HOW WE SAVE ENERGY

UC DAVIS ENERGY EFFICIENCY CENTER

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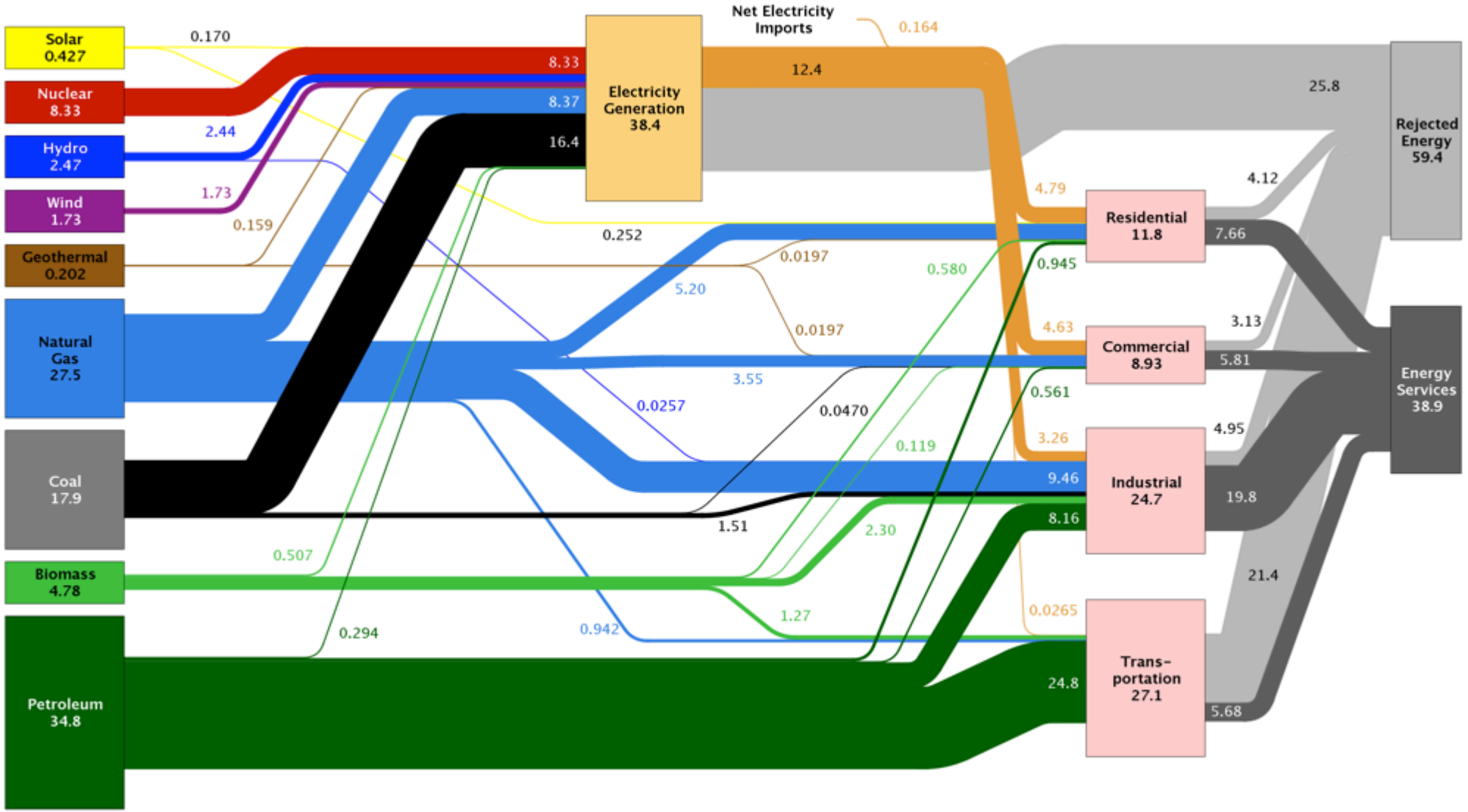
Graduate School of Management

Estimated U.S. Energy Use in 2014: ~98.3 Quads

Lawrence Livermore National Laboratory



This is Wasted Energy

Source: LLNL 2015. Data is based on DOE/EIA-0035(2015-03), March, 2014. If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports consumption of renewable resources (i.e., hydro, wind, geothermal and solar) for electricity in BTU-equivalent values by assuming a typical fossil fuel plant "heat rate." The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 65% for the residential and commercial sectors 80% for the industrial sector, and 21% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

Who we are

California has strongest environmental protection regulation in US – leads federal government

Who We Are

Where We Live

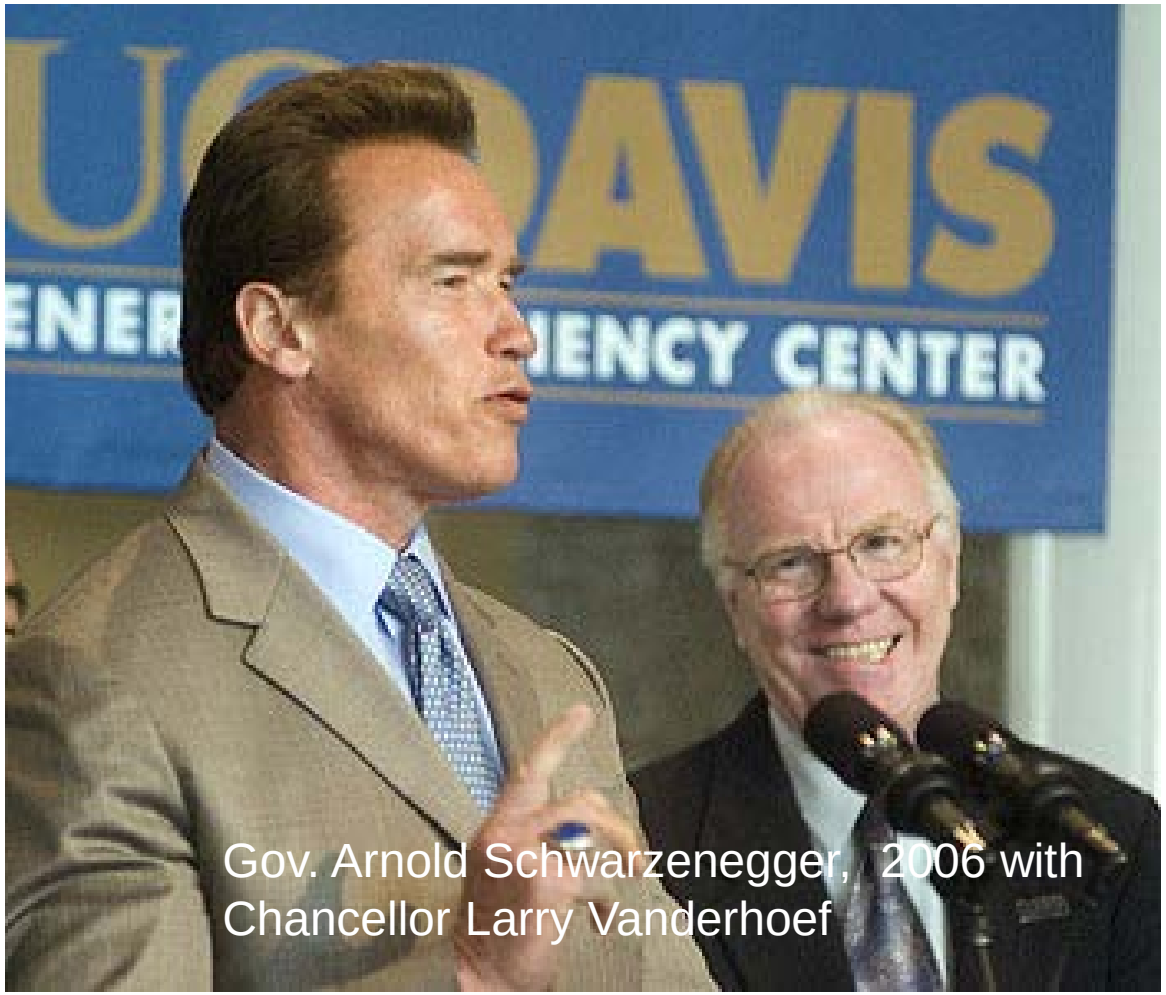
WEST VILLAGE

UCDAVIS

How the Energy Efficiency Center Got Started

Greenfield Investment Fund for EE and Renewables

Who we are



Gov. Arnold Schwarzenegger, 2006 with Chancellor Larry Vanderhoef

UC Davis Transportation and Energy Cluster

- **Institute of Transportation Studies**
  - National Center for Sustainable Transportation (*U.S. DOT*)
  - Sustainable Transportation Energy Pathways
  - PH&EV Research Center
  - China Center for Energy & Transportation
- **Energy Efficiency Center**
  - California Lighting Technology Center
  - Western Cooling Efficiency Center
  - Center for Water-Energy Efficiency
  - Program for International Energy Technologies
- **Policy Institute for Energy, Environment & Economy**
  - Zero Emission MAP
  - Pacific Coast Collaborative
- **Energy Institute**

1. UC Davis California Lighting Technology Center

Testing for longevity, light quality

Case: Bi-level Lighting

Case: Meeting Retailers' Needs

Dual-loop Photosensor Control System for Daylight Harvesting


CRI demonstration

2. Western Cooling Efficiency Center

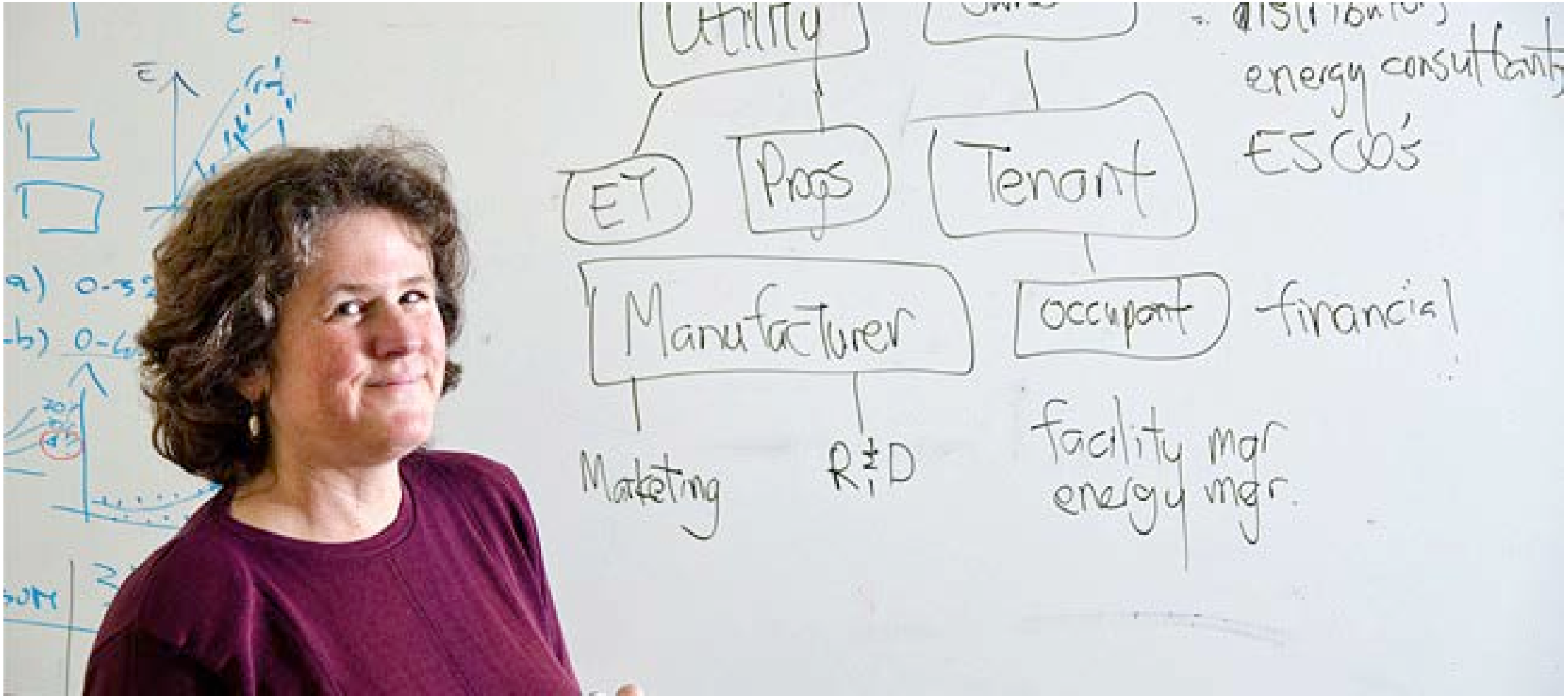
Lab testing new refrigerant from Ingersol-Rand

Case: Working with an Oligopoly

UCDAVIS
WESTERN COOLING CHALLENGE
CERTIFIED

Case: Adapting a Technology

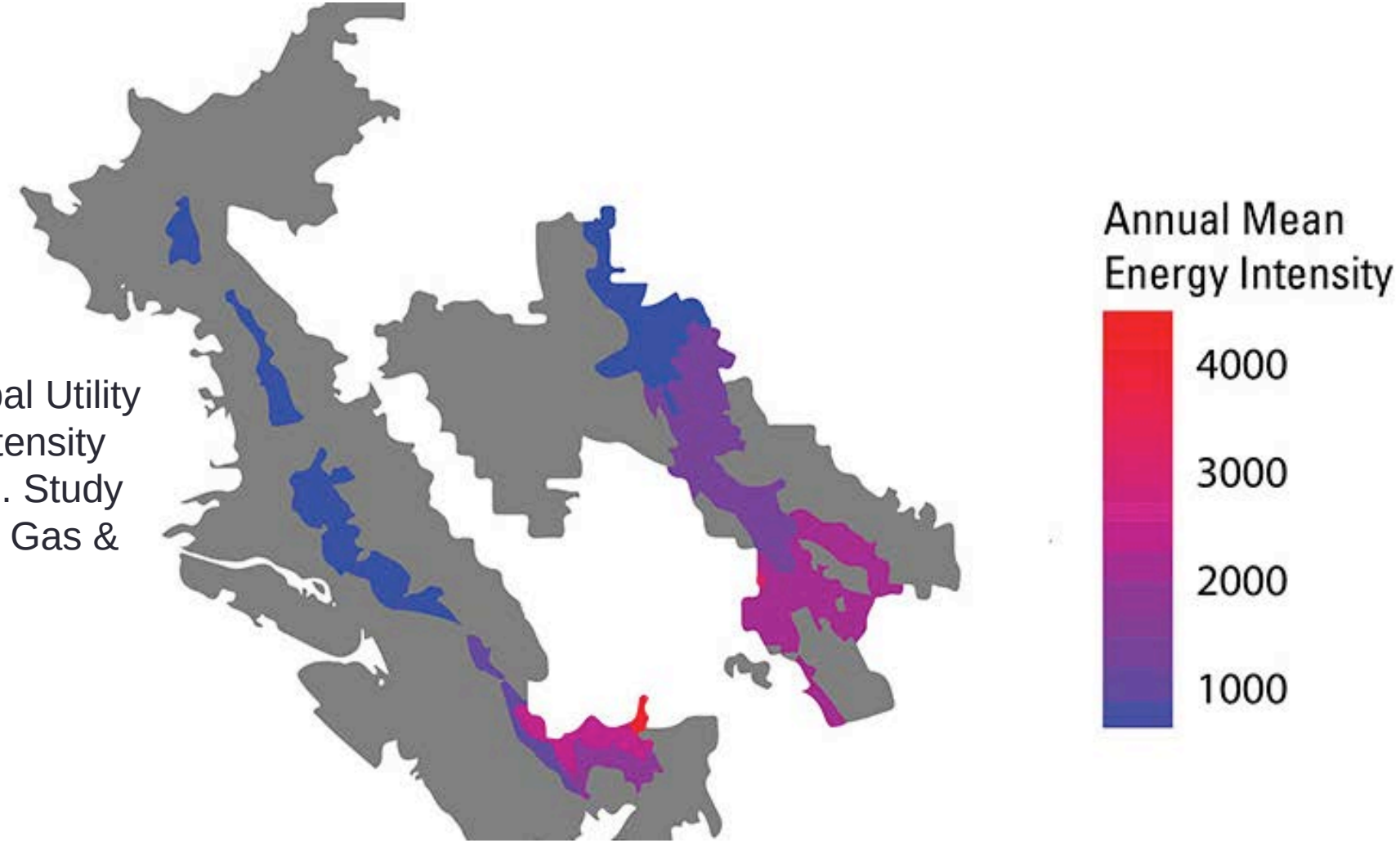
Case: HVAC Installers



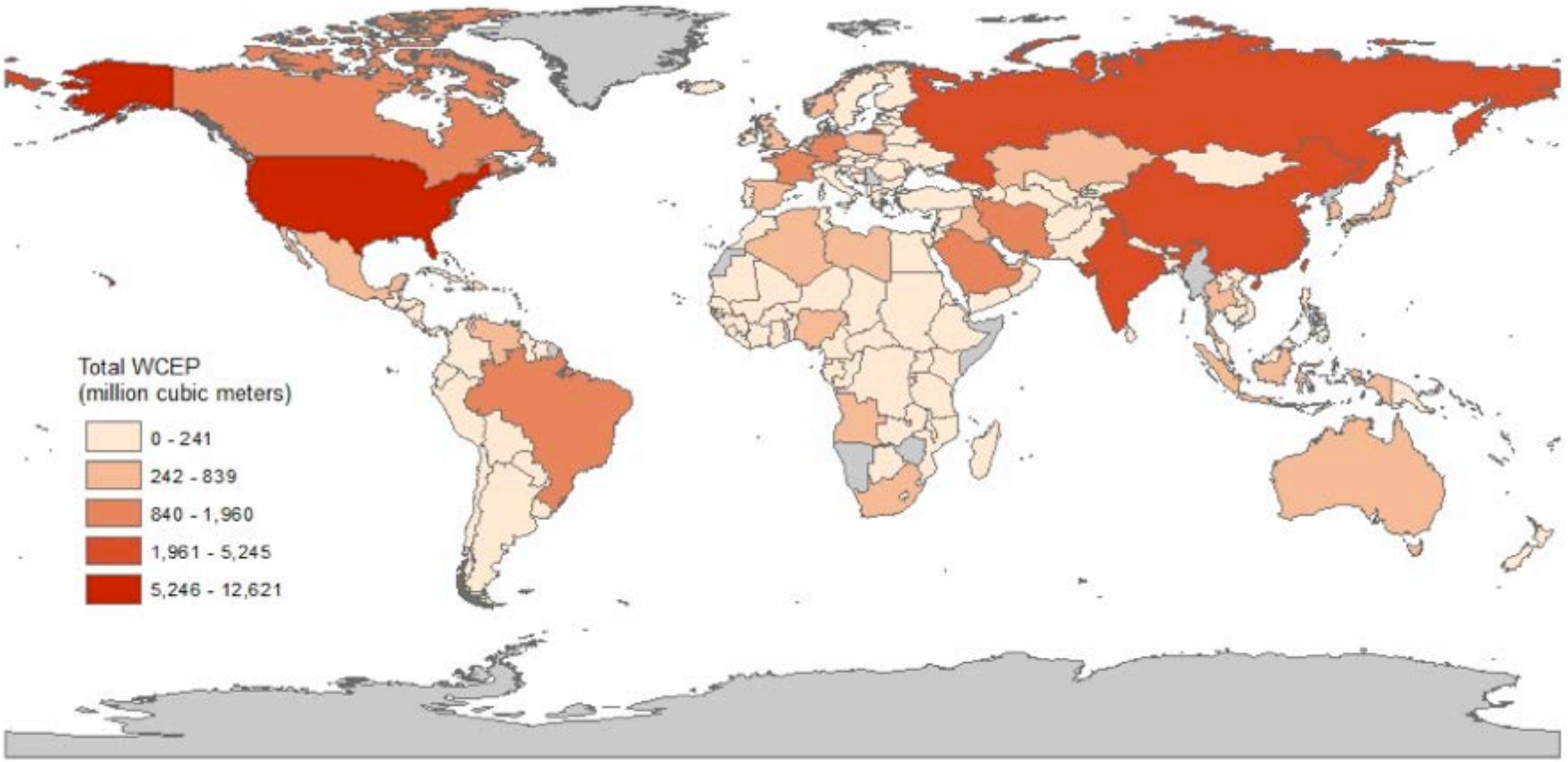
3. Water-Energy Efficiency Center

Case: Energy Intensity of Water

East Bay Municipal Utility District energy intensity by pressure zone. Study funded by Pacific Gas & Electric.



Case: A Thirst for Power



Water Consumption for Energy Production : 45 billion cubic meters per year globally

4. PIET – Program in International Energy Technologies

Case: Off-Grid Electricity Audits

- History
- Culture
- Social Networks
- Needs/Technology Assessment
- Business Possibilities

Lessons We Have Learned

1. Be mission driven
2. Make friends in *all* sectors - and convene and connect
3. Understand and leverage markets
4. It’s not about widgets
5. Advance policy with science
6. Partner with yourself and demonstrate
7. Teach and learn with others

1. Be mission driven

Energy Efficiency Center Mission:

Accelerating the Development and Commercialization of Energy-Efficient Technologies and *Training* Future Energy Efficiency Leaders

2. Make Friends – and Connect Them

2. Corollary: Don’t Get Too Close to Any Sector

3. Understand and leverage markets

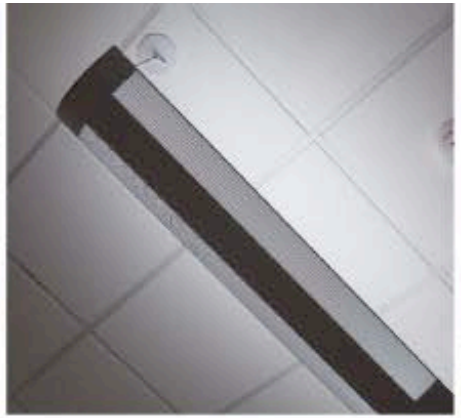
WELLS FARGO

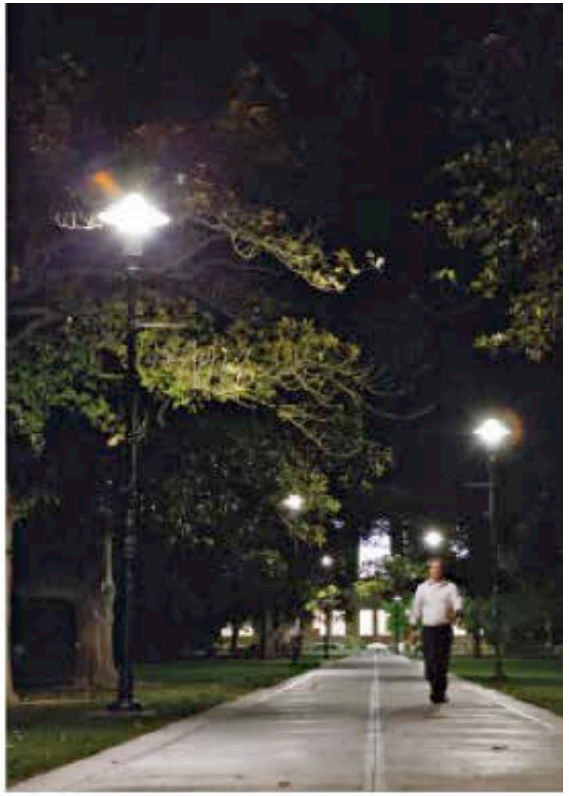
4. It’s Not about Widgets

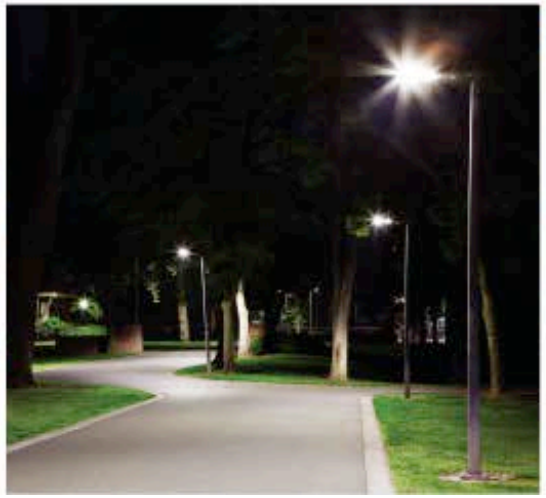
5. Advance Policy with Science

- Help to develop building codes and standards
- Publish guides
- Brief legislators on best science for policy
- Engage in government-sponsored research

6. Partner with Yourself and Demonstrate







SmartLighting
A UC DAVIS INITIATIVE

7. Teach and Learn with Others

Thank You!

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