

Linking Research to Commercialization

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Our horizons are expanding. Much of the work that is being carried out in the field of new crops and biobased productions could not even have been imagined a generation ago. These our exciting times and what is being done in this field is profoundly important.

I am a lifelong farmer from Marcus, Iowa. I know what higher productivity, new crops, and new markets have meant to American agriculture, to American consumers, and for our competitive position in the world. And I know that the production miracle of American agriculture is based squarely on education and research. So let me begin by thanking you for what you do each and every day to build a better future, not only for us farmers, but for all of rural America and indeed for customers around the world.

Today we are knocking on the door of the carbohydrate economy. There are many technologies in play. They're at different stages of development. They are moving at different rates and the pace of change is accelerating. That's not news to you—things are moving faster in the labs than anywhere else. The rest of us are scrambling to keep up. But when one steps back from the clutter of details and looks at the broader picture, it is clear that—in critical areas—advancing technology is reaching critical mass. We are getting to that point at which cumulative, linear changes become qualitative, transformative, even revolutionary. This may or may not be true for all of you, depending on the area in which you work. But from our perspective at USDA Rural Development, I would submit to you that we are already in the midst of a profound transformation. With regard to rural economic and community development, we have today an opportunity of immense proportions—an opportunity so great that I will not even attempt to put a number to it.

We can, however, look at some partial indicators. One of these is biobased products. The Biopreferred Program is just the tip of the iceberg and it is still in its infancy. Already this program has identified over 9,000 bio-based products from over 1,900 manufacturers for possible inclusion. The potential market is—once again—so large that I would not even know how to go about estimating its size.

Another indicator, very much in the news, is renewable energy. This year, for the first time in the nation's history, America's bill for oil imports will almost certainly exceed the *entire* value of every ear of maize, pound of beef and gallon of milk, every egg, tomato, and peanut, every bale of cotton and bushel of wheat grown in the United States.

That bears repeating. USDA is projecting this year's total farm sector production at \$273 billion. Our oil imports will run north of \$300 billion. That means renewable energy is not just the biggest new market for agriculture in history—it is a market that is literally bigger than all of American agriculture today.

If we can displace ONE billion barrels of oil—20% of our current imports—with biofuels, that's a new market for American farmers greater than today's net farm income. That's even before we add in other renewables like wind and solar, which add to the potential. Very clearly, whether it is consumer biobased products, renewable energy, or industrial biotechnology, the potential is immense.

Some have argued this is the greatest opportunity for wealth creation in history. They may be right. It is *clearly* the greatest opportunity for investment, jobs, and wealth creation in rural America in our lifetimes. The challenge, of course, is how to move from research to commercialization. Clearly markets will do most of the work. Green products will have to compete on both quality and price. But just as clearly—as we stand at the early stages of whole new industries just beginning to emerge—decisions we make today about business models and regulation will cast a long shadow.

I would, therefore, like to turn to the question of where we want to be a generation down the road as we move from the labs to the supermarkets, gas stations, and factories. Here are the stakes. Rural America can participate in the carbohydrate economy as a commodity producer and net a few cents more a bushel. Or rural Americans can participate as investors and owners—and change the fortunes of rural communities for generations to come.

At USDA Rural Development, we have therefore launched a research initiative on ways to maximize the opportunities for the rural economy. These issues must be addressed—and not just at the federal level, but in the States as well. For us—and for rural policymakers in general—the goal is jobs, ownership, and wealth creation in rural communities. We don't have all the answers. But we think these are good questions.

We're evaluating a variety of *business models* to see which best encourage local investment and ownership. Local equity participation shouldn't be just a pipedream. In fact, it's the baseline—it's the default option sitting on the shelf right now. Remember: farmers already own the feedstocks for biofuels and biobased products. Rural America is in a position to control its own destiny—if it chooses to do so. But in the long run, can local ownership groups compete—or participate as partners—as major corporations move into the field? Obviously, many of the technologies involved will be proprietary. Just as obviously, however, licensing and partnership deals can accommodate and empower a wide variety of business models. Consolidation and centralization may be economically inevitable—or not. The question is, are there practical, economically viable choices we can make today—as these new industries begin to evolve—to encourage distributed ownership? That answer may well vary from one product or sector to another. But we want to explore the question.

Along the same lines, we are analyzing different *investment models* to facilitate the aggregation of local capital and local equity participation in emerging industries. Some people have read more into that statement than I intend, so let me emphasize that this is *not* an either-or proposition. I am the last person in the world to stand in the way of the free flow of capital. Morgan Stanley and Exxon Mobil and DuPont and ADM are *not* the enemy. Large companies are free to invest. Some of you work for those large companies. I wish you all the success in the world.

Others of you work for government or universities. You and your organizations will have choices to make about partnerships and paths to commercialization. The question is, can we level the playing field so that smaller enterprises can engage?

America's Farm Balance Sheet as tracked by USDA shows total farm assets of almost \$1.7 trillion ... a debt to asset ratio of just 13.1% ... and net farm equity of over \$1.4 trillion. Rural America *clearly* has the assets to finance a healthy share of the carbohydrate economy—if we can get farmers and other rural investors off the sidelines. We're trying to ask the questions now to stimulate the thoughts and policies needed to move in this direction.

Third, we are working to identify logistical bottlenecks and regulatory constraints to the development of distributed business models. We are starting with ethanol, biodiesel, and wind power but the lessons will apply to other distributed resources as well. Anything we can do to reduce non-economic costs, transaction costs, and regulatory burdens is especially important for startup ventures, small businesses, and local ownership groups. We want to reduce those barriers.

Finally, we are studying the linkage of distributed electricity production into the legacy generation and transmission system. This isn't a bio-agriculture issue, but I mention it because it is consistent with our strategic thrust to look for effective ways to encourage distributed business models.

These are important questions, and I would welcome your thoughts, comments, and suggestions. I sincerely believe that our answers to questions like these are as important—and perhaps far more important in the long run—than federal dollars out the door. Yes, we have a broad range of business development programs—a whole alphabet soup of RBEGs, RBOGs, VAPGs, B&I's, REDLGs, and the rest. These are available to support rural business initiatives. We are an investment bank for rural America, and we look forward to partnering with you when we can.

But to limit this discussion to the reach of federal loan and grant programs is frankly to miss the main action. The opportunity facing rural America today is HUGE. The financial requirements for building out these new industries dwarf our resources. Very clearly, therefore, private investment is going to play the decisive role. Just as clearly, rural America needs to look beyond federal safety net programs and to its own resources in order to participate fully. If we can build in rural America an entrepreneurial culture ready to accept risk and embrace investment, innovation, and change, the future is bright indeed. That is our goal.