

Mexican National Agricultural Council
"The Bioeconomy: Fad, Myth, or Reality?"
Mexico City
June 14, 2007

Douglas L. Faulkner
Deputy Under Secretary for Rural Development
U.S. Department of Agriculture

Thank you, _____, for that kind introduction. It is both a privilege and a great pleasure to be here today.

I would like to begin by applauding the National Agricultural Council for its leadership ... both in sponsoring this conference and in exploring the potential of biofuels for Mexico's agriculture and rural development.

The theme of this conference is "Bioenergy: Fad, Myth, or Reality?" The question is important -- for Mexico, for the United States, and for many other countries around the world as well. It is also a question to which we in the United States have begun to formulate a positive answer.

Last October, President Bush delivered a keynote speech in St. Louis to a conference jointly sponsored by the U.S. Departments of Energy and Agriculture. That conference was called "Advancing Renewable Energy: An American Rural Renaissance." The phrase "rural renaissance" was not chosen casually. It reflects the scale of opportunity that we see in the emergence of renewable energy and the bioeconomy ... opportunities not

only for the United States but for the development of renewable energy in many other countries as well. Attendance there by the President, the Secretaries of Energy and Agriculture, the head of the Environmental Protection Agency and many leaders from the private sector underscored the importance of this issue.

That said, of course, the view from Mexico may differ. National situations and perspectives need not be the same, and Mexico will obviously choose its own path. Mexico, for one thing, is still a net energy exporter, while the U.S. now imports 60% of our oil and refined products. \$60 oil looks quite different depending whether you are doing the buying or selling.

In the long run, however, the revaluation of oil in world markets on the one hand ... and the emergence of the bioeconomy on the other ... create opportunities for agriculture and rural development wherever you may be. We live in an era of globalization. None of us are insulated for long from global markets. And Mexico's oil will not last forever. Remember that the United States used to be an oil exporter as well.

So when it comes to the development of biofuels and the bioeconomy, I would suggest that the promise - in the long run -- is likely to be just as great south of the Rio Grande as it is to the north.

The opportunities are real and they are large. But they are not automatic. They require that we engage ... that we ensure that financing is available ... that we invest in the infrastructure, including broadband, that is necessary in the long run to make it all work ... and that we develop investment and business models that help channel the benefits to rural communities.

This involves a good deal of foresight, planning, and work. That is why what you are doing here today is important.

Again, the scale of opportunity is enormous. I want to avoid simply giving you a mass of statistics -- that's a bad thing to do in any talk and in simultaneous translation it would be an act of cruelty. You can look up the numbers online at your convenience.

But if I were to reduce the statistics to a single comparison, it would be this. Americans last year spent more on imported oil than for every cow, chicken, bushel of wheat, ear of corn, pound of tomatoes, and bale of hay combined.

That bears repeating. The U.S. bill for imported oil last year exceeded the total value of all agricultural production in the United States. We of course feel the effect of \$60 oil in our pocketbooks. I grew up thinking gasoline should be 25 cents a gallon. Expensive gasoline becomes a sensitive issue for American drivers - - and thus for our political system.

But at the same time, it is important to recognize that every barrel of imported oil is - at least in theory - a potential target for American-produced biofuels.

President Bush, in his State of the Union speech this past January, proposed a series of initiatives called "20 in 10" - a series of steps to reduce U.S. gasoline consumption by 20% in 10 years. Some of this is to be achieved through greater energy efficiency. But, three quarters of the proposed reduction is through the greater use of alternative fuels.

The President called specifically for an Alternative Fuels Standard of 35 billion gallons by 2017. If that is achieved primarily with ethanol and biodiesel or other biofuels, it implies a new market for American farmers fully half the size of today's net farm income.

That opportunity is one big enough to grab our attention at USDA.

The United States is today moving rapidly to seize these opportunities. We have been doing so for several years. President Bush made a comprehensive national energy strategy a top priority upon taking office in 2001. Since that time, we have had:

- The development and publication of a coherent, broad based national energy strategy ...
- A series of significant, pro-renewable energy tax incentives ...
- A pathbreaking Energy Title in the 2002 Farm Bill, the first time in history in fact that a U.S. Farm Bill has contained a renewable energy title ...
- A sweeping new Energy Policy Act in 2005 ...
- The President's Advanced Energy Initiative in 2006
- The "20-in-10" Presidential initiative announced this year, as well as \$1.6 billion in support for renewable energy in the President's proposals for the new Farm Bill.

In short, this has been a concerted, sustained effort over the entire course of the present Administration. Now the results are beginning to come in, for biofuels and for renewable energy generally.

Since 2000 U.S. ethanol production has more than tripled. Additional capacity now under construction is expected to double ethanol production again over the next two years.

Brazil, as you know, is the historic world leader in ethanol. The United States has finally caught up with Brazil, but ethanol is clearly a growing opportunity throughout the hemisphere. President Bush has reached out to Brazil and the Caribbean nations to develop this potential.

Also since 2000, installed wind capacity in the United States has more than quadrupled. Europe has traditionally led in wind power by a wide margin but the U.S. led the world in new capacity in 2005 and 2006 and we are making up ground fast.

Wind energy is not a fuel we can grow on our farms, but it is a resource we can harvest. Due to its siting requirements, most wind development will be in rural areas. If properly structured, this translates into land rent and royalty payments for rural residents ... as well as distributed power production to support rural economic development.

Interest and investment are growing in solar power, geothermal, biomass, and methane gas recovery. Anaerobic digesters can turn a waste disposal problem into an energy resource and a profit center for farmers and ranchers. Hydrogen fuel - - made out of renewable sources - - for fuel cells can power our cars and offices down-the-road.

I said I wanted to avoid statistics but I must make an exception for biodiesel. Biodiesel production in the United States was 2 million gallons in 2000 ... lab scale operations and a little recycling.

Last year biodiesel production was 245 million gallons and will reach an estimated 700 million gallons within 3 years. Simply saying that it is growing fast doesn't do it justice. It has grown 120-fold in six years.

On another front, cellulosic ethanol is now moving from the labs into the field. This is a major research priority for both the Department of Energy and the Department of Agriculture and the research footprint is growing. The Department of Energy is now reviewing proposals for three new bioscience centers and winners will be announced soon.

Moving from research to commercialization, the U.S. Department of Energy earlier this year committed funding to six commercial scale cellulosic ethanol demonstration plants. DOE has also announced a complementary new solicitation for \$200 million for small-scale cellulosic biorefineries.

DOE has also proposed regulations for a new loan guarantee program for clean energy technologies. This is coordinated with our existing programs at the Department of Agriculture. And in addition, the President's proposals for the 2007 Farm Bill include major new initiatives for both research and commercialization of cellulosic ethanol.

The activity extends beyond fuel production. The highest economic value for oil is probably as a chemical feedstock. With oil at \$60 a barrel and likely higher in the future, many industrial firms may start to look anew at biomass for a different raw material input.

But the good news is, almost anything we make from oil we can now grow in our fields. Just last week, I was in Loudon, Tennessee, to attend the grand opening of a new plant -- the DuPont Tate & Lyle BioProducts facility --that manufactures 1,3 propanediol, or Bio-PDO.

Made from corn starch, this is a versatile ingredient for polymers, cosmetics, liquid detergents, and industrial applications like anti-freeze and heat transfer fluids. Bio-PDO directly replaces petroleum ... and it consumes 40% less energy and produces 20% less greenhouse gas emissions than its petroleum based counterpart. And, they are already looking at cellulosic feedstocks for these industrial processes and consumer goods.

Cutting edge today, biorefineries like this may be commonplace tomorrow. Biobased chemicals today supply about 2% of U.S. chemical intermediaries. The prospects are difficult to quantify because the market is still so new and so diverse. A very preliminary estimate, however, is that biobased chemicals could account for 20% of the market within 20 years.

The estimate I've just given you is very far from a hard number. Clearly, however, the potential is large. USDA is already building a database of biobased products eligible for preferred procurement by federal agencies. We have already identified over 11,700 products for possible inclusion on the list. Inclusion is not automatic -- it depends on cost and performance -- but again, the potential is obvious.

Last but certainly not least, I would note that private funds are now beginning to flow into renewable energy as well, and on a large scale.

According to "Clean Edge, Inc.", which tracks private investment in green technologies, global markets for biofuels, wind, solar, and hydrogen/fuel cells totaled almost \$40 billion in 2005 and expanded almost 40% in 2006. They are expected to quadruple within a decade. U.S. based venture capital investments in clean energy technologies nearly tripled in 2006 to \$2.4 billion.

In short, the world is changing. The price of oil is being revalued in world markets. As painful as that is for consumers, it opens the door to a wide range of alternative fuels and biobased products. The opportunities for agriculture and related rural development are great.

So to return to the question with which we began -- "Fad, Myth, or Reality?" -- my answer is this: the bioeconomy is a reality, although one that is just being born.

Yes, there is uncertainty. We are on the cusp of a new era of great and multiple changes in energy supply and demand.

We are seeing extraordinary progress across a wide range of related scientific disciplines including genetics, chemical engineering, materials science, and information technology.

We cannot yet foresee the full implications of the forces now in play. The story will take years to unfold.

But even at this early stage, we can begin to see transformative effects. In the United States, ethanol and biodiesel are now driving the price of corn and soybeans. Returns to farmers are increasing rapidly.

U.S. farmers this year boosted the acreage planted in corn to its highest level since 1944. There is a biofuels building boom across the farm belt, and the ripple effect touches everything.

An ethanol plant doesn't involve just corn and enzymes - it involves steel and concrete ... new jobs in construction and in the plant ... railroads and trucking ... banking and insurance ... workforce development ... more families in town, more kids in school, more tax base for local communities.

We are beginning, in fact, to build out a whole new industrial infrastructure in rural America ... and the community services and related businesses that go with it.

This is, perhaps, the greatest new opportunity for wealth creation in rural America in our lifetimes. We see similar opportunities in many other countries around the world. Renewable energy is very largely rural energy, and it holds enormous potential for farmers, ranchers, and rural communities.

From an American perspective therefore, this is not a fad. It is not a myth. The bioeconomy is a new reality just now coming into view, and it is an opportunity we are determined not to miss. Thank you.