

The University of California Builds Green and Goes Solar

U. Idaho Sustainable Transportation Conference

September 22, 2005

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Outline of Talk

- Background – Context and History
- Green Building and Clean Energy Targets
- Implementation – Successes and Challenges
- Lessons Learned

UC System Basics

- 10 Campuses plus Acute Care Facilities
- ~200,000 Students
- ~100 Million Gross Square Feet
- ~1% of California Electricity Use

UC System Growth

- 1-2 Million gross square feet added per year
- 130 active new & major renovation projects (2003)
 - ~\$6.8 Billion
 - ~40% Laboratory Buildings (by value)
 - ~24% Acute Care Facilities
 - ~17% Housing
 - ~19% Other



Campaign History (Policy Development)

Or,
How the Policy Was Passed

Policy/Campaign History

Fall 2002

- Student Grassroots Campaign
 - All student governments pass resolution
- Student Regent resolution results in Regents' action
 - Request UC President do feasibility study, propose a policy

Policy/Campaign History

Spring 2003

- Steering Committee & Working Group
 - UC and California Expert Community
 - Campus Vice Chancellors and UCOP Staff
- Steering Committee meets with students
 - Results of student-organized campus forums discussed

Policy/Campaign History

Spring '03 cont.

- Feasibility studies drafted
- Staff conversion overcomes internal hurdles
- Regents unanimously approve policy

Lessons Learned

- Students are drivers
- Institutional learning crucial
- Need bottom up and top down
- People want to do right thing, feel good



Policy Targets



Green Building Policy



- Outperform Title 24 Energy Standards by at least 20%
- New facilities - meet equivalent of LEED certified level
- Lab Buildings - LEED certified and Labs 21 Environmental Performance Criteria

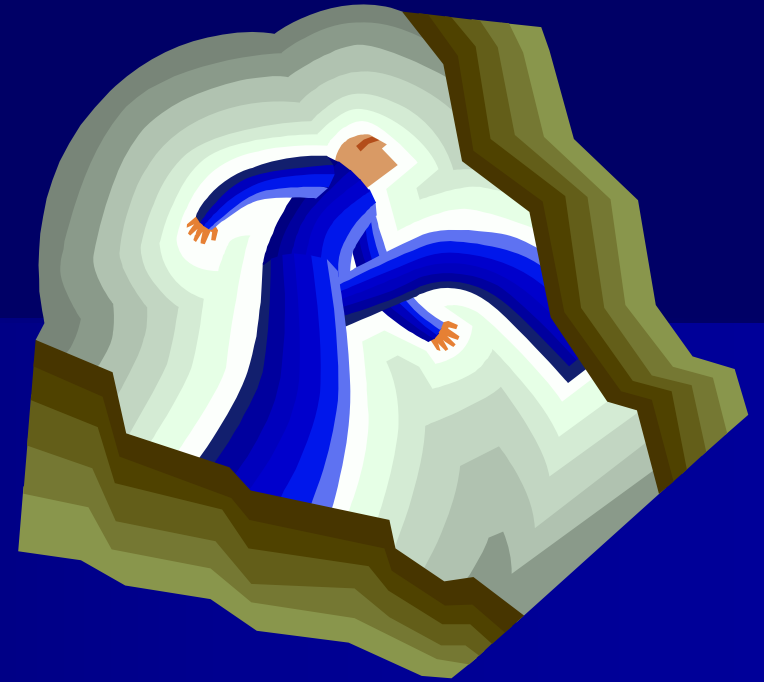
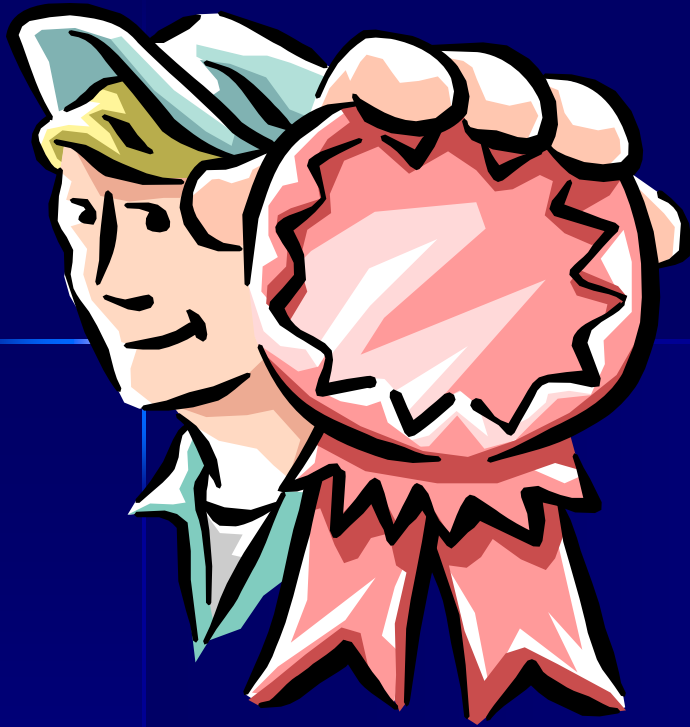
Clean Energy Standard



10 MW of onsite renewable energy projects by 2014.

Reduce energy consumption by 10% by 2014 compared to a base year of FY 99-00.

Green power from grid:
10% goal in 2004
20% goal in 2017



Policy Implementation

Successes and Challenges

Green Building Implementation Status

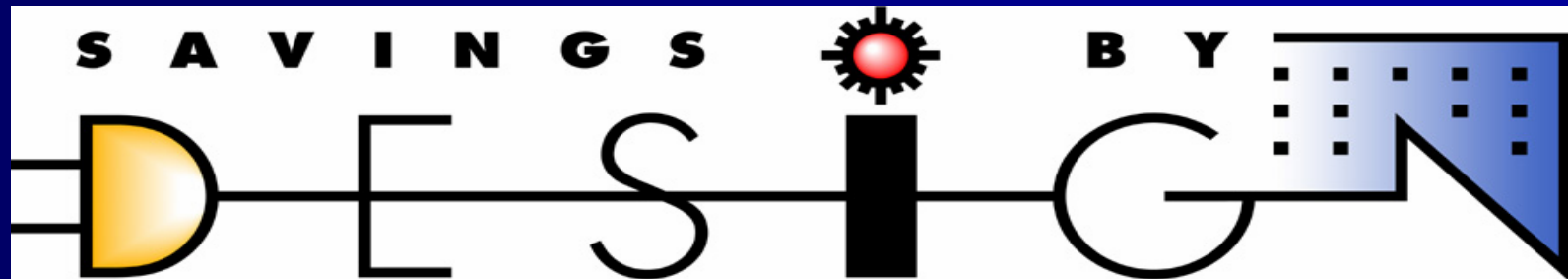
- Each campus develops baseline – measures expected on every building project
- Most campus baselines at or near LEED Certified already
- Energy efficiency always mandatory
- UCSB, UCM, UCI set policy for LEED Silver
- Cultural and procedural changes necessary

Clean Energy Standard Implementation Status - Outline

- Energy efficiency in new construction
- Energy efficiency in existing buildings
- Onsite renewable generation
- Grid-purchased renewable generation

E.E. - New Construction

- Goal: Beat Title 24 by 20%
- Plan: Savings by Design mandated for all new construction
- Challenges: Resistance to mandate; and developing working relationship with utilities



E.E. in Existing Buildings

- Goal: 10% more efficient than 2000 baseline by 2013
- Challenges: lack of funds, utility deficits
- Steps:
 - Strategic Implementation Plan
 - CPUC grant with CSU, utilities
 - PIER grant for advanced technologies
 - Green Campus program for housing

UC/CSU/IOU Program

- \$15 million from CPUC over 2 years
- 3 Components:
 - Retrofits
 - Monitoring-Based Commissioning
 - Training and Education:
 - Title 24 +20%, other new construction
 - Commissioning
 - Building Operator Certification

Green Campus Program

- \$1.5 million from CPUC to Alliance to Save Energy
- Pilot project on 4 UC, 5 CSU campuses
- CFL exchange, competitions, "green eye"



On-Site Renewable Generation

- Goal: 10MW by 2014
- Challenges:
 - Third-party financing RFP with state
 - Bad news: UC projects received no bids
- Successes:
 - Berkeley student union 59kW PV system
 - Berkeley student solar site assessment

Renewable Energy from Grid

- Goal: 10% renewable content in 2004, 20% by 2017 (mirror state RPS)
- Challenges
 - Regulatory uncertainty
 - Need to educate supplier
- Success
 - 15% renewable energy in 2005
 - 86% wind, 14% landfill gas

Implementation Lessons Learned

- Leadership attracts resources
- Policy is only the start
- “Outing” environmentalists among staff
- Empowering people to feel good about job
- Mandates and voluntary measures don’t achieve same results!
- Students are our conscience!

The Big Picture

- “Unfortunately, in many areas, it’s always the bottom line. It’s the dollar that drives our decisions. Often times our students are our conscience. They’re part of our conscience and we know that they’re right. They play a very important role in keeping us focused on the bigger picture. I think we need to listen more and more to what they have to say.”
 - Vice President for Operations at Dickinson College

Thank You

- More information:
 - www.ucop.edu/facil/pd/sustain.html
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