DISCLAIMER

Energy & Environment Division

Newsletter

Lawrence Berkeley Laboratory

February 1994

"Visionary and unfaltering leadership" commended

Art Rosenfeld Wins Sadi Carnot Award

For the second time since DOE in 1987 established the Sadi Carnot Award in Energy Conservation, the prestigious award has been presented to an E&E Division researcher.

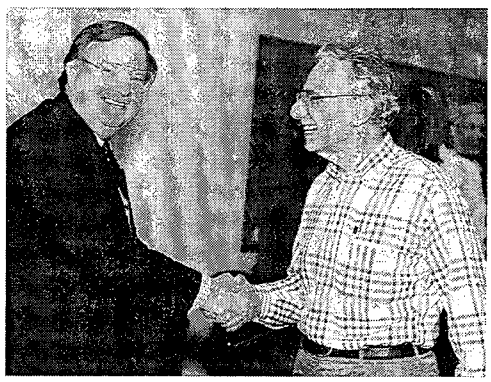
Art Rosenfeld, head of E&E's Center for Building Science and one of the nation's preeminent proponents of energy efficiency, was given the award by U.S. Secretary of Energy **Hazel O'Leary** in a January 21 ceremony at DOE headquarters. In an unusual quirk of fate underlying the award's importance—and the timeliness of its subject matter—federal offices were shut down the day before the ceremony to conserve energy.

In 1988, E&E's **Sam Berman** won the award for his contributions in the areas of energy-efficient windows, advanced fluorescent lighting, and understanding of the human eye's response to lighting.

The Carnot Award is one of a trio of Energy Science and Technology Awards established "to recognize the contributions of individuals in three areas that are vitally important to our nation's energy future: fossil energy, energy conservation, and renewable energy." The other two awards are the Homer H. Lowry Award in Fossil Energy and the John Ericsson Award in Renewable Energy.

Genesis of Art's Selection

Art was nominated for the Carnot award on the recommendation of E&E Division Director **Elton Cairns**, who outlined for the awards committee ways in which Art has been instrumental not only in spawning the development of energy-efficient technologies for buildings, but also in developing the analytical framework that led to their introduction into the marketplace in an economically sound manner.



LBL Director Charles Shank, left, congratulates Art Rosenfeld on winning DOE's Sadi Carnot Award in Energy Conservation

In 1973, prompted by the OPEC oil embargo, Art joined eight other physicists to organize the 1974 Princeton Summer Study on Efficient Use of Energy (published as *American Institute of Physics Conference Proceedings No. 25*, 1975). This study—which has become the all-time best seller among AIP books—convinced Art, together with **Sam Berman** (then a professor at Stanford), to plan

—*see* **Carnot**, *p. 2*

Energy Conservation is National News, But 'Hot' Not Right Word

As this issue was being assembled, much of the federal government in Washington, D.C., had shut down to conserve energy during record cold weather. In addition, utilities were forced to resort to "rolling blackouts" in response to the tremendous demand for energy. The bitter cold throughout the East and Midwest was said to have caused the deaths of more than 100 people—some of whom had frozen in their homes.

Inside

E&E's 20th-Anniversary Forum

'Living Timeline' Reaches Present

Forum presentations about E&E's Indoor Environment Program illustrated the synergism possible between research on "energy" and on "the environment."

Early on, researchers recognized that measures intended to save energy in buildings, especially reduced ventilation rates, could increase levels of indoor pollutants such as from combustion appliances. **Craig Hollowell**, then a member of the Environmental Research Program, took the lead in developing a new research area to investigate indoor air quality. Craig led the effort until his untimely death in 1982. (He and **Bob Budnitz** were E&E's first two employees.)

This month we continue summarizing the Forum session on "Twenty Years of Energy & Environment Achievement—a Living Timeline," narrated by Don Grether. Last month's issue of this newsletter covered Environmental Research, Solar Energy, Energy Analysis, and Building Technologies.

The present-day Indoor Environment Program traces its origins to the indoor air quality work of Hollowell, **Greg**

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D.C. Newswire D.C. Newswire D.C. Newswire D.C. Newswire D.C. Newswire D.C. Newswire D.C. Newswire

International Environmental Management Gets a Boost

LBL Wins 'Country Studies' Contract for $1.4 Million

Rarely are LBL researchers called upon to write competitive proposals for new research. After all, the national labs are prohibited from responding to requests for proposals and from competing with private organizations. It was therefore a rare opportunity when, based on **Jayant Sathaye**'s extensive work on country studies, Jayant and **Steve Wiel** were asked to prepare a proposal in competition with Oak Ridge National Laboratory (ORNL). Led by E & E's **Mark Levine**, the LBL team prepared a proposal—one which was subsequently selected to provide technical assistance in greenhouse-gas mitigation to fourteen countries.

Jayant Sathaye

But we're getting ahead of ourselves. Let's start from the beginning.

Earth Summit Spawns Country Studies Program

Shortly after the 1992 Earth Summit in Rio, President Bush pledged $25 million to countries around the world to help characterize greenhouse-gas emissions. Tapping personnel and budgetary resources of eleven federal agencies, he established the Country Studies Program for Climate Change, led jointly by DOE and the U.S. Environmental Protection Agency (EPA).

Over the past year, the recently assembled federal **Country Studies Management Team (CSMT)** has contracted with twenty foreign governments ("round 1") to provide grants and technical assistance for their preparation of climate-change action plans. In 1994, CSMT expects to issue grants to another dozen to two dozen countries ("round 2").

Besides cash grants, CSMT is providing the assistance of experts from around the world in three technical areas: 1) greenhouse-gas inventory, 2) vulnerability and adaptability to climate change, and 3) mitigation of greenhouse-gas emissions.

—*see* **Newswire**, *back page*

***D.C. Newswire* is designed to promote communication between our E&E researchers in Berkeley and E&E's Washington, D.C. Project Office, located at 1250 Maryland Ave. S.W., Ste. 150, Washington, DC 20024 (fax (202) 484-0888. Office Manager Moira Howard can be reached via e-mail (MCHoward@lbl.gov) or phone [(202)484-0880]. Project Office Leader Steve Wiel and his deputy, Jeff Harris, are reachable via e-mail (Steve, s_wman@lbl.gov; Jeff, JPHarris@lbl.gov) or by phone (Steve at (202) 484-0884; Jeff at (202) 484-0883). Ideas and requests for *D.C. Newswire* topics should be directed to Lila Schwartz (LBL mailstop 90-3026, phone x4098, or *"macmail"* server).**

E&E Hosts World Energy Congress in Berkeley

On January 17th and 18th, Energy Analysis Program Head **Mark Levine** hosted and was moderator for a meeting of Project 3 Working Group A of the World Energy Council (WEC) at LBL. The working group is one of a series of ongoing international study groups coordinated under WEC auspices to further the analysis and understanding of pertinent energy issues.

Its members representing the government, academic, and the private sectors of numerous countries, WEC is an international organization which promotes and develops the peaceful use of energy for the greatest benefit of all.

Last year, Mark was appointed Vice Chairman of Working Group A, an international group whose task is to identify ways in which advanced technologies may be used to improve energy efficiency. In this way, the group is participating in a larger worldwide effort to study and report on key energy issues for the upcoming Triennial Congress of the World Energy Council, to be held next year in Japan. Because the Congress attracts important policymakers from the world energy community, the study could have a positive impact on speeding the worldwide deployment of promising efficiency technologies.

Mark Levine

"It's an honor for LBL to be

—*see* **WEC**, *p. 6*

Carnot *fromfront page*

the Energy-Efficient Buildings Program at LBL. The Program's initial goals were 1) to double the efficacy of U.S. lighting, 2) to double the thermal resistance of conventional "double-glazed" windows, and 3) to develop computer programs that would optimize the design of buildings and would incorporate "solar control" (i.e., the ability to admit and store solar heat in winter and reflect it in summer). Art and Sam argued that they could save tens of billions of dollars annually and could offset about 20% of U.S. electricity—the output of all U.S. nuclear plants—and the energy equivalent of 2 million barrels of oil per day (the output of Prudhoe Bay).

Startling at the time, each claim has come to pass.

A full list of Art's contributions to energy efficiency would fill volumes, but here are a few:

—*see* **Carnot**, *p. 3*

The *E&E Newsletter* is a vehicle for informing E&E staff about people and events of interest to the Division. Send news items to the editor, Lila Schwartz, via any of the following routes:

- **mailstop 90-3026**
- **LNSchwartz@lbl.gov**
- **Quickmail, zone "asd"**
- **phone x4098**
- **location 90-3027A**

Illustrations are welcome.

Materials for next month's issue must be received by the 15th of the current month.

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• In 1976 Art obtained funding from the U.S. Energy Research and Development Administration (DOE's predecessor) to bring Sam Berman to LBL to start the Windows and Lighting group.

• Art and U.C. Berkeley architecture Professor **Ed Dean** wrote a computer program, *TWO-ZONE,* which was promptly adopted by the California Energy Commission to calculate Title-24 residential standards.

• Turning to *commercial* buildings, Art persuaded the CEC and ERDA to co-sponsor a public-domain computer program, *Cal-ERDA*, to simulate the energy performance of commercial buildings. Cal-ERDA became the basis for the California Commercial Building Standards.

Art and **Fred Winkelmann** upgraded Cal-ERDA to *DOE-1*, which served as the basis for the ASHRAE Series 90 standards for new buildings. DOE-1's upgrade, DOE-2, is now the basis for building standards in the U.S. and other countries, saving more than $10 billion per year.

• Working with **Leonard Wall** and PG&E's **John Hailey**, Art in 1977 used Cal-ERDA to design the first comprehensive home-energy rating labels. Home Energy Rating Systems are now California policy and appeared in the 1991 U.S. National Energy Strategy.

• With **Alan Meier** and **Roger Sant**, Art developed the concepts of "least-cost energy services" and "conservation supply curves," now used universally as the decision tool for least-cost utility planning.

• In 1979, with a dozen other scientists, engineers, and economists, Art founded the American Council for an Energy-Efficient Economy (ACEEE), a public-interest "think tank" for conservation policy.

• Amid declining federal funding for energy conservation in the 1980's, Art and colleagues did least-cost studies for states and utilities. Congresswoman **Claudine Schneider** argued that the studies should be organized on a national basis. This led to formation of DOE's successful Least Cost Utility Planning Program, which grew throughout the Reagan era and is growing even faster today under the name Integrated Resource Planning (see IRP article, page 6).

• With **Amory Lovins** of the Rocky Mountain Institute and **Ralph Cavanagh** of the Natural Resources Defense Council, Art made such a strong case for the potential to reduce California's utility bill by more than 50% at an attractive rate of

—see **Carnot**, *p. 5*

Forum *from p. 2*

Traynor, Tony Nero, Rich Sextro, Bill Fisk and others; and to the research on infiltration and ventilation that was furthered by **Dave Grimsrud, Robert Sonderregger, Max Sherman,** and others. (As Don noted, the Forum's time constraints limited the number of presenters from this and other Programs.)

Tony Nero and Indoor Radon

Tony Nero came to LBL in 1975 from Princeton, where he began work on a subsequently well-received book on nuclear reactors. At LBL he first worked on a nuclear power study and on the *Environmental Instrumentation Survey* (the Division's first funded project) before turning to indoor radon, the work for which he is now best known.

At about the time of the Three

Tony Nero

Mile Island accident, early measurements indicated that occupants of some homes were exposed to levels of radiation from radon far exceeding any effects of that accident and exceeding even the occupational standard for uranium miners. Tony noted an early and enormously significant result of the research: that a building's ventilation rate was less important than the pollution source in determining indoor pollutant levels. In the case of radon, the house "sucks" soil gas containing radon. (The radon is a product of the decay of uranium naturally present in soils and rocks.) Indoor radon levels are therefore a complicated combination of soil properties, building characteristics, and weather.

In his Forum presentation, Tony also noted a key aspect of E&E's Indoor Environment Program: in contrast to other institutions, LBL treats all related indoor-environment issues—including health

Work on both science and policy led Nero to win the prestigious Leo Szilard Award for Physics in the Public Interest, as did Art Rosenfeld three years earlier.

risks—in an integrated fashion. From this perspective, Tony commented that the Environmental Protection Agency (EPA) has made an inappropriate and potentially very costly response to the radon issue by not focusing on identifying the homes with high radon concentrations and which thus present the greatest health risks. Tony's work on both the science and policy of such issues resulted in his receiving the 1989 American Physical Society Leo Szilard Award for Physics in the Public Interest. (For similar reasons, Art Rosenfeld won the prestigious award in 1986.)

The Daisey Era Begins

Currently Head of E&E's Indoor Envornment Program, **Joan Daisey** came to LBL from the Department of Environmental Medicine at New York University Medical Center, where she was Associate Director, Laboratory of Environmental Studies. In her Forum presentation, Joan noted that she is a relative newcomer, having been at LBL for only seven years. Thus, she feels, she can brag about LBL—the interdisciplinary nature of the research, a place full of ideas, and basic research combined with a practical viewpoint.

Joan Daisey

Further, she said, we are solving important problems by simultaneously improving human health, human comfort, and energy efficiency. Joan foresees that in the next few years we will have found and fixed homes with high radon levels,

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high CO levels, and high leakage rates.

Turning to current directions and trends in her Program's research, Joan noted the development of biologically based models for better predicting human health risks that accrue from low levels of pollutants. In addition, she said, more attention is being paid to the effect of outdoor air (e.g., ozone) on indoor air quality.

Yet another research trend is concerned with the effect of indoor air pollutants on failure of communication equipment. (The latter been a joint effort with Bellcore, the research arm of the "baby Bells.") Finally, looking far into the future and with tongue in cheek, Joan quipped that advances in biology and the health sciences could lead to genetically engineered humans who are immune to indoor pollutants.

1978: Enter Elton

Don next introduced **Elton Cairns**, who as E&E's Division Director has obviously played a key role in keeping the Division together and functioning for these many years.

Don noted that Elton "wears many hats": Division Director, as Head of the Energy Conversion & Storage Program, Head of the Berkeley Electrochemical Research Center, leader of his own research group, and a faculty member in U.C. Berkeley's Department of Chemical Engineering.

As Elton likes to say, "it took almost 20 years to get back to Berkeley" after he received his Ph.D. in Chemical Engineering from U.C. Berkeley in 1959. In the meantime, he pursued a distinguished career in electrochemical research at General Electric Research Laboratory, at Argonne National Laboratory, and at the General Motors Research Laboratory before arriving at LBL.

Elton began his talk by discussing the Energy Conversion & Storage Program. He first mentioned some early research projects that reflected the Carter Administration's focus on "synfuels": the oil shale conversion project led first by **Phyliss Fox** and later by others; and the work of **Harvey Blanch** and **Charles Wilke** on conversion of cellulose to alcohol.

The Program's present efforts include **Arlon Hunt**'s work on aerogels as insulators and catalysts; **Jud King**'s research on energy-efficient chemical separation processes for industry; **Scott Lynn**'s efforts on recovering sulfur from coal gas and from other process gases; and **Rick Russo**'s work on laser ablation for depositing high-temperature superconductors onto metal substrates for applications such as motors.

Turning to his own electrochemistry research, Elton described how LBL had only a small basic research program when he arrived. He worked with **John Brogan** at DOE to develop a larger, more comprehensive program in which batteries and fuel cells were the targeted applications. The research group, with **Frank McLarnon** and others, recently developed a family of electrolytes for zinc/nickel oxide cells which holds promise for advanced batteries for electric vehicles.

E&E's early days: 'like riding a tidal wave, or tsunami—rapid growth in programs and funding...'

Elton began his remarks on E&E by referring to **Bob Budnitz**'s talk earlier in the Forum. Bob had referred to his 1975-78 directorship of the E&E Division as being like riding a tidal wave, or tsunami—rapid growth in programs and funding, at both the national level and LBL. Bob noted that when he departed in the Fall of 1978, the tidal wave had stopped; in his own presentation, Elton carried the metaphor further by describing some experiences as the nation and LBL started down from the crest of the wave.

During the Reagan Administration, the Energy & Environment Division saw budget recissions and 'zero' budget requests.

An immediate crisis had to do with the project designed to "validate" data that the government was receiving from oil companies and other energy producers. At the insistence of the Energy Information Administration (EIA), and after being promised "the check is in the mail," E&E staffed-up in short order to carry out the project. As it turned out, not only was the check not in the mail but, in effect, EIA had no bank account. The project had to be shut down even faster than it had been built up. Fortunately, Elton noted, many of the people were absorbed by other E&E programs.

Elton then turned to the early years of the Reagan Administration –the recissions in fiscal 1981 and the zero budget requests for 1982 and for years thereafter. He mentioned the steadfast support we received in those difficult times from **Maxine Savitz**, who was then DOE Deputy Assistant Secretary for Conservation, and **John Millhone**, who headed buildings R&D under Savitz. Millhone, who attended the Forum, is now DOE Deputy Assistant Secretary for Buildings.

In 1983 the Division's name was changed to *Applied Science* because neither "energy" nor "environment" were popular topics. Elton noted the strong, persistent efforts by many in the Division during this period, setting the stage for the modest growth of recent years. The 1991 change back to *Energy & Environment* reflects what Elton considers a renewed, continuing interest in these topics. He looks for "more fun and excitement" in the coming years.

CIEE Breaks Ground

The timeline presentation then turned to two relatively new additions to the Division: the **California Institute for Energy Efficiency (CIEE)** and our **Washington, DC. Project Office**. CIEE was started in 1985 by **Art Rosenfeld** who, along with **Jeff Harris** and **Carl Blumstein**, envisioned an energy efficiency R&D program funded by the California energy utilities and carried out at LBL and California universities. Making a reality out of the vision was very difficult, involved many people, and took many years. In 1988 CIEE became an Organized Research Unit of the University housed administratively at LBL, and in 1990 the first awards for research projects were made.

At CIEE's inception, Art served as the Institute's Acting Director. A national search for a regular Director was conducted, and **Jim Cole** officially took office in Fall 1990.

Don noted that Jim's background admirably suited him for the difficult task of carrying CIEE forward. Jim has a B.S. in Electrical Engineering, a Ph.D. in Engineering Mathematics, and an M.B.A. He was a member of the technical staff at Bell Labs and a senior Engineer at Syracuse Research Corp. be-

Jim Cole

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fore joining the New York State Energy R&D Authority (NYSERDA). There he served variously as Program Director of End Use Efficiency and Conservation; as Program Director of Fossil Fuels and Electrical Systems; and (at time he took the CIEE position) as Chief Scientist.

In his Forum presentation, Jim commented that, while at NYSERDA, he interacted with a number of people from LBL—Art, **Steve Selkowitz**, **Chuck Goldman**, and **Joe Eto**, for example—and that he became interested in CIEE when he heard about the national search. Jim's boss at the time pointed out that the utilities had only made a three-year commitment to CIEE and that its Director would have three bosses: LBL, the CIEE Research Board, and the University. Nevertheless, Jim felt that he could "make a go of it," and he today remains optimistic about CIEE's future.

Jim then outlined some of the changes taking place in CIEE's operating environment. CIEE's original focus on *mid- to long-term* R&D has shifted more to *short- to mid-term* R&D as the utilities want to see "payoffs," often in the form of transfer of technology from R&D to actual use in Demand-Side Management (DSM) programs. In some cases the technology can be transferred directly; this is the case with **Mark Modera**'s work on residential air-distribution systems. In other cases, field tests will be needed to demonstrate the technology; CIEE is very interested in participating in such tests.

Another change involves DOE which, although always supportive of CIEE, had not provided any direct funding. Starting in FY94, DOE will share costs of some projects. Jim also mentioned that the utilities themselves are undergoing restructuring as a result of economic and other pressures, and that even the need for them to continue to support R&D is being questioned. Within this difficult environment, Jim was pleased to note that CIEE has received a commitment of continued support for the next three years. He expressed his hope for the 30th Anniversary of the Division: that CIEE is still here and successfully transferring technologies resulting from R&D.

Startup of E&E's Washington, D.C. Project Office was graced by 'several major to minor miracles.'

E&E Opens D.C. Office

Don introduced the final topic of the timeline session by observing that in our dealings with DOE over the past few years we were clearly at a disadvantage with respect to the other National Laboratories, which had offices in Washington. For a number of reasons, the Laboratory has not established such an office, but LBL Director **Charles Shank** agreed to letting E&E set up one on our own.

Steve Wiel

This opportunity prompted much discussion in E&E Division Council meetings in early 1992: how to go about it, how to find the right person to go to Washington, and so forth. Then, several minor to major miracles occurred.

The first was that **Steve Wiel** expressed an interest in joining LBL and agreed to set up and head the D.C Project Office temporarily. Equipped with a B.A. in Chemical Engineering and a Ph.D. in Public & International Affairs, Steve had worked in industry and had run a company offering services in the energy and environmental areas. In 1984 he was appointed to the Public Service Commission of Nevada (the counterpart of California's Public Utilities Commission), where he served two four-year terms. Steve used this position as a springboard to become involved in energy matters at the national level, particularly through NARUC (National Association of Regulatory Utility Commissioners). Through this and other activities Steve had interacted with many people in E&E, most closely with Art Rosenfeld and **Mark Levine**.

The second miracle was that we were able to get agreement from the Lab and DOE to hire Steve. The problem had nothing to do with his qualifications—everyone agreed that he was admirably qualified—but rather with what seemed to be

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return, that PG&E put up $10 million for the resulting program (ACT^2) to test the hypothesis. Pleased with the first retrofit's result—50% savings at PG&E's own R&D office—PG&E has authorized $9 million more.

• The heat-island research group begun by Art at LBL is on its way to achieving its goal of reducing the temperature of major U.S. cities to *below* 1940 temperatures, saving about 10 gigawatts of peak power and about $1 billion per year. Among the group's publications is a heat-island mitigation guide produced for the EPA.

As Elton Cairns noted in his letter nominating Art for the Carnot award, the taxpayers' money has been repaid "thousands of times over" through implementation of technologies and methods developed by Art and coworkers. ■

A packed conference room listened as E&E Director Elton Cairns and LBL Director Charles Shank spoke of the importance of Art Rosenfeld's work in energy efficiency and energy conservation. The group had assembled to congratulate Art on winning DOE's Sadi Carnot Award.

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insurmountable bureaucratic hurdles.

The third miracle was that **Jeff Harris**, who had been working in Washington with John Millhone for a couple of years, accepted an indefinite appointment to the Project Office. With this we suddenly jumped from having an unstaffed office to having a two-person office, and the combination of Jeff and Steve has been very effective.

The fourth and final miracle was that we were able to negotiate a lease for an office suite in The Portals, a new building near DOE headquarters, and obtain the approval of all the parties concerned—the building owner, LBL, DOE, and the University of California. (As might be imagined, setting up the Office meant testing virtually every LBL administrative rule and procedure.) The Project Office is not only close to DOE and other federal agencies, but within a Metro ride to many other Washington-based organizations with which we deal.

E&E's Washington, D.C. Project Office has stimulated coordination with our 'sibling' national labs through their Washington offices.

Purpose of the D.C. Office

Before accepting the position, Steve had talked with Art and Mark about the purpose of the Project Office, which in broad terms is to improve our relations with DOE and with other "clients." To Steve this means not only telling DOE about the wonders of LBL, but also guiding LBL folks toward better serving their clients.

Toward this end, and in addition to increasing our interactions with DOE and other officials, the Office gives us a vehicle for providing program support. As one example, **Steve Cromer** from LBL's In-House Energy Management Program is using one of the offices for 6-12 months while in Washington to work for **Mark Ginsberg**, Director of DOE's Federal Energy Management Program (FEMP). Generally, our Project Office provides a "home away from home" for LBL visitors to Washington, and the conference room is being used by an increasing number of LBL folks for meetings.

Steve also mentioned that the Project Office has stimulated coordination with our sibling national labs through their Washington Offices. Such cooperation has recently been emphasized as a DOE goal.

The View from Washington

Steve then turned to his view

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Next time: **Visions for Energy and the Environment for the Next 20 Years.**

WEC *from p. 2*

chosen to participate in the WEC process," notes **Nathan Martin**, who with **Tracy Stollar** worked with Mark to ensure that the Berkeley meeting went smoothly.

The meeting's purpose was to finalize case studies for areas in which advanced technologies can be successfully and cost effectively applied to spur energy efficiency. The group will also attempt to examine how advanced computer information systems and electronic technology can be applied to the energy efficiency field.

Meeting participants presented material from a variety of economic sectors within various countries. Presentations covered such topics as

- advanced motors in the U.S. and U.S. building-energy management;
- electricity management and building energy management in Japan, as well as traffic-control systems and information technology in Japan;
- the steel, pulp/paper, and cement industries in Canada, including computer-instrumented management;
- the steel, paper, and ceramics industries in France, as well as France's office buildings and commercial sector (cooking);
- traffic-control systems and electricity management in Germany, and the German buildings sector;
- energy efficiency in Swedish buildings.

All participants agreed that the discussions were very useful in helping the working group carry out its mission.

Mark is very excited about the working-group Vice Chairmanship and believes that LBL can have an impact on how the energy efficiency debate is framed at the 1995 Triennial Congress in Tokyo. ■

Major E&E Contribution

WAPA, NARUC Release Resource Planning Aids

DOE's Western Area Power Administration (WAPA) released the first issue of its *Resource Planning Guide,* a user-friendly set of software tools designed to assist utilities in integrated resource planning (IRP). The *Guide*—several years in the making—was cosponsored by WAPA and the Southeastern Power Administration.

Staff from E&E's Energy Analysis Program had provided major technical support throughout the *Guide's* development. This support consisted of a range of activities, including **Joe Eto**'s presentations on integrated resource planning (IRP) principles and his participation in *Resource Planning Guide* planning meetings with senior WAPA staff; technical reviews by Eto, **Jon Koomey**, and **Agah Sezgen** of aspects of the guide; and presentations throughout the western United States by **John Busch, Alan Comnes, Joe Eto, Chuck Goldman, Jon Koomey**, and **Ed Vine** on selected IRP topics. These presentations were given at WAPA's IRP workshops introducing the new IRP requirements to WAPA's customers.

Financial support for these

—*see* **Guide**, *next page*

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activities came from the DOE Office of Energy Efficiency and Renewable Energy's Integrated Resource Planning Project, which had provided funds specifically for IRP-related technical support to power-marketing agencies.

Letter of Thanks

A letter of appreciation for LBL's assistance was addressed to LBL Director **Charles Shank** by WAPA's Administrator, **William Clagett**.

"Without [LBL's] generous assistance in time and staff talents we could not have developed the quality and results that we targeted to achieve," he noted. According to Clagett, the project was particularly challenging because of the diversity of customer sizes and types, geographic variations, and the impacts of changing national events. He said that such variables made LBL's contributions "of even greater importance" in the developmental process.

For approximately the past two years, LBL has participated in a variety of activities in support of WAPA's efforts to encourage their utility customers to engage in integrated resource planning, which WAPA now requires as a condition for power-contract renewal. (These power contracts provide customers with access to low-cost power from WAPA's hydroelectric generating plants.)

NARUC Primer Also Now Available

Another important IRP publication resulting from Energy Analysis Program effort has recently been published.

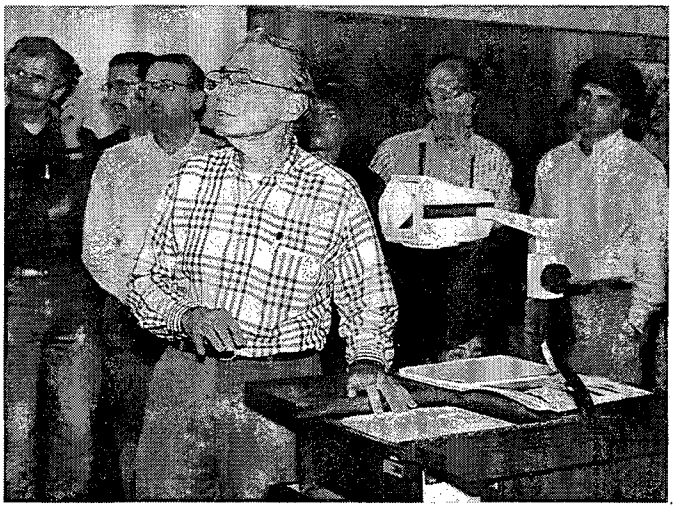
Primer on Gas Integrated Resource Planning, prepared for the National Association of Regulatory Utility Commissioners (NARUC), became available in December. The primer was prepared by E&E's **Chuck Goldman, Alan Comnes, John Busch**, and **Steve Wiel**. The primer's foreword acknowledges the group for their work, termed "outstanding."

A major undertaking, the primer addresses utility and regulatory considerations relevant to planning natural-gas utility service and notes that such strategic planning is key to the prudent operations of gas utilities, just as it is for electric utilities." The primer is not intended to serve as a handbook, but rather as a treatise exploring considerations worthy of review by those involved in the IRP planning process.

While noting the greater attention given IRP as it applies to electric utilities, the primer emphasizes that IRP for gas utilities is no less important. Indeed, during the research phase of the primer's development, Congress enacted the Energy Policy Act of 1992, which requires state regulatory commissions to consider the appropriateness of implementing IRP for gas utilities. Release of the primer is thus particularly timely because it contains technical and policy-related information that state commissions will need in considering IRP for gas utilities.

"Pricing trends and multiple choices for supply make state-of-the-art resource planning for natural gas critical," says the primer in its foreword. ■

Capturing a familiar moment



Art Rosenfeld couldn't resist showing some viewgraphs at the E&E reception given to honor his being awarded the Sadi Carnot Award for Energy Conservation. A fountain of information on the subject, he tirelessly takes every opportunity to educate people on the need and the know-how for achieving and improving energy efficiency.

Congratulations

• **Ralph Greif** of E&E's Environmental Research Program and UCB Professor of Mechanical Engineering was named 1993-94 Chairman of the Heat Transfer Division of the American Society of Mechanical Engineers.

• Indoor Environment Program Head **Joan Daisey** has been appointed by U.S. Environmental Protection Agency Administrator **Carol Browner** to serve as Chair of the Science Advisory Board's Indoor Air Quality/Total Human Exposure Committee for FY94.

In her letter offering Joan the appointment, Ms. Browner noted that the EPA "is confronting many important issues in the coming months," and that she views the Science Advisory Board "as a mechanism by which [Browner] can access some of the top technically trained minds in the country and thereby gain a broader perspective on scientific and engineering issues than would otherwise be the case."

Browner added that she depends on the Board to examine critically the cases at hand and to independently and objectively evaluate strengths and weaknesses of the technical underpinnings of EPA's positions. ■

Berdahl Talk Will Link Paint, Energy Efficiency, Safety

On Thursday, February 24, E&E Staff Scientist **Paul Berdahl** will give a talk on "Paints for Energy Efficiency and Fire Resistance." Paul is among the E&E researchers participating in the Summer Heat Islands Project, an effort to reduce summertime temperatures in cities through well-planned use of light-colored surfaces and shade trees.

UC staff, students, and invited guests are welcome.

The seminar is part of the Building Energy Seminars series, held most Thursdays. For further information or to suggest presentations for the seminar series, contact **Barbara Atkinson** (x7227) or **Jim Lutz** (x7302). ■

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LBL's Participation

LBL became involved in the Country Studies program when CSMT decided to select one of the national labs to head its Mitigation Experts Team.

After listening to each lab's presentation on its capability and experience in greenhouse-gas mitigation analysis—including **Jàyant Sathaye**'s presentation on LBL's country study experience and capability—CSMT took historic action: it invited LBL and Oak Ridge National Laboratory to submit competitive proposals for managing $1.4 million in greenhouse-gas mitigation technical assistance to the "round 1" countries over a two-year period. Last November, Mark, Steve and Jayant—with considerable help from **Moira Howard** and **Nathan Martin**—submitted a proposal to CSMT.

The proposal was a collaborative effort of E&E's staff in Berkeley and the Division's Washington D.C. Project Office. It was written largely in Berkeley and produced entirely in D.C. ("in an awesome tour de force by Moira," adds Steve), with Steve jetting back and forth to participate at both ends.

It was worth the effort. On January 7 we were notified that LBL won the competition and was granted the contract for $1.4 million.

Upcoming Plans

Since notification of the award, Jayant, Steve, and Nathan have been busy assembling a team of experts in various aspects of greenhouse-gas mitigation from a dozen and a half organizations. All the other multipurpose labs will be involved, including our old friends at Oak Ridge. (The competition was conducted graciously and in good spirit, with each lab stating its intention to include the other on the team ultimately assembled.)

Expect publication of a mitigation guideline book and an initial two-week training seminar for study teams from fourteen countries by summer. (Six "round 1" countries are not conducting mitigation analyses.)

Congratulations are due to those who assembled this successful proposal. We all look forward to the important environmental benefits it will bring to our planet. ■

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of the Washington scene and his sense that there may be another tsunami on the horizon. The new Administration is in place, and the right words are being said. We are not quite there yet (since little new money has been appropriated), but it seems clear that the time for energy & environment is coming again. If not energy *per se*; as already mentioned by **Lee Schipper**, the *environment* will be the driving force, with energy viewed as a mechanism to achieve environmental goals; the recently released Clinton/Gore *Climate Change Action Plan* reflects that connection. In this context, we should definitely see a rejuvenation in FY 1995 and 1996.

Steve concluded his presentation by stating his goal for E&E's 30th anniversary: that we won't be able to imagine a time when we lived *without* a Washington, D.C. Project Office. ■