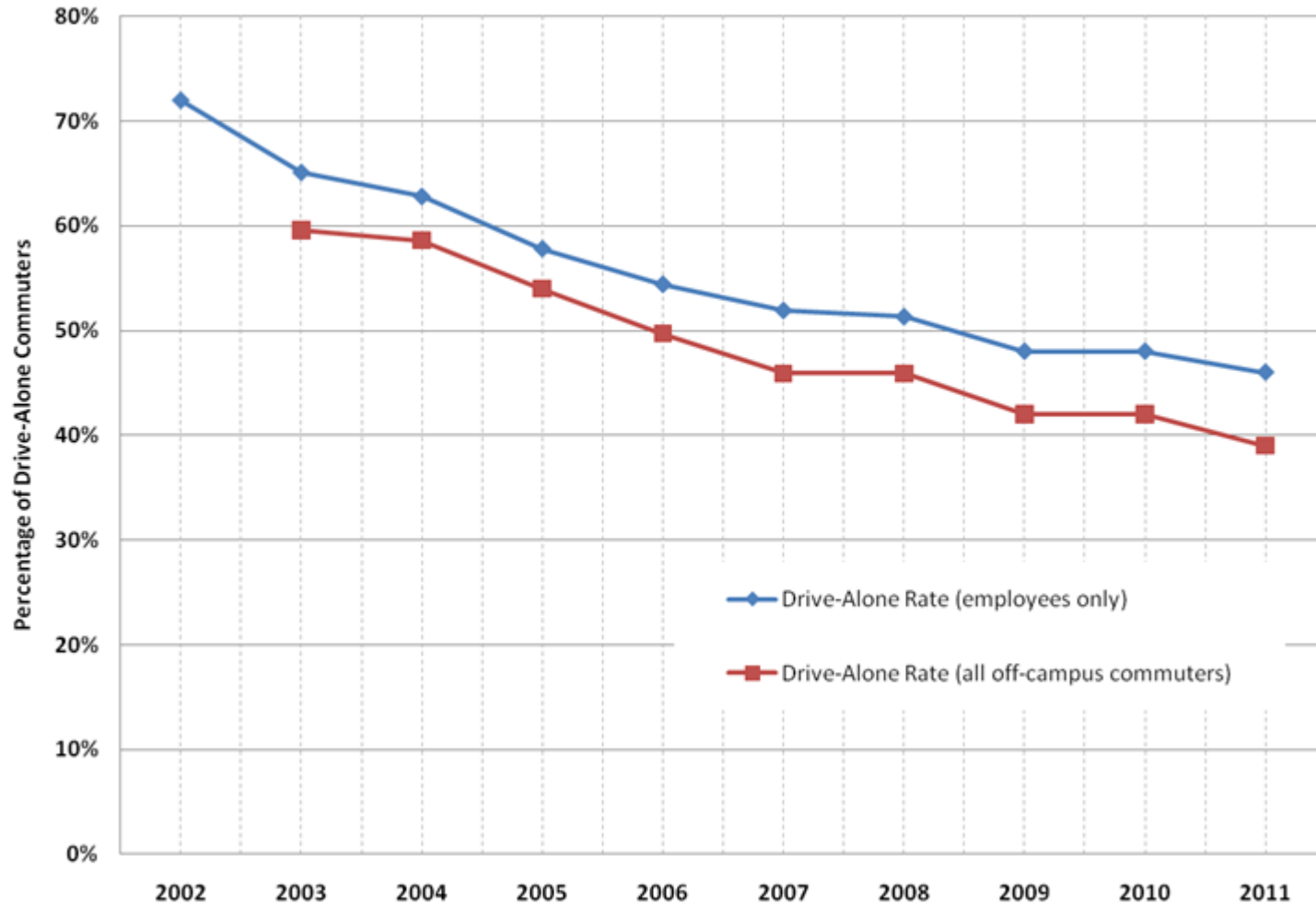
Key Programs

- Parking (operations and retail)
- Transportation Demand Management
- Marguerite
- Bicycle Program



Commute (Drive Alone) Trends

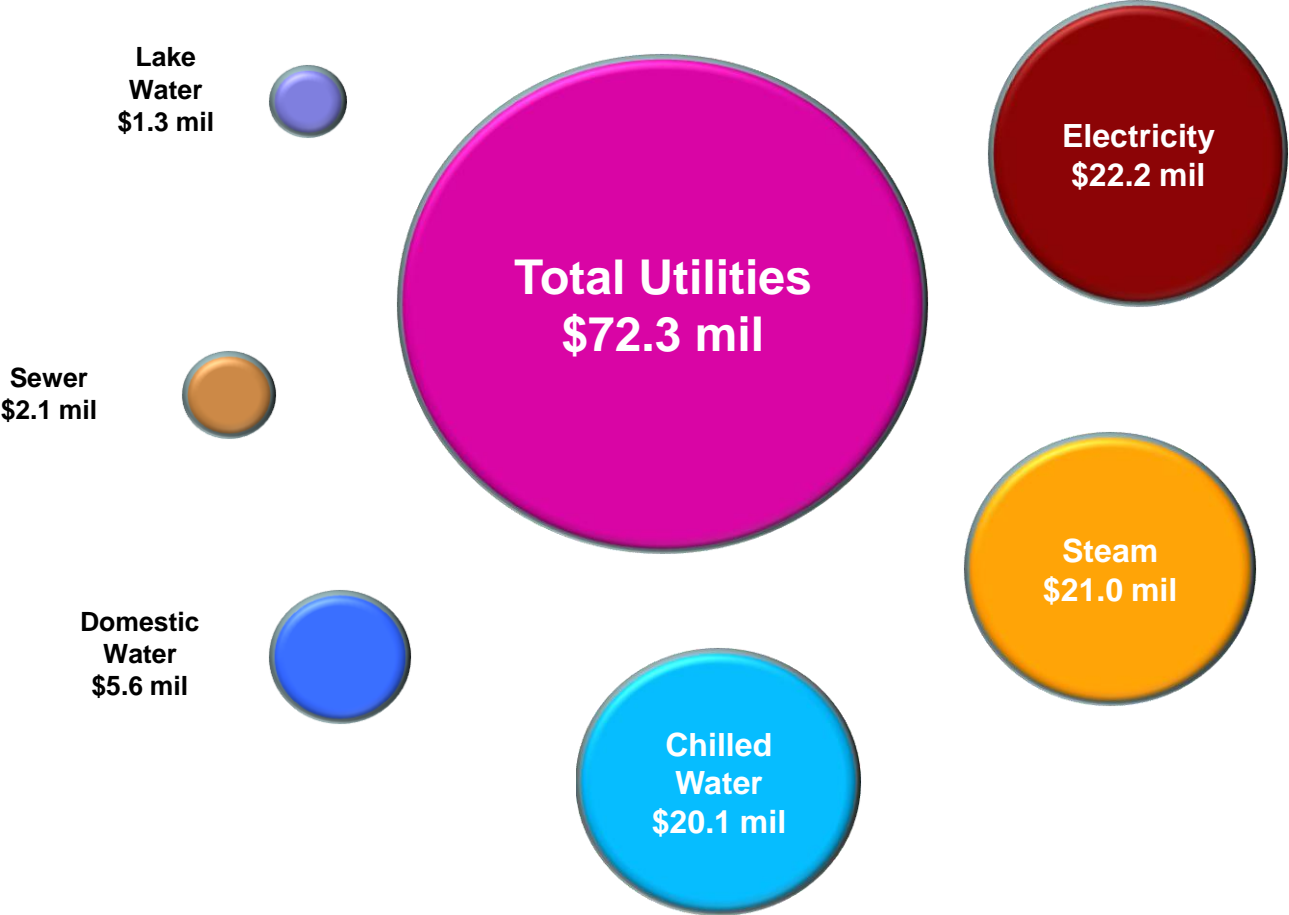
Drive-Along Rate Trends Since 2002





Stanford Utility Services

Water & Energy



Water Services and Civil Infrastructure

Deliver reliable high quality water from sustainable diversified supplies, cost-effectively manage efficient water use and water distribution, wastewater collection, and storm drainage systems; and manage the operation and maintenance of roads, bridges and dams.



Groundwater Wells

Domestic Water

- 1 1934
- 2 1936
- 3 2003
- 4 2004

5 1956

SFPUC Hetch Hetchy lines

to campus

6 mil gal 2

S
1.5 mil gal

1
2 mil gal

Stanford storage tanks

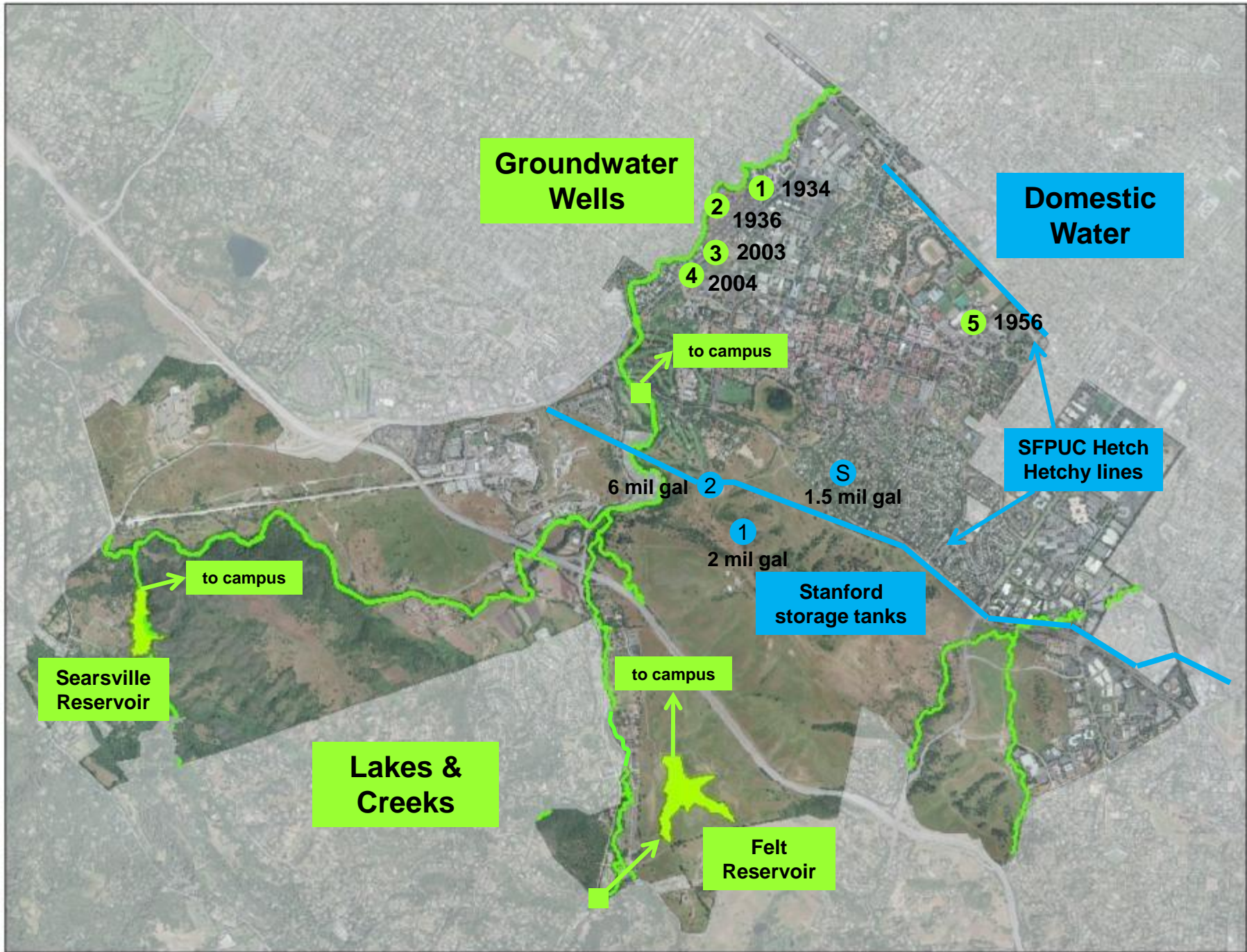
to campus

Searsville Reservoir

Lakes & Creeks

to campus

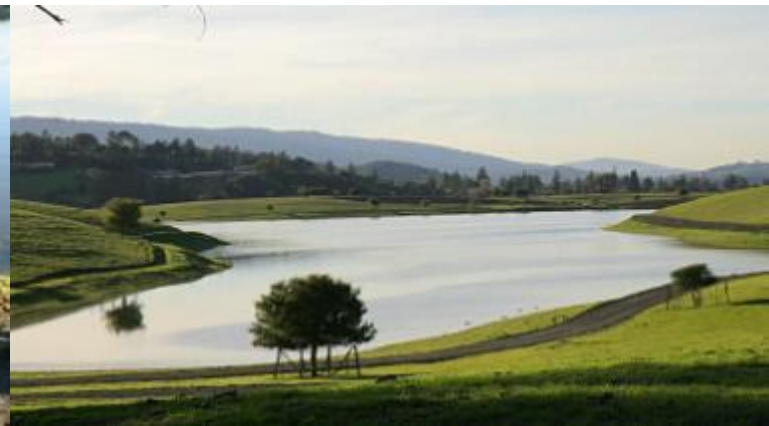
Felt Reservoir



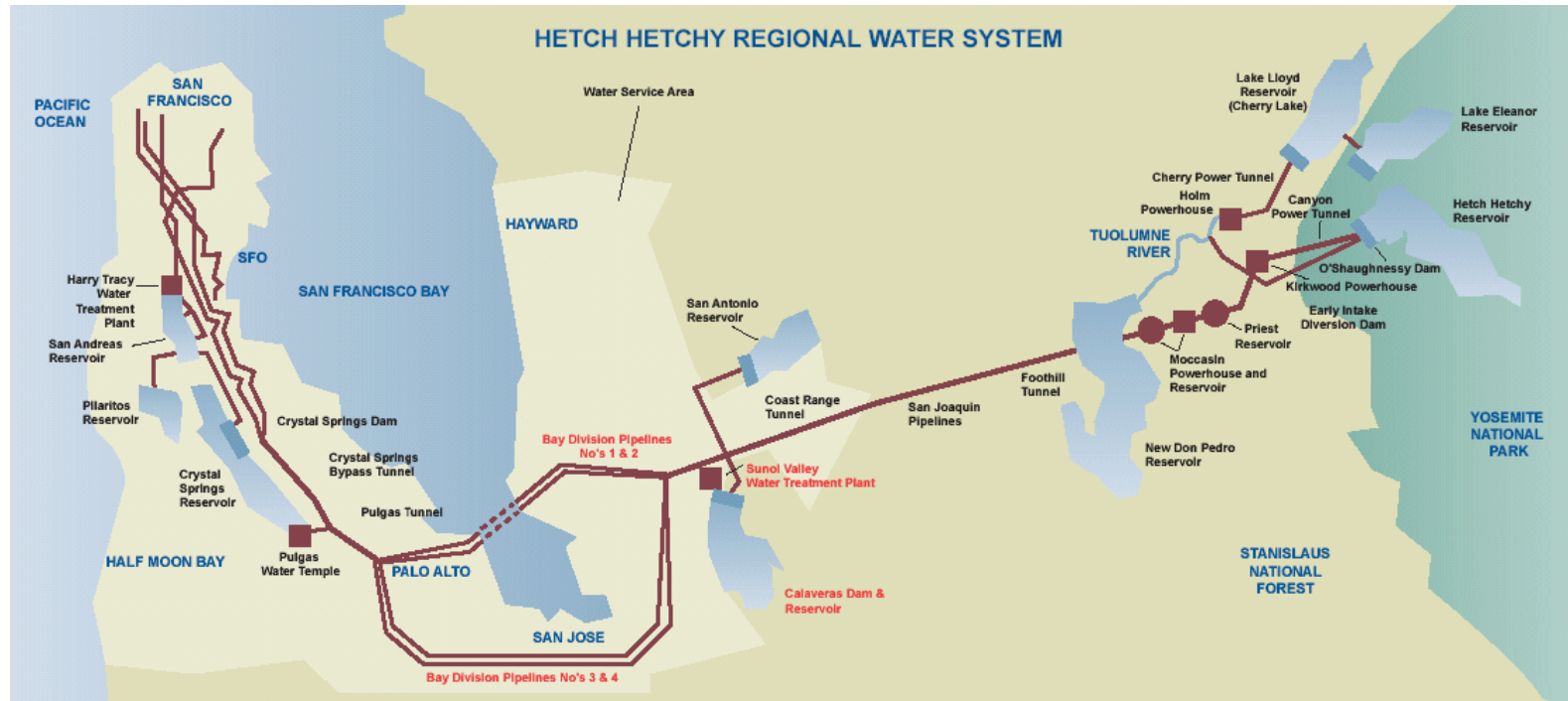
Water Sources

	<u>mgd</u>	<u>acre-feet/year</u>
SFPUC Hetch Hetchy	2.16	2,400
Lakes & Creeks	.72	800
Groundwater Wells	.28	310
Total	1.00	1,110
CEF Cooling Tower Blowdown	.01	10

■ Domestic ■ Irrigation ■ Reclaimed



Hetch Hetchy System





Atherton

Menlo Park

Woodside

LW Irrigation

Palo Alto

Menlo Park

Stanford University

DW Irrigation

Portola Valley

Los Altos Hills



Adam

Tracy

Chris

Marty

Terry

Ken

Richard

Vince

Jack

Tom

Frank

Bob

Joe

Facilities Energy Management

Mission: Ensure facilities meet teaching and research needs as efficiently as possible

Existing Buildings

- Energy Efficiency retrofit projects
- Energy Conservation programs
- Energy systems control standards

New Buildings

- Benefits / costs assessment
- Energy modeling guidelines
- Energy systems commissioning & performance verification

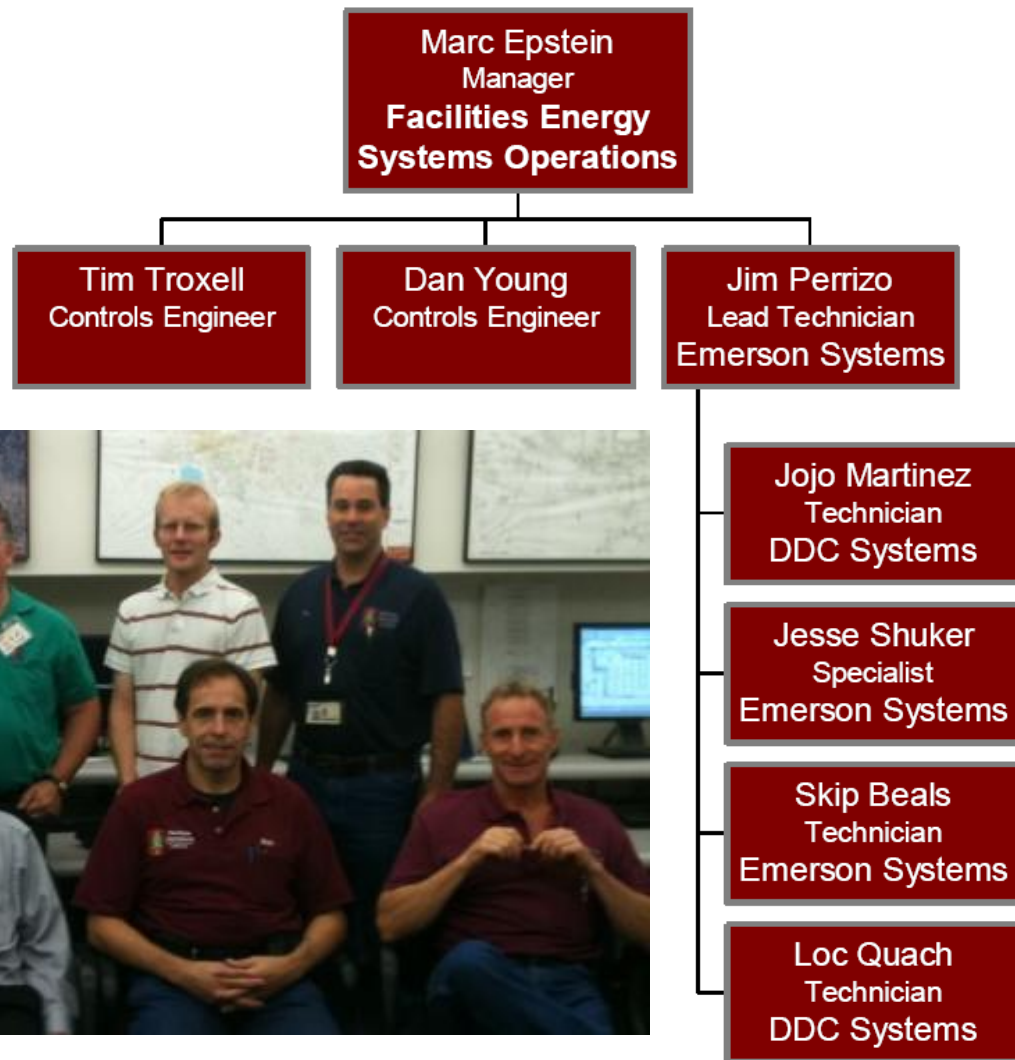


Facilities Energy Management (FEM)

The FEM Team includes multiple specialties. The Energy Efficiency Programs and Project Support include:

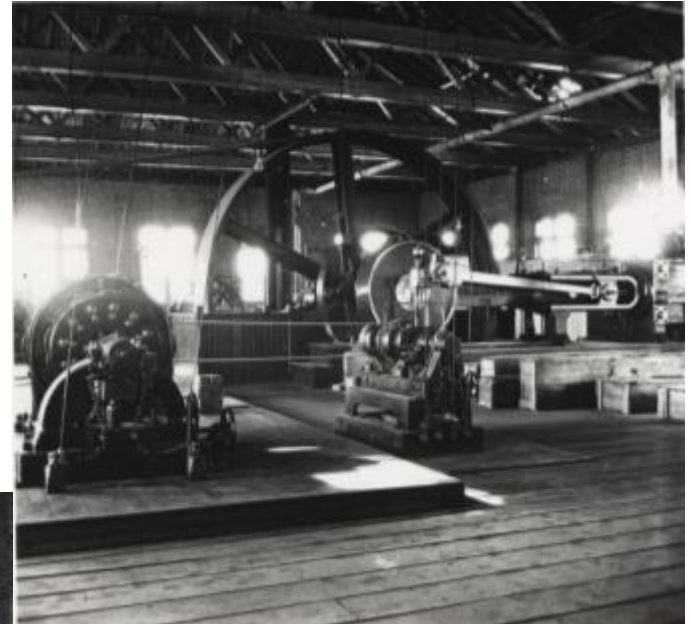


Facilities Energy Systems Operations



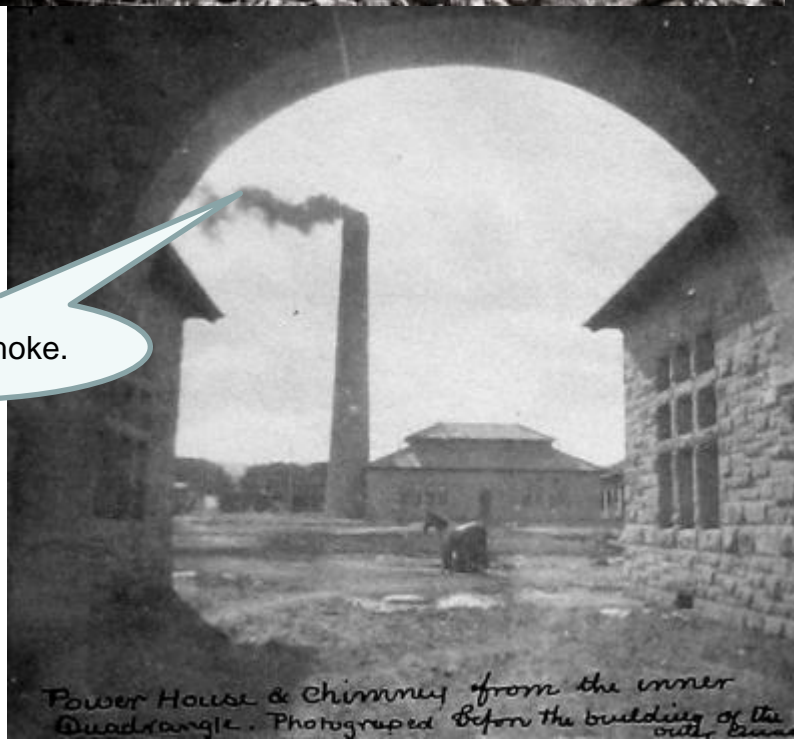
Early Campus Power

Ca. 1889 Power House
under construction



Early generators powered by steam engine.

Note coal smoke.



Energy Services

Providing reliable and efficient electrical, steam and chilled water services to the Stanford Campus and Medical Center. The primary missions include managing Stanford's contract with Cardinal Cogen and overseeing the operations and maintenance of the central plant.



Energy Services Team



Thermal Energy Distribution

Steam/Hot Water Systems

- 10 miles of underground piping
- Tunnels & Direct Bury
- Steam Supply & Condensate Return

Chilled Water System

- 7 miles of underground piping
- Richard Souza and Chilled Water Techs (Bob, Chris, Jack, Ken, Vince)

Thermal Team



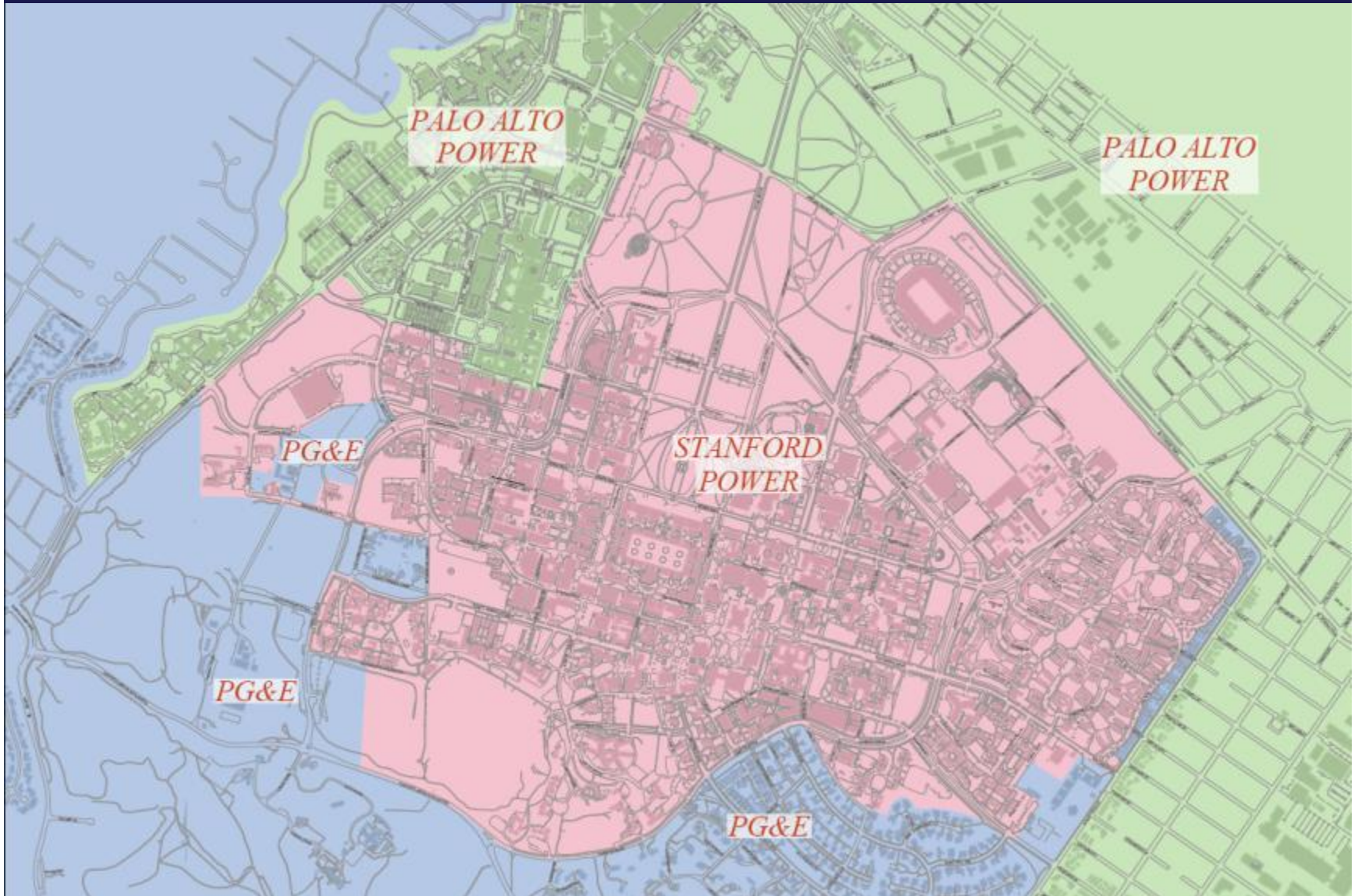
Dean, Juliana, Brian, Mike Mayo and Steam Techs Terry, Charles, Chas, Ricci, Ken, Gil, Joe, and hats off to the RM crew too

Power Systems

We provide
reliable, cost-
effective,
sustainable
electric power
and light.



Electric Service Areas



High Volt Shop



Bob, Andy, Dan, Loanne, Jorge, Tony, Toan, Connie, Ken, Rich, Carlos, Hugo

An Initiative Involving All

