

# **i4Energy Center**

September 15, 2009

Enabling Technologies Development

Workshop

University of California, Berkeley

**Gaymond Yee**

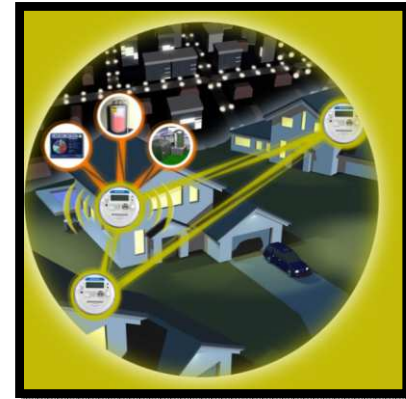
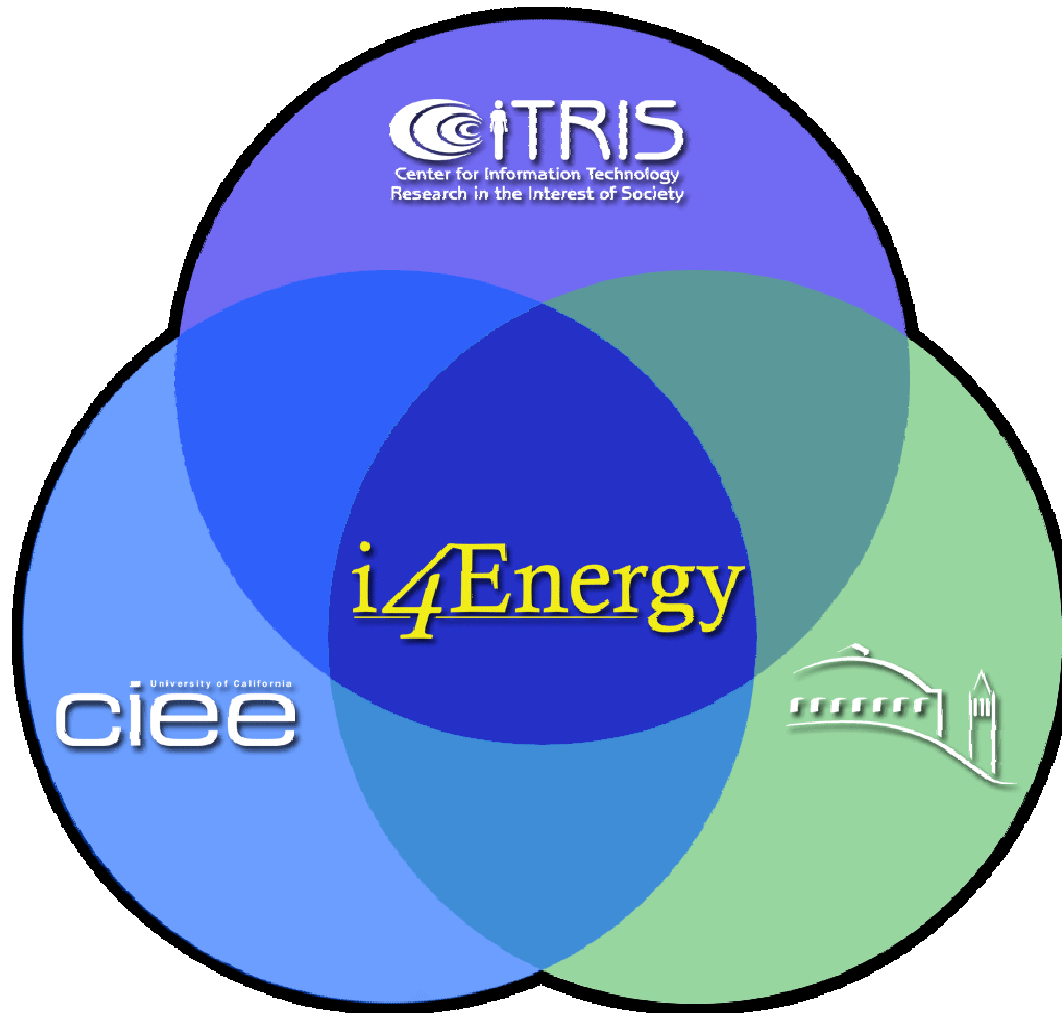
Research Coordinator

California Institute for Energy and Environment

University of California

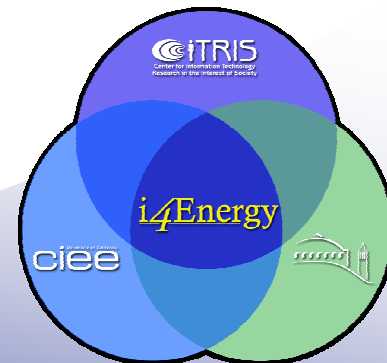
# i4Energy

Center for } Innovative  
Intelligent  
Integrated  
Information } Energy Research



# i4Energy

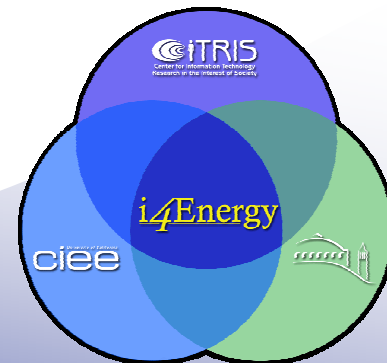
- Collaboration of:
  - CITRIS (Berkeley, Davis, Santa Cruz, Merced)
  - California Institute for Energy and Environment (CIEE)
  - Lawrence Berkeley National Laboratory (LBNL)
- Facilitate and promote research on system-integrated enabling technologies to achieve better energy efficiency, demand response, and electric distribution
- Managing Director: Gary Baldwin (CITRIS)
- Technical Director: Gaymond Yee (CIEE)
- Board: Being defined and formed



# i4Energy

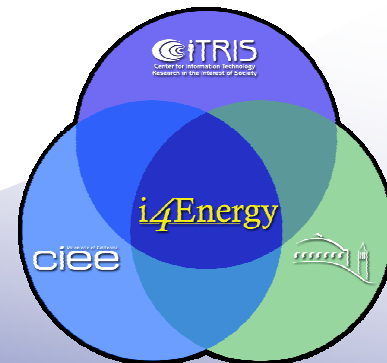
## ■ CITRIS + CIEE + LBNL

- Each provides different areas of expertise
- World-class facilities/multi-disciplined researchers
- Top-ranked graduate schools on the CITRIS campuses
- Research planning and project administration
- Technical coordination of research projects
- Broad areas of expertise applicable to energy research
  - MEMS & micro-fabrication laboratory
  - Smart/wireless sensors
  - Low power radios
  - Building sciences, energy efficiency and lighting
  - Computer science/software design
  - Controls and smart algorithms



# Benefits to Energy Research

- Collaboration among many researchers and research management experts
- Provides for synergism, continuity, and efficiency for improved collaborative research
- Research funnel to other “Centers” of excellence, i.e. CSUS, CBE, CLTC, etc.
- National and international CITRIS industrial partners for advice, guidance, active participation, and technology transfer
- CIEE and LBNL relationships with the utilities, CAISO, and DOE



# Scope of Current Research Projects

- Enabling Technologies Development projects
  - Demand response, distribution, and energy efficiency
- Reference design for residential information gateways
- OSI Layer 2 (MAC) interface standardization
- Software models for renewable energy integration
  - Distributed DG effects on the distribution grid
  - Wind power generation and DR control simulation
- Building-to-Grid (B2G) Cory Hall testbed for information exchange development

