

Partnering for Success

IDEA Workshop

*“Implementing Clean
Campus Energy
Systems for Savings
and Sustainability”*



February 21, 2006

19th Annual IDEA

Campus Energy Conference

February 21-24, 2006



The Hyatt Regency
Albuquerque



Albuquerque,
New Mexico

As campuses worldwide face dramatic cost increases for fuel and electricity, facility and utility professionals are examining and implementing innovative alternatives to improve efficiency, support load growth, enhance reliability and recycle energy through combined heat and power. With fuel prices near record highs and campus building expansion driving load growth, the economics of investing in energy efficient infrastructure are now more compelling than ever.

We invite you to join your colleagues and friends at this important meeting.

The Annual IDEA Campus Energy Conference attracts hundreds of end users, utility and facility professionals, equipment suppliers and manufacturers, engineering consultants and policy professionals.

Attendees share innovations, environmental strategies, case studies and practical solutions in a unique and collegial setting with invaluable peer exchange, networking and technical presentations of the highest order.

IDEA is pleased to extend Member Registration rates to APPA, ASHE, HBCU and members of Big Ten & Friends.



Exhibits and Networking Opportunities

Once again, IDEA member companies have TableTop Exhibits at the Campus Energy Conference.

Our host university, University of New Mexico, has graciously invited all participants to a Technical Tour of their recently expanded and updated Campus Energy System. For more information on the Utilities Department of the University of New Mexico, please visit www.districtenergy.org.



Tuesday, February 21, 2006

US Dept of Commerce/IDEA Workshop

“Implementing Clean Campus Energy Systems”

- 7:00 am – 8:00 am **Continental Breakfast**
- 8:00 am – 8:15 am **Welcome and Workshop Overview** by Robert Thornton, President, IDEA
Around the world, high fuel costs are driving investment in innovative district energy systems to reduce operating costs, enhance reliability and decrease emissions. Many U.S. universities have implemented campus energy systems that tap renewable resources like deep lake water cooling, biomass or landfill gas while other systems are recycling heat generated from traditional fuels like coal and natural gas to produce cooling and power more efficiently, more reliably and with lower emissions.

IDEA campus energy systems deliver world-class efficiency, reliability and service. This workshop covers the nuts and bolts of leading successful projects from master planning to securing capital or project financing, to understanding and presenting the financial picture, to managing community approvals and permitting. The lessons and leadership experience are applicable to campus settings; mixed use development and other settings around the globe.
- 8:15 am – 10:00 am **University Leaders Panel – “Partnering for Success... Lessons Learned on Campus” –**
Hear from these widely-respected industry leaders about their hands-on experience in planning, constructing and operating an innovative campus energy system. Each unique system presents a different technology with a set of local challenges and lessons learned:

Invited panelists will provide a brief overview of their campus energy system, including:
◆ **Biomass and Opportunity Fuels** – Ferman Milster, University of Iowa
◆ **CHP & Cooling with Coal** – Raymond DuBose, University of North Carolina Chapel Hill
◆ **Deep Lake Water Cooling** – Tim Peer, Cornell University
◆ **Landfill Gas for CHP** – David Johnson, UCLA
◆ **CHW Storage and CHP** – Tom Nyquist, Princeton University

Moderated by Rob Thornton, IDEA
- 10:00 am – 10:30 am Refreshment and Networking Break
- 10:30 am – 11:30 am **College and University Utility Finances for the Non-Financial Manager — Case Study at University of Michigan**
Today, campus utility managers are becoming more involved in all aspects of finances related to operation of power plants, utility distribution systems and/or utility purchasing. With this deeper involvement comes a responsibility to be fiscally responsible and to use appropriate financial controls. This session will feature an overview of accounting principals, explore an example of utility cost accounting and rate setting for the University of Michigan and will finish with a discussion on financial control responsibilities.

Case study presentation by Brian Heldt, Senior Business Analyst, Office of Financial Analysis, University of Michigan and Bill Verge, Director of Utilities & Plant Engineering, University of Michigan.

Invited panelists including Doug Garron, Harvard University; Everett Wolverton, University of Cincinnati and Ferman Milster, University of Iowa to discuss economics, risk and rate design.
- 12:00 pm – 1:00 pm Luncheon – IDEA Update and Member Recognition

◆ PRELIMINARY PROGRAM - IDEA Workshop ◆

1:00 pm – 2:30 pm

Optimizing the Campus Utility Master Plan – Case Study at UNC Chapel Hill

In 2000, North Carolina voters approved a \$3.1 billion bond authorization for the North Carolina Higher Education Fund, resulting in planned expansion of 6.1 million sq ft of new building space at UNC Chapel Hill. The management of the campus energy system, which currently serves 130 buildings totaling more than 14 million sq ft, sought the help of business partners to develop a comprehensive utility model master plan for steam, chilled water and electrical systems. The “Restructured Development Plan” analyzed potential load growth and then carefully assessed timing and optimal sequence of capital investments in energy utility infrastructure, resulting in valuable findings, namely:

- ◆ Detailed funding plan by project, source, and year
- ◆ Definition of future revenue requirements and rate impacts
- ◆ Reduction in near term capital required by \$166 million
- ◆ Reduction in required bonding by \$158 million
- ◆ Clarification of need for additional on-site electric generation as well as foundation for negotiations with local electric utility

Case study presentation by Raymond DuBose, UNC Chapel Hill; Rick Bourn, Carter & Burgess, Inc. and Nick Travis of Energy Strategies, Inc.

The presentation will be followed by a panel discussion on master planning, community relations and construction management that will include Cheryl Gomez, University of Virginia; Sal Chiarelli, University of Vermont; and Tim Peer of Cornell University.

2:30 pm – 3:00 pm

Refreshment Break

3:00 pm – 4:00 pm

Competing for Capital and Making the Case – A Panel Discussion

Too often, an excellent technical project stalls at the board of trustees or finance committee until a compelling economic argument is made in business terms to a financially-oriented audience. Moving the message from an engineering study to an economic imperative involves a series of analyses, references and risk studies. How have business partners supported campus champions? What information do decision-makers seek and how to best provide it?

Panelists will include select business partners and university campus leaders.

4:00 pm – 5:00 pm

Exporting US Success, Growing Globally – As evidenced at dozens of IDEA member campus energy systems, our industry boasts decades of success in serving critical care customers like campuses, airports, research and healthcare complexes and other connected communities. What are the global trends for campus energy systems and large scale planned development? How are US universities partnering in developing other global campus developments? How can IDEA members, especially campus energy leaders and their business partners, participate in industry growth and innovation around the globe?

In conjunction with the US Department of Commerce Market Development Cooperator Program (MDCP), IDEA business partners are actively serving dramatic growth in district energy in the Middle East and Far East. What exchange and partnering opportunities are possible? How are the large university campus energy systems in the U.S. like the huge mixed use and military base developments in the Middle East?

Invited panelists to include Dany Safi, Tabreed; Ferman Milster, University of Iowa; Dr. Sung Ho Bae, Korea District Heating Corporation; Sarah Lopp, International Trade Administration and Mark Wells, US Department of Commerce; along with other industry partners.

Moderated by Rob Thornton, IDEA

5:00 pm – 6:30 pm

Welcoming Exhibitor Reception –

Followed by a free evening to explore a wonderful western US city on your own.



Who should attend this Workshop and Conference?

- ◆ College, university, school district, municipal, military and government energy professionals looking for practical and innovative solutions...
- ◆ Planners, architects and engineers involved in real estate and building energy systems...
- ◆ Consultants, manufacturers and service providers seeking insight to institutional opportunities...
- ◆ Energy professionals involved in large central plants, utilities and environmental compliance...
- ◆ Policy and energy efficiency advocates interested in successful approaches to complex issues.



Purpose of the Workshop and Conference

- ◆ To spotlight a variety of highly successful clean energy systems in operation today;
- ◆ To identify the settings and conditions where these different energy solutions have succeeded;
- ◆ To explore the process involved in achieving positive operational results;
- ◆ To discuss collaboration on expanding the global market for export of these clean energy solutions.



The International District Energy Association (IDEA) is beginning its 97th continuous year of service to the district energy industry through education, information exchange and advocacy. IDEA members own and operate utility and campus energy systems in 21 different countries and provide products and services to over 800 members around the world. IDEA is working to expand the market for district energy solutions globally through a Market Development Cooperator Grant program awarded by the US Department of Commerce.

◆ PRELIMINARY PROGRAM - Campus Energy Conference ◆

Tuesday, February 21, 2006

5:00 pm-6:30 pm **Welcoming Exhibitor Reception**

Wednesday, February 22, 2006

7:00 am – 8:00 am **Breakfast with Exhibitors**

8:00 am – 8:15 am **Opening Remarks and Introductions** – Robert Thornton, President, IDEA
Welcome to Albuquerque, New Mexico - Larry Schuster, University of New Mexico, Conference Host
Overview of Campus Energy Conference Program – Scott Clark, Carter & Burgess, Conference Technical Program Chair

8:15 am – 10:00 am **Opening Presentations and Plenary Panel** – “Volatility, Uncertainty and Anxiety – Coping With Today’s Energy Market for Campus Leaders”

Paradigm Shift - Energy Procurement in a Deregulated Electric Market by Mary Smith, Harvard University
A Shattered Crystal Ball - Where Are Energy Prices Headed? by Lucinda Andreani, Lucinda Andreani Associates

A panel of campus energy professionals will discuss the challenges and opportunities of escalating fuel and power costs. Panelists to include: Gordon Apperley, University of British Columbia; Cheryl Gomez, University of Virginia; Raymond DuBose, University of North Carolina Chapel Hill; and others.

10:00am –10:30 am Refreshment Break with Exhibitors

Campus Energy Systems Updates

10:30am – 11:15 am **Princeton University – District Cooling System Improvements** by Ted Borer, Princeton University; Jon Schwartz, Carter & Burgess

CHP/Sustainable Campus Solutions

Wayne Township Cogeneration & Renewable Energy Project by Gary Fechter, Princeton Energy Systems

11:15 am – 12:00 pm **Princeton University's Energy Procurement Program** – Tom Nyquist, PE, Princeton University; Michael Webster, ICETEC

S.C. Johnson Biomass CHP System by Jim McNamara, Northern Power Systems

12:00 pm – 1:30 pm **US Department of Commerce MDCP Award Presentation**
 Keynote Luncheon Address – Honorable Senator Pete Domenici (R NM) (invited)

1:30 pm – 2:00 pm Dessert with Exhibitors

Environmental Strategies

2:00 pm – 2:45 pm **Alphabet Soup: MACT, CAMR, BART and EGU - Should I CAIR?** by Ann Curnow, Sebesta Blomberg & Associates

District Heating/System Optimization

Waste Heat Recovery & System Efficiency Improvements Using Hydro-Thermal Recovery by Gordon Judd, NRG Energy; Bill Carson and Jim Shields, Direct Contact

2:45 pm – 3:30 pm **Air Emissions Credits as Financial Incentives for Siting CHP Systems** by Thomas Bourgeois, Pace University Energy Project

The Carrillo Street Steam Plant - Emission Controls for Boilers at the University of Pittsburgh by John Schenk, University of Pittsburgh and Donald Bahnfleth, Woolpert, LLP.

3:30 pm – 4:00 pm Refreshment Break

Environmental Strategies

4:00 pm – 4:45 pm **Environmental Permitting for a Small CHP Plant in a Non-Attainment Area** by Doug Wells, Rice University

District Heating/System Optimization

Coal-Fired-Hot-Gas-Generation (COHOGG) by Lou Tepe, Tepe Associates

4:45 pm - 5:30 pm **Cost Implications of Greenhouse Gas Regulations for the University of Iowa** by Richard Ney, Sebesta Blomberg & Associates

Condensate Management and Treatment by Stephen Spiwak, Nalco

6:15 pm – 9:00 pm Buses leave lobby for Dinner at the new World Balloon Museum
 Conference Theme Dinner generously sponsored by Carter & Burgess, Inc.

◆ PRELIMINARY PROGRAM - Campus Energy Conference ◆

Thursday, February 23, 2006

7:00 am – 8:00 am	Breakfast with Exhibitors	
	Campus Cooling Systems	Campus Master Planning
8:00 am – 8:45 am	<i>Thermal Energy Storage on Campus – An Overview of 150+ Applications</i> by John Andrepont & Mike Kohlenberg, The Cool Solutions Company	<i>University of Vermont - Master Planning and System Expansion</i> by Sal Chiarelli & Gus Mastro, University of Vermont; Hemant Mehta, WM Group Engineers
8:45 am – 9:30 am	<i>You're Going to put the TES Tank Where?</i> Charles Hanskat, DYK Incorporated; Richard Snouffer, University of Southern California	<i>University of Texas - Surviving the Perfect Storm - Campus Energy Master Planning</i> by Steve Kraal, University Texas Austin
9:30 am – 10:15 am	<i>A Fresh Look at Heat Pumps</i> by David Jensen, York International	<i>Utility Master Planning at Virginia Tech</i> by Bill Elvey, P.E., Virginia Tech University and Jeff Pollei, P.E.; Affiliated Engineers, Inc.
10:15 am – 10:45 am	Refreshment Break	
	Training/Organizational Development	Metering/Billing Solutions
10:45 am – 11:30 am	<i>Implementing a Job Skills Certification Program at The University of Texas</i> by Juan Ontiveros, UT Austin; Bill Armbrust, Industrial Resources, Inc.	<i>Solving the Problems of Campus Re-Billing</i> by Tim Berson, Itron
11:30 am – 12:15 pm	<i>Attaining Maximum Performance Through Organizational Development</i> by Ferman Milster, University of Iowa	<i>Real-Time Metering System at The University of Rochester</i> by Morris Pierce, University of Rochester
12:15 pm – 1:45 pm	EPA Energy Star CHP Awards Keynote Luncheon Address – Honorable Governor Bill Richardson, New Mexico (<i>invited</i>)	
1:45 pm – 2:15 pm	Dessert with Exhibitors	
	Campus Cooling Systems	CHP/Sustainable Campus/LEED
2:15 pm – 3:00 pm	<i>Optimizing Condenser Water Flow Rates</i> by Bill Liegois, Stanley Consultants	<i>Sustainable Energy Center Project in the Northwest</i> by Larrie Easterly, Oregon State University and Robert Howse, Carter & Burgess
3:00 pm – 3:45 pm	<i>Low Delta T Syndrome</i> – Jim Nonneman, Stanley Consultants	<i>Sustainable Campus LEEDers - Vermeer Science Center Project</i> by Lee Tapper, Central College & Mike Lubberden, Holabird & Root
3:45 pm – 4:15 pm	<i>STG: Vertical Turbine Package Approach</i> by Harold Valencia, Carrier Corporation	<i>Cornell University Energy Master Plan & Economic Analysis</i> by Tim Peer, Cornell University; Richard Levitan, Philip Curlett & Ellen Cool, Levitan Associates
4:15 pm – 4:30 pm	Refreshment Break	
4:30 pm – 5:30 pm	Campus Forum Meeting	Business Partner Forum Meeting - MDCP Program
5:30 pm – 6:30 pm	Reception with Exhibitors – Followed by free evening on your own	

Friday, February 24, 2006

7:30 am	Power Breakfast with our Host University – University of New Mexico
8:00 am – 8:45 am	<i>University of New Mexico - Campus Wide Energy Management Control System</i> by Daniel Grajalva, Royal Consulting
8:45 am – 9:15 am	<i>Overview of Technical Tour – University of New Mexico</i> by Larry Schuster and Jeffrey Zumwalt, University of New Mexico
9:30 am – 11:30 am	<i>Technical Tour - University of New Mexico Campus Energy Plant</i>

◆ HOTEL & TRAVEL INFORMATION ◆



The conference is being held at the Hyatt Regency Albuquerque in Albuquerque, New Mexico, the only four-diamond hotel among Albuquerque hotels. The Hyatt is conveniently located in the heart of downtown and adjacent to the Convention Center, just five minutes from the airport. From this location, you can easily visit the many cultural attractions including the National Atomic Museum, the Hispanic Cultural Center and Rio Grande Zoo.

The hotel Health club features a sauna, Cybex equipment, free weights, cardiovascular exercise equipment (exercise cycles, steppers, stair climbers), and is open 24 hrs. McGrath's Bar and Grill is open for breakfast lunch and dinner and features a display kitchen where you can watch your chef at work. Bolo's Saloon, with it's mahogany bar and fountain courtyard, offers the perfect setting for a cocktail or light snack. The Hyatt also has a Starbucks to meet your coffee or snack needs.

Check in time at the hotel is 3:00 pm and check out is at 12:00 pm.

IDEA has negotiated a special room rate of \$136 single/double per night. To ensure room availability, **call** the Hyatt Regency Albuquerque Hotel directly at (505) 842-1234 or (800) 233-1234 to make your reservations. Our group room rate is \$136 single/double until February 3, 2006. Be sure to mention the IDEA Conference when making your reservation. You can also make your reservation online by going to IDEA's calendar page: www.districtenergy.org/calendar.htm and click on the link for the Hyatt Regency. Use the group code g-IDEA when making your reservation online.



The Hyatt is a short taxicab ride from the Albuquerque International Airport and will cost approximately \$12. Sunport Shuttle charges \$9.00 one-way for the first passenger, and \$5.00 for each additional passenger. A round trip booked on the first leg would be \$16.00 for the first passenger and \$10.00 for each additional person. You will find Sunport Shuttle across from Baggage Claim 3. Advance reservations are not required, however, would be appreciated by calling (505) 883-4966 or (866) 505-4966.

Hyatt Regency Albuquerque Hotel
330 Tijeras N.W.
Albuquerque, NM 87102
(505) 842-1234
(505) 843-2710 fax

New Mexico is one of the nation's most sparsely populated states. The Albuquerque Metro area, with approximately 700,000 residents, can't help but retain its neighborhood feel. Albuquerque is bordered by the Sandia and Manzano Mountains to the east, by the Petroglyph National Monument to the west, by Sandia Pueblo to the north and by Isleta Pueblo to the south. The city sprawls over more than 100 square miles at elevations ranging from 4,500 feet above sea level in the Rio Grande Valley to 6,500 feet at the foot of the Sandia Mountains. Albuquerque enjoys blue skies and sunshine 310 days out of the year. Low humidity and warm temperatures make Albuquerque a four-season destination. The average daytime temperature in February ranges between 53 and 27 Deg. F.



Conference registration cancellations received before Feb. 1st will be refunded less \$75 fee. Registrations are non-refundable after Feb. 1st.

For more information, visit www.districtenergy.org or contact IDEA at 508-366-9339.

◆ 19th Annual ◆
IDEA Campus Energy Conference

Partnering for Success

February 21-24, 2006

The Hyatt Regency Albuquerque ◆ Albuquerque, NM

**IDEA thanks our sponsors for their
support and generosity:**



Carter Burgess



125 Turnpike Road, Suite 4
Westborough, MA 01581

Business Partner Exhibitors

IDEA is pleased to list our Business Partner Exhibitors (to date)

- ◆ Baltimore Aircoil Company
- ◆ Carrier Commercial Service
- ◆ Direct Contact Inc.
- ◆ Dresser-Rand/ Steam Turbine Business Unit
- ◆ DriTherm, Inc.
- ◆ DYK Incorporated
- ◆ Flow Control Industries, Inc.
- ◆ Gilsulate International, Inc.
- ◆ Itron
- ◆ Kessler Ellis Products
- ◆ LightRidge Resources
- ◆ McCrometer
- ◆ Nalco Company
- ◆ Natgun Corporation
- ◆ Nationwide Boiler Inc.
- ◆ Perma-Pipe, Inc.
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- ◆ Stellar Power & Utilities
- ◆ TAS Packaged Central Plants
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19TH ANNUAL
IDEA
CAMPUS ENERGY
CONFERENCE

REGISTRATION FORM

Partnering for Success

The Hyatt Regency Albuquerque
Albuquerque, New Mexico
February 21-24, 2006

Name _____ Nickname (badge) _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Email _____

Spouse/Guest _____

Registration Fees

	Pre-Conference Workshop Only <small>(All day Tues.) (2/21)</small>		Campus Energy Conference Only <small>(Tues. Reception through Technical Tour Fri.) (2/21-24)</small>		Combined Workshop and Conference <small>(All day Tues. through Tour Fri.) (2/21-24)</small>	
	By Feb. 3	After Feb. 3	By Feb. 3	After Feb. 3	By Feb. 3	After Feb. 3
Member <small>(IDEA/APPA/HBCU/USCHPA)</small>	<input type="checkbox"/> \$175	<input type="checkbox"/> \$225	<input type="checkbox"/> \$675	<input type="checkbox"/> \$775	<input type="checkbox"/> \$750	<input type="checkbox"/> \$850
Non-Member	<input type="checkbox"/> \$275	<input type="checkbox"/> \$325	<input type="checkbox"/> \$775	<input type="checkbox"/> \$875	<input type="checkbox"/> \$850	<input type="checkbox"/> \$950
Spouse/Guest <small>(includes 2 receptions and a dinner)</small>	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> \$150	<input type="checkbox"/> \$175	<input type="checkbox"/> \$150	<input type="checkbox"/> \$175

Please check the following:

- Yes I will No I will not attend the Theme Dinner on Wednesday evening, February 22, 2006.
 Yes I will No I will not attend the technical tour on Friday, February 24, 2006.

Method of Payment

- Check Visa MasterCard American Express

Name on Card _____

Credit Card # _____ Exp. Date _____

Signature _____

Please contact IDEA if you have any questions or special needs.

Make checks payable to IDEA and mail to: IDEA, 125 Turnpike Road, Suite 4, Westborough, MA 01581
or fax completed form to: (508) 366-0019

For more information call: (508) 366-9339, or visit our Web site: www.districtenergy.org

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