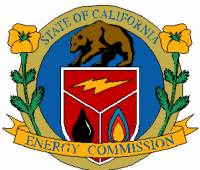

California Energy Commission Connection Overview/Background and Other Research

**IFMA Workshop
March 2, 2004
Chiron Campus, Emeryville, CA**

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CEC Contract Manager
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- **Overview of PIER Program**
- **Introduction to Other PIER Research**
 - ... Lighting*
 - ...Productivity*
 - ...HVAC*
 - ...Lots more!!!*



What Is PIER?

- **Public Interest Energy Research**
...Funded by investor owned utility rate payers
- **California electricity industry deregulation legislation in 1996**
- **\$62 million/year program budget**
... Formerly administered by investor-owned utilities
- **Legislative mandates guide program operation and review**



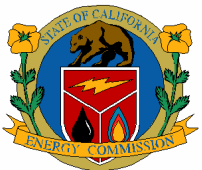
Advance science or technology to achieve public benefits

- Improving energy cost/value
- Improving the environment, public health and safety
- Improving electricity reliability/quality/sufficiency
- Strengthening California economy
- Providing greater choices for California consumers



Six PIER Program Areas

- **Buildings**
(Residential & Non-Residential)
- Industrial/Ag/Water
- Strategic
- Environmentally Preferred Advanced Generation
- Environmental
- Renewables



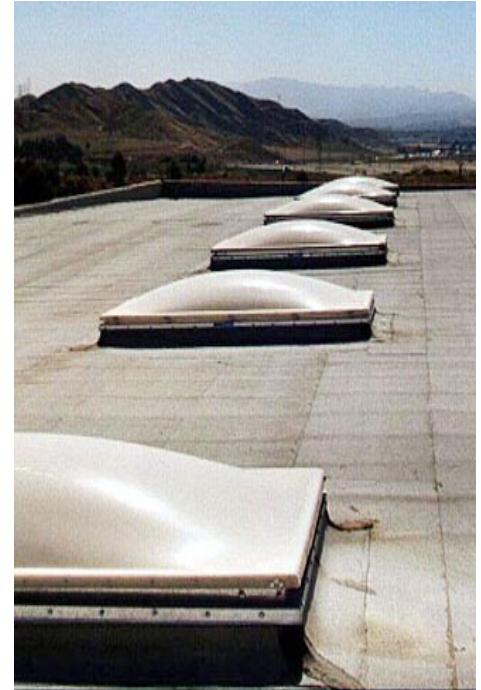
Daylighting Impacts on Productivity

- **Everybody likes daylight**
...Any documented benefits?
- **Recent PIER research results**
...Office worker productivity increases up to 13%
...Ample views associated with better performance
...Window glare reduced performance



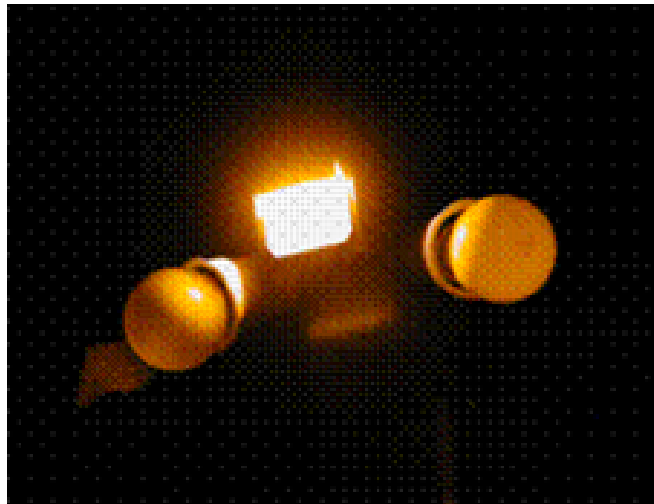
Skylighting—Design Protocol and More

- **Integrated ceiling design guide**
 - ...Avoid custom installations*
 - ...Facilitate communication between ceiling tile manufacturer and skylight manufacturer*
- **New design approach**
 - ...Extensive new testing*
 - ...Treat skylights like light fixtures*



Outdoor/Entry Lighting

- Integrating LEDs with occupancy sensors
- Two different approaches in prototype development



Lighting Controls

- **New, optimized, self-commissioning photosensor**
...Wattstopper prototype available soon for schools
...Future office applications
- **Enhanced DALI protocol**
...collaborating w/NEMA
- **Wireless dimming**
..."New" power line carrier and "smart dust"



HVAC Diagnostics

- Automated ID of problems

- Package units

 - ...Commercialization efforts w/Honeywell and FDSI*

- Air distribution systems

 - ...Commercialization with NIST and BACnet equipment manufacturers*



- Thanks for coming!
- Start thinking about ways to leverage PIER resources

**Check www.energy.ca.gov/pier
or additional/new info**

