



## Ten years of the IOF-WV Monthly Update Newsletter!

**Thank you for continuing to read (and recycle!) IOF-WV Update! If you like even an occasional article or have seen funding opportunities, you can thank Kathleen Cullen for coming up with the newsletter idea in 1999 – and being responsible for getting it out each month. We're always open to new ideas and volunteers for articles – contact us!**

An IOF-WV team lead by Management Professor Jack Fuller just completed the second annual workshop on the topic of coping with volatile energy costs and uncertain environmental regulations. Brief notes and observations follow - more to come in future Updates.

### **Some overall impressions from the workshop – Carl Irwin - WVU**

Virtually all attendees have deep fundamental questions about coping with environmental issues. Yes, the economy is rotten and there will be casualties – but the economy will probably start recovering in a year or two.

The biggie on the horizon is “carbon coping” – how will manufacturers cope? How will utilities and coal cope? What new technologies will emerge? What will communities look like? How will we change our lives?

Innovative green technologies and processes are emerging – ways that coal power plants can partner with companies that use CO<sub>2</sub> as a feedstock – i.e., productive uses of CO<sub>2</sub>. Companies like FCX are creating “green divisions” to capitalize on energy saving aspects of their products. And there are many ways we can use energy much more efficiently and smartly – like small distributed energy sources – growth of biomass energy crops - and this workshop didn't even get into the reality of 100+ mpg cars.

An incredible transition is underway – universities, research labs, technology companies all have great responsibilities to fast track research results into jobs to replace the ones that are disappearing – e.g., 800 jobs lost in Ravenswood when Century Aluminum closed – 200 jobs lost in Bridgeport when AGC closed. We heard requests for assistance and sincere calls for cooperation and working together and for corporate social responsibility – like large companies that move manufacturing to developing countries must lead efforts for stronger environmental regulations and worker rights in those developing countries.

### **David South – President – Technical and Market Solutions LLC - Keynote address**

Need cost-effective solutions for coal – CCS is not cheap – and water is not a free good. Wall Street wants BIG projects with short-term payback, but financing for IGCC is difficult.

Part of the answer is diversification - distributed energy technologies, on-site power, small coal technologies, CHP, bio-mass base-load power, co-firing.

Two emerging innovations that use CO<sub>2</sub> as a feedstock – 1) a process using syngas from gasification of biomass and flue gas from fossil fuel power plant to absorb carbon and produce a fuel; 2) algae that consume carbon in order to grow and produce biodiesel as a product.

### **Kenny Perdue – President, WV AFL-CIO**

Coal technologies are basic to WV and employ many West Virginians – new technologies and transition to low carbon fuels have to create new jobs to replace those lost.

### **Don Gallion – President, FCX Corp – Morgantown, WV**

FCX will create a “green division” to market energy saving aspects of their products – e.g., their inverters enable airplanes on the ground to run off local power and without burning fuel and polluting the local air.

FCX does not support “carbon-content tariffs” – international trade creates peace through development of mutually vested interests and relationships.

### **Paul Linder – PPG - New Martinsville, WV**

New Martinsville plant is 66 years old – produce 2/3 of their own power with three coal-fired boilers – approx 150 MW capacity – need high quality coal to meet emissions limits. Cap and trade programs are a huge threat.

In 2000, energy was 18% of operating cost – in 2009, 31% of operating cost. What can we do?

### **Gary Spitznogle – AEP R&D – Columbus, OH**

Demo project with CCS at Mountaineer Plant in New Haven, WV – taking 1.5% slip stream of plant flue gas to separate CO<sub>2</sub>, liquefy, and inject underground. Carbon capture plant (Ahlstrom chilled ammonia process) has same footprint as entire power plant! Process will consume ~ 20% of plant power output. Injected CO<sub>2</sub> displaces brine in sandstone – difficult to predict extent of CO<sub>2</sub> dispersion underground. Entire project exceedingly complex.

### **Todd Ritchie – Rio Tinto/Alcan Aluminum – Ravenswood, WV**

Battling to survive – current monthly energy bill for electricity is \$800,000 – and AEP has requested 43% power price increase. Help is needed - how do we keep jobs in WV??

U.S. companies have to be on front edge of policy development – in turn, large companies that move manufacturing off shore to developing countries have a responsibility to push for stronger enviro and worker conditions in those countries.

## EVENTS

**Developing an Energy Management Master Plan Online Seminar sponsored by the Association of Energy Engineers will be held May 13, 2009.** For more information or to register visit <http://www.aeecenter.org/realtime/EMP/>.

**Energy Auditing Fundamentals Online Seminar sponsored by the Association of Energy Engineers will be held May 23, 2009.** For more information or to register visit <http://www.aeecenter.org/realtime/EnergyAuditing/>.

**West Virginia Manufacturers Association Annual Meeting will be held June 14-16, 2009** at Glade Springs Resort in Daniels, WV. For more information, or to register as a vendor or participant, please contact Patty Barnhart at the Manufacturers Association by calling (304) 342-2123.

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# The IOF-WV Monthly Update

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## Earl Kline – Va Tech Sloan Forest Products Center – Blacksburg, VA

Need to eliminate waste energy in all aspects of business, manufacturing, and the way we live. Start by assessing how much energy we really need for living – extrapolate backwards and design homes, communities, transportation, and manufacturing processes to meet those needs with minimum energy waste – e.g., avoid sitting in traffic jam with engines running – move closer to work. This is looking at your own personal supply chain – how can we design the process better? Build better communities? Need to partner on all this!

## Ravi Madhavan – U Pitt

The present is very different from one year ago, but long-term drivers remain in place – steel is a critical component of many green energy products. Two growth markets for steel are stainless steel, and steel for pilings used in construction of wave and tidal energy systems. Iron and steel are 7% of global CO2

Posco Steel in Korea has new steel making process - Posco is high on Dow Jones Sustainability Index and has major commitments to energy efficiency and sustainability.

*Workshop agenda, presentations, and other related information are available on the IOF-WV website, <http://iofvw.nrcce.wvu.edu>.*

## Co-Funding Opportunities for IOF-WV Research Teams

<i>Announcement</i>	<i>Due Dates</i>	<i>Funding</i>
<b>U.S. DOE Recovery Act – Transportation Electrification</b> <a href="https://www.fedconnect.net/FedConnect/">https://www.fedconnect.net/FedConnect/</a>	<b>Request for Proposals:</b> Now Open <b>Proposals Due:</b> May 13, 2009 <b>FOA No.</b> DE-FOA-0000028	<b>Estimated Funding:</b> Approximately \$378 million is expected to be available for new awards under this announcement for Round 1.
<b>U.S. DOE National Energy Technology Laboratory Technology Transfer</b> <a href="https://www.fedconnect.net/FedConnect/">https://www.fedconnect.net/FedConnect/</a>	<b>Request for Proposals:</b> Now Open <b>Proposals Due:</b> May, 15, 2009 <b>FOA No.</b> DE-FOA-0000034	<b>Estimated funding:</b> Approximately \$4,000,000 is anticipated.
<b>U.S. DOE Development of Supply Systems to Handle and Deliver High Tonnage Biomass Feedstocks for Cellulosic Biofuels Production</b> <a href="https://www.fedconnect.net/FedConnect/">https://www.fedconnect.net/FedConnect/</a>	<b>Request for Proposals:</b> Now Open <b>Proposals Due:</b> May 18, 2009 <b>FOA No.</b> DE-FOA-0000060	<b>Estimated funding:</b> Approximately \$ 4,000,000 is anticipated for new awards in FY 2009 and an additional \$ 11,000,000 is anticipated for awards in years FY2010 through FY2011.
<b>U.S. DOE Recovery Act – Electric Drive Vehicle Battery and Component Manufacturing Initiative</b> <a href="https://www.fedconnect.net/FedConnect/">https://www.fedconnect.net/FedConnect/</a>	<b>Request for Proposals:</b> Now Open <b>Proposals Due:</b> May 19, 2009 <b>FOA No.</b> DE-FOA-0000026	<b>Estimated funding:</b> Approximately \$2.0 billion in Federal funds is expected to be available under this announcement
<b>U.S. EPA Small Business Innovation Research Phase I Program Solicitation</b> <a href="http://es.epa.gov/ncer/sbir/">http://es.epa.gov/ncer/sbir/</a>	<b>Request for Proposals:</b> Now Open <b>Proposals Due:</b> May 20, 2009 <b>FOA No.</b> PR-NC-09-10319	<b>Estimated funding:</b> Maximum dollar amount of awards under this Phase I solicitation is \$70,000

## U.S. DOE Industrial Technologies Program Webcasts

To register for visit <http://www1.eere.energy.gov/industry/newsandevents/events.html>

**Introduction to Steam System Assessment Tool (SSAT) Suite** webcast on May 5, 2009. This Webcast provides an overview of the SSAT and how it can be used to target opportunities for energy savings.

**Combined Heat and Power: Is It Right For Your Facility?** on May 7, 2009 provides an overview of CHP.

**ESA and IAC Results: Most Commonly Identified Recommendations** on May 14, 2009 provides an overview of savings identified during the nearly 2,000 SEN assessments completed.

**Insulation, the Forgotten Technology** on May 21, 2009 provides an overview of installed mechanical insulation.

**American Reinvestment and Recovery Act: What Does it Mean for ITP?** on May 28, 2009 provides an overview of the The American Recovery and Reinvestment Act of 2009 (Recovery Act) and what it means for ITP.



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