



IEEE

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Energy Savings at Boise White Paper, L.L.C. International Falls, MN

Date/Time: Friday, May 22, 2009, 11:45 AM – 1:00 PM
(NOTE: fourth Friday of the month rather than our normal third Thursday)

Speaker: Ken Krueger, Energy Engineer

Location: 1610 Engineering Hall, UW-Madison College of Engineering
Parking is available in Lot 17 adjacent to Engineering Hall (fee required)
see map at <http://www.engr.wisc.edu/lists/maps/COEmap.pdf>

Menu: Sandwiches and soft drinks by Jimmy Johns (free for all IEEE Madison Section and Student Section members!)

RSVP: by May 18th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358

Non-member guests are always welcome!



Boise White Paper, L.L.C. operates a large pulp and paper mill in International Falls, MN. I have worked at this mill for the past 24 years as a Process Engineer, Shift Supervisor, Pulp Production Engineer, Paper Production Engineer, and Energy Engineer. I would like to share some energy saving successes from our mill. These are practical projects and ideas that we have implemented and that have saved us millions of dollars in energy costs. Some of the Topics I will discuss include:

I-4 Fan Pump Upgrade	Stack Gas Heat Recovery
Pre-evaporator Raw Water Heater Optimization	Chiller
Heat Exchanger Cleaning/Optimization	Advanced Controls
Variable Frequency Drives	PINCH Study
Economics and ROI	Winterization
Non-contact Sewer Heat Recovery	Fast Track Projects
Co-generation	

Ken graduated from UWSP in 1986 with a Paper Science and Engineering Degree. He is happily married with 2 children. His hobbies include Martial Arts, fishing, hunting, ultra-marathons and Texas Hold-em.

Chemistry in the Extreme: Deep Sea Investigation of Hydrothermal Vents and Surrounding Biological Communities

Date/Time: Thursday, June 18, 2009, 11:45 AM – 1:00 PM
(NOTE: June meeting!)

Speaker: Dr. Donald Nuzzio, President, Analytical Instrument Systems, Inc.

Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444

Menu: Pizza buffet, salad and soft drinks (\$5.00 members, \$10.00 non-members, free for UW-Madison student members)

RSVP: by June 15th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358

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Due to the water sampling errors that occur at depth, ~2500 meters, a simpler real time solution to understand the chemistry at the bottom of the Ocean was required.

In order to understand why certain species of animals near hydrothermal vents lived in certain proximity to the vents has been a puzzle that scientists have been trying to understand for years. Here at Analytical Instrument Systems, Inc. we have developed an instrument which allows the researcher to look at the chemistry of the water at hydrothermal vents and diffuse flows in real time. Using our instruments aboard Alvin and Jason DSV (Deep Submergence Vehicles) researchers can probe various areas of the ocean floor to understand the chemistry in and around hydrothermal vent area. We have investigated areas on the ocean floor which are on the tectonic plate boundaries. These are the most volcanically active areas on the surface of the planet. In and around these areas life has evolved like nowhere on



earth. Bacteria evolved to eat the hydrogen sulfide chemicals which come from hydrothermal vents on the ocean floor. These vents are like the geysers at Yellowstone but they never stop producing hydrothermal fluids which are the food for this unique bacteria that live there. All types of animal species have evolved at these depths and to understand how these animals live and survive here is the question that we are trying to answer.

The AIS ISEA III is the latest in underwater electrochemical instruments designed to produce real time chemical data of hydrothermal fluids and diffuse flow areas. The talk which will be presented will show how we developed this new electrochemical instrument and sensor to investigate one of the last frontiers on earth.

Dr. Nuzzio is president of Analytical Instrument Systems, Inc. (AIS), located in Flemington, New Jersey. He is also an Adjunct Associate Professor at the University of Delaware College of Marine Studies. He has a Bachelor of Science degree in chemistry from Fairleigh Dickinson University in Madison, New Jersey, a Master of Science degree in chemistry and a Doctor of Philosophy degree in analytical chemistry from Rutgers University. His major focus is to develop high-quality, compact, field-portable analytical instrumentation for use in environmental and oceanographic research. What got him into this business was observing the need for analytical instruments to be used at the source, thus allowing for more accurate and precise scientific measurements to be performed.



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Book Review: Climate Change in Focus

by George Zobrist



Cool It: The Skeptical Environmentalist's Guide to Global Warming

by Bjorn Lomborg

Alford A. Knopf 2008

ISBN 9780307266927

Danish environmentalist Bjorn Lomborg, author of controversial bestseller, *The Skeptical Environmentalist*, continues his unconventional campaign to get world leaders to look at global warming as a long-term

problem, arguing against drastic quick fixes designed to curb carbon emissions. In *Cool It*, Lomborg's stated argument is four-fold:

- Global warming is real and manmade

- Statements about the strong, ominous and immediate consequences of global warming are often wildly exaggerated
- We need simpler, smarter and more efficient solutions for global warming
- Many other issues are much more important than global warming

Lomborg reminds us that our ultimate goal is not to reduce greenhouse gases or global warming per se, but to improve the quality of life and the environment for future generations. According to Lomborg, reducing greenhouse gases is one of the least efficient ways to do this.

Lomborg points out that if we didn't have greenhouse gases, the average temperature on Earth would be 59 degrees lower, and life as we know it probably wouldn't exist. Lomborg acknowledges that temperature increases attributed to global warming result in higher numbers of heat-related deaths, but he also believes that we too often overlook the (greater) number of cold-related deaths that could be mitigated by global warming. After all, climate change affects temperatures much more in temperate and Arctic regions than in tropical areas.

The Kyoto Protocol is the only international initiative calling for carbon reduction; by Lomborg's estimates, Kyoto will matter little for the climate in the long run. Even if all nations subscribe to the Protocol it would only postpone the global temperature rise by less than seven days into 2100. Most models show the cost to implement the Protocol at \$108 billion annually, starting in 2008. The real cost comes from businesses using more expensive alternative fuels, or other expensive ways to work around the carbon effect. The question Lomborg raises is: Are there are better uses of this money? Lomborg's answer is a resounding "yes," listing pressing issues such as AIDS, ma-

laria and malnutrition as far more deserving of limited international funds and attention. As an economist, Lomborg ranks the risk versus reward of curbing global warming at the bottom of the list.

Global resources, according to Lomborg, should be spent on societal policies rather than climate (political) policies. For example, by following climate policies, malaria deaths might be reduced to 140,000 deaths, while a social policy of attacking malaria directly could avert 85 million deaths. Reducing carbon emissions, just one parameter of climate change, will save some people from dying from heat, but cause others to die from cold.

Sensible dialogue about climate change is difficult, since the media has a tendency to ride on the catastrophe bandwagon. Scare tactics sell papers but they can also hamper meaningful dialogue. Prominent politicians and environmentalists warn us about every calamitous outcome of global warming, but the serious costs involved in their proposed solutions are often glossed over.

Lomborg is concerned that the public's understanding of global warming is severely biased by the media, environmental pundits and politicians. Melting glaciers, rising sea levels, extreme weather, flooding rivers, new ice age, malaria, starvation, and water shortages all have been shown to be gross exaggerations and a diversion from sound policy judgments. And Lomborg takes issue with Mann's "hockey stick" graph of global temperature changes over the last 1,000 years, which has been disputed by leading scientists, but which had been widely accepted as gospel. Lomborg assails the alarmist view of global warming and points out that the presentation has become "politicized science."

At the heart of Lomborg's thesis is a central question: do we want to feel good, or do we actually want to do good? Rather than having



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expensive and inefficient solutions like Kyoto, Lomborg believes we should search out new solutions, including drastically increasing the R&D budget. The only way to have a prolonged decrease in global warming is to transition to a non-fossil fuel economy.

Dr. George W. Zobrist is professor emeritus at the University of Missouri-Rolla, Department of Computer Science, IEEE-USA's Member Activities editor, and former editor of IEEE Potentials.

Understanding the Mess: Warren Buffett's 2008 Letter to Berkshire Hathaway Shareholders

by Vin O'Neill

Berkshire Hathaway Chair Warren Buffet's letter to shareholders in the company's 2008 Annual report should be required reading for all Americans!

I say that, not as an owner of BRK (NYSE Symbol) stock, but as an ordinary citizen struggling to understand the causes and consequences of the financial meltdown that has engulfed the country — and the rest of the world — in recent months. Not only does the Buffett letter succinctly describe the 2008 performance of the companies he manages, but it includes compelling asides about public and private sector behaviors that set the stage for the worst economic crisis to befall the United States since — dare I say it — the Great Depression of the 1930s. Buffet's narrative is written in clear, understandable language replete with poignant vignettes and humorous anecdotes that make it as entertaining as it is informative.

Continued at <<http://www.todayseengineer.org/2009/Apr/Buffett-letter.asp>>.



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