

**2004**

# **ET SUMMIT**

**Emerging Technologies in Energy Efficiency**

**October 14–15, 2004**  
**San Francisco, CA**

*Sponsored by  
Pacific Gas & Electric, San Diego Gas & Electric, Southern California Edison,  
Southern California Gas, the California Energy Commission, and  
the American Council for an Energy-Efficient Economy*

**CONFERENCE PROGRAM** (presentations, where submitted, can be downloaded in .pdf by clicking on presenter's name)

***Opening Plenary***

***Thursday, October 14***

***8:30 to 10:00 am***

**Conference Welcome and Opening Remarks**

*Gordon Smith, President, Pacific Gas and Electric Company*

*Beverly Alexander, Vice President, Customer Satisfaction, Pacific Gas and Electric Company*

*Jackalyne Pfannenstiel, Commissioner, California Energy Commission*

**Regional Policymaker Perspectives on Emerging Technologies**

*Moderator: Jackalyne Pfannenstiel, Commissioner, California Energy Commission*

*Presenters: Michael Peevey, President, California Public Utilities Commission*

*Margaret Gardner, Executive Director, Northwest Energy Efficiency Alliance*

*Bob Callender, Vice President for Programs, New York State Energy Research and Development Authority*

*Description:* To kick off the Summit, the opening plenary will offer three perspectives on the policy implications of emerging technologies. The keynote speaker will frame the discussion in the context of the California Energy Action Plan and the national energy picture. Speakers from the Pacific Northwest and New York State will round out the session with discussion of the emerging technologies picture from their regions.

**Plenary Session II**

**Thursday, October 14**

**10:30 am to noon**

**Success Stories from a Decade of Emerging Technology Efforts**

*Moderator:* Gene Rodrigues, Director of Energy Efficiency, Southern California Edison

*Presenters:* Art Rosenfeld, Commissioner, California Energy Commission  
Steven Nadel, Executive Director, American Council for an Energy-Efficient Economy

*Description:* In recent years, efforts to develop and promote emerging energy efficiency technologies have yielded a number of noteworthy successes. Speakers will highlight a select group of successful technologies and examine the process for identifying and evaluating emerging technology opportunities. Results of recent studies of emerging technology opportunities will be presented.

**Working Session I**

**Thursday, October 14**

**1:00 to 2:30 pm**

**TECHNOLOGY TRACK #1: Advanced Air Conditioning Systems**

*Facilitator:* Nancy Jenkins, California Energy Commission

*Presenters:* Ramin Faramarzi, Southern California Edison  
David Springer, Davis Energy Group

*Description:* This session will introduce emerging cooling technologies that are optimized for California climate conditions. The newest compressor- and non-compressor-based technologies will be introduced. Discussion will explore the national applications of these technologies, efforts to engage national manufacturers in regionally-optimized equipment and the role of codes and standards in advancing new technologies.

**TECHNOLOGY TRACK #2: New Opportunities for Building Envelopes**

*Facilitator:* James O'Bannon, RHA, Inc.

*Presenters:* Steve Selkowitz, Lawrence Berkeley National Laboratory  
Hashem Akbari, Lawrence Berkeley National Laboratory

*Description:* The purpose of this session is to introduce two emerging opportunities in building envelopes with large regional energy savings potential. "Dynamic" and other emerging window designs can be net energy contributors to homes and commercial buildings. Cool roofs offer savings from several technology options—we'll explore advances in reflective pigments for shingles.

**POLICY AND PROCESS TRACK: Private Funding for Emerging Energy Efficiency Technologies: The Time Is Now**

*Facilitator:* Jonathon Livingston, Pacific and Gas Electric Company

*Presenters:* Tom Anyos, Technology Ventures Corporation  
Bryant Tong, Nth Power

*Description:* This session will provide information, insights, and strategies to assist entrepreneurial technology researchers, developers, and manufacturers understand the financial marketplace for launching and scaling new energy efficiency technology enterprises. Speakers will offer guidance for utility, government, environmental advocacy, regulatory, and consulting personnel involved in the bridging the chasm between government/public goods funding and private funding.

**TACTICS TRACK: Beyond the Widget: Emerging Energy-Efficient Practices**

*Facilitator:* Harvey Sachs, American Council for an Energy-Efficient Economy

*Presenters:* Jeff Harris, Northwest Energy Efficiency Alliance

*Description:* Recent lists of the most promising energy-saving emerging technologies include an increasing number of practices. Examples include retrocommissioning, integrated building design, and advanced automated building diagnostics, among others. In this session, presenters will describe some of these new practices, tools to help practitioners embrace these new techniques, and the unique challenges that practices pose for efficiency program design and implementation.

**Working Session II**

**Thursday, October 14**

**3:00 to 4:30 pm**

**TECHNOLOGY TRACK #1: Tap(p)ing Ducts for Efficiency**

*Facilitator:* Gary Fagilde, PG&E Energy Training Center

*Presenters:* Mark Modera, AeroSeal  
John Proctor, Proctor Engineering

*Description:* This session will introduce the latest field data on duct leakage and present findings on leakage rates for specific construction types. New residential and light commercial forced-air distribution technologies and methods will be highlighted. The speakers will explore how these new technologies (e.g., AeroSeal, leak-proof fittings, etc.) and methods can reduce energy consumption while improving comfort, preventing condensation, and lowering costs. These new developments will also be put into the context of new standards (ASHRAE 152) and building codes (Title 24).

## **TECHNOLOGY TRACK #2: House of the Future: More Power or More Control?**

*Facilitator:* [Noah Horowitz, Natural Resources Defense Council](#)

*Presenters:* [Chris Calwell, Ecos Consulting](#)  
[Bruce Nordman, Lawrence Berkeley National Laboratory](#)

*Description:* New information technologies and networked appliances are driving changes in building electricity consumption. This session will review the energy implications and the energy efficiency opportunities that these changes present and explore how regulation, research, and standards can improve the energy efficiency of information technologies.

## **POLICY AND PROCESS TRACK: Operationalizing Emerging Technologies: Approaches in Different Regions**

*Facilitator:* [Lance DeLaura, Southern California Gas](#)

*Presenters:* [Peter Douglas, New York State Energy Research and Development Authority](#)  
[Mark Hanson, Association of State Energy Research and Technology Transfer Institutions](#)

*Description:* The purpose of this session is to examine the rationales and driving forces behind emerging technologies activities in different regions and states. Looking beyond California, which states have a history of investing in emerging technology and what are their principal rationales? What factors influence the mix of emerging technologies supported? How are programs designed to achieve state and regional objectives for economic development and other public goods?

## **TACTICS TRACK: LEED and ENERGY STAR: Drivers for Emerging Technology Adoption**

*Facilitator:* [Anthony Pierce, Southern California Edison](#)

*Presenters:* [Christine Magar, Southern California Edison](#)  
[Nehemiah Stone, Heschong Mahone Group](#)

*Description:* This session will illustrate how the LEED and ENERGY STAR building rating systems can facilitate the incorporation of emerging technologies into renovated and new buildings. The first speaker will present a case study demonstrating the implementation of emerging design tools and building technologies to achieve a LEED Platinum rating for a commercial office building. Our second speaker will explore the use of ENERGY STAR specifications to incorporate emerging technologies into development of an ENERGY STAR rating for new, high-rise residential buildings.

***ET Showcase and Reception      Thursday, October 14                      5:00 to 8:00 pm***

This exciting event will feature twenty-five hands-on displays of up-and-coming technologies, including advances in lighting, controls, air conditioning, ventilation, motors and pumps in an atmosphere that promises to facilitate lively interactions. Researchers from leading technology development centers as well as representatives from manufacturers will be on hand to describe their innovations.

The Showcase will be held at the Pacific Energy Center with complimentary drinks and hors d'oeuvres. ET Summit participants can take advantage of continuous shuttle bus service from the Hilton San Francisco to the Pacific Energy Center and back.

***Plenary Session III                              Friday, October 15                              8:30 to 10:00 am***

**Emerging Technologies: Feeding the Pipeline for Effective Efficiency and Demand Reduction Programs**

*Moderator: Beverly Alexander, Vice President, Customer Satisfaction, Pacific Gas and Electric Company*

*Presenters: Ralph Cavanagh, Co-Director, Energy Program, Natural Resources Defense Council  
Michael McCabe, Program Manager, Office of Building Technologies, U.S. Department of Energy*

*Description:* Day 2 of the Summit will begin with a look at the important role emerging technology efforts play as a source of new opportunities for energy efficiency and demand reduction programs. First, Ralph Cavanagh will offer a “big picture” look at the need for ongoing work on emerging technologies drawing from his years of involvement in energy policy debates. Then, Michael McCabe will provide a more specific look at what the U.S. Department of Energy is doing to address this need.

***Working Session III                              Friday, October 15                              10:30 to noon***

**TECHNOLOGY TRACK #1: The Prognosis for Automated Diagnostics**

*Facilitator: Jay Stein, E Source*

*Presenters: Jay Santos, Facility Dynamics Engineering  
Don Frey, Architectural Energy Corporation  
Michael Brambley, Pacific Northwest National Laboratory*

*Description:* This session will present the state-of-the-art in the development of automated diagnostic tools. Speakers will address the current analysis and reporting capabilities of automated diagnostics, system economics, and the impact on building energy efficiency. Ongoing research to improve the technology will also be discussed.

## **TECHNOLOGY TRACK #2: Daylighting: Distribution and Control**

*Facilitator:* George Loisos, Loisos and Associates

*Presenters:* Pekka Hakkarainen, Lutron Electronics  
David Willetts, Serraglaze  
Jerry Mix, The Watt Stopper

*Description:* In this session, speakers representing three manufacturers will address issues associated with daylighting design by looking at three enabling technologies: an advanced glazing product that redirects daylight for better distribution; integration of electric lighting and shading controls; and technology designed to assist the commissioning of a daylighting system.

## **TECHNOLOGY TRACK #3: Emerging Technology for Industrial and Process Energy Efficiency: Challenges and Case Studies**

*Facilitator:* Pramod Kulkarni, California Energy Commission

*Presenters:* Babu Joseph, Southern California Edison  
Ramin Faramarzi, Southern California Edison

*Description:* This session presents the rationale for nurturing emerging technologies for industrial and process end uses. Speakers will presents two case studies using California specific examples to show how public funding and utility co-operation is helping advance emerging technologies in spite of the challenges unique to the industrial sector.

## **POLICY AND PROCESS TRACK: Incorporating Emerging Technologies in Long-Term Resource Plan: Experiences from the Front**

*Facilitator:* Steve Nadel, American Council for an Energy-Efficient Economy

*Presenters:* Skip Laitner, U.S. Environmental Protection Agency  
Tom Eckman, Northwest Power and Conservation Council  
Andrea Horwatt, Southern California Edison

*Description:* This session will explore the ways that emerging technologies are incorporated into long-term resource plans, with an emphasis on practical experience, lessons learned and recommendations for the future. The session will combine presentations from a panel of planners and analysts who are working on incorporating emerging technologies into resource plans in the northwest, California and nationally with extensive audience questions and discussion.

**TACTICS TRACK: Promoting Emerging Technology for Specific Markets: The Case of Residential New Construction**

*Facilitator:* Helen Fisicaro, Pacific Gas and Electric Company

*Presenters:* Charles Segerstrom, PG&E Energy Training Center  
Rob Hammon, ConSol

*Description:* This session will explore the ways that emerging technologies are promoted to and adopted by specific markets using the case of residential new construction. Topics will include the process by which builders and contractors identify and evaluate emerging technologies, efforts to promote new technologies to key decision makers, and training and other efforts designed to encourage adoption and proper use of new technologies and techniques.

***Working Session IV***

***Friday, October 15***

***1:30 to 3:00 pm***

**TECHNOLOGY TRACK #1: Domestic Water Heating and Hot Water Distribution**

*Facilitator:* Jim Lutz, Lawrence Berkeley National Laboratory

*Presenters:* Alan Shedd, Jackson EMC  
Gary Klein, California Energy Commission

*Description:* This session will highlight several emerging hot water sources (e.g., heat pump water heaters, power vent and condensing gas storage, “instantaneous,” and solar hybrid) and examine alternative water distribution “architectures” such as local water heating and pumped recirculation. Several of these emerging technologies have been in the pipeline for some time—how do we move them into the mainstream market?

**TECHNOLOGY TRACK #2: Exciting New Lighting Technologies**

*Facilitator:* Noah Horowitz, Natural Resources Defense Council

*Presenters:* Karl Johnson, Energy Consultant  
Michael Siminovitch, California Lighting Technology Center

*Description:* The purpose of this session is to introduce emerging lighting technologies that will both save energy and respond better to consumer needs. Learn more about the newest lighting technologies emerging for both residential and commercial applications. When will these systems be commercially available and how are they being promoted?

**POLICY AND PROCESS TRACK: Roles and Linkages of Players in Emerging Technologies**

*Facilitator: Ed Becker, Southern California Gas*

*Presenters: Nancy Jenkins, California Energy Commission  
Leonel Campoy, Southern California Edison  
James Rannels, U.S. Department of Energy  
Mark Benguerel, Finelite*

*Description:* The development and ultimate commercialization of new and emerging technologies involves unique relationships with key stakeholders. This session will address the activities of a number of key organizations actively engaged with emerging technology activities.

**TACTICS TRACK: Lessons Learned from Emerging Technology Successes and Failures: What's Worked, What Hasn't**

*Facilitator: Steve Nadel, American Council for an Energy-Efficient Economy*

*Presenters: Marc Ledbetter, Pacific Northwest National Laboratory  
Peter Turnbull, Pacific Gas and Electric Company*

*Description:* This session will explore what works and what doesn't in efforts to develop and commercialize emerging technologies. We will feature a number of ET promotion efforts that teach important lessons about the key factors for success and primary challenges, saving plenty of time for a wide-ranging discussion among presenters and the audience.