



American Council for an Energy-Efficient Economy
WASHINGTON, DC

**Minutes and After Action Report from
ACEEE's Fourth National Conference on Energy Efficiency as a Resource**

**Sunday, September 30 – Tuesday, October 2, 2007
Berkeley, California**

Final Report to the U.S. Department of Energy

Prepared December 2007

MONDAY, OCTOBER 1, 2007

Conference Welcome and Introductions

Conference Kick-Off: Martin Kushler, Director, Utilities Program, ACEEE

California Welcome: Helen A. Burt, Senior Vice-President, PG&E

Introduction of Art Rosenfeld: Steven Nadel, Executive Director, ACEEE

Invited Remarks and Introduction of Keynote: **Art Rosenfeld, Commissioner, California Energy Commission.** Mr. Rosenfeld presented a graph taken from the McKinsey Quarterly illustrating a cost curve of global greenhouse gas reduction and then presented a supply curve for CO₂ conserved through electric energy efficiency in California. Mr. Rosenfeld explained that California spends approximately \$700 million per year pursuing this curve and saves a net of approximately \$3.5 billion per year. California AB32 CO₂ goals target 1990 levels by 2020 and 80% below 1990 levels by 2050. Mr. Rosenfeld presented possible strategies to reduce carbon emissions in California (less or cleaner coal, more efficient combustion, renewables, doubling standards and tripling EE programs).

Keynote Address

Dian Grueneich, Lead Commissioner on Energy Efficiency, California Public Utilities Commission, discussed how energy efficiency (EE) is California's highest priority resource to meet energy needs, save money and reduce greenhouse gas (GHG) emissions. Statewide EE and demand response programs are 23% of the reductions needed to achieve California AB32 goals. California's 2004-2013 EE programs eliminate the need for 10 new power plants, eliminate 9 million tons of CO₂ emissions annually and save consumers \$10 billion in net savings. Ms. Grueneich stated that integration (clear policy, firm standards, adequate financial mechanisms and funding and evaluation, measurement and verification), innovation (AB2021, AB1109, risk/reward incentive decision, water-energy nexus and the California Solar Initiative) and collaboration (government, consumers, businesses, utilities/partnerships, local governments/third parties) are key to the achievement of this level of savings. Ms. Grueneich described the "Next Generation" of CA EE as including: a long-term (through 2020) utility strategic plan, integration across customer demand resources, aggressive goals extended through 2020 (including low income), linkage to AB32's "scoping plan" (December 31, 2008), "Big Bold Energy Efficiency Strategies" (all new residential construction in California will be zero net energy by 2020, all new commercial construction in California will be zero net energy by

2030, the heating, ventilation, and air conditioning (HVAC) industry will be reshaped to ensure optimal equipment performance), EE Web Portal and Collaborations (California, the West, national and international).

Plenary Panel 1

Tim Stout of National Grid moderated a panel which provided a national overview on approaches to EE as a resource in key regions of the country. Speakers on the panel addressed the energy efficiency backgrounds, policies, problem areas, trends and needs in their regions.

Julie Michals of Northeast Energy Efficiency Partnerships (NEEP) spoke on behalf of Susan Coakley, the Executive Director of NEEP. Ms. Michals presented the background of the northeastern states (CT, ME, MA, NH, NJ, NY, RI, VT) which have historically had high natural gas, oil and electricity rates and transmission and distribution constraints. In 2006, electric and gas efficiency expenditures in the region totaled \$703 million. Current energy efficiency policies in the region access approximately 25% of the region's EE potential. Ms. Michals projected that existing and new EE strategies can offset ISO forecasted energy requirements and beyond. New initiatives in the Northeast include: issuance of a FERC order requesting that the PJM ISO consider EE as a resource, development of EEPs strategies, decoupling dockets, rulemakings that could potentially allocate CO₂ allowance revenues to go towards EE, state appliance standards, increased attention on natural gas efficiency and the introduction of progressive building codes.

Alecia Ward, Executive Director of the Midwest Energy Efficiency Alliance (MEEA) presented current EE policies and trends in the Midwest. MN, WI and IA have longstanding histories of providing EE programs. MEEA is seeing EE progress in IL, MI, OH, MO and IN. EE investment in the region is increasing. EE funding in the region in 2007 was approximately \$300 million. Projected funding in 2011 is approximately \$985 million. Focus in the region appears to be shifting from spending goals to energy savings goals. Ms. Ward presented EE progress in each Midwestern state. She concluded with issues that need attention in the area including: follow-through on legislative action, progress in MI and OH, regional coordination of an EE policy framework, regional coordination of EE programs to maximize impact, increased understanding of EE in carbon mitigation and better understanding of EE as a resource by policy makers.

Tom Eckman, Manager of Conservation Resources at the Northwest Power Planning Council (NPPC) presented the outlook of the Northwest region of the U.S. in terms of the Council's May 2005 Fifth Northwest Electric Power and Conservation Plan (5th Plan). The 5th plan relies on EE and renewable energy (RE) to meet the region's growth. From 2005 to 2009, the 5th Plan calls for energy savings of 700 aMW. EE savings from the region's utilities', Bonneville's and the Northwest Energy Efficiency Alliance's, programs met the 5th Plan's 2005 energy saving goals at a cost of less than \$15 per MWh. Current utility and Bonneville EE spending is approximately \$170 million per year. Since 1980, EE resources have met half of the Pacific Northwest's load growth. The utilities in the region appear to be ramping up EE goals and financial investments.

Howard Geller, Director of the Southwest Energy Efficiency Project presented an update on the status of EE in the Southwestern states. In general, utility EE programs continue to grow, EE initiatives are key components of state climate action plans, some states are updating building codes and/or appliance efficiency standards, the Southwest states lead the nation in construction of Energy Star homes and some states are setting higher EE goals (e.g., UT adopted a 20% statewide goal by 2015 and CO has adopted the Western Governors' Association EE goal). Needs in the region include: continued expansion of EE programs and performance-based incentives for shareholders, continued emphasis on ENERGY STAR + construction and integration of EE initiatives into state and regional climate strategies.

Ben Taube, Director of the Southeast Energy Efficiency Alliance (SEEA) presented an update on the status of EE in the Southeastern states. Currently, Southeastern EE spending is less than one-fifth the national average. In addition, the Southeast has the lowest market penetration levels of ENERGY STAR in the nation. Mr. Taube offered

a list of needs in the area including supportive state policies (like public benefit fund and/or increased utility spending), regional cooperation, private sector involvement and leadership by the region's governors and mayors. SEEA's goal is to meet half of the regions' demand growth with natural gas and electricity EE initiatives by 2025.

Plenary Panel 2

Meg Gottstein of the California Public Utilities Commission moderated a panel on the progress and plans of California Utilities' groundbreaking energy efficiency efforts.

Roland Risser, Director of Customer Energy Efficiency at Pacific Gas & Electric Company described how California companies are developing innovative ways to further increase energy savings in the state. California utilities expect to meet half of demand growth with EE through 2013, with net savings of \$10 billion. Major plans to increase energy savings include further integration of EE, demand management, renewables and self-generation, advocating stronger codes and standards and pursuing Big and Bold strategies (for example zero net energy construction for new residential (by 2020) and commercial (by 2030) buildings).

Gene Rodrigues, Director of Energy Efficiency at Southern California Edison Company described California's performance-based utility incentive for energy efficiency savings. He emphasized that the incentive is sufficient to ensure utility investors and managers view energy efficiency as a core part of the utilities' regulated operations. Mr. Rodrigues explained the incentive's penalty cap (\$450 million), incentive cap (\$450 million) and the utilities' earning rates based on energy efficiency achievements as a percentage of CPUC EE goals.

Mark Gaines, Director of Customer Programs at San Diego Gas & Electric Company and Southern California Gas Company discussed California's EE goals, status and keys to success. Mr. Gaines explained that CA AB2021 set forth a policy to procure all cost-effective energy efficiency in the state, designated the California Energy Commission as responsible for estimating the cost-effective energy efficiency potential and set a goal of reducing total forecasted electrical consumption by 10% for each of the next ten years. Mr. Gaines presented both the current status of energy savings (GWH, KW and MTherms) and cumulative energy savings goals. Success of California's EE program was attributed to a regular analysis of achievable potential, ongoing evaluation, aggressive but reasonable goals, longer term program cycles and the establishment of both long and short-term strategies.

Jim Parks, Program Manager at Sacramento Municipal Utility District spoke on California utilities' Emerging Technology Program. This program is designed to accelerate the introduction of EE technologies and tools that are not widely accepted in the California market. The goals of the program are to demonstrate the new technologies, disseminate knowledge to customers and engineers, coordinate the program with other utilities and provide the next generation of EE technologies to EE programs.

Lunch Speaker

The luncheon speaker was **Dr. Philip Mote, state Climatologist for Washington State** and frequent speaker on climate change. He served as a lead author of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) released in 2007. His presentation addressed the question "Global Warming: How Much is Inevitable?" Dr. Mote summarized the conclusions of the IPCC: evidence of 20th century global warming is unequivocal, no combination of natural factors can explain warming since around 1950 and continued warming is virtually certain. Dr. Mote showed how scientists have eliminated alternative natural explanations (solar + volcanic, ENSO, arctic oscillation, urbanization) of global warming. He concluded that human influence on climate is well established, projected changes are already underway and adaptation will be necessary.

Session 1

Karen Meadows of Bonneville Power Administration moderated a session on recent state legislation with the theme of 'Raising the Bar' on utility sector EE.

Sheldon Strom at the Minnesota Center for Energy Efficiency discussed Minnesota's Next Generation Energy Act of 2007. The Act directs Minnesota utilities to file plans describing how they will reach the mandated 1.5% energy savings goal. In addition, each utility is required to create a research plan, overseen by the Department of Commerce, which identifies new technologies to maximize energy savings, determine ways to improve the effectiveness of EE programs and calculate the amount of carbon dioxide reductions due to the program. The Next Generation Energy Act of 2007 instructs the MN PUC to review and modify current incentive plans by December 2008 to ensure achievement of the 1.5% savings goal. The Act also directs the PUC to establish criteria for decoupling pilot projects. Mr. Strom emphasized that new EE programs must assess root causes of energy growth, address energy systems (not just equipment), offer one stop shop, work with manufacturers and distributors and address off-peak efficiency opportunities.

George Edgar at the Wisconsin Energy Conservation Corporation (WECC) described Wisconsin Act 141, effective in 2006. With Act 141, funding moved back to the utilities from the state fund and oversight moved back to the Public Service Commission of Wisconsin (PSCW) with the stated purpose to treat EE as a resource. EE funding in Act 141 was increased to a minimum of 1.2% of total electric & natural gas revenues per year (about \$90 million). The Act required the adoption of the 2006 IECC commercial code with a regular 3 year update. The Act focuses on statewide programs and directs the use of energy savings targets. PSCW can increase funding with legislative committee approval but cannot order individual utilities to do more than required under Act 141. The Act allows for large customers to "opt-out" of program participation. State purchasing requirements must be high efficiency (ENERGY STAR). Act 141 also included some provisions for renewables. For example, the Act increased the WI RPS from 2.2% to 10% for all electricity consumed by end of 2015 and required the State of Wisconsin to purchase renewable energy to meet at least 10% of total annual energy usage in 2015.

Sam Krasnow of Environment Northeast reviewed new legislation in CT, RI, ME and MA. Mr. Krasnow noted that there has been a major shift in EE policy in New England. Instead of focusing on the System Benefits Charge (SBC) (which is politically difficult since many policy makers and businesses see the SBC as a costly tax/surcharge), the attention has now shifted to "all cost-effective EE cheaper than supply". Policymakers and businesses are more supportive of this perspective as they understand that EE investments reduce energy costs if they are cheaper than supply. Connecticut's HB No. 7432 (An Act Concerning Electricity and Energy Efficiency (June 2007)), Rhode Island's S2903, H8025 (The Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006) and Maine's LD 1851 all share this new emphasis. In Massachusetts, there is a proposal for an all cost-effective energy efficiency mandate on natural gas and electric utilities, improved stakeholder oversight, and new oil efficiency programs.

Liz Klumpp of the Washington Department of Trade & Economic Development presented information on Washington's RCW 19.285, the Energy Independence Act. This was a voter initiative, passed November 2006, which sets energy efficiency and renewable energy standards for 17 utilities serving 25,000 customers; 14 non-investor-owned utilities. The Energy Independence Act supports all cost-effective conservation. In addition, the Act targets 15% renewables in 2020. Ms. Klumpp also discussed several pieces of 2007 Washington legislation passed to mitigate the impacts of climate change (ESSB 6001 and HB 1303).

Session 2

Mike Sherman of the Massachusetts Division of Energy Resources moderated a session on integrating energy efficiency into the New England ISO forward capacity market.

Jeff Schlegel of Schlegel & Associates summarized the implications of using EE as a resource in the forward capacity market (FCM). Mr. Schlegel began his talk by comparing the historical state approach to EE vs. EE in the FCM (objective of saving energy and peak demand vs. peak demand reductions only; goals and targets with incentives and some degree of flexibility vs. requirements and rules developed by engineers; “good enough” evaluation vs. ISO M&V standards). Whereas state EE includes an unequal and varied mix of summer and winter peak demand reductions, FCM has annual requirements and must provide equal amounts of summer and winter peak reductions (annual capacity product). The traditional approach to state EE has been to reduce peak during that state’s peak season. Participation in the FCM would require a state or region to produce a composite of programs that would reduce both summer and winter peak. In addition, FCM requires bidding and qualification 3 years in advance, with performance requirements and financial assurance. There are challenges to planning the programs and forecasting that far in advance. There are some states that have begun participating in the FCM. Mr. Schlegel concluded that participating in the FCM is worth it, although not easy. He believes that the ISO and stakeholders are becoming more familiar with EE as a resource and believes that participation will increase state EE funding.

Paul Horowitz of PAH Associates presented information on adapting program monitoring & evaluation to the requirements of the FCM in New England. For decades, regional system dispatch relied solely on supply resources to meet the forecasted loads. With the FCM, for the first time in New England, demand-side resources can be bid into the regional resource procurement system intended to meet the system peak and critical peak hour needs of the region. The Forward Capacity Auction (FCA) is held three years before the delivery date of the winning resources. A program administrator must thus anticipate and commit the demand component of its energy efficiency program portfolio three years ahead. There are penalties for not delivering the resources. In early 2007, the ISO finalized an M&V manual which defined the rules under which savings from all demand resources would have to be estimated. Various stakeholders participated in the drafting and comment process. Each bid has to include an M&V plan which is rigorously reviewed by ISO. The confidence and precision level of the overall demand resource portfolio must equal or exceed 80+/-10% (which could result in higher evaluation costs - to draw larger samples). Because the definitions of peak and critical peak hours are different from those used in the past, it is difficult to use the demand reductions from past EE evaluation studies. Although some of this data can be used (coincidence factors for lighting and HVAC, and measure lives), for the most part, program administrators have had to plan new evaluation studies to estimate demand savings from EE programs across the new peak hours. The requirements of the ISO M&V Manual have encouraged the New England states to work even further together to conduct region-wide studies and to reduce overall evaluation costs associated with participation in the FCA. Facilitated by the Northeast Energy Efficiency Partnerships (NEEP), the six-state “State Program Working Group” of PUC representatives, program administrators, and stakeholders, has established an evaluation subcommittee to continue to develop common methodologies, definitions, impact factors, and region-wide studies to support the involvement of the program administrators in the FCM.

Doug Hurley of Synapse presented a history of EE in the FCM which has included energy system modeling, analysis, expert testimony, and stakeholder representation for: consumer advocates and Public Interest Groups in more than 25 states, more than 20 PUCs and Attorneys General, over 40 environmental groups and foundations and energy efficiency and demand response providers. Mr. Hurley gave the details of the long contested process which ended with a Settlement Agreement in March 2006, which he described. Mr. Hurley also provided information on the mechanics of auctions including: pre-qualification of all bids, market monitor review/ rejection of bids, auction costs (first auction has a Cost of New Entry (CONE) estimate of \$7.50/kw-month; auction starts at 2xCONE), descending clock auction takes successively lower bids until quantity bid matches capacity need, unaccepted bids mean resources are uncommitted, etc.) He explained that capacity zones are determined in advance of each FCA and how New England fits into the picture. Mr. Hurley also described penalties. Once selected, for example, resources must perform in shortage hours and penalties are assessed against non-performing resources and paid to performing resources. A monthly penalty cannot exceed 2.5 times monthly payment and annual penalties cannot exceed annual payment. Mr. Hurley’s presentation also covered what happens during the transition period, upcoming issues with forward market capacity and PJM’s status with FCM.

Session 3

Maggie Eldridge of ACEEE moderated a session on the role of energy efficiency potential assessments in developing state energy efficiency policies.

Neal Elliott & Maggie Eldridge of ACEEE presented information on the state-level potential for EE in Florida and Texas. The presenters explained that they built the analysis for this study on EE research with focus on the impacts of a suite of policies. The goal of the project was to target legislative and gubernatorial actions. The study focused on electricity efficiency only (recognizing that natural gas efficiency is regionally specific and that transportation efficiency is missing from the study). By assessing the primary efficiency and renewable energy policies and practices in both states, Elliot and Eldridge estimated Florida's 2023 EE and RE resources to be approximately 99 Billion kWh. In Texas, they estimated 2023 EE and RE resources to be 101 billion kWh and summer peak demand resources to be 35,000 MW. In Florida, the study was embraced by the governor as part of climate response with some measures being implemented by executive order or PSC action. Planning is currently underway for the 2008 Florida legislative session. In Texas, some measures were implemented in HB 3693 with others under consideration for local implementation. Planning is currently underway for 2009 Texas legislative session. The authors concluded that advanced stakeholder (environmental groups, large consumers, consumer groups, utilities, government and regulators) engagement is critical. Timely and focused professional media outreach, external funding and attention on policies vs. maximum achievable savings were all helpful. They found that "economic potential" confused many policy makers and the press and the link with enviro-groups in Texas compromised the messaging. Elliot and Eldridge concluded that the important message in outreach is "it's about jobs": efficiency is labor-intensive; supply is capital-intensive. They also determined that there is huge interest in reducing emissions. The authors identified some next steps including: much more state-level analysis (ACEEE has already identified 18 states), a coordinated national effort that brings together a team of analysts and resource experts, development of a consistent analysis format with focus on policies, identification of state-level collaborators and a multi-year funding commitment.

Howard Geller of SWEEP spoke about the EE strategy in Utah. Mr. Geller explained that Utah Governor Jon Huntsman, Jr. adopted a strong EE goal in April 2006 of a 20% improvement in the efficiency of energy use statewide by 2015. In response to the governor's request, SWEEP assembled a team (including Utah Clean Energy and ACEEE) to prepare a strategy. They organized a kick-off workshop and engaged in extensive stakeholder consultation. The study examined 23 major policies or initiatives that would help to achieve the Governor's EE goal. The study included consideration of educational, incentive and regulatory options and the efficiency of electricity, natural gas, gasoline, and diesel fuel use. Graphs illustrated estimated electricity (GWh/year) and natural gas (million decatherms/year) savings by option (EE/DSM, building codes, appliance and lamp standards, industrial challenge, public sector initiatives, public education, other) in 2010, 2015 and 2020. Estimated electricity savings were 1,972 GWh in 2010, 6,189 GWh in 2015 and 10,319 GWh in 2020. Estimated natural gas savings were 7.23 million decatherms in 2010, 22.19 million decatherms in 2015 and 37.97 million decatherms in 2020. Gasoline and diesel fuel savings (million barrels/year) by option (clean car standards, feebates, pay as you drive insurance, reduce VMT growth, enforce speed limits, truck efficiency measures, replacement tire standards) were estimated to be 1.52 million barrels in 2010, 6.72 million barrels in 2015 and 11.80 million barrels in 2020. Mr. Geller's presentation also included graphs comparing high efficiency vs. baseline usage scenarios for electricity (GWh/year), natural gas (million decatherms/year), gasoline and diesel fuel savings (million barrels/year) in 2006, 2010, 2015 and 2020. Net economic benefit was indicated as \$7.1 billion with 52% from transportation options, 20% from building and appliance options and 17% from DSM. In addition, the study concluded that there will be substantial reduction in CO₂ emissions of approximately 7.9 million metric tons per year by 2015.

Mike Rufo of Itron provided background and perspectives on California potential studies and goals. Mr. Rufo explained that previous potential studies by the IOUs had not attempted to identify the optimal level of savings and had not assumed change in consumer or business behavior. He presented the historical development of California's EE savings goals starting with the CPUC's effort to examine 2004-2013 CA IOU's goals and ending with CPUC's "Big Bold" EE initiatives. The author emphasized that technical and economic potential are highly theoretical constructs and that program/achievable potential estimates are designed to incorporate real-world adoption results based on customer behavior and other measure market barriers. Mr. Rufo accentuated the importance of identifying

the goals of the study. He concluded his presentation with a list of the strengths and weaknesses of potential studies, ways to perceive and handle the uncertainty of potential studies and needs for potential studies.

Fred Coito of KEMA provided an overview of California's experiences regarding the potential of energy efficiency. Mr. Coito provided a brief history of EE potential studies in California. He cited 4 purposes of energy efficiency potential studies: understanding which measures and markets to target with programs, incorporating energy efficiency into the integrated resource planning (IRP) process, goal setting and advocating for more energy efficiency. California's 2002 potential studies were used for program planning, resource planning and goal setting. Recommendations from this study included: improve estimates of current efficient measure saturation, improve estimates of sustained conservation and efficiency resulting from 2001 energy crisis, improve estimates of efficiency potential for the industrial and new construction sectors and improve forecasts and tracking of customer adoption of efficiency measures. California has been able to make improvements in all but the last of these recommendations. Mr. Coito concluded his talk with a definition of "maximum achievable potential" and a discussion on the pros and cons of modeling and striving for "Max-Ach".

Phil Mosenthal of Optimal reviewed the "whys", "hows" and "so whats" of EE potential studies. Mr. Mosenthal began with a list of common reasons an EE potential study should be conducted. He emphasized that the purpose of the study should drive the methods that are used. The "hows" of the EE potential study included issues regarding the treatment of different territories, the existence of data (baseline studies, end use load shapes, etc.) to support the differences and whether there is a need for primary data or whether data from other regional efforts can be used. The speaker emphasized that the results and presentation of the study will be driven by the study's purpose and the stakeholders. Mr. Mosenthal concluded his presentation with EE potential case studies for New England, New York and Vermont.

Session 4

Athena Besa of Sempra moderated a session on natural gas energy efficiency as a utility system resource.

Ed Carroll of the WECC reviewed the prospect of reducing Wisconsin's natural gas usage by 1% per year. Using Wisconsin's 2005 estimated statewide NG sales data, he estimated 1% sales as approximately 35.5 million therms. The FY 2008 EE NG savings goal is currently 10.02 million therms (.28%) with the bulk of that (86.9%) coming from business EE programs. Mr. Carroll provided pie charts showing the contribution of business EE, residential EE and renewable energy end uses to the current therm EE savings. Mr. Carroll suggested four methods to garner the balance (1% vs. .28%) of the savings: by program, by technology, large projects that haven't been done yet and using technical and financial assistance as motivation.

Bruce Johnson of Keyspan addressed natural gas energy efficiency as a utility system resource at Keyspan.

Kevin Shore of SoCal Gas presented information on natural gas efficiency as a utility system resource. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 57 percent of the natural gas delivered by California Utilities in 2005. Mr. Shore identified 5 major natural gas EE policies and issues in CA: the California Energy Action Plan, California Public Utilities EE goals decision (CPUC D.04-09-060), the Governor's Executive Order for Green Buildings (S-20-04), natural gas price volatility and local and regional emissions requirements (AB32). Mr. Shore ended his presentation with an overview of SoCal's Industrial End User and EE Grant programs including energy savings results.

Session 5

Janet Brandt of WECC moderated a session on third-party/state administration of energy efficiency programs.

Margie Harris, Executive Director of the Energy Trust of Oregon (ETO) discussed statewide administration of EE and renewable energy programs at the ETO. Ms. Harris presented a history of Oregon's enabling legislation and the ETO's budgets. The 2007 annual Energy Trust budget was \$55.4 million. Ms. Harris then outlined the scope and administration of the ETO programs. She concluded her talk with a summary of ETO's progress in meeting its goals: to date the organization has saved and generated over 1.2 billion kWh of electricity, is nearly half-way to the 10-year goal of saving 300 aMW, saved over 4 million annual therms of natural gas, generated 16.8 aMW with renewables (+40 aMW online in '07), stimulated \$7.8 million in wages and \$1.5 million in new business income, created over 200 jobs and eliminated over 2 billion pounds of carbon dioxide from the atmosphere.

Blair Hamilton of the Vermont Energy Investment Corporation (VEIC) discussed Vermont's Energy Efficiency Utility, Efficiency Vermont. Efficiency Vermont was established in 1999 by Regulatory Order (Docket 5980) and authorizing statute (30 VSA § 209 d 2) with no sunset. It fulfills Vermont's electric utilities' obligations to implement system-wide electric efficiency as part of a least-cost energy supply portfolio. The EE is implemented through a competitively-bid, performance-based contract for *results*. For the past 7 years, the contract has been awarded to VEIC. Mr. Hamilton described Efficiency Vermont's: responsibilities, Board organization, budget, investment per capita, percent of rate revenue, MW savings, GWh savings and percent of annual GWh load met by efficiency resources.

Janet Brandt of WECC discussed her experience in Wisconsin. Ms. Brandt began the presentation by reviewing the enabling legislation in Wisconsin (Act 9 in Oct 1999 and Energy Act 141 in March 2006). Currently there is no sunset on the legislation. The annual budget for the Wisconsin programs is 1.2% of natural gas and electric revenues. The current year's budget is \$89 million. Ms. Brandt covered the scope and administration of Wisconsin's programs. She wrapped up the session with past energy savings results (net: 29 mW, 180,300 mWh, 7,655,000 Therms) and current year savings goals (net: 67 mW, 272,500 mWh, 10,000,000 Therms) of the Wisconsin programs.

Larry Pakenas, program manager of Energy Analysis, of the New York State Energy Research and Development Authority (NYSERDA) presented information regarding the administration of New York's EE programs. The New York programs were born out of an Order of the New York State Public Service Commission which established a System Benefits Charge (SBC) effective July 1, 1998. NYSERDA was named Administrator of the New York Energy \$martSM Program for an initial 3-year period. The SBC has been renewed twice; now through June 2011. NYSERDA continues as administrator of these programs as well as the electric and gas efficiency programs for Con Edison and a Statewide Renewable Portfolio Standard Program. Currently, \$175 Million is collected annually for New York Energy \$martSM. Collections from electric ratepayers are 1.4% of statewide utility revenues. Mr. Pakenas covered the scope and administration of New York's programs and finished the session with a summary of program impacts (average of 190 MW and 400 Gwh per year, \$450 million saved annually on energy bills, annual emissions reductions: 2,520 tons of NO_x, 4,640 tons of SO and 22 million tons of CO₂).

Session 6

Chuck Goldman of Lawrence Berkeley Laboratories moderated a session on resource planning and energy efficiency in the 21st century. Mr. Goldman introduced this topic with a discussion on the role of EE Resources in risk assessment analysis in resource plans (e.g., carbon regulatory risks). He talked about several approaches used to model and characterize the quantity and cost of EE resources in an IRP plan and the feasibility of using information in IRP plans to track progress toward regional and/or state policy goals (e.g. WGA Clean Energy Goals). Mr. Goldman looked at the EE impact as a percent of total energy requirements for 13 utilities in the Western U.S. In 2013, these utilities are projected to meet 0.9% to 11.3% of load with EE programs. This underestimates actual progress because it does not include EE standards and building codes. He concluded that some states/utilities are on track to meet CDEAC (Clean and Diversified Energy Advisory Committee) goals. There is insufficient information in current resource plans to judge progress fairly in other states.

Galen Barbose of Lawrence Berkeley Laboratories discussed valuing EE as a hedge against carbon regulatory risk. Uncertainty about future carbon regulations represents a substantial financial risk for electric utilities and their ratepayers and long-term resource planning can provide a framework to assess and manage this risk. EE and other low carbon resource options offer a hedge against carbon regulatory risks. How carbon regulatory risk is analyzed and the manner in which EE is integrated into this analysis can potentially affect how much EE is acquired. Mr. Barbose illustrated how carbon regulations improve the economics of EE and provided an overview of how the various Western utilities treat carbon regulations in their IRPs. He noted that portfolio analyses often do not assess the full value of EE as a hedge against carbon risks and listed four recommendations for emerging best practices for doing so.

Bill Hopkins of Puget Sound Energy discussed the integration of EE and resource planning at Puget Sound Energy. Mr. Hopkins presented an overview of the integrated resource plan process (consideration of supply and demand resources, various IRP scenarios, EE potential and DSM sensitivity to the scenarios), program development and program target considerations (regulatory compliance, cost-effectiveness, rate impacts, etc.). Major issues for future resource planning include: expanded risk analysis in IRP, portfolio standard compliance, regulatory incentive mechanisms, transferable conservation energy credits and emerging technologies.

Suzanne Doyle, manager DSM Regulatory Strategy and Planning at Xcel Energy presented an overview of Xcel Energy's resource planning (RP) and EE in the 21st Century. She began by addressing the history of DSM and the current GWh savings goals in Minnesota (1.5% retail sales) and Colorado (.7% retail sales). Ms. Doyle outlined a number of DSM planning considerations (a DSM market potential study has an approximate 15-year time horizon maximum whereas a resource planning time horizon is 30 to 40 years, new technologies are not accounted for in potential studies, the difficulty of determining the amount of feasible economic potential and forecasting the costs of increased DSM, etc.) and other issues to consider (treatment of avoided costs for different types of plants -- base plant, intermediate, or peaking,

DSM programs cannot start and stop, whether resource planners should trust the reliability of EE, etc.). She concluded her talk with 2 main points: 1) EE has gained importance in resource planning and 2) planners need to find reliable methods of forecasting EE.

TUESDAY, OCTOBER 2, 2007

Ralph Cavanagh of the Natural Resources Defense Council (NRDC) gave the keynote address with highlights of recent developments and trends in the energy efficiency industry.

Plenary Panel 3

Kathleen Hogan of the Environmental Protection Agency moderated a session on the National Action Plan for Energy Efficiency (NAPEE) with an overview and reactions from the regulatory and utility sectors. Ms. Hogan's presented a synopsis of the challenges and the opportunities for the national energy situation and a summary of the National Energy Plan.

Phyllis Reha, Commissioner of the Minnesota Public Utilities Commission discussed the regulatory impact of the National Energy Plan in Minnesota and the Midwest. She described Minnesota's Next Generation Energy Act of 2007 which: converted the target of the Conservation Improvement Program from "spending" to "savings", established energy savings goals at 1.5 percent of gross retail energy sales annually beginning in 2010, required the PUC to establish criteria and standards for decoupling, established greenhouse gas emissions goals and required the Minnesota Pollution Control Agency and Department of Commerce to develop a plan by which to achieve these goals. Ms. Reha also presented information on the Act's Renewable Energy Standard and the impact of the legislation and regional initiatives.

Jeanne Clinton, the Clean Energy Advisor at the California Public Utilities Commission presented the progress and outlook in California. EE is California's highest priority resource to meet energy needs in a clean, low cost manner and aggressively reduce emissions. California's IOU EE goals for 2004-2013 are 23,283 GWh, 5,000 MW and 444 million therms. These goals are soon to be extended to 2020. Ms. Clinton discussed what and how California is advancing NAPEE commitments, ways to tap cost-effective EE Potential, key issues and challenges for the next 5-10 years and how NAPEE can help. Ms. Clinton's suggestions on how NAPEE could help included: offer common policies and theories to support national/regional/ state policy or regulatory initiatives, develop a national approach to adequate education and training of the labor force and offer start-up and graduated action frameworks for small-medium public utilities and "newly emerging" states.

Helen Howes, Vice President of Environmental Safety & Health at Exelon Corporation discussed Exelon's progress in advancing EE. She presented ComEd's and PECO's 2006 and 2007 EE actions. Ms. Howes also outlined Exelon's future opportunities and challenges including good execution of customer programs in IL, decoupling/performance incentives, outcome of discussions in PA on possible energy efficiency and demand response legislation and integration of CO₂ savings associated with customer-based EE programs into federal cap-and-trade legislation.

Cheryl Buley, Commissioner at the New York Public Service Commission addressed the status of New York's EE efforts, beginning with the history of EE in the state. With a current budget of \$175 million, NYSERDA programs save approximately \$450 million per year in energy costs, lower energy use by over 2,900 GWh and reduce peak demand by 1,140 MW. In response to the May 2007 Energy Efficiency Portfolio Standard, the state is proceeding to examine cost-effective ways to meet a 15% reduction of forecasted 2015 levels. Current focus is on defining roles of various stakeholders (utilities, NYSERDA, third party providers), coordinating with non-jurisdictional entities (LIPA, NYPA, DASNY), increasing the EE contribution from building code EE requirements and appliance standards, standardizing EE accounting statewide and requiring incremental funding. New York is looking forward to funds raised from RGGI auctioning credits, estimated to be \$250 million annually, which could be used for energy efficiency. Ms. Buley also discussed New York's Revenue Decoupling (April 2007), Advanced Metering Initiative (Aug 2006), mandatory Time of Use tariffs (April 2006) and Demand Response Initiatives.

Plenary Panel 4

Martin Kushler of ACEEE moderated a session entitled "Let's Pretend Global Warming Is Real: Pondering REALLY BIG Energy Efficiency". Dr. Kushler asked his panelists to consider three questions: 1) What are the key challenges/obstacles to having this field (utility/buildings sector energy efficiency) deliver savings on the scale needed to truly respond to the climate crisis?, 2) What are the most important actions/tasks needed in the next 1 to 5 years? and 3) What is your prognosis on whether we'll be able to respond at the scale needed? Dr. Kushler suggested that the key elements to the challenge are: resources (allocating adequate resources to the task), human behavior (getting the kind of large-scale public cooperation and participation needed) and the political will saying it must be done.

Jeff Schlegel, Executive Director of Schlegel & Associates discussed energy efficiency and global warming in terms of what's been learned in CT to date. Mr. Schlegel stated that, in CT, they've learned that the current level of EE is not sufficient to reduce load growth or even to get to zero load growth. Mr. Schlegel suggested that, in order to reduce load growth, annual energy savings would need to be 2.5 % to 3% per year. This would be equivalent to triple (or more) the current level of effort in CT. This means leading EE states (0.75-1.5% annual savings) would need to triple efforts, states that are currently ramping up (~0.5% annual savings) would need to increase efforts by 5 to 6 times and the laggard states would need to get going ASAP. EE programs in the future will need to be deeper, broader and more comprehensive. The programs will need to save 30-70% in customer facilities, instead of 5-25% (as in many current programs). There will need to be net zero energy buildings for all new construction (crucial in fast growing areas in the west and southeast) and there will need to be increased codes, standards, & mandates.

Steven Nadel, Executive Director of ACEEE, asked the question "how much can we save?". He presented his answer to this question with a number of visual aids: a map of the U.S. indicating the states with EERS-like

policies, a table with annual electricity savings targets for CA, IL, NY, VT, NJ, MN and CT, a chart summarizing savings of various energy efficiency potential studies and a chart showing the cost of saved energy for emerging technologies. In order to deliver savings on the scale needed to respond to the climate crisis, Mr. Nadel concluded that utility energy savings targets would need to move towards 2% per year, utility regulation would need to be reformed to make these targets profitable for utilities and there would need to be better use of utility/public benefit programs to lay the groundwork for new codes and standards.

Gene Rodrigues, Director of Energy Efficiency at Southern California Edison Company promoted revolution not evolution in his presentation in order to stimulate the changes necessary to turn the U.S. energy situation in the right direction. Contributing to or doing nothing about global warming must be viewed as being morally abhorrent or incredibly stupid. Clean resources –including and especially EE –must become the backbone of the utility industry. California needs to make it hard for someone to choose not to be efficient rather than settling for making it easy to be efficient and grow the educational (Berkeley, UC Davis, Stanford) and economical resources needed to support energy efficiency. In the next five years, Californians need to put a legislative and regulatory policy framework in place (California's Energy Action Plan, California Global Warming Solutions Act), utility business model in place (opportunity to recover reasonably incurred program costs, decoupling mechanism to remove disincentive to conservation impacts, performance-based risk/reward mechanism, Big, Bold Programmatic Strategies (residential new construction = 100% zero net energy by 2020, commercial new construction = 100% zero net energy by 2030) and the return of the collaborative process (make EE "business as usual" for everyone).

Skip Laitner, Senior Economist at ACEEE spoke about exploring further EE possibilities – and thinking way out of the box. Mr. Laitner said that the good news about EE investments and climate change policies is that increased EE does not have to be about ratcheting down our economy; rather, it can be about increasing energy productivity: using innovation and our technological leadership; investing in more productive technologies (including both existing and new technologies); and developing new ways to make things. Mr. Laitner suggested that we know so little about real efficiency opportunities that we unnecessarily limit our options by excluding possibilities in our future scenario analyses.

Blair Hamilton, Policy Director at Vermont Energy Investment Corporation addressed the issue of producing really big energy savings. Because efficiency is our cleanest and cheapest energy resource, Mr. Hamilton asserted that it should and will be called upon to provide 30-50% of our future energy requirements. Assuming a 1.5% underlying load growth, delivering 30% of energy resource needs twenty years from now will require ramping up to incremental savings of 3% per year in the next ten years. In order to reach that amount of incremental savings, the U.S. will need to reach wider and deeper for those EE resources: every state needs to ramp up towards the 3% goal (more participants, more savings per participant, more decisions effected, more savings per decision, much higher targets in lost opportunity markets like new construction, deeper savings in retrofits, increased integration with renewables, return to direct install programs, increased focus on upstream programs and making "using less" a value rather than a sacrifice). Our biggest barrier is infrastructure – efficiency should be as easy to buy as supply.

Lunch

Presentation of ACEEE's New 2007 "Exemplary Program" Awards.

Session 7

Jim Parks at Sacramento Municipal Utility District (SMUD) moderated a session on municipal/public utility sector energy efficiency. Mr. Parks presented a paper on EE activity at SMUD, the second largest muni in CA, 6th largest in the country. Mr. Parks described SMUD's LEEDERS initiative. The goals of the LEEDERS program include: SMUD demonstrates energy and environmental leadership by example, the highest levels of cost-effective energy efficiency are achieved along the entire fuel cycle, demand side measures are compared on a comparable basis to supply side options in the resource planning process, price signals are set to optimize efficiency and

resource utilization, enhance energy efficiency offerings and engage the community. The company has pursued the LEEDERS effort through many actions: its Customer Carbon Program, local government initiatives, district energy development, EE portfolio, Resource Planning Collaborative, improvements in internal practices, improvements in transmission, distribution and generation EE, emerging technologies, net zero energy homes, Solar Smart program, Home of the Future Project and all of the company's other residential and C&I EE programs. Mr. Parks also described CA legislation (AB2021, SB1 and AB32) and SMUD's efforts to meet the EE requirements established through those laws.

Sheila Boeckman, manager of Business Operations & Development of Waverly Light and Power described a new rate program at Waverly Light and Power designed to reduce electricity usage. Waverly Light and Power has 4,958 customers and 31 MW System Peak. The company has a 20% renewable energy by 2020 Goal. Waverly Light and Power's IRP indicated they needed 5 MW of capacity. The Board advised the company to do it with 3 MW and use EE to meet the need. The company designed an inverted rate to reward lower usage during the Summer. The new rate design, as of July 2007, includes: a customer charge of \$10 per month for all months, a Winter flat rate of \$0.085/kWh for all kWhs consumed, and, in the Summer (June through September): first 600 kWh consumed \$0.0850/kWh, next 500 kWh consumed \$0.1201/kWh, next 400 kWh consumed \$0.16/kWh, over 1,500 kWh consumed \$0.1701/kWh. So far they haven't received too many complaints.

Mary Smith of Snohomish PUD (largest PUD in Washington state) described EE efforts at Sno-PUD. Ms. Smith stated that population growth and the aerospace industry are driving growth in their area. There are 2 major pieces of legislation influencing their EE efforts: I-937 requires utilities to implement all cost-effective conservation measures and requires utilities to use renewable resources to serve a percentage of load: 3% in 2012, 9% in 2016, 15% in 2020. SB-6001 limits fossil resource options. The company has examined its technical and economic potential and will next look at achievable potential. At this time, Sno-PUD expects to meet at least 6 aMW per year with EE and is looking ahead at alternative futures, resource acquisition and analysis of programmatic gaps.

David Barclay, utility analyst of Gainesville Regional Utilities (GRU) presented how his company is embracing EE as a resource. GRU is the fifth largest municipal electric utility in Florida. With approximately 89,000 customers, they have a total capacity of 611 MW. The most recent summer peak was 483 MW. GRU's current reduction goals are 86 MW by 2025 and 249,000 MWh by 2025. Long-term impact goals are to decrease demand growth by approximately 50% a year and to decrease energy growth by approximately 30% a year. FY07 results through 3rd quarter: 1.6 MW (at \$863/kW) and 11,710 MWh (at \$11/MWh) - costs include overhead and administration.

Cliff Braddock, director of Energy Business Development of Austin Energy discussed Distributed Energy and Combined Heat and Power (CHP) as a resource. Mr. Braddock described the status of EE at Austin Energy. He said efficiency and DSM will grow from less than 3% of total energy in 2006 to a goal of 15% (700 MW) by 2020. The company's renewable goal is 30% by 2020 (100 MW is solar). Mr. Braddock explained that air conditioning is a huge load in Austin. This is one reason Austin Energy has invested in CHP as a resource. Austin Energy's District Cooling and Heating system produces chilled water at a central plant and pipes that thermal energy to a number of buildings in the district to satisfy air conditioning needs. This way, individual buildings don't need chillers and cooling towers of their own. Mr. Braddock stated that, in addition to deferring peak power plants, Austin Energy's District Cooling and Heating system reduces air emissions due to its energy efficiency.

Session 8

Steve McCarty of PG&E moderated a session on regulatory strategies for encouraging utility energy efficiency (decoupling, shareholder incentives).

Bill Miller of PG&E gave an overview of PG&E's EE regulatory framework. Mr. Miller stated that decoupling is a fundamental component of a successful regulatory strategy to encourage energy efficiency. He presented the CPUC

energy saving goals and PG&E's energy saving targets for 2006-2011 and stated that PG&E plans to exceed the CPUC savings goal by 2009. Mr. Miller also provided a description of the 2007 CPUC Risk/Reward mechanism.

Derek Murrow, Director of Policy Analysis of Environment Northeast reviewed decoupling activities in the New England. Mr. Murrow began with the status of decoupling in CT, ME, MA and NH: Connecticut DPUC Docket No. 07-07-01 (CL&P Rate Case), Maine PA/PUC Investigation, Massachusetts DPU Docket No. 07-50 and New Hampshire PUC Docket No. DE 07-064. Mr. Murrow outlined a number of common questions and answers regarding decoupling.

Wayne Shirley, Director of the Regulatory Assistance Project presented information of the EE incentive mechanisms in the Southwest. Mr. Shirley provided information on electric and natural gas EE incentive mechanisms in AZ, CO, NV, NM and UT. Mr. Shirley offered several guidelines for designing incentives: 1) address disincentives through decoupling or net lost revenue adjustment, 2) provide performance-based rewards that increase as EE deployment expands (and gets harder) and 3) keep it simple and understandable for customers, utilities and regulators.

Alex Miller, Managing Director of Finance and Regulatory Affairs of NW Natural Gas spoke about NW Natural's Conservation Tariff. Mr. Miller explained the history of decoupling in Oregon and why it occurred so early. He provided a description of the major features of the Conservation Tariff (partial decoupling) and how the tariff works in Oregon. Mr. Miller provided the findings of an independent review of the Conservation Tariff completed in March 2005 and mentioned that the Conservation Tariff was extended in September 2007 through October 2012. He concluded his talk with a summary of the status of decoupling in Washington state.

Session 9

Marian Brown of SCE moderated a session on evaluation/measuring energy efficiency impacts (i.e., good examples showing EE can be measured and the resource is real).

Valerie Richardson of PG&E discussed the role of EM&V in informing EE resource procurement. She stated that EM&V could reduce the uncertainty around EE program results and save dollars in procurement costs. EM&V, however, she said, would better serve procurement needs if it could accurately address all savings including spillover. Historically, the evaluations have changed based on the protocols. During 1994 -2003, focus was on impact, net-to-gross, persistence and retention studies, onsite audits, end-use metering, engineering modeling, billing analysis, statistical modeling and mortality curves. During 2000-2005, concentration was placed on process evaluations, market assessment and characterization, potential studies, milestone verification, and limited impact analysis. The current protocols (2006-2008) will include impact evaluations for current portfolios. The EM&V budget for 2006-08 is \$165 Million.

David Sumi of PA Government Services Inc. presented Wisconsin's approach to measuring EE impacts. The WI Focus on Energy program impact evaluations seek to strengthen estimates of savings...helping to establish their credibility for use in net benefit-cost analysis (i.e., the return the state is realizing for investment in EE), and potential future use in the state's resource planning process. The results of surveys, on-site data, and engineering review are combined to create the gross savings adjustment factor and realization rates. The program implementer performance contracts are now denominated in net targets. Also, the contract energy impacts performance targets will be assessed ex-post which puts a premium on evaluation. Annual detailed evaluation planning is reviewed and finalized with input from the state's program sponsor (PSC) and the program implementers. These evaluations must address how the net-to-gross impacts are going to be evaluated. There is close coordination between program implementers and evaluators on the use of deemed savings values and assumptions in impact evaluations (and program planning) and timely ability of implementers to get new (or existing) measure-specific deemed savings values assessed for use. The budget is currently 3.7% of annual program implementation costs which are estimated at \$63.1 million on an annual basis. Continuous, systematically planned and coordinated long-term evaluation

planning and evaluation is critical from the perspectives of the markets, the program implementers, and the state. There also needs to be similar continuity in state contract management, with clear and consistent policy objectives.

Julie Michals, Public Policy Manager of Northeast Energy Efficiency Partnerships, Inc. (NEEP) presented an overview of EE evaluation in New England. Historically, evaluations in 1985-1995 were designed to support savings to inform resource acquisition (IRP). In 1995-2005, focus was placed on efficiency as a public benefit and there was greater focus on MT programs and regional evaluation activities. Today there is a renewed policy focus on energy efficiency as a resource to meet capacity needs, reduce energy costs and reduce carbon emissions so there is greater focus on EM&V (e.g., ISO-NE Wholesale Forward Capacity Market, state policies to procure all cost-effective EE in CT, RI and ME and offset load growth in MA and the Regional Greenhouse Gas Initiative(RGGI)). Ms. Michals reviewed the impact evaluation best practices in New England: selection of most appropriate analytical methods to estimate energy savings (stipulated/deemed savings, econometric modeling and simulation modeling), quality-controlled tracking of customer participation information to enable quality sampling, quality on-site data collection to verify savings, robust measure of parameters to establish net and gross impacts and robust baseline measurement. There are different evaluation strengths and focus in different states, depending on that state's needs. Evaluation budgets range from 2-4% of the program and focus on the areas where there is the greatest chance of being wrong. The savings assumptions and algorithms for VT, CT and ME are in various public documents. MA, NH and RI developed similar documents to support ISO Forward Capacity Market M&V Plans in 2007 but these documents are not public. The NEEP Report: *The Need for and Approaches to Developing Common Protocols to Measure, Verify and Report Energy Efficiency Savings in the Northeast* (January 2006), identified inconsistencies in EM&V across states including: terminology/ definitions, M&V methods used, baseline condition assumptions, deemed savings assumptions and the transparency of data. Ms. Michaels described the State Program Working Group (SPWG) that is facilitated by NEEP and was created to improve consistency in EM&V and conduct regional evaluation activities. Next steps for NEEP include the creation of an Advisory Committee to discuss NEEP's Northeast EM&V Resource Center Project, coordination with the NAPEE EM&V Model Guide and the North American Energy Standards Board M&V project and monitoring the NE FCM ability for EE Projects to meet requirements of the M&V Manual.

Bill Saxonis of the New York Public Service Commission discussed EE in New York. New York's EE programs are administered by NYSERDA. New York's current EE budget is \$175 million. Energy usage in New York is increasing. Mr. Saxonis explained the importance of evaluation, defined "freerider" and "net-to-gross" and described how NYSERDA deals with the issue of freeridership. In general, NYSERDA's evaluation approach includes: expertise of multiple evaluators from around the country, comprehensive logic models, oversight by the Department of Public Service and the SBC Advisory Group and transparency (with thousands of pages of publicly available evaluation reports). On May 16, 2007 in Case 07-MM-0548, the NYPSC instituted an Energy Efficiency Portfolio Standard (EPS) Proceeding. The Order in that case concluded that reducing electricity usage by 15% from the forecasted 2015 level was a desirable goal. The Order also addressed NG EE. This is one of the most aggressive EE initiatives in the nation. One of the four working groups in the EPS proceeding is focused on answering the following evaluation questions: 1) what are the best methods for ensuring transparent and technically sound methods for evaluation of program energy savings (gross and net), non-energy benefits (e.g., economic, environmental) and program performance and administration?, 2) from an evaluation standpoint, how should they deal with diverse programs implemented in a diverse state?, 3) how should they balance evaluation costs and data reliability?, and 4) What is the best way to communicate the results?

Session 10

Bill Prindle of ACEEE moderated a session on utility sector energy efficiency and greenhouse gas policies.

Richard Cowart of the Regulatory Assistance Project discussed why cap and trade design choices really matter. Mr. Cowart summarized how much it costs to avoid a ton of electric CO₂ for each fuel type (coal: NA, gas: \$30+, new nuclear: \$30+??, wind: \$38, pv: \$152+, and efficiency: -\$11). Mr. Cowart explained that the whole point of cap-and-trade is to lower the cost of attainment and that end-use efficiency is the lowest-cost way to reduce power sector GHGs. He offered four main lessons for cap-and-trade architects: 1) the Acid Rain program design –

smokestack-based, free allocations based on historic emissions – is not the best design for a carbon cap/trade system for the power sector, 2) EE is not a “collateral energy policy,” it is the key to success of power-sector carbon programs, 3) cap-and-trade CAN be designed to promote and pay for much more efficiency, 4) RGGI and CA are creating powerful options to improve cap-and-trade architecture; federal efforts should build on this experience.

Jim Edelson of the Oregon Carbon Allocation Task Force asked “Will a load-based cap deliver? Mr. Edelson described the current proposal for Oregon cap-and-trade and the activity around the proposal: 1) the Governor’s Carbon Allocation Task Force (CATF) began in September 2005, 2) a 10 page “median” proposal includes an economic study, the CATF letter to the Governor and comment letters, 3) 2007 Hearings on HB 3545 and 4) there are no further CATF meetings are planned. He explained that energy savings are still available in Oregon and EE is the lowest cost resource. He also demonstrated the positive economic impacts of EE. Mr. Edelson concluded that 1) the load-based cap is feasible in a single state but may be too complex to work into a regional or federal system, 2) questions remain on unspecified power, 3) the load-based cap demonstrates the role of EE in meeting CO₂ reductions and 4) the load-based cap should deliver EE in CO₂ mitigation.

Elizabeth Martin-Perera, Climate Policy Specialist of NRDC discussed utility sector EE programs and greenhouse gas (GHG) policies. Ms. Martin-Perera provided descriptions of key activities in Washington D.C.: Lieberman and Warner are sponsoring a comprehensive climate change bill, the House Energy and Commerce Committee is releasing a series of white papers on different cap-and-trade issues (Dingell’s staff will be working on the different aspects of cap and trade design), Boucher is drafting a bill and will work with Hastert as a cosponsor, and a Federal energy bill addressing a renewable electricity standard (15% by 2020, with 27% of the requirement met by EE). Ms. Martin-Perera addressed the question of how cap-and-trade bills can better incorporate energy efficiency: 1) break the link between utility financial health and sales, 2) incorporate performance-based energy efficiency programs, 3) pay utilities and consumers to do the right thing! She identified three potential mechanisms in cap-and-trade: 1) auction allowances and use revenues for energy efficiency, 2) distribute allowances to state LSEs and use them as an incentive to achieve real reductions in energy use and GHGs and 3) use allowances as a carrot to incentivize states to implement effective EE policies.

Session 11

Nikolaas Dietsch of the EPA moderated a session on newly emerging states (i.e., states making new aggressive steps with EE)

Brian Moline, Commissioner Emeritus of the Kansas Corporation Commission addressed current EE issues in Kansas.

John Wilson of the Southern Alliance for Clean Energy spoke about EE in North Carolina and the Southeast. North Carolina has 2020 EE targets of 18% residential, 18% commercial and 14% industrial. The North Carolina utilities have recently submitted their EE proposals. The NC General Assembly currently has a 5% EE standard. SB3, North Carolina’s Renewable Energy and Energy Efficiency Portfolio Standard (REPS), requires: 1) 12.5% renewable energy by 2021 (10% for munis/co-ops) of which 5% can be met through energy efficiency, 2) a “per account” cost cap for incremental costs which gives NCUC flexibility regarding its financial model for energy efficiency, and 3) a study of decoupling. Mr. Wilson described the Duke “Save-a-Watt” proposal (a financial model which provides reimbursement at 90% of avoided costs and has a rider with true-ups to recover avoided costs as delivered) and the problems with this model. Mr. Wilson also provided an update on other Southeastern initiatives including TVA with a general commitment of about 0.3% capacity reduction per year, Florida with a goal to reduce utility global warming pollution to 2000 levels by 2017 and considering an energy efficiency standard, and South Carolina that has the most advanced energy efficiency codes.

David Baker of the Illinois Department of Commerce and Economic Development, Bureau of Energy and Recycling described the Illinois Energy Efficiency Portfolio Standard (EEPS). Mr. Baker began his talk with a history of EE milestones in Illinois and then addressed the key components of the EEPS. The Illinois EEPS, which applies only to Commonwealth Edison and Ameren Companies, includes 1) incremental annual electric load

reductions, 2) demand response goals - annual peak reductions 3) a Renewable Portfolio Standard (25% by 2025), 4) Illinois Power Authority (new procurement process and \$4 billion bonding authority) and 5) Rate Relief Agreement of \$1,001,000,000. EE funding and rate caps for 2008-2011 are respectively: 2008: \$61 million and .5%, 2009: \$123 million and 1.0%, 2010: \$186 million and 1.5% and 2011 and thereafter: \$250 million and 2.0%. Three percent of the funding will be spent on measurement and verification. The utilities and states are due to begin implementing the programs in June 2008. Mr. Baker gave an overview of some of the proposed programs, special challenges presented by the EEPS and the benefits of the EEPS (load reductions, emission benefits and economic benefits).

Jeff Burks, Director of Environmental Sustainability of PNM Resources Inc. gave an overview of EE in New Mexico. After a short history of EE in New Mexico, Mr. Burks described New Mexico's 2005 Efficient Use of Energy Act which became the foundation of EE policy in the state. The 2005 Act authorized utilities to make energy efficiency investments, directed utilities to implement "cost-effective" energy efficiency programs, provided cost recovery through a tariff rider (capped at 1.5% of customers utility bill) and required the utilities to conduct Integrated Resource Planning. Mr. Burks described the drivers behind PNM's interest in EE (rising demand for electricity, shrinking reserve margins, rising costs, climate change legislation and EE seen as building block for future 'smart grid' initiative). PNM's Current electricity DSM programs include 7 residential and 3 commercial programs with an annual budget of \$7.5M (1.3% of revenue). The programs will save approximately 26 GWh/year & 60 MW in third year. Funding for the program peaks at \$12 million in 2011.