

Fueling our Future

Window Open for Development of Alternatives

By Tom Schuman

John Clark spent a portion of his career in Washington – serving in the U.S. House of Representatives and with the Department of Energy and Environmental Protection Agency. He, like our other participants, has been to more than a few conferences and seminars in his time.

Clark found the Lugar/Purdue Summit on Energy Security (see previous two pages) to be “very valuable.” The intensity displayed by Sen. Richard Lugar left an impression.

“Here he is with no practical opponent, an absolute free pass to becoming the longest-serving senator from Indiana ever (actually he’s already reached that milestone), as is well deserved, and he is spending his political capital and political fund-raising talking about energy,” Clark surmises.

Wally Tyner, a professor at Purdue, was a conference organizer and presenter in addition to interested participant. He believes people have a better idea of the real cost (beyond the gas pump) to the United States for oil imports.

Tyner says, “Senator Lugar just did an outstanding job of communicating that this is real, that we’re less secure as a country because of it, and that we need to align our energy policy set with means of trying to reduce that national security cost.”

Indiana Sen. Vic Heinold, active in state agriculture and ethanol development efforts, was impressed with the national scope presented. It will be “interesting and very challenging,” he notes, for universities and industries to meet the national goal of 50 billion gallons by 2010 – with 15 million coming from the currently popular corn base and 35 million from the still-developing cellulosic process, which is produced from a diversity of biomass waste.

Scot Imus of the Indiana Petroleum Marketers & Convenience Store Association also praises Lugar but adds that some of the initiatives discussed “would give our industry pause for concern.”

This quartet will, once again, not just review the summit but look at a variety of issues, including Indiana’s role in our nation’s energy future. They are:

Participants

- **John Clark**, director of the Indiana Office of Energy and Defense Development. Learn more at www.in.gov/energy
- **Wally Tyner**, professor in the Department of Agricultural Economics at Purdue University. Learn more at www.agriculture.purdue.edu
- **Indiana Sen. Vic Heinold**, elected in 2004 and representing seven counties in northern Indiana. Learn more at www.in.gov/S5
- **Scot Imus**, executive director of the Indiana Petroleum Marketers & Convenience Store Association. Learn more at www.icpa.org

Coming off the floor

While in Washington, Clark says he was involved in previous national efforts to focus on synthetic fuels (during the Nixon-Ford and Carter administrations). Despite sincere work and commitments, those reforms “dissipated when OPEC (Organization of the Petroleum Exporting Countries) did not fall apart and managed to put the brakes on their cartel-controlled oil price, just low enough where all the steam went out of all these alternate energy schemes.”

The difference this time, he adds, is the proposal for a floor for government subsidies. Industry participants that he has talked with agree on the number. Clark says the policy (if enacted), combined with economic incentives, may be what’s needed to turn the corner.

Tyner was among the key people working with Lugar’s staff to develop the economic game plan – a proposal that was introduced at the summit and put into proposed legislation a month

later through the National Fuels Initiative of 2006. He explains how it would work.

"It's a variable subsidy on domestic sources, renewables and coal liquids that would be based on a price floor of \$45," Tyner states. "There's no government intervention if the price of oil stays above \$45. If it goes below \$45, there's a variable subsidy that kicks in. That provides the insurance that will get the private sector investment that it takes."

Government savings would be another benefit. During the summit, Tyner pointed out that approximately \$2.5 million would be spent in 2006 on an ethanol subsidy that was not effectively helping reach the goal of lower prices.

Stick or the carrot

Lugar says that if auto manufacturers and oil companies don't become more proactive in focusing their efforts on flexible-fuel vehicles and E85 (a blend of 85% ethanol and 15% gasoline) pumps, they may have to be compelled to do so. The aforementioned legislation does just that. Heinold describes it as the senator "really took the gloves off" at the summit.

Imus explains why 25% of retail locations having an E85 pump is an "industry concern" for his members. "The problem is that big oil, the profitable side of that industry, only controls 15% of those retail stations. Eight-five percent are owned and operated by small businessmen who, contrary to their counterparts up the supply chain, are not finding profitable times.

"I think our industry, more than any other industry, responds to what the customer demands." He offers examples of large display signs advertising prices and the ability to charge purchases as costly for owners, but necessary for consumers. A pre-pay option to eliminate drive-offs would be good for business, but cause customer concern. "When there is demand there (for E85 pumps), certainly our industry will respond."

The 40-plus E85 stations in Indiana have been the result of state and federal tax incentives and risk-taking by independent business men and women, Imus contends. One distributor, he says, vowed to have the E85 price 20 cents lower than regular gasoline. When ethanol prices failed to come down, he was losing 35 to 40 cents for every gallon sold.

Heinold says Valparaiso-based Family Express (winner of a special Entrepreneurial Spirit Award from the Indiana Chamber earlier this year) recently committed to adding 10 E85 pumps at its various locations. Owner Gus Olympidis told the senator that at this point, "It's a very poor business decision," but he added, "It's the right thing to do."

State government, Heinold points out, has moved toward utilizing flex-fuel vehicles for its fleet. He is considering legislation that would encourage cities and counties (in locations with E85 pumps) to upgrade their

fleets as replacements come due. He doesn't expect mandates to come into play at the state level.

Tyner and Clark both say mandates are useful to have on the table, but the preference is to make progress without government directives. That is part of the appeal of the incentive with the price-based floor.

"If the government says, 'Yes, we want this technology, we want this source,' chances are it's going to be wrong," Tyner offers. "But if the private sector just responds to the incentive,



I think we'll get the right choices. I don't think we need to mandate or pick winners. The private sector is better equipped; they do a better job of picking those winners."

DDGs and infrastructure

Heinold points out that incentives have worked in helping bring ethanol plants to Indiana, with the private sector motivated to take advantage. Another business community example of innovation at work is Fair Oaks dairies, which will be fueling a 40-million-gallon ethanol plant from dried and compressed manure. The completely internal usage at the facilities will include the dried distillers grains (DDGs) being fed back to the cows.

With as many as one billion gallons of ethanol to be produced in the state, Tyner warns of a "mountain of DDGs that we're going to have to find something to do with." Further research, he maintains, may lead to DDGS being utilized as hog rations. Heinold hopes the new ethanol plants will meet the export standards that will allow the DDGs to be shipped elsewhere to meet demand.

Despite playing catch-up to other states, Clark contends that Indiana is just getting started as an alternative fuels capital. He believes Purdue, with the full engagement of the private sector, can be an "international center of excellence on cellulosic-based ethanol."

While winners emerge from the marketplace, Clark says it's important to enhance the existing infrastructure. Whether it's ethanol, biodiesel, coal-based liquids or other fuels, it will be essential to effectively and efficiently transport them to where they are

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*— John Clark
Indiana Office of Energy and Defense Development*

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*— Sen. Vic Heinold
Indiana Senate*



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*– Wally Tyner
Purdue University*



needed. This is a challenge, he adds, that may be best for states to tackle as opposed to the federal government.

Currently, Imus says he has members that, “If they go to terminal to get their regular gasoline, they have to send another truck out to a different terminal to get the ethanol product. We need to do a much better job of being able to let those petroleum distributors use that product in a cost-efficient manner.”

An agricultural boost

Agriculture and energy are coming together like never before. It’s taking place across the state, but in the most unique sense in Reynolds, a White County town of slightly more than 500 people. Dubbed BioTown and the subject of national newspaper, magazine and television stories, Reynolds is trying to becoming the first community in the United States to totally rely on locally generated renewable energy sources.

The idea came from junior staffers in Clark’s office and the Department of Agriculture. He acknowledges, “It’s a theme park. We’re not ready to take this show on the road nationally in the next 10 minutes. But it’s been a wonderfully informative, interesting, educational tool for what you can do.

“The next farm bill, some say, is going to be more important to our energy future than last year’s energy bill. And that was a pretty big bill.”

Heinhold says of BioTown: “It’s show-and-tell time, raising everyone’s awareness. If we’re going to lead in Indiana, we have to make the average Hoosier aware of what we’re doing.” In addition to the corn-based ethanol, “We’re expanding animal agriculture. We must develop these processes for handling manure. In the next 10 years, a hog farm, a dairy farm, a chicken farm must be nothing but a building to people driving by – without odor, without notice, without nuisance. We try and build these types of operations, but the minute we raise the CAFO (confined animal feeding

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operation) situation, everyone who wants to live in the country steps back.

"I think we can take Indiana to all new levels in animal agriculture and grow our corn-based ethanol," the senator continues. "With our fiber markets, our hardwood and grass potentials in the south, there's no reason Indiana's not going to be considered number one in renewable energies."

Again, cellulose-based ethanol is considered critical to future success. Tyner says the payoff there remains a few years away.

"We have to get the costs down. The enzymes that we're currently using are fairly expensive, and they need to come down. Some of the capital costs are pretty high. Retention times in some of the equipment are too long; they need to be reduced in order to make it more efficient.

"But there's a lot of research going on," Tyner adds. The DOE (Department of Energy) has requests for proposal for a 125 million dollar project that Purdue's going to be bidding on to try and close some of those gaps. We need to build some pilot plants. It has real potential, but we're going to have to make some more investments."

The timeframe for movement depends on the level of investments. Tyner says it's a concern that the share of the national research budget that is devoted to energy has declined to less than 2%.

Don't forget about coal

Clark believes the inclusionary process that was used in developing the state's Hoosier Homegrown Energy plan is already paying off. An overall goal is to reduce the \$14 billion a year to outside resources in energy expenditures. Despite being a major coal producer, \$1 billion of that \$14 billion total is for coal imports due to environmental concerns about the sulfur content in Illinois Basin coal.

"We're not saying let's be xenophobic and not import anything. We are saying, 'Let's only import what we have chosen not to make here ourselves or are unable to make here ourselves for some reason.'"

Duke Energy and Vectren continue to move forward on plans for a clean-coal power plant at Edwardsport in Knox County that would use integrated gasification combined cycle (IGCC) technology. That effort may soon be joined by others, according to Clark.

"We're in active discussions with a host of potential clean-coal projects. Stay tuned," he predicts. "We fully expect to have several very important clean-coal project announcements across the range of things we need to do here, not just produce electricity at coal gasification plants."

In addition to the role of coal (and other sources of power) in making up for the forecasted electricity shortage in the coming years, Tyner calls for coal liquids as part of the fuels solution.

"The model plant that we talked about at the summit is



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one that captures all the carbon dioxide and injects it. It is a very environmentally friendly technology," he claims. "It costs more. But as we showed with that floor price in effect, you can still produce coal liquids, which are diesel-type fuels, from Indiana coal. And you could elicit private sector investment with the right policy in place."



Back to school

Gasoline prices have decreased from the \$3-plus range earlier this year. Some say that lessens the

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& Convenience Store Association

opportunities for the general public to understand and embrace the need for energy diversification.

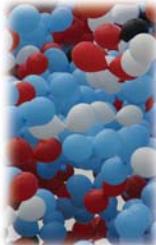
"I do think there needs to be great consumer education in this area," Imus declares. "People don't know if they have an automobile that is flexible for the E85. I think we need to do a much better job in educating the consumer and potential customer ... about what options they have and alternatives they can explore themselves."

Clark explains that's why it was important for the state energy plan to have economic development aspects included. "Make it a meat-and-potatoes issue and a jobs issue, and we think that will give some legs politically that perhaps it hasn't had before. Everybody gets excited when gas prices go up, and when gas prices go down they move on to the other daily concerns of their life. This is too important for that."

Tyner, who takes seriously his role in answering questions about changing gas prices, says, "It's part of our responsibility to keep this security issue in front of the public. The senator (Lugar) is doing everything he can to do that, and I think we all need to play our role."

Add legislators to the mix, notes Heinold, who praises the state administration for championing the cause – from Gov. Daniels' RV I that burns biodiesel to Lt. Gov. Becky Skillman dedicating every E85 pump in the state and driving a Yukon that uses the ethanol-based fuel.

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Not all development, of course, is from new or out-of-state resources. In late September, BP announced a \$3 billion (that's "b" as in billion) investment in a plan to process Canadian heavy crude oil at its Whiting refinery in Northwest Indiana. The plant modernization brings the potential of producing an additional 1.7 million gallons of motor fuels per day.

Clark says it's always good news when existing companies stay put and expand. Imus adds that the higher prices of crude oil likely played a part in BP's willingness to make the investment needed to introduce this process.

On the bright side

Optimism – at the summit and in this discussion – has filled the air. The final question for this panel: Why?

Tyner: "It's better than the alternative. The policies that we're looking at now are much better targeted at the real problem, which is security. If we get that kind of policy in place, then the magic of the private sector will take over, and we'll see this stuff begin to happen. We'll see the domestic alternatives begin to be developed at a much more rapid pace. And then we'll see that security cost start coming down."

Heinold: "By 2008, we'll probably have 12 operating ethanol plants and three biodiesel plants. This is not just good for agriculture; this is creating good jobs. This is keeping dollars in Indiana. It's an exciting time to be involved, and I think it's just going to keep getting better."

Imus: "At the retail level we're optimistic because we're fortunate to have both the General Assembly and an administration that realizes that a heavy-handed mandate approach may not necessarily be the best course of action. I think we've seen, with incentives that have been out there, a willingness to embrace alternative fuels."

Clark: "We may be in an extraordinary moment here with good political leadership and constructive business engagement. The stars may be aligned to really bring the best of both together for a brief, shining period ... we need to seize that and get through this window of opportunity before it closes as it has in the past. We just cannot allow that to happen this time."