



The St Louis Renewable Energy Conference - Day 1

Posted by [Heading Out](#) on October 12, 2006 - 11:13am

Topic: [Supply/Production](#)

Tags: [biodiesel](#), [biomass](#), [ethanol](#), [renewable energy](#) [[list all tags](#)]

This was the first day of the "Advancing Renewable Energy - An American Rural Renaissance" [Conference](#) in St Louis. At least that was the title at the top of the page, but over the course of the day it became hard to believe that it was not the National Ethanol Show. As one of the speakers (Robert Engel, President of CoBank) said this afternoon, "now is the perfect weather for Ethanol," by which he meant that the oil price was up, the MTBE issue required a substitute, there are record corn crops, the regulations have become favorable, and the world is in a period of economic growth). And when Vinod Khosla got up to speak this morning, he followed a relatively gentle presentation by the President (Red Caveney) of the American Petroleum Institute. Not that those relatively benign comments stopped Vinod from piling on, as he gave his relatively passionate speech, but more of that later.

So, how is it going? Well the best set of talks, in my view, was the last panel discussion of the afternoon on liquid fuels and bio-products. The presentations were very informative and the discussion lively and interactive, and the panelists were very realistic. But to begin let me start with where I walked in, just after the meeting started. And I immediately found that I could not find a seat in a room seating over 800. (There is talk that counting everyone there will be around 1500 folk here).

Patricia Woertz was talking about the ADM role in biofuels (she is the President and CEO of Archer Daniels Midland). [Pdf here](#) Interestingly, given the part that ADM plays in the biofuels industry, she discussed a theme that came up later in the day. While corn ethanol is the "fuel of the month", it would be wise to remember that with technological progress, it could be supplanted by technologies now in the laboratory. Their current work involves such projects as thermochemically treating corn hulls to add 15% to the processable mass for fuel; looking at combining cellulosic products and dry brewers grain as a feedstock, and she felt that we were truly at the dawn of a fundamentally new generation of energy sources.

Robert Lane, CEO of [Deere & Companies](#), (John Deere to us older folk) then talked about sustainable businesses and did try and break away from the ethanol theme a little. He talked of the need to develop harvesting and transport and treatment technologies if we are to make best use of the biomass available (which may be as high as 1 billion tons a year). He raised the question as to whether the prices we see now are just the result of an "oil bubble" again bringing up the memories of the 1980's and the bath the industry took. Deere is now into Wind, with the Blue Grass Ridge Project, and they see an opportunity there in developing a business. And he felt that the use of cellulosic ethanol would get us out of the conflict over "food or fuel", carrying inherent in that message the theme that perhaps corn ethanol would not be a long term solution. (Which is also an interpretation of what Pat Woertz had said). However, there are issues in biomass use, that relate to transportation and processing costs that have so far been hidden in the larger

debate over the reality of whether cellulosic ethanol can be brought into commercial scale production.

Secretary Johanns ([USDA](#)) then gave a welcome and his feeling that the potential for renewable energy had never been greater than now. We are not living in the past, where the foreign powers could shut down innovation, by turning a tap, and then he made a remark that perhaps only our readers might appreciate. "New technologies, such as ethanol, are now giving us more bang for our buck!" He then went on to add generating methane from animal waste, and the use of biomass in creating plastics. That is apparently a UDSDA mandate (and before the afternoon was out I had been presented with a bio-sourced vial of "Sun Clean" a rust penetrant, and had been shown plates made from a renewable source, and also had another pen.) He also mentioned a common theme for the day, namely that, in the end, the market must decide what survives and which path to follow.

Secretary Bodeman discussed the need to commercialize technologies more rapidly, and that the equivalent of 500,000 homes were now being powered by Wind energy. Solar is growing 35% a year and there is no apparent let-up in sight for either technological market growth. And he pointed out that it is the contributions from the National Laboratories that provide leadership to the industry.

Following the break Red Cavaney, President of [API](#) talked about Energy Policy, which again seemed to break down to "let the market decide." He did however take the odd dig at ethanol, but merely by noting that it should meet certain standards, that it is difficult to have "boutique" ratios in different states, and that it does not pipe well. He did, however, seem to welcome ethanol and felt that it had a place in the growing need to ensure supply that would meet national demand.

That was not enough for [Vinod Khosla](#), who followed him, and hastened through an overlong presentation (which allowed him to skip slides that might have been more controversial). I was, however, given (and perhaps as a result of) his posting here, and the comments thereon, somewhat startled to hear him say (as he rapidly flipped past the slide) "but then of course considerations of EROEI are really irrelevant, what we must be concerned with is how much can we provide to meet market demand." (Which reminds me of the joke "sure we lose \$.05 a part, but we make it up in volume." . Drum roll). This was obviously a speech where passion, and playing to the passion of the audience (did I mention that this seemed like an Ethanol Tent Revival Meeting?) was meant to get past any awkward questions about accuracy. It was one of those talks (Pimental was guilty of the same thing in DC [earlier this year](#)) where the presenter tries to overpower any credulity issues of the audience by mannerisms and speed of presentation. You might gather I was not impressed.

We then had a much more credible, thoughtful and practical presentation by Charles Holliday, who is the CEO of DuPont (note that I have consulted for this company). He talked much more about the overall way in which the company is changing to accommodate the reality of the changing situation. The company started as an explosives company, then it regenerated itself to deal more with Energy as a whole, and now he feels that it is time for another rebirth. This includes using bio-crops to produce new [materials](#).

The breaks were in the exhibit hall, with a significant number of the booths taken by DOE and USDA, though as I wandered around, there were a number of other interesting pieces of equipment. I thought that the DOE benchtop with a lamp shining on solar cells, that provided current that electrolyzed water into hydrogen and oxygen, which were stored in columns and then fed to a fuel cell that provided power to drive a small electric car, should be in every school. (Though they probably could not afford it).

Lunch had Senator Talent, apparently in a tight re-election race (which might be why we have the speaker we have tomorrow noon), gave remarks at Lunch. They were short and included the comment that we have begun the path to Energy Independence, that he would like to create a National Center for Plant Science, and that "the genie is out of the bottle" in regard to alternate fuels, and that the oil companies (countries ?) would not be able to put it back.

There were a couple of breakout sessions in the afternoon, one on liquid fuels and one on electricity and heat. I went to the liquid fuels ones, though the poor quality of sound at the back of the hall meant that I dozed through a couple of the early presentations. The first session was partially a love-fest over ethanol, with an interesting twist. The first speakers discussed the potential growth of ethanol, the number of plants now in planning or construction, and the likelihood of 10% ethanol being achievable in the near future. They also discussed the productivity of corn ethanol, with numbers ranging from 300 to 600 gallons/acre. (Robert Fraley, the Executive VP of Monsanto sees these values as only steps along a stair, with there being no limit to ultimate crop yields per acre as time and technology progress). He does admit to a short-term problem in feeding all the plants that are now being planned for ethanol use, and was concerned that as we grow our biodiesel production we may reduce soybean product exports.

And this brought up the twist in the panel presentations. The panel included Craig Rockey, the Senior Vice President of the Association of American Railroads. He was determined that we understand that the railroads are making major investments to meet demand, and that they are, as a result, reasonably entitled to a fair return on their investment. But he did mention that if you wanted a reasonable price you should plan on shipping products long distances in unit trains. (I had two different folk at the conference comment to me about the problems that are increasingly arising in getting the railroads to provide short-haul (say across the state of Wyoming) service, regardless of price).

Amory Lovins talked about making cars with advanced materials, so that they would be lighter, safer, and that you could then still drive your SUV, but that you would get 65 mpg. Largely it seemed taken from his [latest book](#). He did not seem really aware of the NG supply problem, since he talked about its use as part of the solution. He advocated smaller production facilities for biofuels, and wondered who would get all the profits from this new technology. (And he promptly left).

And this, after the break, brought us to the rather worthwhile panel that included Robert Engel President of [CoBank](#), Michael Walsh of [Chicago Climate Exchange](#), [Carl Holmes](#) Immediate past chairman of the National Council of State Legislators and a Representative in the Kansas House of Representatives (and a farmer), [Donald Paul](#), Vice President and CTO of Chevron, and Vijay Vaitheeswaran, of The Economist, a [writer on energy](#) whose opinions have been discussed in these pages before.

The panel began with individual presentations including that of Bob Dinneen, President of the [Renewable Fuels Association](#) (which, from his remarks, I gather means Ethanol). These were folk who have been out there, seen and worked the system, and were willing to talk about it. Fascinating!

Bob Engel funds ethanol plants, and is probably the largest lender to the renewable fuels industry in the US. He is increasingly concerned that as the ethanol industry transitions from just being an additive to gasoline, into being a Transportation Fuel, that it does not understand the ramifications of the change. Once there is, even slightly, more than enough ethanol to meet the mandates, then it becomes a competitive market, and if it is over-supplied can the producers

weather the resulting downturn? Are they prepared for the time when a competing process (say cellulosic ethanol) turns up to eat their lunch, and what will their response be? Do they understand the role that transportation costs play in fuel economy. (Coal transport costs can be greater than the initial coal value). Do they understand that plants need to be a certain distance apart? That states can only produce so much corn, and that if you need more you may have to bring it a longer way. Until now many ethanol plants have been largely funded out of the farming community, a group with relatively long and patient attitudes to returns on investment. As the opportunity for investment shifts to others, however, that patience, and willingness to wait will likely go away. This might not be a good thing! But in the short term there are lots of investors, there is enough corn, and demand, and farmers might be able to get a good price for their crops.

In a very similar practical discussion Representative Holmes talked about the reality of Hubbert's Peak (the first mention of it I heard this day). He had seen oil fields started in Kansas that were now plugged and gone. He would not object if the money now spent on oil imports was, in part, sent to Kansas for alternate fuels. But he pointed out that his State does not like mandates, and that they don't work well. He rather favors tax credits, and other similar incentives, though he feels corn ethanol no longer needs them, cellulosic ethanol and biodiesel still do. He also mentioned a current ethanol plant in Russell, KS that captures the carbon dioxide and uses it to inject into an underlying oil reservoir for [EOR](#), and that there will be a similar plant installed soon in Oklahoma that will do the same.

I will confess that while I have some understanding of the trading of carbon credits, it is one of those topics that allow me to rest my brain for a few minutes, and so I did not properly follow Michael Walsh's presentation on the Chicago Climate Exchange, for which I apologize. Everyone on the panel however did, and several commented that the issue is now here, and is not going to go away again, but will become accepted as a cost of doing business (at an estimated \$.03 to \$0.20 per gallon).

Don Paul then talked about Chevron's position. He pointed out that producing a million gallons of ethanol for the local folks was nice, but there are issues of Scale that have to be considered if ethanol (or any other bio-fuel) is to find a sustainable and significant position in world fuel supply. Bear in mind that a billion gallons of fuel will be consumed today - biofuels are not yet up there, but they will help ameliorate the situation as supplies begin to get tight. But when ethanol suppliers enter that scale of business they will have to understand the realities of the transportation fuels situation. If the price falls below your cost, do you still run the plant? He did mention that he thinks that the remaining oil reserve in the world is about 1 trillion barrels, though he felt that coal, oil shale, and biomass (US having significant quantities) would impact the situation in the intermediate term. And in that environment will the ethanol plants be sustainable, and able to cope with fluctuating demand and price, the way refineries now do. Bearing in mind that cellulosic ethanol and biodiesel are in development, what happens to corn ethanol plants as they face this competition? Will the capital invested be outflanked by this new technology? (If the ethanol driven car has the reliability of a cell phone then they are in trouble).

Vijay Vaitheeswaran was introduced as a likable fellow, and certainly seemed to fill that bill. He is currently on sabbatical finishing (this month) his second book, which will cover ethanol in much more detail than his first (which hardly mentioned it). He did mention being nervous about contradicting Vinod Khosla, though he also mentioned that Khosla seemed a bit shy about mentioning his hydrogen and fuel cell investments. He (Vijay) was very much convinced that the market should ultimately rule (and in discussion the panel fairly consistently agreed, with the caveat about short-term initiatives to start an industry). (I have to confess to being so engrossed in the debate here that I stopped taking notes). The US, it was pointed out, was doing more about

Finally it was noted that we are entering the demonstration plant phase for cellulosic ethanol, but that it will be 5 years before realistic commercial decisions on the technology can be made, based on plant operational results.

Sadly this hotel has no room internet service (funny when many of those in Poland do) and, given that the security arrangements require that we be there early tomorrow, I am just going to have to go down and see if I can find a way of quickly uploading this before heading out for an early night.

More should follow tomorrow.

P.S. I said "Hi!" to Matt Simmons at the reception, and am looking forward to hearing him in the morning. And I apologize that I still don't have the photographic talent to take presentation pictures.

(And if this appears twice my apologies - am having considerable problems this evening)

[editor's note, by Prof. Goose] Don't forget about the ASPO-USA Conference in a couple of weeks!



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