

## Beyond Bio-Energy: Crafting a Competitive Future for Agriculture

Vincent Amanor-Boadu, PhD<sup>1</sup>

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Shell had an advertisement in *The Wall Street Journal* of November 14, 2006, claiming that it is "going farther to make hydrogen energy a reality." The company has already opened the world's first integrated hydrogen filling station in Washington D.C., and is estimating that that about 700 million automobiles will be fueled by hydrogen by 2050. British Petroleum's advertisement in the same paper touted its commitment to renewable energy through its investments in solar, wind and hydrogen fuel technologies. BP claims that by 2015, its investments will help eliminate 24 million metric tons of carbon dioxide per year.

The major automobile manufacturers are continuing their investments in alternative fuel technologies – hydrogen fuel cells, gas/diesel hybrids and flex fuel engines. Thus, they seem to be in sync with the petroleum companies in their search for alternative transportation energy solutions.

Three characteristics are driving the transportation energy debate: clean, cheap and efficient sources. While efficiency (as in miles per gallon) can be achieved through improved engine technology, clean and cheap must definitely come through investments in alternative fuels. And because the agenda for action in this arena is being defined by the transportation industry, conversations have been limited to transportation energy. Agriculture may have jumped on this bandwagon without carefully analyzing its implications for its long-term competitiveness. The appropriate question to facilitate the analysis is this: How do the ongoing conversations help agriculture to define and control its own future?

To create, gain and sustain a competitive advantage in the bio-energy marketplace, the agricultural sector must broaden the conversation beyond transportation energy. This allows us to define its own bio-energy agenda and avoid succumbing to the uncertainties in others' vision. This is one important opportunity for the agricultural sector to define and create its own future, independent of the interference of others and connecting to the ethical consumer's need for "clean, cheap and efficient."

If we are going to reduce or eliminate our dependence on petroleum, we have to look beyond alternative sources of transportation energy. By seriously searching for bio-energy solutions beyond transportation energy, the agricultural sector can take charge and transform its supply chain, positioning itself as the *only* true renewable sector, and creating the possibility to extract all the benefits associated with this position.

As consumers demand clean, cheap and efficient transportation energy, they are also signaling their propensity for organic, natural and wholesome foods as well as adoption of renewable materials. If we can leverage and control technologies that facilitate renewable resources use throughout our supply chain, then we position ourselves to be true masters of our destiny in the emerging world of ethical consumers. We move from commodity purveyors to wealth creators.

The opportunity slate is wide in the bio-based world. Could plants and animals and their by-products provide answers to agricultural production's fertilizer and pest control problems? Could

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<sup>1</sup> The author is the Executive Director of *Innovative Solutions* for Small Towns and Rural Communities, an idea implementation organization based in Kansas State University and an agribusiness professor in the Department of Agricultural Economics, Kansas State University.

we commercialize already-available technologies that facilitate the transformation of organic on-farm by-products into energy for local use? Could we augment our investments in bio-based plastics, adhesives and other packaging materials to transform food packaging? Could we challenge ourselves to discover and develop opportunities that are concurrently clean, cheap and efficient? Could we do all these and increase producers' wealth?

I believe the answer is "Yes" to all the above questions. However, for these ideas to become reality, we need courageous leadership to focus on long-term industry competitiveness. We need a leadership that emphasizes defining our own agenda instead of championing someone else's, and focuses on wealth creation instead of commodity prices. Yes, we need a leadership that directs research funds and resources towards increasing our capability in designing and controlling our future. Beyond all else, we need a leadership that is willing and able to challenge our assumptions about who we are and help us to become who we could be.

While history suggests the temporariness of all competitive positions, the reality of the knowledge-based economy is that we can control the duration of temporariness through effective intellectual property protection. Thus, we should endeavor to keep competitiveness-enhancing knowledge from the public domain until we have exhausted its exploitation. After all, preventing imitation is core to sustaining competitive advantage. This means we need new protocols to exploit wealth-creating technologies emerging from our research investments. To do all these well, we need to celebrate knowledge-creating talent by effectively rewarding investors and developers for their efforts. This is how incentives get built into innovation and commercialization.

The foregoing does not in any way suggest ignoring prevailing bio-energy opportunities. On the contrary, we advocate pursuing all economically credible opportunities in the marketplace, including those presented by current bio-energy conversations. As always, this should be done in cognizance of each opportunity's competitive environment and its limitations in stimulating wealth creation.

Therefore, agricultural leaders must become more entrepreneurial, define agendas that are relevant to each industry and each region while recognizing and leveraging synergies that enhance market power and competitive positioning. They must engage scientists and other talented people, deliberately asking bold questions that unleash creativity and generate opportunities. They must shepherd all of us to begin directing our financial, intellectual and other resources towards activities that truly contribute to sustaining competitive advantage at all levels in the agricultural sector. This, I believe, is the only way to alter history and take charge of our future. Knowledge is on our side but time is not. *Carpe diem.*