AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

REVIEW THE FINANCIAL STRUCTURE OF RENEWABLE ENERGY SOURCES

HEARING

BEFORE THE

SUBCOMMITTEE ON CONSERVATION, CREDIT, ENERGY, AND RESEARCH

OF THE

COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

MARCH 7, 2007

Serial No. 110–03

Printed for the use of the Committee on Agriculture
agriculture.house.gov

U.S. GOVERNMENT PRINTING OFFICE

36–366 WASHINGTON : 2007

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON AGRICULTURE

COLLIN C. PETERSON, Minnesota, *Chairman*

TIM HOLDEN, Pennsylvania, *Vice Chairman*
MIKE McINTYRE, North Carolina
BOB ETHERIDGE, North Carolina
LEONARD L. BOSWELL, Iowa
JOE BACA, California
DENNIS A. CARDOZA, California
DAVID SCOTT, Georgia
JIM MARSHALL, Georgia
STEPHANIE HERSETH, South Dakota
HENRY CUELLAR, Texas
JIM COSTA, California
JOHN T. SALAZAR, Colorado
BRAD ELLSWORTH, Indiana
NANCY E. BOYDA, Kansas
ZACHARY T. SPACE, Ohio
TIMOTHY J. WALZ, Minnesota
KIRSTEN E. GILLIBRAND, New York
STEVE KAGEN, Wisconsin
EARL POMEROY, North Dakota
LINCOLN DAVIS, Tennessee
JOHN BARROW, Georgia
NICK LAMPSON, Texas
JOE DONNELLY, Indiana
TIM MAHONEY, Florida

BOB GOODLATTE, Virginia *Ranking Minority Member*
TERRY EVERETT, Alabama
FRANK D. LUCAS, Oklahoma
JERRY MORAN, Kansas
ROBIN HAYES, North Carolina
TIMOTHY V. JOHNSON, Illinois
SAM GRAVES, Missouri
JO BONNER, Alabama
MIKE ROGERS, Alabama
STEVE KING, Iowa
MARILYN N. MUSGRAVE, Colorado
RANDY NEUGEBAUER, Texas
CHARLES W. BOUSTANY, JR., Louisiana
JOHN R. "RANDY" KUHL, JR., New York
VIRGINIA FOXX, North Carolina
K. MICHAEL CONAWAY, Texas
JEFF FORTENBERRY, Nebraska
JEAN SCHMIDT, Ohio
ADRIAN SMITH, Nebraska
KEVIN McCARTHY, California
TIM WALBERG, Michigan

ROBERT L. LAREW, *Chief of Staff*
ANDREW W. BAKER, *Chief Counsel*
WILLIAM E. O'CONNER, JR., *Minority Staff Director*

SUBCOMMITTEE ON CONSERVATION, CREDIT, ENERGY, AND RESEARCH

TIM HOLDEN, Pennsylvania, *Chairman*

STEPHANIE HERSETH, South Dakota
HENRY CUELLAR, Texas
JIM COSTA, California
BRAD ELLSWORTH, Indiana
ZACHARY T. SPACE, Ohio
TIMOTHY J. WALZ, Minnesota
DAVID SCOTT, Georgia
JOHN T. SALAZAR, Colorado
NANCY E. BOYDA, Kansas
KIRSTEN E. GILLIBRAND, New York
DENNIS A. CARDOZA, California
STEVE KAGEN, Wisconsin
JOE DONNELLY, Indiana

FRANK D. LUCAS Oklahoma, *Ranking Minority Member*
MIKE ROGERS, Alabama
STEVE KING, Iowa
JEFF FORTENBERRY, Nebraska
JEAN SCHMIDT, Ohio
TIM WALBERG, Michigan
TERRY EVERETT, Alabama
JERRY MORAN, Kansas
ROBIN HAYES, North Carolina
SAM GRAVES, Missouri
JO BONNER, Alabama
MARILYN N. MUSGRAVE, Colorado

NONA DARRELL, *Subcommittee Staff Director*

CONTENTS

	Page
Holden, Hon. Tim, a Representative in Congress from the State of Pennsylvania, opening statement	1
Lucas, Hon. Frank D., a Representative in Congress from the State of Oklahoma, opening statement	2
Goodlatte, Hon. Bob, a Representative in Congress from the State of Virginia, opening statement	3
Peterson, Hon. Collin C., a Representative in Congress from the State of Minnesota, prepared statement	5
Walz, Hon. Timothy J., a Representative in Congress from the State of Minnesota, prepared statement	9

WITNESSES

Dorr, Hon. Thomas C., Undersecretary for Rural Development, U.S. Department of Agriculture, oral statement	10
Prepared statement	62
Karsner, Hon. Alexander, Assistant Secretary, U.S. Department of Energy, oral statement	11
Prepared statement	76
McGinty, Hon. Kathleen A., Secretary, Pennsylvania Department of Environmental Protection, oral statement	13
Prepared statement	81
Denniston, John, Partner, Kleiner Perkins Caufield & Byers, Menlo Park, California, oral statement	36
Prepared statement	89
Book, Kevin, Senior Vice President, Friedman, Billings, Ramsey, & Company, Inc., Arlington, Virginia, oral statement	38
Prepared statement	97
Ward, Larry, Vice President Project Development, Broin Companies, Sioux Falls, South Dakota, oral statement	39
Prepared statement	104
Barker, Tim, Executive Vice President, Orion Ethanol, Pratt, Kansas, oral statement	42
Prepared statement	119
Stark, Doug, President, Farm Credit Services of America, Omaha, Nebraska, oral statement	44
Prepared statement	123
Reyher, Dave, President, Colorado East Bank & Trust, Lamar, Colorado, oral statement	46
Prepared statement	127

SUBMITTED MATERIAL

Holden, Hon. Tim, Fortenberry, Hon. Jeff, and Costa, Hon. Jim, letter	60
Dorr, Hon. Thomas C., Undersecretary for Rural Development, U.S. Department of Agriculture, questions	138

HEARING TO REVIEW THE FINANCIAL STRUCTURE OF RENEWABLE ENERGY SOURCES

WEDNESDAY, MARCH 7, 2007

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON CONSERVATION, CREDIT,
ENERGY, AND RESEARCH,
COMMITTEE ON AGRICULTURE,
Washington, DC.

The Subcommittee met, pursuant to call, at 1:05 p.m., in room 1302 of the Longworth House Office Building, Hon. Tim Holden (chairman of the subcommittee) presiding.

Present: Representatives Holden, Herseth, Cuellar, Costa, Ellsworth, Space, Walz, Scott, Salazar, Boyda, Gillibrand, Cardoza, Boswell, Lucas, Rogers, Fortenberry, Schmidt, Walberg, Everett, Moran, Graves, Musgrave, and Goodlatte (ex officio).

Staff Present: Nona Darrell, Scott Kuschmider, Rob Larew, John Riley, Sharon Rusnak, Anne Simmons, Debbie Smith, Bryan Dierlam, Josh Maxwell, Pelham Straughn, and Jamie Weyer.

STATEMENT OF HON. TIM HOLDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. HOLDEN. I would like to welcome everyone this afternoon, and I hope that this hearing will provide a good perspective on how we can improve the Federal role in supporting the renewable fuels market.

Today, we asked a question: what approach should we take on renewable energy policy? We are going to look at the current structure of investment in renewable energy sources. At a recent Energy and Commerce Committee hearing, our friends in that committee talked about energy's role in agriculture, so today, we will talk about agriculture's role in energy.

In the 2005 Energy Bill, Congress authorized a program to provide loan guarantees for renewable fuels and other energy projects. However, the Department of Energy has absolutely dragged its feet on implementing the Loan Guarantee Program. I am puzzled by the length of time it has taken to develop the program, and I am not sure if the Department of Energy should be taking over the renewable fuel portfolio.

The Department of Agriculture has had a successful history in providing support for programs that could help drive our renewable fuels industry. They are already successfully administering very effective loan guarantee programs, so it is hard for me to understand why the Department of Energy is having so much difficulty.

Over the past few decades, we have seen an expanding list of Federal, State, and local incentives, regulations, and programs. These initiatives have helped encourage renewable energy production and use. The biofuels market is rapidly growing and changing. This hearing today will review the current state of government programs and industry investment in preparation for the reauthorization of the farm bill. I think we can do more to increase our use of renewable agriculture fuels, and become more energy-independent.

I look forward to hearing from the witnesses. I ask all members to submit their opening statements for the record, so we have more time for questioning, with up to three exceptions, but one right now, Mr. Lucas, the Ranking Member from Oklahoma.

STATEMENT OF HON. FRANK D. LUCAS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OKLAHOMA

Mr. LUCAS. Thank you, Mr. Chairman, and I believe this is the first time we have an opportunity to do a hearing since you have become the chairman, so I would like to note that having served loyally with me as my ranking member for 5½ years, you were an outstanding force in previous legislation, and I hope, perhaps, to duplicate your role in my position as Ranking Member under your Chairmanship, and I would be less than candid to admit that, you know, some day, I wouldn't mind reversing those roles again, but you will be a fine chairman.

Mr. HOLDEN. Well, we will have to live by these rules for now, then.

Mr. LUCAS. Yes, sir. That is exactly right.

After years of skepticism, the business sector is giving the ethanol industry a second look. Higher petroleum prices and technology advances have made renewable fuels a more viable business model. But now the question is how we help these fuels in their move from a potential fuel alternative to a successful business plan.

The science is in on renewable fuels. More than five billion gallons of ethanol, and more than 225 million gallons of biodiesel are currently in production. The question now is how can the government present the best possible business environment for current production to succeed, and for additional biofuel plants to begin production.

The Federal government has played a big part in the early successes of renewable fuels. The ethanol tax credit is $0.51 per gallon; the biodiesel tax credit is $1 per gallon. The tariff on imported ethanol is $0.54 per gallon. The current Renewable Fuel Standard is 7.5 billion gallons by 2012. Total Federal and State biofuel subsidies have been estimated in the range of $5.5 to nearly $7 billion per year, and the research has also shown that cellulosic ethanol also has shown real promise. This form of ethanol, created from products such as switchgrass, that could be grown abundantly, it just so happens, in Oklahoma, scientists say switchgrass can produce more ethanol on less usable soil than traditional crops, but there is no commercial production currently online. The newest challenge is getting that technology from the lab to the open market.

Producers have heard for years that ethanol would provide an additional market for their crops, but it is only now that they are seeing the results of that promise. Renewable fuel production creates jobs, and brings economic development to rural communities.

I look forward to the discussion today, and hearing from these witnesses on their real world challenges they face every day.

Thank you, Mr. Chairman.

Mr. HOLDEN. I thank the Ranking Member, and I want to recognize the Ranking Member of the Full Committee, Mr. Goodlatte.

STATEMENT OF HON. BOB GOODLATTE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. GOODLATTE. Thank you, Mr. Chairman. I would like to thank you for calling today's hearing.

A few years ago, not many people outside of agriculture took notice of issues related to renewable fuels. Today, ethanol and biodiesel are at the forefront of energy policy discussion.

In 2002, the Congress passed a farm bill that included its own energy title for the first time. More recently, Congress mandated a Renewable Fuels Standard in the Energy Policy Act of 2005, along with several production and tax credits for ethanol and biodiesel. These policies have created incentives for private investors and entrepreneurs to develop more than 100 biorefineries across the country. Because of the increased demand for renewables, producers have found new markets for their products, and are helping to reduce our dependency on foreign sources of energy. Additionally, the renewable fuels market is creating new jobs in the agriculture sector, and generating more income for local economies.

Today, I look forward to hearing how the U.S. Department of Agriculture and the U.S. Department of Energy are working together to fund the research and production of biofuels, and how the private sector is investing in the renewable energy sector.

I am also very interested in hearing input from our witnesses on how we should shape future renewable energy programs. To meet the needs of our energy consumption, and to open more markets for our agriculture producers, it is essential that we develop commercially viable cellulosic ethanol plants. I am encouraged by the Department of Energy's recent announcement of competitive grant awards of up to $385 million to help finance six cellulosic ethanol plants.

The development of cellulosic technology has enormous potential to bolster the renewable fuel market outside the corn belt. Products such as forest biomass are plentiful and available in many states. Almost ⅔ of the Commonwealth of Virginia is forested, as is much of the Southeastern United States. Trees are an abundant resource, and are available for conversion into both paper and biofuels year-round. Let me also add that like forestry biomass, other agricultural by-products, such as plant and animal waste, as well as other commodities, can be tapped as plentiful, sustainable renewable fuel resources.

Again, Mr. Chairman, I welcome you as Chairman of this Subcommittee, and I look forward to this hearing, and I thank you for holding it.

Mr. HOLDEN. Well, I thank the Ranking Member, and we welcome our first panel: the Honorable Thomas C. Dorr, Under Secretary for Rural Development, United States Department of Agriculture; the Honorable Alexander Karsner, Assistant Secretary, United States Department of Energy; the Honorable Kathleen "Katie" McGinty, Secretary of the Pennsylvania Department of Environmental Protection.

Our witnesses have submitted their written testimony, so I ask them to keep their remarks as close to five minutes as possible.

And Secretary Dorr, you may begin when you are ready.

Opening Statement of
Agriculture Committee Chairman Collin C. Peterson
House Committee on Agriculture
Subcommittee on Conservation, Credit, Energy, and Research

Public Hearing to review the financial structure of renewable energy sources
March 7, 2007

Thank you, Chairman Holden and Ranking Member Lucas, for holding this hearing today on the financing of renewable energy sources.

One of the biggest developments that agriculture and rural America has seen in a many years has been the growing demand and expanding market for agriculturally-based energy sources, including ethanol and biodiesel. This excitement is not just rooted in farm country. It has spread into our suburbs and cities, as everyone is eager about the potential for ethanol and other renewable fuels to reduce our nation's dependence on foreign energy once and for all.

When the USDA unveiled their Farm Bill proposals earlier this year, one of their ideas that I immediately agreed with was their

conclusion that additional resources are needed for renewable fuel programs. The 2007 Farm Bill our committee will consider this year will include an energy title that will help meet this demand by supporting domestic alternative energy sources.

For example, we know how to make cellulosic ethanol. It's been done. What we need to do now in this Farm Bill is to provide the incentives to get companies to produce it on a commercial scale until conventional lending can take over. Federal loan guarantee programs will be essential to move this next generation of alternative energy sources into commercial production.

I am curious to hear about the efforts of the Department of Energy's Biomass and Biorefinery Systems program to meet this growing demand for the next stage of ethanol and biofuels. It has been my position that the Department of Energy is simply unable to effectively administer a loan guarantee program for agriculture-based renewable energy sources. They do not have an established experience

with loan guarantee programs or the necessary infrastructure within the department to meet the appetite for renewable fuels. Furthermore, they are not currently rooted in farm country, close to the farmers and rural businesses who want to be the drivers of this industry part of the fabric of rural America.

The Department of Agriculture is far more experienced with loan guarantee programs and has the track record and infrastructure in place to assist farmers who want domestic, homegrown renewable energy to be part of the fabric of rural America's future. I look forward to cooperating with the Energy and Commerce Committee to examine and reevaluate this administrative arrangement and will continue to do so as we consider the 2007 Farm Bill.

In the meantime, I also look forward to hearing from the witnesses today who are involved in the private financing of these projects. Specifically, I am interested to know what kind of market signals they are looking for to determine whether or not the government takes its role

as loan guarantor seriously and is committed to fostering private investment in alternative, homegrown energy sources.

We need to get the next stage of alternative energy industry moving forward done in the most timely and efficient way possible. We can do this if we do it right. I look forward to hearing from each of the witnesses today about their views on the future of domestic alternative energy sources and I yield back my time.

Statement of Representative Tim Walz

This farm bill presents us with an extraordinary opportunity in the area of renewable energy production. Although renewable energy production from farm-based energy sources has grown in recent years, we still have a long way to go. I am pleased that today we will learn more about the different federal programs that help promote that energy production. We will hear about what is working and about what needs improvement.

I am constantly hearing from producers that renewable energy production has the potential to literally transform American agriculture. I'm proud that Minnesota has long been recognized as a national leader in the promotion of biofuels such as ethanol and biodiesel. In fact, Minnesota has more E-85 fueling stations than any other state in the nation. And the promise of cellulosic ethanol has the potential to promote economic development to parts of rural America that have not yet felt the lift from corn-based ethanol.

But in addition to ethanol, we have a plentiful supply of wind energy as well! Minnesota's First Congressional District has received more grants under Section 9006 of the Farm Bill for renewable energy production than any other Congressional District in the U.S.

I look forward to receiving the testimony of our witnesses here today, and I thank the Committee for holding this hearing.

STATEMENT OF HON. THOMAS C. DORR, UNDER SECRETARY FOR RURAL DEVELOPMENT, UNITED STATES DEPARTMENT OF AGRICULTURE

Mr. DORR. Thank you, Mr. Chairman. Mr. Chairman and members of the subcommittee, it is a distinct pleasure for me to appear today to discuss USDA Rural Development's renewable energy and energy efficiency programs and activities.

You have asked me to focus this afternoon on our role in financing renewable energy investments. Let me begin by saying that reducing America's dependence on imported oil is a national and economic security issue. It is an important environmental issue. And for American agriculture and rural America, it is also an enormous opportunity, probably the greatest opportunity for wealth creation in rural America in our lifetimes.

I want to acknowledge at the outset that conservation is also an important objective. A kilowatt saved is as important as a kilowatt produced, and my written testimony discusses a number of energy efficiency initiatives by our housing, utilities, and business programs, and I would invite your questions on those issues as well.

With regard to our renewable energy financing strategies, the first point to make is that renewable energy is, in fact, already taking off. We are in the very early stages of a long build-out, but we are no longer standing at the starting line. The record in this decade is dramatic. Installed wind capacity has quadrupled since 2000. Ethanol production has more than tripled, and it will more than double again when the capacity now under construction comes on line. Biodiesel production is up from two million gallons in 2000 to 245 million gallons last year, with 50 percent growth projected for this year. Cellulosic ethanol is now moving out of the labs and into production.

The growth is driven by two things. First is the increase in world oil and natural gas prices. One of the things that markets are good at is converting problems into opportunities, $20 oil priced most renewables off the market, $60 oil, painful though it is, is now calling new resources into production.

At the same time, policy in this decade has strongly supported the development of renewables. President Bush made a comprehensive energy strategy, including renewables, a first order of business in 2001. Since then, we have had the Energy Title of the 2002 Farm Bill, the Energy Policy Act of 2005, a series of pro-renewable energy tax incentives, the Advanced Energy Initiative, the Twenty in Ten Initiative this year, and the important new proposals in the President's Farm Bill rollout announced about a month ago. These are now paying off. Again, it is early in the game. Coming into the decade, the renewable energy baseline was still very low. The explosive growth that we have begun to achieve has just started to move the needle.

That said, however, wind, conventional ethanol, and biodiesel are currently building out very, very rapidly, and research is accelerating across the spectrum. It is becoming very clear that 10 or 20 years down the road, we will look at the beginning of this decade as the point of inflection when renewables really became of age.

So where do we go from here? Rural Development, of course, is heavily involved, because the leading wave of renewable energy technologies are agriculture or rural-based. We have supported and will continue to support renewable energy and energy efficiency investments across the full range of rural development programs. From 2001 through 2006, our business utility programs invested over $480 million in 1,134 renewable energy and energy efficiency projects. Ten separate programs contributed to this total. I therefore caution you not to think that this is limited to the 9006 Program or the Business and Industry Program, or any other individual platform, because the commitment is across the board.

Furthermore, our investments were just the tips of the iceberg. The $480 million leveraged over $1.5 billion in private funding, and our ability to leverage is crucial going forward. Private equity is beginning to move into renewable energy in a big way. The issue for us, therefore, is not limited to developing new energy resources. That will happen. It is happening, regardless of who owns the plants.

From our perspective, however, an equally important question is how will rural America participate in this build-out? Among the things we are exploring are investment and business models intended to facilitate the aggregation of local capital, as well as to enable farmers and other rural investors to engage.

An example I have often used is that the America's Farm Balance Sheet, as calculated by Keith Collins and his crew at USDA's economic shop, showed total farm assets of farmer and rancher-owned ranch, forest, and farmland at over $1.9 trillion, and a net farm equity of $1.7 trillion. $1.9 trillion is over 1,000 times our total budget at USDA Rural Development. If we can use our resources to get farmers and other rural investors in the game, we can, in fact, multiply the benefits to rural America many times over.

Finally, Mr. Chairman, I want to emphasize that financing is just one part of the puzzle. We need to be looking at the regulatory and logistical impediments to the rapid build-out of these new industries. We need to be providing technical assistance to local governments and potential investors. There are going to be issues of market access as biofuels begin to be traded internationally, and there is going to be an open-ended technology race as feedstocks and conversion technologies continue to improve. This may lead to serious intellectual property and technology transfer issues. The money is important, but it is not the only thing or even, perhaps, the primary thing that we need to be concerned about today.

This is an exciting prospect. We are glad to be part of it, and I will be happy to address any questions you may have. Thank you.

[The prepared statement of Mr. Dorr appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Mr. Secretary. Secretary Karsner.

STATEMENT OF HON. ALEXANDER KARSNER, ASSISTANT SECRETARY, UNITED STATES DEPARTMENT OF AGRICULTURE

Mr. KARSNER. Mr. Chairman, thank you for the opportunity to participate in this hearing on the financing structure of renewable energy sources. I will discuss initiatives underway in the Office of

Energy Efficiency and Renewable Energy at the Department of Energy, and focus on the activities within our Biomass and Biorefinery Systems Program, that provide incentives and financing for ethanol production in particular, and support the development of biofuels.

I would like to say, at the outset, that the Department of Energy shares an excellent working relationship with the U.S. Department of Agriculture. Under Secretary Dorr and I collaborate on a variety of renewable energy issues, each bringing unique perspectives of our agencies to the table, in order to achieve the goal of enhancing greater energy security, economic competitiveness, and environmental stewardship.

This committee has the weighty charge of reauthorizing the farm bill this year, and there appears to be a strong consensus that a robust Energy Title is essential. America's farmers and ranchers have the opportunity to play an historic role in shaping domestic energy policy while creating new jobs and stimulating economic growth in rural America. I look forward to collaborating continuously with USDA, as we work with Congress on these efforts.

In the 2007 State of the Union Address, President Bush challenged our country to reduce gasoline consumption by 20 percent within the decade, our Twenty in Ten plan. In that plan, the President called for new mandatory fuel standards, requiring the equivalent of 35 billion gallons of renewable and alternative fuels by 2017, nearly five times the target now in law. Expanding the current Renewable Fuel Standard established by the Energy Policy Act of 2005 creates a tremendous incentive for research, development, and private investment into alternatives to oil.

The Department of Energy is dedicated to helping our Nation develop a full portfolio of renewable and alternative fuels technologies. Over the next two years, the Department, together with a number of our key strategic partners in Government, including USDA, will undertake key activities to accelerate the development, production, and deployment of cellulosic ethanol. Ethanol is currently the liquid renewable fuel having the greatest success in the market, with potential for both near and long-term displacement of gasoline. The focus of DOE's Biomass Program is to make cellulosic ethanol cost-competitive by 2012, a target put forth in the President's 2006 Advanced Energy Initiative.

Under Section 932 of the Energy Policy Act of 2005, the Department recently announced six selectees for up to $385 million in grants for commercial-scale biorefineries. While these first of a kind facilities will likely have higher costs of production than subsequent cellulosic biorefineries, they will initially help us to identify the issues of commercial scaling to enable market penetration of cellulosic ethanol.

EPAct 2005 created the Title XVII Loan Guarantee Program. This program seeks to facilitate financing for commercial projects that avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases, while employing advanced technologies. Renewable energy systems such as advanced biofuels projects are eligible for the Title XVII loan guarantees.

DOE is also implementing Section 942 of the Energy Policy Act, which directs establishment of a reverse auction incentive program

in consultation with USDA, EPA, and the Department of Defense, for the production of domestic cellulosic biofuels.

On the research side, DOE's Office of Science is investing $375 million over the next five years to support the establishment and operation of three bioenergy research centers. The centers focus on accelerating transformational scientific breakthroughs for cost-effective production of biofuels and bioenergy. To address biomass resource availability and feedstock infrastructure, DOE will continue to support the Regional Biomass Energy Feedstock Partnerships with the Department of Agriculture, to identify regional biomass supply, growth, and biorefinery development opportunities across the country.

The Department is also working to encourage the development and deployment of the distribution and delivery infrastructure. DOE's Biofuels Infrastructure Team, comprised of staff from our Vehicle Technologies and Clean Cities Programs and the Biomass Program, works to resolve fueling issues and encourage auto manufacturers to significantly increase the production of flexible fuel vehicles.

My written statement, of course, includes far greater detail on these and other activities, but this concludes my opening remarks, and I would be happy to answer any question the members of the committee may have.

[The prepared statement of Mr. Karsner appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Secretary. Secretary McGinty.

STATEMENT OF HON. KATHLEEN A. MCGINTY, SECRETARY, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Secretary MCGINTY. Thank you very much, Mr. Chairman, and members of the committee. And I wanted to share three or four specific points, but start at a place that might not be immediately obvious, and that is how an industrial state, like Pennsylvania, here to speak to you about renewable energy and agriculture?

As the chairman well knows, we are the third leading state in agricultural production in the country, and we, while 3½ years ago, not on the map at all with respect to renewable energy, I wanted to share our experience, because today, we are among the leading states in the East in wind energy. We are second now in the country, in terms of solar energy, and the breadth of our program related to solar. We are becoming a strong contender with respect to ethanol, and in the next two years, could be one of the leading, if not the leading states in the Nation in the production of biodiesel.

While we have achieved that, it is the tip of the iceberg, but I want to share, in support of the thesis of this hearing, that there is opportunity in terms of economic development in renewable energy. That effort has won for us the most profitable wind energy company in the world coming to Pennsylvania, 1,000 manufacturing jobs created, and $100 million investment in our economy. We also have brought the world's largest solar integration company to Pennsylvania, a German company. There, too, another $100 million investment in our economy. In biofuels, we have one of the big-

gest plants in the country coming online in ethanol, a 400 million gallon plant, and we have started by attracting the Russian oil giant Lukoil to come and build their flagship plant in Pennsylvania, that one plant is a $250 million investment in our economy.

So, this is a winning strategy for us, but there is more that we can do. We have succeeded through a combination of smart policies that help create the market and the demand for renewable energy, and strategic, although much more limited than we would like, investment of dollars to help close the financing on these major investments and projects.

To build on that, the state is next doing two things. One, we have announced a nearly $1 billion new fund to help support the financing of both renewable electricity and renewable fuels projects in the State, and second, building on President Bush's lead, we have announced our PennSecurity Fuels Initiative, where we will require the growth, manufacture, and use in our state of a volume of biofuels equal to that which Pennsylvania imports from the Persian Gulf. That would be a billion gallons of biofuel that we would be sourcing and using in our State.

The specific ideas that I wanted to share, in terms of going forward, for the committee's consideration, derive from the nature of energy and the risk associated with energy projects. I think this committee is specifically well-suited to handle these risks, because agriculture understands commodities and commodity markets. Energy is a commodity, which means there is a boom and bust risk inherent in the development of energy resources.

The three types of risk specifically to consider are the following: risk with respect to feedstock, risk with respect to the technology, and risk with respect to the market for offtake. With respect to feedstock, four ideas for your consideration, I will start with the least popular, which would be to consider a price floor for oil, $40 a barrel, the experts say, at that price, renewable fuels can compete.

A second, maybe more popular idea, would be a continuation and expansion of the loans and grant programs that are aimed at the production of feedstocks, as well as research to find higher BTU value feedstocks. A third idea is a grant expanding the production grant that today is very helpful, but is being outpaced by the market, where commodity speculation is driving up the price of soy and corn, and making renewable fuels sometimes un-cost-effective, or the cost-effectiveness being impaired.

Finally, with respect to feedstock risk, and this is more with respect to electricity than fuels, to consider making permanent the production tax credit and the investment tax credits that have been so essential to wind and solar resource development. Second is technology risk. There, it is about loan guarantees to absorb the risk of new cutting edge technologies. Here, Pennsylvania's experience has not been positive. We were to be on the receiving end of a loan guarantee with respect to a coal to liquids plant. That has been delayed. That has meant that the Chinese have gobbled up the technology we otherwise were going to deploy, and it has increased the cost of the project.

Finally, risk with respect to off-take. The two ideas I would share there: first, put the power of the Federal purchasing power to work,

to buy domestically produced renewable fuels; and second, to copy the success of the portfolio standard in biofuels with a Federal portfolio standard with respect to renewable electricity, as well.

Mr. Chairman, Members of the Committee, thank you for your attention.

[The prepared statement of Ms. McGinty appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Secretary McGinty.

Secretary Karsner, I imagine you could tell by my opening statement that I am a little frustrated about the implementation process here for the Loan Guarantee Program. Secretary McGinty just mentioned an Alternative Fuel Project, which I know we are not here to talk about, that you know, almost cost us $100 million in CCPI, and we are concerned about what is going to happen with the Loan Guarantee Program. The Iogen cellulosic plant in Idaho, that just received about $80 million funding in the Secretary's announcement also was waiting on a loan guarantee, and it is just a little frustrating when you think the Energy Bill was 2005, and the Loan Guarantee Program is not in place yet.

And I really don't want you to elaborate on what has taken so long, though you are welcome to. I really want to know when is it going to be in place, and when are we actually going to see these plants being financed and being guaranteed?

Mr. KARSNER. Well, let me take that piece by piece.

First, let us work backwards from some of the projects that Secretary McGinty and yourself just mentioned. You mentioned these projects are waiting on their loan guarantee. I would emphasize that the Loan Guarantee Program is a competitive program, so nobody ought to be waiting on them. They ought to be making applications that are going to be competing for them. It is not a grant program. It is a loan guarantee to handle the debt portion of a project that has sufficient maturity in its project financing package, but needs something to address the debt situation.

Mr. HOLDEN. Okay, that is understand. But they have applied, and they haven't been vetted.

Mr. KARSNER. Now, let me get onto your frustration with standing it up. I share your frustration. I think many people at the Department do, and not least of which would be Secretary Sam Bodman. Having said that, I think it is very important to make clear for the record that there is a very important and compelling reason as to why it has not been stood up at the rate originally anticipated, and that is that Congress has not funded it until February 15 in the Continuing Resolution, and so, the Department, in fact, had its hands tied with an inability to stand up a program that did not have its funding request met for that program.

Now that the funding request has been put in place, for $7 million, to stand up the Loan Guarantee Office, there are specific timelines and metrics in place, and so, we must get out the rule, the final rule that will ultimately enable the disbursement of those loan guarantees, but realize that on the other end, the Department has been widely criticized by General Accounting Office for going ahead very aggressively, despite the fact that we were not funded by the Congress to do so. So, we did put a solicitation on the street, even without a Loan Guarantee Office being funded. That solicita-

tion was responded to very robustly by 143 applicants. Those applicants are currently having those applications analyzed and put out to the programs for technical review, and that will be happening in parallel process as the newly funded Office is stood up to administer that Loan Guarantee Program.

Mr. HOLDEN. When do you believe that we will have the first guarantees awarded?

Mr. KARSNER. It will be a condition precedent for disbursement of a loan guarantee that the final rule be put in place, and when the final rule is put in place, I am cautiously optimistic we could say that we hope to have it before the end of the year.

Mr. HOLDEN. Before the end of the year. You think you possibly could have an award before the end of the year.

How about projects that have received funding, such as the plant in Idaho, who just received $80 million. Would they be eligible for the loan guarantee as well?

Mr. KARSNER. It is my understanding that those that have received grants from other sources of the Federal Government or other pools of money are not precluded from——

Mr. HOLDEN. Not precluded.

Mr. KARSNER [continuing]. But not precluded from being eligible, but that those other sources of money, and the quantity of their disbursement, or the characterization, whether they are off-take contracts or grants, will be factored into account in their applications.

Mr. HOLDEN. Okay. I know we are not here to talk about alternative fuels, but I would assume that you would think it would be the same way for alternative fuels as well as renewable?

Mr. KARSNER. What I just said applies to everything that is eligible under Title XVII.

Mr. HOLDEN. Okay. Thank you, Secretary.

Secretary Dorr, you administer a program that has been very successful all across the country, I believe, the Business and Industry Guaranteed Loan Program. Been very successful in Pennsylvania and in my district. How big is USDA's portfolio in energy now?

Mr. DORR. Well, it kind of depends on how you bifurcate it. The entire USDA Rural Development portfolio is approximately $95 billion. We have approximately $46 or $47 billion in traditional and some nontraditional power and energy loans in the Rural Electrification Administration. On top of that, since the development of the Renewable Energy portfolio, we have directly made loans in excess of $475 million to over 1,100 and some projects. These involve funds from both the BNI program, out of the Value Added Development Grant Program, and out of the Energy Title 9006 Loan and Grant Program.

Mr. HOLDEN. These renewable plants are going to be in the hundreds of millions of dollars. USDA, what is the largest, on a single project, guarantee you have out there?

Mr. DORR. I am aware of one that I believe we have upwards of, I think $35 million that has a guarantee underneath it.

Mr. HOLDEN. So $35 million, we are really looking at needing hundreds of millions of guarantees here.

Mr. DORR. Correct.

Mr. HOLDEN. All right. Secretary McGinty, you told us all about the good things that you have done in Pennsylvania, but what is the biggest problem you encounter in trying to leverage large-scale renewable projects, and what can we do at the Federal Government to help?

Secretary MCGINTY. Well, again, if it is a cutting-edge or new technology, then the area of loan guarantees is critically important. If it is not a new technology then we have, and having said we have not had good experience with the Loan Guarantee Program, let me underscore that the State Energy Plan dollars that DOE implements is a very effective model. There, the dollars aren't great, but enables a state specifically to use dollars to provide the last increment of financing.

To give you an example, we had a project that involved a European company coming to the State, ready to invest $1 million discrepancy because of a currency exchange risk. When we invest those dollars strategically but with flexibility, it enables some very good and important projects to come together.

Mr. HOLDEN. Thank you. The gentleman from Oklahoma.

Mr. LUCAS. Thank you, Mr. Chairman, and Secretary Dorr and Karsner. First, an observation, then a question.

Within the challenges of renewable fuel out there, I ask that you be very open-minded and very flexible, because while switchgrass and the more traditional things like corn have caught a lot of discussion and attention about sources of ethanol, clearly there are regions of the country where, due to the climate and the soil type, things like grain sorghum and a variety of other potential crops can be very big players, and very efficiently use the resources that are out there to generate the feedstock to run these kinds of plants. So, bear that in mind, and I know Secretary Dorr being a farmer, understands fully all of the diversity out there.

To both of you, I ask the following question. I suspect we are going to hear in this next panel what I have heard from my constituents working on these projects back in Oklahoma, renewable energy facilities, ethanol plants, that the cost of construction and operation has increased dramatically over the last year so.

Does the current structure of the Guaranteed Loan Programs, do they meet the needs of the investors? Can they accommodate for that kind of a thing?

Mr. KARSNER. Well, I would say on the face of it, yes, in the sense that there are no specific parameters as to the project's size that is submitted by the applicants. One of the applicants was already mentioned here today, and it was also one of the applicants that was a winner in our cost-share solicitation.

Well, in the cost-share that we had just given out up to $385 million, we had a wide variety. In fact, we had pursued this principle that you are advocating, a wider variety and diversity of feedstocks, and because of that, we had a wide variety and diversity of technologies, including the installed costs or the capital costs upfront.

So, we don't make a distinction by size parameter to exclude on the high side or the low side, what those installed and capital costs are. It is up to the applicant to make the business case for their projects.

Mr. DORR. I think Mr. Karsner has addressed it fairly effectively. I think it is important to understand at this point that this is an industry that is clearly a brand new industry. The carbohydrate/renewable energy industry is one in which there are no regulations. There are no policies. There are no taxes, there are no infrastructures that are inherently in place on this.

Part of the problem, as a result, is that because it is in its infancy, and there is a great demand for this, we are going to go through some bumps. Right now, we know that the costs of a traditional dry mill have gone up quite considerably, due to labor and materials cost issues. There is going to be the need to develop solid financing parameters around these arbitrage strategies on both ends of it. And to the extent that those business models are fully developed, I think that our loan guarantee programs within the constraints of the regulations that we presently have can deal with them.

Mr. LUCAS. Secretary McGinty, representing a district in Oklahoma, we are a mature energy producer, much like Pennsylvania.

Secretary MCGINTY. Right.

Mr. LUCAS. Oil and gas, we are into wind energy, we are attempting hard to get into the ethanol business. You made a fascinating comment about the need to provide some sense of certainty for these folks, and you used the phrase, I think, something like a $40 a barrel——

Secretary MCGINTY. Price floor.

Mr. LUCAS [continuing]. Floor. Would you expand on that for just a moment, because that is a topic that sometimes is a little difficult for folks not from the energy producing areas——

Secretary MCGINTY. Right.

Mr. LUCAS [continuing]. To understand why it matters that we not have these giant gyrations in price.

Secretary MCGINTY. Thank you, yes. The energy commodities, maybe even more than other commodities, have gone through many boom and bust cycles. We have certainly seen that with respect to renewable energy in the '70s, where we were in a very strong investment period, took our eye of the ball as oil prices went down, rendering those alternative technologies less cost-competitive, and the United States lost huge advantage in those technologies.

If I had to choose one policy that I think most effectively could reduce the risk that Wall Street sees, so that we could better mobilize private sector dollars, it would be to ensure that there is a level of price with respect to traditional energy commodities, such that the alternatives would have a chance to compete in a way that they could stick and stay, rather than be hot today and of no interest tomorrow.

Mr. LUCAS. And that $40 figure, Secretary, just an off the cuff comment, or something you have really thought about?

Secretary MCGINTY. No, that is derived by some of the projects that we have been involved in, using some of the USDA and Department of Energy dollars. That does seem to be the breakpoint above which both renewable transportation fuel projects can compete, as well as, although there is not a direct relationship, it affects the price of alternative electricity projects as well.

Mr. LUCAS. Thank you for your observation.

Secretary MCGINTY. Thank you.

Mr. LUCAS. And few officials, elected or appointed, are generally willing to step up and make those to the point comments. Thank you.

Mr. HOLDEN. I thank the gentleman. The chair will recognize members in order of seniority if they were here at the time the hearing began. If not, it will be order of arrival. Ms. Herseth.

Ms. HERSETH. Well, thank you, Mr. Chairman. Thank you very much for having this hearing, and I want to thank all three of our panelists today for their helpful testimony.

I would have many questions in the area of biofuels, as I often do, but I would like to talk a little bit about wind, since that was raised, and Under Secretary Dorr, you had mentioned in your testimony, you know, the question for your Department in particular, how is rural America going to participate? And what we have seen in biofuels is the opportunities for individual investors, whether they are farmers or ranchers or rural citizens, invest in many of these ethanol plants.

In wind, I have some concerns about barriers that exist to individual investment, to community investment, and I also know that you mentioned sort of the rural electric cooperatives and this evolving rural infrastructure, and rural electric cooperatives have been instrumental, in a number of instances, in the financing strategies as they have been implemented, for biofuels. And I think there is clearly a role for them to continue to play in wind, as it relates to that individual and community investment.

Could you share some of your ideas on how we facilitate that? Do we need some changes in the law, whether that be tax provisions and elsewhere, and then, if both you and Assistant Secretary Karsner could talk about your agencies' role in addressing the transmission issues, particularly those that we have in South Dakota, unlike how well situated Pennsylvania is to market that a little bit easier.

Mr. DORR. Well, this is an interesting opportunity, and it obviously is a challenge. It is more of a challenge in some States than other States. I think what you have, relative to wind, is that you have a plethora of regulatory regimens. You have those regulatory issues that are directed at the Federal level, but then you have, within each state, a regulatory structure that has to be dealt with.

I think in a broader sense, what we need to appreciate is the fact that the traditional generation, transmission, distribution system, particularly as it pertained to rural America, was predicated on an environment in which there were no competitors, and in fact, those that were given the approval and the funding to do this were done so in a monopolistic environment, with a guaranteed set of repayment structures, that made it a doable project, if you may.

What happens now, when you get small distributed wind projects, which I happen to think have a great deal of potential for rural Americans and rural citizens, is that you have to somehow, and I think you have probably heard me mention this before, but you have to figure out how you get these distributed production systems integrated into these legacy systems.

In some cases, there are some states who have been, perhaps, more effective or more aggressive about doing that than others. I

think it is important, probably, at the outset, to get people to sit down at the table and say okay, we acknowledge that there are these legacy contracts. There are these legacy providers, but yet, the distributed power that we have in production out here is going to be cost-effective, and it ultimately has to be integrated. We are in the process of completing a research study that we have not released yet—it is in draft form—that looks at the specific issue, with the intent not so much as providing more solutions, but at least addressing more effectively the right questions to ask in the future.

So, hopefully, if we can get that thing available and out here within the next 30 to 60 days, that should give us a better insight into how we address that issue.

Ms. HERSETH. And Mr. Karsner, did you want to comment briefly just on DOE's role in addressing transmission, broader transmission issues?

Mr. KARSNER. Sure. I would be happy to. The first thing to note is that the President had made clear, after the State of the Union last year, that wind had the capacity to potentially be up to 20 percent of our national generation portfolio. And to do that, we need to look inward to the heartland, and into the Dakotas, and into the great Western spaces, and the places where our resource is so grand. In South Dakota, we have more wind capacity potentially than all of Europe combined, and at a much, much lower cost. The challenge is getting out and through transmission bottlenecks.

So, together with my colleague, Kevin Kolevar, who runs the Office of Electricity, we have together jointly programmed something we call renewable grid integration, and so that we might begin to look at the pathways for clean energy superhighways, not just for wind, but for concentrated solar power in the Southwest, geothermal out in the West, and maximizing and unlocking these great natural resources we have, bringing them to market efficiently, and lowering their cost for the end user.

No State has done better, east of the Appalachians, than Pennsylvania. Although it does not have that kind of great wind resource, it has managed to say this is where the wind is, and this is how we will bring it to market. And that is fundamentally our challenge, focusing on siting, permitting, and transmission.

Ms. HERSETH. Thank you. Mr. Chairman, I see my time has expired, but I would like to submit a question for the record to both Mr. Dorr and Mr. Karsner regarding the regulatory environment, as it relates to the President's proposal to expand the Renewable Fuel Standard, what their role has been in working with the EPA in developing the rules for that RFS from 2005, and how they envision their agencies' role in expanding it.

And then finally, I would just commend to you, Mr. Chairman, and the other members of the subcommittee, because I have to go chair another subcommittee at two o'clock, the testimony of one of my constituents, Mr. Larry Ward, on the second. He is Vice President for Project Development with Broin Companies, which one of its projects received a grant from DOE just last week to advance cellulosic ethanol production at one of its plants across the border in Iowa, and in particular, Mr. Ward's testimony does an exceptional job of addressing your concerns and mine and others, about a Loan Guarantee Program, whether it is administered by DOE or

USDA, to help meet the needs of private industry, as well as incentives that farmer-producers may need, as partners in developing the feedstocks for that technology.

Thank you, Mr. Chairman.

Mr. HOLDEN. I thank the gentlewoman, and members are encouraged to submit additional comments and questions.

Mr. Moran.

Mr. MORAN. Mr. Chairman, thank you very much. The topic generally that we are about today, I think, is one of the most important that Congress will address this year and into the future, and I commend you for holding this hearing.

And I have become reasonably well acquainted with Secretary Dorr, and I don't know Secretary Karsner, but I appreciate the efforts at both Departments. Mr. Karsner, we are very delighted of Abengoa Bioeenergy's selection last week in the cellulosic efforts. And Secretary Dorr, I know you to be a champion of renewable fuels. My complaint, perhaps, with the Administration and with Congress is a lack of urgency, a lack of—we need to move this agenda much more quickly than we are. The American people, Congress, the Administration, all need to see, in my opinion, the significance, importance, that comes with moving us toward, this country toward renewable fuels, and the time is now. It is not later. So, anything that you can do to light the fire within the Department of Energy, at the Department of Agriculture, here in Congress, with the American people, I encourage you to do.

I started out as a renewable fuel supporter, an ethanol supporter, because of the price differential it would bring to farmers in Kansas. But that has been a long process in my education, and it is now, to me, one of the most important issues we face, as far as international security. It has come a long way from trying to raise the price of corn, to recognizing the threat that our dollars, utilized by terrorists, and our dependence upon foreign oil, mean to our economy and to our security. So please champion these issues with all due haste.

My questions are several, and I will ask them before the red light comes on, so that you are impeding upon other people's time, not mine, but a couple of questions.

It seems to me that there is an issue here of, and perhaps you know what states are doing, or what your theory or thoughts are in regard to what the Federal government should do. Ought our focus be on increasing the supply, or increasing the demand, or are those two things mutually exclusive, or are they obviously, I assume, go hand in hand, but that suggests to me that there is a different policy. If we are trying to increase the supply, we very well may be utilizing tax incentives to do so. If we are trying to increase the demand, it may be Renewable Fuel Standards. Different outcomes based upon different policies.

And that relates to my question, as we talk about the next farm bill, we are often quoted. I find myself quoted as this will be an energy-oriented farm bill. Renewable fuels is the buzzword. I often smile at the number of times I hear the word switchgrass in Congress. I don't know whether a Member of Congress knows what switchgrass is, but we talk about it constantly. My question is in the next farm bill that is going to be so energy, renewable fuel-ori-

ented, what are your specific suggestions? When we say that, what should we mean? And again, that, in part, goes back to my question about is the policy designed to increase the supply or to increase the demand?

And then in regard specifically to financing, are we to the point in which the small investor is a thing of the past? Has ethanol and renewable fuels, when we talk about trying to raise the capital to create a new plant, to create additional production, are we really trying to appeal to Wall Street and to the hedge funds, or is this still about farmers and neighbors coming together and pooling their $5,000 investment to see that there is an ethanol plant or a biodiesel plant in their neighborhood?

And finally, Madam Secretary, if you would take the opportunity to explain to me why the Department of Environmental Protection apparently is a lead agency——

Secretary MCGINTY. Yes.

Mr. MORAN [continuing]. In renewable fuels in Pennsylvania. I try not to ask questions that I don't necessarily know the answer, but I assume that you will give us ammunition to why this is an important issue from an environmental perspective, as compared to an economic perspective that many of us, coming from traditional farm states. I thank you all.

Mr. DORR. Well, I will start, and try not to impinge on too many other Members' time.

Mr. HOLDEN. Secretary, if I could just interrupt for a moment.

Mr. DORR. Yes.

Mr. HOLDEN. I will just remind my friend from Kansas that answers are part of the member's time as well, but please proceed.

Mr. DORR. Well——

Mr. MORAN. I started to ask Mr. Chairman if you are on my subcommittee, and then I realize I no longer chair one. I am sorry.

Mr. DORR. What I would point out is the President's Farm Bill proposal does propose some level of haste in this, I believe, relative to what the farm bill lays out.

One particular component is the $2.17 billion proposed cellulosic loan guarantee authority. That will take about $210 million of budget authority. We will need some statutory language allowing us to bridge the valley of death sorts of cellulosic loans. In our view, we have the back office, the origination, and the field organization to facilitate this fairly quickly. We would then immediately turn to Department of Energy to provide us with the kind of technical assistance to make sure that we were analyzing these projects appropriately.

On the supply versus demand side of this equation, we know that we can easily incorporate up to an E10 into the demand side of the industry throughout the country. I think it is a double-edged sword. I think we have to focus on both increasing supply, as well as increasing demand, because if we don't do both, at some point, we will run into a stone wall, and create some probably market dislocations that will not be particularly pleasant at the time we find out we have a surplus of ethanol, or a shortfall of product relative to the demand.

And that is going to be a bit of a difficult challenge. I mean, we are in the infancy of a brand new industry. We have to build out

the infrastructure. We have to build out the supply, the demand of this. When I talked earlier about specifications, international standards, for example. That is an issue that I think is going to be incumbent upon the automobile industry to be heavily involved, so that we are producing either ethanol or biodiesel fuels that work in engines that will transfer throughout an international market.

And so, these are all very complex things that we have a lot of work to do, and we at USDA are perpetually reaching out through our Energy Council, that the Secretary set up over a year ago, to work with other Federal agencies across the spectrum, in order to begin dealing with these, and hopefully, we can run fast enough to stay ahead of it.

On the financing side of this, I think there is a terrific opportunity for rural America to have ownership in this, but it is a very different sort of an approach than it has been to financing a commodity and a food and fiber market that was generally 20 percent in surplus supply. With energy in the spectrum, we are essentially producing a downstream product that has a linear growth curve like this, in the context of BTUs and power, versus calories for more normal food off-take and feed off-take. And that enables us to begin developing different kinds of financing approaches.

But that is going to require all of the people that are in that mix, whether it is the producers, whether it is the folks financing it, or whatever the case might be, to sit down and seriously look at how we develop these strategies to do it. We are, again, in some research taking a look at this. Hopefully, we will devise some good questions to begin driving more research in that area.

Mr. HOLDEN. In the interest of time, if Mr. Moran's questions could be answered briefly, and then maybe elaborated on in writing, the other questions.

Mr. MORAN. I feel sufficiently chastised, Mr. Chairman.

Mr. HOLDEN. Secretary McGinty, I don't know if you wanted to answer the Pennsylvania-specific question.

Secretary MCGINTY. Sure. My own approach to environmental challenges is build the solution, put somebody to work making a problem into an opportunity. So, for me, whether it is air, land, or water pollution, building a clean energy future is the answer. It is the way to go. And so, rather than sitting around blaming, let us build, and that is what we have chosen to do.

Since wind was mentioned, I do want to say we can't get there unless we have Federal support for a Federal renewable electricity portfolio standard. The economics really depends on that, as it depends on making the production tax credit permanent.

Thank you.

Mr. HOLDEN. Mr. Costa.

Mr. COSTA. Thank you very much, Mr. Chairman. Congratulations, and I want to commend you for holding this important hearing this afternoon.

For the balance of my time, because I have more questions than we have time, I would like unanimous consent to submit the questions that I won't be able to ask.

Mr. HOLDEN. Without objection.

Mr. COSTA. And in the balance of using everyone's time as effectively as we can, Secretary McGinty, we were very pleased to hear

your comments about Pennsylvania. Our Chairman Holden has talked, I think, with great pride in the efforts that Pennsylvania is pursuing, and certainly, you did a good job this afternoon of explaining the aggressive efforts that are taking place within your state.

I want to pursue an effort that Chairman Holden and I have been talking about, and other members of the committee, with our Under Secretary for Rural Development, Mr. Dorr, and with the Assistant Secretary, Mr. Karsner, as it relates to our research and our efforts there, because I think both the Chairman and I and others are very excited about the prospects, as I think all members of the Agriculture Committee are, of creating this Energy Title, and trying to look at the long term, and where U.S. agriculture can play an important role in trying to reduce our dependency on foreign sources of energy.

But my concern, and what we are trying to do our due diligence on right now, is all of the grants that are taking place out there, Mr. Dorr and Mr. Karsner, both within the USDA, as well as with the Department of Energy, how well do you think you have your hands on the quality and the level of collaboration that is taking place among universities throughout the country, in terms of any potential reinventing of the wheel or duplication, I might say, in terms of timelines on when these research efforts will produce results that can be translated to industry.

How do we, in essence, get the best bang for our buck? I mean, you know, we all are, I think, are supportive of our universities. In California, we, like Pennsylvania, have done a lot in the last two decades, beginning with creating an Energy Commission, to focusing on a lot of incentive-based mechanisms to promote that. And currently, our governor has even increased that effort, but the whole focus on letting the marketplace try to determine which are the best technologies, but with that one criterion, and that is to reduce the CO_2 levels, as we look at alternative sources of energy that would include agricultural purposes.

Would both of you please respond? I know we don't have a lot of time. How—do you think you guys have got a good handle on it? Do you work together? Do you collaborate together? Do you have meetings? Do you share lists?

Mr. KARSNER. Yes, yes, yes, and yes.

We do have something that was put in law by the Congress that Tom and I have worked very aggressively to step up in its profile. It is the Interagency Biomass Research and Development Coordinating Council.

Mr. COSTA. How often do you meet together?

Mr. KARSNER. Since Tom and I have taken responsibility for these roles, we have sought to elevate the people who can attend that meeting to Presidential appointees, exclusively, that report to their Secretaries.

Mr. COSTA. How much money do you have out there in research, in total, and how many different grants? Do you have that off the top of your head?

Mr. DORR. Last year, we invested $17 million in grants, and the year before that, it was in the neighborhood of $20 to $25 million in grants.

Mr. COSTA. That is USDA.

Mr. DORR. That is the combined total between the two of us.

Mr. KARSNER. The combined of both.

Mr. COSTA. Okay. And how many numbers, was that 10 grants, 5 grants.

Mr. KARSNER. I would have to—I know the dollar numbers.

Mr. COSTA. Okay.

Mr. KARSNER. The grants are reasonably sizable, so they would not be a lot of grants.

Mr. DORR. I am sorry, Mr. Karsner. You were——

Mr. KARSNER. No worries.

Mr. DORR [continuing]. I interrupted in the middle.

Mr. KARSNER. And so, I was just going to conclude that that meets monthly. With regard to the science, of course, the Department of Energy is the second largest funder of science after NASA. We have an applied science research and development portfolio, that is my program, and the basic science, and they connect together, hopefully, seamlessly. One focus is going outward to the market, one focus is on the study of phenomena. About half, or approximately more than half, just slightly, go to universities through these research and development grants, and we coordinate this very systematically and methodically moving through that pipeline in time.

And so, through our solicitations, most major universities engaged in this work have some affiliation or nexus to Department of Energy programs, with regard to biomass and biorefinery R&D.

Mr. COSTA. Time is fleeting, Mr. Chairman, but what I would like to do is to continue to suggest that we work with both of these Departments and our subcommittee, to try to get a better handle on this, as we look at writing the Energy Title in this year's farm bill.

It seems to me that we all, I think, have a similar view of the goal that we want to reach, but what I think really needs to be done is to figure out what kind of meaningful oversight we can provide to ensure that we are getting the best bang for taxpayers' dollars, and we have timelines, and we are trying to make sure that these grants are working in collaboration with one another.

Mr. HOLDEN. I thank the gentleman and appreciate his leadership.

Mr. COSTA. Thank you very much, and I will submit the balance of my questions.

Mr. HOLDEN. Thank you. The gentlewoman from Ohio, Ms. Schmidt.

Ms. SCHMIDT. Thank you, Mr. Chairman. My question is for Assistant Secretary Karsner. I am going to be very brief. Could you please tell me what the Department of Energy is doing to encourage private sector investment in renewable energy?

Mr. KARSNER. Not briefly, though. Yeah. There is——

Ms. SCHMIDT. I didn't mean for your answer to be brief. My question was brief.

Mr. KARSNER. Right, right, right. We are doing a great deal. In fact, as I said, we are in the applied science portfolio, and the more that these technologies in our portfolio, for both generation and transportation efficiency mature, the more need there is for ever

greater interaction with the private sector. So, we are sort of evolving out of a phase where we used to say when it reaches the end of the pipeline, there is a technology transfer window, the market accepts it, and everything worse, to being more proactively engaged. In fact, even in the course of this hearing, I see that several members of the venture capital hedge fund communities and the capital markets are present in this room, because there is such a proactive engagement with different departmental programs, pairing with VC funding to catalyze new investments in new industries, and of course, ultimately addressing the debt deficiencies in the loan markets that will enable new technology development for private sector developers, so that they can have replicable commercial models. That is really the endgame for us, as they mature.

A good example of that that we have talked about today is wind power, which is commercially available and ready and competitive technology. But the government still has an indispensable role in facilitating that industry to greater rates of market penetration, and to breaking through bottlenecks in siting and transmission, and to, again, working with USDA so that we can figure out ways that our rural communities get greater benefit of dividends and royalties from these industries as they emerge and grow.

Ms. SCHMIDT. Thank you.

Mr. HOLDEN. The gentleman from Minnesota, Mr. Walz.

Mr. WALZ. Thank you, Mr. Chairman, and I congratulate you for being the chair at such an auspicious time in history here, and I thank our panelists for being so candid. I would associate myself with my colleague from Oklahoma. I appreciate your optimism, I appreciate your foresight, and it is very encouraging. I say that because I am getting ready to leave to a Veterans Affairs Subcommittee on Investigations. It is not quite so optimistic, so thank you for that.

Many of the questions I have have already been answered. You have done a great job. I would like to say that I am from the district in Southern Minnesota that receives more of the 9006 money than anybody else in the country. It has been absolutely instrumental in the growth of our wind energy, and it has been very well received. Our industry there is maturing. We are, of course, running into many of the issues you are talking about, transmission and those things, but they are seen as challenges. They are not seen as obstacles or problems. They are seen as challenges in the infancy of this industry.

Again, Secretary McGinty, this is more of a question to you. I think you probably answered it, and maybe I will get you to sum it up on this, and I would echo your concern on the production tax credit.

Secretary MCGINTY. Yes.

Mr. WALZ. Something we are starting to push, and we would love to make sure that gets done. I wouldn't have thought a year ago that I would have heard so much about that issue, but a day does not go by that I do not hear it out in Southern Minnesota, so I thank you for that.

My question to you is, Ms. Secretary, you have worked on the local level. You have worked on the State level, where our plans actually get enacted.

Secretary MCGINTY. Right.

Mr. WALZ. And I would just ask you, in promoting the development of renewables, as we are doing, what programs do you really champion, or what programs do you think have really been effective that can work as models for others?

Secretary MCGINTY. Well, I would say one thing that is related to your comment, your question and others. Wall Street and the markets don't believe if you build it, they will come. They need to know that there is going to be certainty of off-take, that there will be demand for the product once built, and that comes down to two or three things.

One is those portfolio standards, that says to the private sector, in the energy business, you must buy that renewable alternative. The second is the certainty of those tax credits to ensure that there isn't that boom and bust in the investment that is needed. These plants are hundreds of millions of dollars, and cannot be sustained on the basis of treating the PTC like a light switch.

And the third, which is related specifically to wind and solar and other distributed electricity resources, net metering has not been mentioned, but if those resources are going to be economically viable on smaller scale, the idea that if you build it and generate more electricity than you use, that you have the right to sell that electricity to the grid, and get a fair market price for it, is absolutely essentially also to the economic viability of these projects.

Thank you.

Mr. HOLDEN. Thank the gentleman. Mr. Fortenberry.

Mr. FORTENBERRY. Thank you, Mr. Chairman. I have several layers of questions, so I will just get it on the table, and then, we can unpack it.

First, Secretary Dorr, I hope you enjoyed the visit to Nebraska recently. We appreciated having you there, and thank you all for joining us. I didn't have the benefit of your full testimony earlier, so I apologize if this is a little bit redundant.

Regarding distributed generation, thank you for bringing up the net metering issue. I think this is very important. Some of the members of the committee actually have met a farmer in my district who has 8,000 head of hog, takes the manure, turns it into methane, and generates electricity right there, and he is constantly telling me, Jeff, I need more money for the power that I produce. And now, Nebraska is a public power state. So, the point is, Secretary Dorr, as well, as you are working on this report regarding wind energy and how we integrate distributed generation of wind into the legacy providers of the grid, would you create a subchapter as well on how public power districts also do that without changing them to the private sector, because it has served us very well? That is one point.

The second point follows up on Mr. Costa's comments, which I think were very astute. It would be helpful, I think, to a lot of us, to have a better handle on all of the various components of renewable energy projects that are directly funded by the government or indirectly funded. And this goes to the heart of our Research Title in the USDA. It goes to the heart of what is a creative tension right now between the Department of Energy and the Department

of Agriculture as to who is going to basically carry the mantle, particularly of ag-based renewable energy projects.

So, some type of matrix that lays out clearly all of the Federal involvement directly or indirectly through grants, through land grant institutions, and to the degree we can, other special projects that are out there that receive Federal funding, so we get in front of this real well without creating unnecessary duplication, and leverage our limited resources as best we can.

And if you care to comment on either of those two, I would appreciate any comments.

Mr. DORR. I would simply suggest that I think you're spot-on in your observation that we need to inventory the research that is going on, both within our own agencies and across the government, as well as inventory the business development strategies, the tax, and the regulatory issues as well.

The Energy Council at USDA has embarked upon the development of a matrix for the purpose of identifying the research and the business development strategies. We have also jointly invited the attendance at these series of meetings with DOE, Transportation, EPA, a host of agencies across the government, and to the extent that we get this far enough along in our own house to make sure we know what we are talking about, it would seem to me to be very practical to expand this, and I suspect that other agencies are doing it as well, and we could probably link them together in the long run, but it does need to be done.

Mr. FORTENBERRY. If I could interrupt, if anyone—Mr. Chairman, would that be a suitable request to come from the chair of the committee? Perhaps a letter to the two departments asking for such a thing, if we could, if the Department of Energy would be willing to integrate what Secretary Dorr has suggested is coming from the Department of Agriculture in the near future. I think that would be helpful to all of us, to again, get in front of the question before we are too spread out. We are not leveraging the limited resources we have for this very, very important goal of facilitating renewable energy in the country.

Mr. DORR. Let me, in a bit of a CYA approach, say that I am not sure how quickly this can come. I mean, there are a lot of programs going on and research around the country, and so, for us to wrap our arms around this is a bit of a task, and we are going to do it post-haste, but I am not comfortable in giving you a time when I think we would have it done. Obviously, it will be done before the end of the year, in my view, but I don't know how long this will take.

Mr. KARSNER. Let me just comment on that and characterize it a little bit. I think that that is obviously useful, and it is something that Tom and I have talked about extensively before, and would like to run through this Biomass Research and Development Coordinating Council. I think we have already commenced an inventory count.

But you have to recognize that these research and development grants that you are referring to are not really a portion of what the Department of Energy does. It is predominantly what the Department of Energy does. We are a research and development institution at our core, and so, almost all of the programming that comes

through the applied science portfolio, or Dr. Ray Orbach's basic science portfolio, or the other applied programs in nuclear or fossil, are almost exclusively managing these research and development grants. So, it is very almost instructive or prescriptive, if you go through our budget, there is a minority of activities that are not research and development grants.

Mr. FORTENBERRY. Okay. Well, Mr. Chairman, if I can make a suggestion. This is an important point, and if I could work with the Chair——

Mr. HOLDEN. Absolutely. I look forward to working with the gentleman, and again, appreciate his leadership.

The gentleman yields back?

The gentlewoman from Kansas, Ms. Boyda.

Ms. BOYDA. Thank you, Chairman. I certainly appreciate it, and let me just say that I have the good fortune of serving in Kansas with Jerry Moran, and gosh, Jerry, I think you summed up most of it for us, so that was good.

But I would——

Mr. MORAN. I appreciate your use of the words "summed up."

Ms. BOYDA. But I would reiterate that sense of energy that I have. I also represent a very rural part of Kansas, and so, the whole bio-aspect of this energy policy are very important. But I have any number of people who come to me and—from environmental, from climate change, no matter what, there is very much of a pending sense of urgency with this.

But I do represent a rural district, and the question that I have to come to me, is what is this energy market going to look like in 10 years? Is it going to be regional? Are we going to end up with four or five big huge energy companies? What is going to happen in Woodson County, Kansas, and how are we going to keep wealth in that particular county, or at least regionally?

So, I just ask what are our plans for keeping the market as regional as possible? Maybe I should state it again. Are there any plans for trying to keep those markets as local and as regional as possible? What can we do, and how can we—once this is out of the bag, we will never get it back, but with wind, with biofuels, with so many things, we really have an opportunity to reenergize and keep that money within our communities, instead of sending it out of our communities? How aggressive are we being with that?

Secretary MCGINTY. I welcome the opportunity just to offer a thought, and some of what we are beginning to do in Pennsylvania. I think the trend in the industry is towards concentration, towards aggregation of investment, and towards expansion of centralized production capability. Now, you usually would see that as an advantage from the point of view that there are economies of scale that could be achieved, and the price points of these fuels could be brought down. But it is not necessarily the case with respect to renewable transportation fuels, and it could be a more distributed approach that benefits rural communities and could be more cost effective because, since renewable fuels, unlike conventional fuels, cannot be moved, roughly, cannot be moved through pipelines, delivering the fuel requires billions of dollars of new rail and truck infrastructure. Those costs could be avoided if we were producing close to the off-taker.

I would suggest a place to start is with that government purchasing power. If there are State or Federal enterprises who could be called upon to buy fuel produced locally, that would be the opportunity for rural and smaller communities to stay in the game, and I think they could do it cost-effectively.

Ms. BOYDA. Thank you.

Mr. KARSNER. I won't be redundant. I am largely in agreement with those remarks. But let me do address the issue of urgency, because it has been mentioned a few times here, and knowing both my co-panelists, I know that we also feel a sense of urgency. And we have been calling for a sense of urgency for the better part of 3 decades, and so, at some point, we have to say that if what we truly want in this country is disruptive technology to disrupt the way we do things, then we also need disruptive policies and disruptive institutions that manage those policies.

There are systemic failures. We talked about them today with regard to Appliance Standards Regulatory program. But there are systemic limitations in government that need to be addressed. To your question about what we might consider in the farm bill and other legislative vehicles go forward, that would get to disruptive thinking.

And so, we need to get out of the box. One reason we work so well with the State energy programs that we have is because the States are, in fact, more agile than the Federal government, and so, the Federal government has to review the way we do business. Its urgency has been inserted in the top line mission by Secretary Bodman of the Department of Energy, and in 22 months, when we leave government, there will be a year to get new leaders in place, and probably six or eight or 10 months to get that person up to snuff on the portfolio, if they are not from this area, and we have these cycles, and have had them for 30 years, and we have to address some very real institutional barriers we have and policy barriers we have for access to market, transmission, pipeline, rail, whatever is necessary to bring these goods to market, and access the capital, and lower cost to fund for our producers regionally and out in these distributed areas of the country.

Ms. BOYDA. Thank you. Mr. Chairman, I would come back to say again that I think, and I appreciate your remarks, that we need to be on the front end of this, and looking to say what do we expect this market to look like in 10 years, and now would be the time to set policies and set incentives that any kind of policy that can keep regional markets as strong as possible.

Mr. HOLDEN. I agree with the gentlewoman.

Ms. BOYDA. Thank you.

Mr. HOLDEN. The gentleman from Michigan, Mr. Walberg.

Mr. WALBERG. Thank you, Mr. Chairman. I apologize for being late, and because of that, questions that I might ask, I think I will refrain from. They have probably been asked already.

But I have one question that I would ask in a parochial way, and that is that Michigan is a state that has a requirement that our gas at the pumps contain 10 percent ethanol. The question is should the Department of Energy, Mr. Karsner, should the Department of Energy be responsible for and be in the process of pushing for a Federal standard to follow in line with states like Michigan

that are promoting ethanol and alternative fuels in their petroleum fuels? That would be my one basic question.

Mr. KARSNER. Yes. The answer is an unequivocal yes. The President's Twenty in Ten plan does, in fact, seek to do that with the ethanol equivalent of 35 billion gallons, or 15 percent of our gasoline consumption, by 2017. It is exactly that, a Federal Alternative Fuel Standard that raises the bar and the stakes at the national level, so that we would, in fact, see E10 realized nationally quicker, and then go beyond that threshold.

Mr. HOLDEN. Thank the gentleman. The gentlewoman from Colorado, Ms. Musgrave.

Ms. MUSGRAVE. Thank you, Mr. Chairman, very much, for holding this hearing today.

Today, I have been meeting with some of the county commissioners from the fourth District of Colorado, and many of those are from very rural counties, and I look back to the time when I ran for the House in Colorado in 1994, and it is amazing to go into those communities today, and see how much they have suffered, quite frankly. A lot of businesses boarded up on Main Street, and in those communities, Main Street is still the heart of the community, and it is really a good barometer to look at to see how things are going.

As I talked to those commissioners and my constituents, we are looking for certainty. We are looking for a future for agriculture. We are looking at counties where there are declining populations. We are looking at young people who would like to come back after school, but quite frankly, there aren't very many opportunities for them.

So, as I think about renewables and all that we want to do and we want to do it quickly, I think of the regulatory burdens that are there, and just logistical things. And how do we start knocking those down? Help me out with that.

Mr. DORR. Well, I think the previous two comments from Mr. Karsner and Ms. McGinty are pretty much spot-on. We do need to think disruptively within Government in everything that we are doing. I would suggest that there has been a sense of urgency for the last six years. President Bush has been involved in sponsoring seven major initiatives to advance the renewable energy portfolio in a way that we haven't seen the likes of for, as Mr. Karsner said, in 30 years. And it has been because there has been pricing structures and energy and national security issues that have driven us. It is a terrific opportunity.

The underlying theme in all of this, in my view, is that what has really made it possible beside the high price of energy is distributed computing. If you have deployment of broadband technology, you can actually control processes, you can control technologies, you can control almost anything you want that is involved in these distributed productions of energy, and that means that they can be locally owned to a much greater extent than they have ever been able to before.

But on top of all of that, we do have to build out the new infrastructure, we do have to build out the new regulatory regimes. We do have to define the new tax structures. We do have to define all of the things that typically pervade underneath a stream of fossil

fuel and hydrocarbon products, and we don't have any of that in place today.

So, the things that we do, although we at Rural Development, and I want to—I think this is important to clarify this for the record, are essentially not a research agency. We are a commercial development. We are a rural development and a financing agency. We have a small component of research perhaps in our 9006 effort.

However, with what Department of Energy is doing, and with what is being proposed in the farm bill, with an additional $0.5 billion for bioenergy and alternative fuel research, the Department will have and does have a fairly major stake in it.

But it does and will require all of us to think differently, out of the box, because we are, in fact, building a brand new industry that has not been here before.

Ms. MUSGRAVE. Thank you very much. I would just like to add my voice to the urgency. As I look at those rural communities that I serve, there isn't a whole lot longer some of them are going to be able to hang on, so we are wanting to grab a hold of this. We do want a future for rural America, and quite frankly, there are very many communities that are just on the edge.

So, I will add my voice to the urgency, and I thank you. Did you—yes.

Secretary MCGINTY. Yes. I just wanted to add a comment about, you talked about regulatory burdens, and an area that hasn't been talked about precisely here is where we currently have things that are challenges for farmers, but could be assets and opportunities.

And to just give you two examples, we have a lot of livestock agriculture in Pennsylvania. That is mostly good. It leaves behind some droppings that can become mountains of droppings and a problem to manage. We have been trying to use that material, then, for example, to co-fire and power plants becomes very difficult from an air quality permitting point of view. Some flexibility in the Clean Air Act to encourage that would be very useful.

Another example, some of that manure winds up in the stream as a water quality issue. If, instead of saying to sewage treatment plants, you have to install billions of dollars of technology to upgrade your plant, what about allowing that plant to pay the farmer to keep the cows out of the stream, and the sewage treatment plant get the credit for the pollution reduction in the stream. Much more cost-effective, an opportunity for the farmer, and an overall environmental and economic win, but the regulations need to be flexible to allow that innovation.

Ms. MUSGRAVE. Well said. Thank you, Mr. Chairman.

Mr. HOLDEN. I thank the gentlewoman, and recognize the gentlewoman from New York, Ms. Gillibrand.

Ms. GILLIBRAND. Thank you. Thank you, Mr. Chairman.

My question is this. We are all very concerned about becoming energy independent of Middle Eastern oil in the next decade, and I think a lot of your proposals are very helpful.

Last week, the Department of Energy awarded $385 million in funding for six cellulosic ethanol pilot plants. My concern is none of those plants was in the Northeast, and I really believe that when we look at this issue of energy independence, we need to make sure that we have a regional approach, because from a na-

tional security perspective, but also from an economic security perspective.

What was your consideration with regard to your decision making for the Northeast, and can there be some kind of further funding available for a Northeast plant?

Mr. KARSNER. The answer to the latter is that there will be further solicitations. There is a solicitation we expect to come out this year on a 10 percent scaling cellulosic biorefinery that will have multiple facility selectees, in the end, just as this one did.

In this first round, geographical considerations were not a mover. To a large extent, we ended up with a broad geographical diversity because of feedstock diversity, and so, it is feedstock that ultimately, and the diversity of feedstock that ultimately ended up in the variation of regions of the selectees awarded, and they represent a broad range of regions.

In addition, we could follow up, to the extent that it is not procurement-sensitive, on the precise numbers, but it is my impression that there were very few applicants from the Northeast of the overall pool, to begin with. But I would remind the gentlelady that fundamentally, these technologies that we are seeking to prove out with the criteria that they become commercial and scaled and replicable are exactly that. They are replicable and, in fact, they are portable, and so, the technology is portable, and the capital is portable, and we will need thousands of installed cellulosic commercial biorefineries to meet our national objectives.

So, I am not concerned that the Northeast would end up to be a region devoid of cellulosic biorefineries. In fact, I know that many of the States have been very proactive in their programming, and we support the States through our State energy programs, and other grants, so that NYSERDA, for example, in New York, has had a specific solicitation, I think for up to two cellulosic biorefineries that we have collaborated on.

So, there will be a continuum of opportunities, and if you would like us to follow up, to the extent we can, on procurement-sensitive rules, we will get to you precise numbers.

Ms. GILLIBRAND. Thank you. And my second question is about wind energy. I have a concern right now that is developing. There are a number of investment banks that have come up to my district, because of the tax credits available, to put wind farms in counties like Delaware County, where it is a good location to put them, but what is happening is they are offering farmers a certain dollar amount as a rental fee, maybe $3,000 a month, $5,000 a month, to put these windmills on their land.

I would like to begin to develop an analytical framework where there is an incentive to make sure that if you do come to a small community, that the small community is going to benefit, meaning that they will either receive low cost energy, that 1 of the windmills will be given to the town or community over time, or there is some ownership interest. And I would like to work on a legislative framework to begin to consider that, because I do think these small towns are being rolled over, and many of them are not interested in having large windmills ruining their landscape, or ruining the rural character of their community, but they may have an interest if windmills are put in industrial sites, or are part of the

community, for example, two windmills dedicated for their energy use over the next 10 years, to make sure that that community receives low cost energy, no matter what, so that it is not just going back to the grid.

Have you done any consideration or thought about those issues, as a way to make sure that we don't begin with a spate of lawsuits, where you have a town suing these investment banks coming in, because they have no voice? Have you given any consideration to how you can have community investment, so that people are all in this together and all committed to the same course of conduct?

Mr. KARSNER. I think you have hit on a very important point. I say that as a former wind power developer. And I think that it is quite important that when you arrange a 25 year marriage between a developer and a community that that marriage be on equitable and good and long-lasting and durable terms. And it is, perhaps, a consideration, that we should figure out if there is anything in the characteristics of the Tax Code that need to be looked at. We are opening a discussion with the Department of Treasury on that very subject.

By way of example, there are comparable mechanisms in gas exploitation, for master limited partnerships, and other vehicles in the Tax Code that would give smaller investors a greater play, a greater financial stake. Right now, the production tax credit is aimed almost exclusively at Class C corporations, and the equity is held in those corporations, and then it is monetized in a way that sort of favors the larger big money.

Beyond that, we are also ramping up our production and our wind power budget for a small and community wind program that touches on precisely some of these objectives, and we would be happy to follow up with your office on that.

Ms. GILLIBRAND. Would you do that?

Mr. KARSNER. You bet.

Ms. GILLIBRAND. And would you agree to stay informed with my office?

Mr. KARSNER. Sure.

Ms. GILLIBRAND. So that I can watch the legislative framework being developed, and your policy being developed, because I really think this is something we need to be very cognizant of, because what will happen is the communities will have no voice in this process. And they should be feeling good about it, and they should have control about where the wind farms are placed, because there are places where it makes an enormous amount of sense.

Mr. DORR. I would just make the observation that it is, I think, as Secretary Karsner has indicated, as much a Tax Code issue as it is a pricing issue. Tax Code and ownership, in the long run, there are some very interesting things going on right now with small developers. John Deere is doing an outstanding job of marrying small wind farms with local ownership and local maintenance and operation of those, in a very cost-effective way.

And so, I don't think this is something that can't be dealt with, but I think you have to look at the real basis of the issue, rather than trying to structure a pricing deal for a community, simply because that makes it less onerous, perhaps. I think more than any-

thing else, there are just some basic issues that have to be dealt with.

Secretary MCGINTY. May I add, just very barely, I agree that there are some Federal and macro issues, but the issues you point to start with the most basic thing, which is, does that community have a zoning ordinance in place?

Ms. GILLIBRAND. There is no zoning in rural America. I mean——

Secretary MCGINTY. If it does not——

Ms. GILLIBRAND [continuing]. Most of rural America does not want zoning, because they are not comfortable with it. They haven't needed it in their own history, and I just went to—Chairman, is it okay if I continue, because my red light's on?

Mr. HOLDEN. Continue.

Ms. GILLIBRAND. Thank you, sir. In my community, I met with 10 supervisors in Delaware County, and I said who in this, of you would like a wind farm? Five said yes, five said no.

Secretary MCGINTY. Right.

Ms. GILLIBRAND. So there is not agreement, and there are places where these communities would like to have them. None of them have zoning. And I said you may have to begin to talk about zoning now, because of this issue. But they may——

Secretary MCGINTY. They have a seat at the table. If they don't have zoning, they don't. One thing I would offer to share with you. We wrestled with this issue, and with every instrument of local government in Pennsylvania, which are a lot of instruments of local government, we have put together a model ordinance that they all have now adopted, and I would be happy to share that with you, because it hits all of the points that you have highlighted. But again, if you have zoning, then the developer, no matter what the project, wind or a mini-mall, then they have to deal with you. If you don't have zoning, they don't have to deal with you.

Ms. GILLIBRAND. Thank you.

Mr. HOLDEN. I thank the gentlewoman for her comments and her questions, and it is good to have someone from the Northeast on the committee. It has been lonely around here at times, Mr. Lucas. At times, it has been lonely around here, being from Pennsylvania.

The ranking member has one final comment.

Mr. LUCAS. We appreciate all of you, wherever you come from, Mr. Chairman.

Just an observation about the wind energy for a moment. We have four of these substantial wind farms in my district in Oklahoma, potentially two or three more underway. If we can pass the bill that Mr. Pomeroy and I are working on, to extend the $.019 per kilowatt tax credit from a year or two at a time to five, so definitive planning can be made by those people investing the money, I think we will see a substantial growth across the country.

In my area, I observe that those mills are about $2 million apiece, and to get the kind of efficiency to move the power substantial distances, the farms and, there again in my area, which I don't say they are typical, but they just happen to be in the third District of Oklahoma, range anywhere from $50 to $75 to $100 mil, so you are talking a $200 million capital investment, a huge amount of money.

And I would note on all these kind of issues, and everything varies from State to State, but so much of this goes back, I think, to our friends in the State legislature, where I spent 5½ years before I came to Congress. We have had laws since the 1920s dealing with oil and gas, royalty rights, and responsibilities for old wells, and all those sort of things. Our friends at the State level, whether it is zoning issues or electric royalty payment issues, land use issues, our friends at the State level need to work with us, too, in that traditional division between Federal and State government.

But it is a wonderful industry with tremendous opportunity, and that is where rural America wants to be, is right there helping meet our energy needs.

Thank you, Mr. Chairman, for this first panel.

Mr. HOLDEN. Thank you. Mr. Lucas and I would like to thank the witnesses for their excellent testimony today. Thank you.

We now invite our second panel to the table: Mr. John Denniston, Partner with Kleiner Perkins Caufield & Byers, from Menlo, California; Mr. Kevin Book, Senior Vice President, Friedman Billings Ramsey & Company, Arlington, Virginia; Mr. Larry Ward, Vice President of Project Development, Broin Companies, Sioux Falls, South Dakota; Mr. Tim Barker, Executive Vice President, Orion Ethanol, Pratt, Kansas; Mr. Doug Stark, President of Farm Credit Services of Omaha, Nebraska; and Mr. Dave Reyher, President of Colorado East Bank & Trust, Lamar, Colorado.

And we will begin momentarily.

Mr. Denniston, you may begin.

STATEMENT OF JOHN DENNISTON, PARTNER, KLEINER PERKINS CAUFIELD & BYERS, MENLO PARK, CA

Mr. DENNISTON. Absolutely. Good afternoon, Chairman Holden, Ranking Member Lucas, and members of the committee. My name is John Denniston. I am a partner with the venture capital firm Kleiner Perkins Caufield & Byers, in Silicon Valley. It is my privilege to be before the subcommittee today.

Venture capital firms invest in very young technology companies, and counsel them as they grow. Our job is to identify the most promising trends in technology, and we are proud of the role that we played in encouraging such vital industries as information technology and biotechnology.

Kleiner Perkins gave some of the earliest support to companies including Genentech, Amazon.com, and Google. Several years ago, we turned our attention to how we can foster innovation within the energy sector, specifically on a new field we call greentech, which encompasses clean power, transportation, and water.

I will focus my brief remarks today on one particular sector that has been the topic of your discussions in this hearing so far, biofuels, and how a powerful combination between agriculture and technology, with appropriate government support, could help rid our country of its oil dependence.

We have many energy challenges in front of us, but there is ample reason to be optimistic. The greentech sector is growing so rapidly it brings to mind a tenet of the technology industry known as Moore's Law. That is the idea that semiconductor performance can double every 24 months with no increase in price. It is a re-

markable phenomenon, and it is that phenomenon, almost single-handedly, that explains the transition that we have seen, in a relatively short period of time, from an era where information technology was governed by centralized, big, mainframe computers, costing tens of millions of dollars each, that were only owned by the largest corporations in America, to today, where we can read the morning's headlines on our cell phones.

What I am here to tell you today is a similar wave of innovation and accelerating performance is happening right now in the biofuels field, solving problems at a rate few of us could have imagined. Let me give you an example. Ethanol production has become dramatically more efficient over the past 20 years. Compared to the 1980s, we can today produce a gallon of ethanol twice as efficiently as we could 20 years ago, using nearly half as much energy. On top of that, American farmers have succeeded in dramatically improving crop yields decade after decade, which has also contributed to lower ethanol costs.

Cellulosic ethanol, which you discussed on the prior panel, made from non-edible plants including switchgrass and miscanthus and others, now holds the promise of letting us produce large volumes of biofuels, reducing our carbon emissions, and greatly benefiting the agricultural community. Scientists and engineers are working right now on ways to do so at prices competitive with gasoline.

The current biofuels market is facing some challenges, however, including the need to diversify into non-edible feedstocks. Market fluctuations resulting from volatile commodity prices represent yet another challenge. American farmers, engineers, and businesspeople can confront these challenges, and achieve the goal of producing our transportation fuels here in the United States. But we won't be able to get there any time soon without supportive public policy that accelerates innovation and market opportunities, and protects our young and growing biofuels industry.

So, how might Federal policy help accelerate the biofuels industry? I would like to respectfully offer these suggestions. There are some others in my written testimony. First, increase the Renewable Fuel Standard requirements to spur the emerging market. Second, modify the blender's credit to create a safety net for the biofuels industry, so that the credit rises when ethanol prices are low, and falls when they are high. This subsidy, by the way, should be directed at ethanol producers, not gasoline distributors. In addition, provide special incentives for biofuels made from cellulosic feedstock, because they are more costly today. Third, mandate a gradual increase in production of flex fuel vehicles and E85 high percentage ethanol pumps at gas stations. Fourth, create fast track regulatory approval for non-edible energy crops. And finally, fifth, lead by example. The Federal government should be the early adopter by becoming the Nation's single largest biofuel consumer.

Once again, I would like to thank the subcommittee for inviting me here today. I am confident the combination of wise public policy, along with American farming and entrepreneurial talent, will allow us to overcome our energy challenges. Doing so would provide a powerful boost to the American agricultural industry.

[The prepared statement of Mr. Denniston appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Mr. Denniston. Mr. Book.

STATEMENT OF KEVIN BOOK, SENIOR VICE PRESIDENT, FRIEDMAN, BILLINGS, RAMSEY, & COMPANY, INC., ARLINGTON, VA

Mr. BOOK. Thank you, Chairman Holden, Ranking Member Lucas, and distinguished members of the subcommittee. Thanks for the privilege of participating in this important discussion. The opinions I share are my own, and do not represent the views of my employer, Friedman, Billings, Ramsey & Company.

In my role as an energy policy analyst for Wall Street institutional clients, I have met with several hundred asset managers in the last 18 months to talk about ethanol and biofuels. I also worked on two ethanol transactions and conducted the due diligence for about a half dozen more. My testimony today is really about the capital market's financing of biofuels production, and my assessment of how institutional investors may respond to future opportunities.

Until very recently, few new biofuels producers were likely to meet Wall Street's requirements for investment size, production scale, demand stability, and projected revenue growth. The RFS provided a stable and growing market for ethanol and other biofuels, but several other events helped generate interest, too, including rising crude oil prices, hurricane-related refinery capacity constraints, State level bans of MTBE and, of course, the President's emphasis on biofuels for energy security. In addition, growth in the hedge fund asset class meant more dollars were available to invest.

Even so, investors expressed a number of concerns. Investors worried that industry barriers to entry were so low that ethanol production might outstrip demand. Investors harbored doubts regarding ethanol's suitability as an MTBE replacement, because of its water-attracting properties and blending characteristics. Some investors wondered how RFS credit trading would work, especially whether refiners could meet their compliance obligations by using another renewable fuel.

Virtually all investors recognized that ethanol profitability could be influenced by a lapse of the blender's credit and the secondary tariff on fuel ethanol imports. Wall Street enthusiasm built rapidly in March 2006, when it appeared that without MTBE, the Nation might be short of octane, oxygen, and gasoline. Spot market prices that were 250 percent above production costs set the stage for several equity offerings on favorable terms for the issuers, even though spot markets represented a minority of sales.

By the beginning of the fourth calendar quarter, however, oil prices had fallen, and gasoline, ethanol, and shipping markets had started to correct. During the year, the price of building new ethanol capacity had risen markedly, and the doubling of corn prices further thinned producers' margins. Listed equity securities of biofuels producers declined substantially, and several would-be issuers delayed, or in some cases, withdrew their public offerings.

Although it may be a long-term policy goal to decouple the price of biofuels from the price of oil, oil prices remain investors' first consideration today. 2007 began with corn prices at 10 year highs

and oil prices at 20 month lows. Investors with expectations of $60 oil and $2.50 a bushel corn may have been somewhat reluctant to buy stock in biofuels companies at $50 oil and $4 corn. This might have been good news for bargain hunters with a long view, but for hedge funds, where investment performance is evaluated on a monthly basis, it could have been a reason to exit the sector.

High corn prices now have investors looking again at biofuels from cellulosic biomass, and to a limited extent, biodiesel. Investors are also curious whether new technologies will enable existing ethanol facilities to produce butanol from corn, sugar, or sorghum. Many of these assets managers possess the requisite conviction that coming oil scarcity will support biofuels demand. Many are also willing and able to commit capital. However, investors in public securities tend to avoid untested technologies.

It is my view that most asset managers who invest in the U.S. capital markets will require either a production scale demonstration of cellulosic technologies, or the untoward event of a major and sustained oil supply disruption, before they will seriously consider new stock and debt issues to develop second generation biofuels.

This means there are important roles to be played by Government, commercial lenders, and early stage corporate and venture finance enterprises. Pre-competitive R&D funding may lead researchers closer to affordably decomposing wood pulp and plant waste into fermentable sugars. Likewise, the stewardship of top venture capitalists will encourage healthy interplay between nascent technologies and future markets.

Loan guarantees will be important, too, particularly as project capital costs of cellulosic ethanol plants may be three or four times as much as building a dry mill, and demonstration projects are likely to operate at lower volumes than commercial scale ethanol plants. The combination of higher upfront costs and lower volumes means longer payback periods for investors and higher financing costs.

In addition, commercial lenders, in partnership with Federal guarantors, may play critical roles in helping smaller corn-based producers source the capital necessary to retrofit their plants for any second generation technology that may emerge.

This concludes my prepared testimony. I will look forward to any questions.

[The prepared statement of Mr. Book appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, sir. Mr. Ward.

STATEMENT OF LARRY WARD, VICE PRESIDENT PROJECT DEVELOPMENT, BROIN COMPANIES, SIOUX FALLS, SD

Mr. WARD. Mr. Chairman, distinguished committee members, thank you for the opportunity to visit with you today. My name is Larry Ward. I am Vice President of Project Development for Broin Companies, and I would like to talk to you today about the financing challenges of the cellulosic ethanol industry.

Broin Companies, headquartered in Sioux Falls, South Dakota, is the largest dry mill ethanol producer in the United States. Broin Companies is an established leader in the biorefining industry, project development, design and construction, research and devel-

opment, plant management, ownership, and product marketing. The 20 year-old company built 25 ethanol production facilities, and currently manages 19 across the United States, while marketing more than one billion gallons of ethanol annually.

The Broin Companies development model is unique. It started on the Broin family farm in Minnesota, and has spurred the investment of thousands of individual farmers and individual main street investors surrounding the plants. Each plant is a local, independent, limited liability company, and the Broin Companies has a Board of Directors representation at each plant.

Broin Companies last week became the recipient of the DOE Integrated Biorefinery Commercial Demonstration Grant, in which a 50 million gallons per year traditional corn to ethanol plant will be converted to a 125 million gallon per year cellulosic biorefinery.

Broin is honored to be a recipient, called Project Liberty, the full project pot is over $200 million. DOE's contribution is up to $80 million of that project. This level of support is essential if commercialization is going to advance quickly.

To give some perspective, in the ethanol industry, on the cost of construction. Just 10 years ago, most ethanol plants were 10 to 50 million gallons per year in size. Broin's first plant was literally one million gallons, and that was a large plant at the time. Traditional ethanol plants were built in farm-producing States, which put incentives in place to stimulate investment by farmers and other local main street investors.

The cost per gallon to build and find the working capital for these plants was approximately $1.75 per gallon at that time, which amounted to about $20 to $25 million total project costs. Those plants today are very small by today's standards. Most dry mill ethanol facilities are now designed in between 50 million gallons and 125 million gallons per year production capacity, and the cost of an ethanol plant project just five years ago was $1.20 per gallon capacity. Today, the design and construction costs exceed $2 per gallon, reaching upwards of 250 to 300 million gallons to deliver a completed project. The significant increase is due primarily to inflation of construction materials, utility infrastructure, as well as skilled labor.

Construction of cellulosic facilities is even higher, due to the additional storage, feedstock handling, and pre-treatment equipment, the cost to expand an existing facility to a cellulosic facility is approximately 100 percent greater than a traditional corn to ethanol facility. Expansion costs to a facility are projected to range in approximately $4 per gallon. A cellulosic facility designed on a Greenfield plant, and not an expanded ethanol plant, will be even greater, due to additional infrastructure, storage, and handling facilities.

However, as technology develops, and the cellulosic industry matures, the cost of construction is predicted to go down, provided that the cost of the inflationary influence on materials isn't increasing at a greater rate. In terms of project financing, historically, a majority of the financing for ethanol plant construction has been accomplished using local, individual investment, and bank debt financing, provided through the Farm Credit System, and a few other Midwestern groups.

All of the Broin Companies' products have a very strong individual farmer investment component, as well as main street local investment, promoting local ownership in each rural community. Financing structures historically have ranged between 40 to 55 percent equity, with the rest being contributed by debt.

Certainly, in the last couple of years, public financing and venture capital began emerging with interest in the industry, and will play a role in the future, alongside the traditional financing roles.

Rapid development of the cellulosic ethanol industry will be difficult, if not impossible, without the support of government policy and programs to stimulate investment at the company level and at the farmer level. Just as certain grants and loan guarantee programs have been successful in the past, we believe new policies, programs, and structures tailored to the bioenergy industry will be imperative to reach the rapid growth in technology and biofuels production.

The Federal Loan Guarantee Programs have an opportunity to play a significant role. Our company has looked at several types of USDA and DOE loan guarantee programs in the past. Our company has not utilized any of the programs, due to their structure, requirements, and the fact that they do not provide the credit security, or have program rules in place that do not hit the objective.

I would like to move the comments toward some suggestions on moving the cellulosic financing forward. The most significant economic challenges facing the developing cellulosic industry include biomass collection and logistics, economical production processes, and the costs of construction, utility, and rural development infrastructure. Until biomass collection processes and cellulosic technology are proven, Government support will be crucial to launch this part of the industry.

We have two primary recommendations I would like to touch base on. One is certainly to help address the biomass collection and logistics of cellulosic biomass, put in place specifically to reward the farmers during the early years. Number one is we would suggest that an incentive be put in place to the producer of $50 per dry ton of biomass delivered to the cellulosic ethanol plant, again, incentivize the farmer, change the way that farming practices are done during the times of year when cellulose needs to be collected, stored, handled, and brought to a plant.

In addition, the plant would be making a payment to the farmer-producer, to help incentivize the delivery of cellulose the plant. And thirdly, we would suggest this incentive payment be temporary in nature, and terminated after the industry has proven that the technology has gained efficiency, and gained some critical mass.

Our other comments to dealing with the Loan Guarantee Program, and to terminate the discussion here, really center around changing the rules of the program to make sure that they provide the credit, security enhancement for the lender, in advance, and sharing the risk alongside with the producer, sharing the risk alongside with the government programs, to make sure that they are usable projects, usable lending structures, so that the financing can get secured on a commercial lending basis.

We encourage your staff and you to review the examples, questions, and comments included in the written testimony, as you continue your work on the 2007 Farm Bill.

Broin Companies is honored to testify to the Agriculture Subcommittee for Conservation, Credit, and Energy. Mr. Chairman, committee members, thank you.

[The prepared statement of Mr. Ward appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Mr. Ward. Mr. Barker.

STATEMENT OF TIM BARKER, EXECUTIVE VICE PRESIDENT, ORION ETHANOL, PRATT, KS

Mr. BARKER. Thank you, Mr. Chairman, Ranking Member Lucas, Congressman Moran, distinguished committee members. Thank you for the opportunity to address you today regarding one of the most exciting and rapidly changing industries in the United States, our domestic ethanol policy.

My name is Tim Barker. My title is the Executive Vice President of Development for Orion Ethanol, an ethanol company based in Pratt, Kansas. Pratt is a community of 7,000 people, west of Wichita, in Western rural Kansas, in the first District of Kansas.

Our story is not unlike many other ethanol companies. We are just like the other 80 ethanol companies in the United States. We were started by a local group of investors wanting and dreaming of spurring local rural development in our home economy. And in furtherance of that pursuit, we attracted a large Wall Street investment. We were one of the first to do so in the spring of 2004. This investor came in and promised the local group there in Pratt to take the remainder of the financing obligations, senior debt, equity components, and manage that facility; $7 million into that project, the price of ethanol decoupled from the price of gasoline, and Wall Street, this particular hedge fund, recognize that this was a dual commodity structure, and that no financial derivative existed to link, to establish a link between our feedstock and our end products. This scared their investment our, and in the middle of their construction with many people on the Greenfield, they called and sent the trucks home. They pulled their investment totally from us. The local group spent the next 12 months putting that project back together, and we were successful, and financially closed that project, with the assistance of some large corporations and enormous local support in the spring of 2005. Our first facility will come online in July of this year, and through that process, we developed relationships in Western Oklahoma, and additional relationships in Western Kansas, and began pursuing additional projects in those sites.

Our company has grown in management and skill, and we are now listed on the NASDAQ over the counter bulletin board as a publicly traded company with management that has decades of experience running publicly traded companies listed on the New York Stock Exchange, and has raised literally billions of dollars in capital. With this team that we have assembled, along with first tier investment banks, we ventured back to Wall Street for a second round at trying to raise the equity to build the five projects that

we have under development, and to inject approximately $1 billion of capital into Western Kansas and Western Oklahoma.

My purpose here today is to communicate to you the message that Wall Street sent home with us through that endeavor, and to offer some suggestions that they sent to us, that would help us achieve our goal of building this capacity. During our pursuit, we talked to over $200 billion of equity capital, representing 100 different hedge funds on Wall Street. The response was unanimous. The management team of Orion Ethanol is superb. The business plan is well thought out, and when these plants come online, our projects will be one of the lowest cost producers in the country, and have economic advantages above our competitors.

However, at this time, and this was just last fall, Congressman, Wall Street told us this isn't the time for us to invest in ethanol. We are unsecure investing in additional and new ethanol capacity in rural America. We believe that the Congressional support for the tax credits is wavering. We believe that with the current headwinds the industry is facing, namely, near record high corn prices, skyrocketing capital costs, and as the gentleman before me said, 20 month low oil prices, all these different things have spooked the investment community, and they are going to wait for something to turn around.

I believe what this is telling us is very simple. This is telling us that the RFS worked to expand capacity. However, the investment community, it received the message that you will support those investments and protect that capital. The investment community is waiting for a reconfirmation of that message.

Because of our dual commodity structure, and the inherent risks in our business, it is the role of government to step in and assist to mitigate those risks, until the free market can take over, and financial derivatives exist to accurately hedge our risk, and provide the Wall Street group the comfort that they can lock in profits, and generate returns for their shareholders that they have come to expect.

Some of the things that I believe could be public policy changes that could help us are revisiting our Conservation Reserve Program. I believe that rural America needs to be unleashed to produce and prove to the world that it can meet our energy and our food needs. We believe at Orion Ethanol, also, that we need to work to include, especially in Western Kansas, Western Oklahoma, and the panhandles of Texas and Oklahoma, we need to work to encourage the feed yards to implement the byproduct feeding into their system, and make the capital improvements that it is going to take to feed that byproduct on a wet basis.

With those thoughts in mind, we would absolutely welcome any questions that you may have, and we thank you very much for the opportunity to come and visit with you today.

[The prepared statement of Mr. Barker appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Mr. Barker. Mr. Stark.

STATEMENT OF DOUG STARK, PRESIDENT, FARM CREDIT SERVICES OF AMERICA, OMAHA, NE

Mr. STARK. Mr. Chairman and members of the committee, thank you very much for the opportunity to appear before you this afternoon. My name is Doug Stark, and I am President and CEO of Farm Credit Services of America. We are one of 100 institutions that comprise the Farm Credit System.

Farm Credit Services of America serves the States of Iowa, Nebraska, South Dakota, and Wyoming, areas where there is a high concentration of ethanol facilities. We have more than $10 billion in loans outstanding at this point in time, to over 65,000 customers in that four State territory who borrow from us. As you know, we are a cooperative, and I am proud to say that over the last three years, as such, our institution has returned $150 million to our customer owners in cash.

System institutions have been leaders in financing the growth of the ethanol industry. We have played a unique role in support of that industry as it has developed. Not only have we financed the construction of these plants, as Mr. Ward has indicated, and provided them operating credit, but we have also provided farmers the opportunity to unlock the equity that has been referred to as well here today, so they can invest in ethanol facilities.

At the end of 2006, the Farm Credit System institutions reported loans outstanding and commitments to bio-based energy operations of over $2.8 billion. Since that is a point in time number, it really understates the total financing we have provided the industry over the last 15 years, including the very first ethanol plant, in South Dakota. It also does not include the total financing we have outstanding with farmers that have invested in these facilities.

As you consider the future direction of the ethanol industry, and looking ahead to a transition to cellulosic ethanol, biodiesel, and other forms of bio-based energy, I would like to share with you at least how we approach a potential investment in these forms of energy. In general, when we look at a proposed deal, we undertake a comprehensive due diligence underwriting approach. We consider, obviously, the economics of the proposal, but we also look at the plants, including the plants' sensitivity to fluctuation of price of key inputs. We look closely at who will be doing the engineering and design of the plant. We consider logistics, such as transportation in the area. And also critical to our financing decision is our understanding of the types of marketing relationships.

In addition, we constantly monitor the status of governmental policy as itrelates to the industry. Is tax or import policy changing? Are there unresolved environmental or regulatory issues involving the plant siting, and what risks are associated with potential shifts in policy?

We then, of course, structure the loan so it will best meet the needs of the ethanol production facility and its owners. Most often, we put together a lending syndicate, because of the size of these credit facilities, to provide that financing. This can take many forms, including a syndicate that involves a Farm Credit institution as a lead lender, combined with other System institutions and commercial banks.

Favorable government policies have been absolutely essential for the success of this developing industry. Renewable Fuel Standards, both at the Federal and State level, have served to ensure a market for the product. It is critical that the government policy encourages an adequate marketplace for the end product.

Aside from mandates for ethanol use, we also believe that the current level of tax support at the pump is also important to the continued vitality of the industry. While our industry continues in its development stage, tariff support continues to be important, so the industry is not disrupted by imports. In our case, predictability is an important issue as we look at future projects.

We strongly support efforts to develop a cellulosic ethanol industry along the existing corn-based industry that we see today, but we caution that policies not be adopted that might result in the government picking winners and losers of the development of various types of ethanol. While we caution against tipping these scales to one form of ethanol over another, the practical reality is that cellulosic ethanol industry needs support in order for it to take hold. New technologies involve heightened risk, and this has been recognized in the Loan Guarantee Programs that have already been put in place and those that are being proposed.

We strongly support these efforts, but offer two suggestions for your consideration. First, our view is that the USDA has a proven track record of success in running guaranteed loan programs in rural America for business development. We agree with your approach there, and we believe that the USDA should be the lead agency for loan guarantees for cellulosic ethanol production.

Second, the form of guarantees should also be reconsidered to make available last dollar guarantees, instead of a percent of loss sharing guarantees. We do not view the loss sharing guarantees as a best inducement to lend. An effective Loan Guarantee Program is important as Farm Credit puts stockholder equity at risk to continue to support the growth of this industry.

Finally, we are seeing the beginnings of a challenge in finding sufficient interest from other lenders to fill out the projects that Farm Credit is leading. Several early entrant lenders to the industry have reached, or are close to reaching their lending capacity for ethanol, which imposes a problem for future plants.

Mr. Chairman, American farmers are the most efficient and productive in the world, and energy is a critical backbone of our modern economy. The Farm Credit System stands ready to work with the committee as you consider policy options, continue the growth of renewable fuels in meeting these demands. We are currently working in all areas, from supporting ethanol, biodiesel, wind turbines, to the conversion of manure to methane for electricity production.

Would certainly be happy to answer any questions you might have.

[The prepared statement of Mr. Stark appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you, Mr. Stark. Mr. Reyher.

STATEMENT OF DAVE REYHER, PRESIDENT, COLORADO EAST BANK & TRUST, LAMAR, CO

Mr. REYHER. Good afternoon, Chairman Holden, Ranking Member Lucas, members of the subcommittee. I appreciate being invited to testify on the important topic of financing renewable energy sources. It is an honor to be here today representing the independent community bankers of America.

My name is Dave Reyher. I currently serve as President of an independent community bank, Colorado East Bank & Trust, with headquarters in Lamar, Colorado. Colorado East Bank & Trust has assets of nearly $500 million, and currently has 12 branches scattered throughout Eastern Colorado and Western Kansas. Eight of these branches are located in and serve smaller rural communities where agriculture is the center of the economy. I have over 25 years of banking experience, primarily in agriculture and community lending. I have served on our local economic development committee for the past eight years.

Because they understand the importance of renewable fuels to the economy of rural America, the environment, and the Nation's energy security, ICBA and its member banks are strong supporters of renewable fuels, and are partners in the 25×25 Alliance, which promotes the goal of producing 25 percent of the Nation's energy from renewable sources by 2025. Community bankers play an active and important role in financing renewable fuel facilities. They finance the construction of plants, and provide working capital loans to renewable fuel facilities. Community banks also lend money to their farm customers to buy shares in ethanol and other renewable fuel companies.

Nearly 80 percent of respondents in a recent survey of community bankers said that they are actively involved in financing ethanol facilities, or desired to become involved. My own bank first became involved in the financing of renewable energy sources through a project with a large earthmoving company that was interested in locating a biodiesel plant in our area. We could see that the project would have many benefits, cost savings for the company, cleaner emissions for the area, and a future alliance with the local producers of oilseed plants, from which the oil is extracted to manufacture biodiesel.

Our customer has started small, and is manufacturing biodiesel for their own use. We now are in the process of working with them on an expansion project that would allow them to produce biodiesel on a commercial basis.

We also joined with other community bankers from the area, and becameinvolved in financing a large ethanol plant located in a small community in central Kansas. This relationship was developed through an alliance that we and other community bankers have developed with an underwriting originator and placement agent. Our bank is working on an economic development effort currently that would locate an ethanol facility next to a feedlot in our area. The feedlot owner and ethanol company would work together to produce ethanol and ethanol production byproducts to be utilized as livestock feed for a feedlot. This project would create additional jobs for our community, as well as provide another much-needed market for farm products for local growers.

Community banks have formed a variety of alliances that enable us to easily finance ethanol projects, even though the cost of these projects are often enormous, and could exceed the lending limits of smaller community banks located in areas where the projects seek to locate.

Early in my testimony, I mentioned the alliance that we have reached with the placement agent for community banks. The placement agent will underwrite, for a large project, for a renewable fuel facility, bring community bankers together, to finance it, allowing each participating bank to have a share of the overall loan package. In addition, community banks come together on their own to finance these projects, through informal networks, and they also use alliances with regional bankers' banks, and large correspondent banks as well.

The economic development opportunities afforded rural America by alternative energy projects financed by community banks are substantial. As our survey revealed, community banks are ready, able, and willing to finance all aspects of ethanol production. These projects provide exciting new markets through value added products that will help enhance the overall economic health of our communities. Policymakers should encourage the continued participation of community banks in financing the alternative fuel sector.

Again, I thank you for the opportunity to testify, and would be happy to answer any questions.

[Prepared statement of Mr. Reyher appears at the conclusion of the hearing.]

Mr. HOLDEN. Thank you. Thank all of the witnesses for their testimony.

Mr. Ward, you mentioned that Broin received one of the awards last week from the Secretary, a $380 million award. Is that correct?

Mr. WARD. That is correct.

Mr. HOLDEN. How much was the award for, and can you repeat againwhat that will allow you to do?

Mr. WARD. Yeah, the award is part of a project where we are converting a conventional cornstarch ethanol plant to a cellulosic biorefinery. The scope of the project increases the production from 50 million gallons per year up to a total of 125 million gallons per year.

Mr. HOLDEN. More than double. Okay.

Mr. WARD. Yeah, more than doubling. The total cost of the project and investment is over $200 million. The amount of grant is up to $80 million of that effort.

Mr. HOLDEN. And how long ago did the company apply for it?

Mr. WARD. The application was submitted back, I believe, in September, which was the timeframe for the application for the DOE grant.

Mr. HOLDEN. Okay. And there were six—you might not know this. I should have asked the Under Secretary, but there were six awards, but you don't have any idea how many have applied.

Mr. WARD. I wouldn't——

Mr. HOLDEN. I should have asked the Under Secretary. I apologize. You heard, during the last panel the discussion about research, and how we do not want to be redundant, and we also want to make sure that all of the country has an opportunity to partici-

pate in what we see as a very positive opportunity here to move away from dependence upon foreign energy, and use renewable fuels.

We are about to make an investment in increasing research, but since you already put your money where your mouth is, you might have some comments to tell us what works in different regions of the country, and what doesn't. You know, Secretary McGinty talked about Pennsylvania having the largest ethanol plant east of the Mississippi, I believe she said, but we could never be competitive with the Midwest and the upper Midwest on traditional ethanol, but we do have an abundance of soybeans.

Ranking Member Goodlatte talked about the opportunities with timber in hisdistrict in Virginia, so we all know that there are opportunities out there, but since you are making the investments, you are making the loans, you might want to make a comment to the subcommittee of what you think works in different regions of the country already, so we don't have to be redundant.

Mr. WARD. Mr. Chairman, I would make 1 comment in regards to the stimulation of science and research, and we couldn't be happier that the Department of Energy and others are focusing on the science and focusing on the research. It has the ability to extend to every area across the United States, and we believe those programs have continued to be targeted to facilitate some of the incubating technologies that can be done along with private industry, who already has much of the science and technology beginning to be developed, leveraging the grants and the opportunities through the Department of Energy, as well as aligning them with the universities that are in play in those States all across the country, to help facilitate that research. And so, we would just encourage continued vision to clarify the opportunities that make the best sense for the different regions. Thank you.

Mr. DENNISTON. Mr. Chairman, I would second Mr. Ward's comments. From the venture capital perspective, we see a lot of exciting ideas on new technologies for cellulosic research. Some of these are in the basic research stage, and so, there are a lot of venture—basic research is it is not proven. There is high technology risk. So, if you think back in the 1960s, 1970s, the NIH did early funding of genetics that became the biotech industry, and DARPA funded communications projects that became the Internet.

Now, DARPA and NIH didn't know what would become of their funding, but huge industries that have become very important in the United States came from that. And my own personal opinion is the level of research funding today for cellulosic research form the Federal government is too low by a lot, and so, the venture capital industry last year invested $2.5 billion in all the green technologies. Most of that was to build, $1 billion of it was to build ethanol production facilities. So, just a very small portion of that is in the basic research part.

That is historically where the Federal government has made an enormous difference, and one thought that I would love to leave with you today is that other countries around the world are moving forward on basic research for cellulosic ethanol and other forms of biofuels, and in my opinion, I think the United States is behind, in terms of Government support for that basic research.

Mr. HOLDEN. Anybody else care to comment? Investment in agrodiesel lagging behind cellulosic investment?

Mr. DENNISTON. Mr. Chairman, I would love to see the figures, because I don't have them, of what the Federal funding is for ethanol, biodiesel, other forms of biofuels. I don't know the answer to that. My belief is that it is small in the aggregate.

Mr. HOLDEN. Mr. Lucas.

Mr. LUCAS. Thank you, Mr. Chairman. Mr. Stark, you mentioned in your testimony Farm Credit has loans outstanding or commitments to the bioenergy industry of, in the range of $2.8 billion. That is a substantial amount of money.

Could you describe in a little more detail the number and kind of projects that that $2.8 billion entails around the country?

Mr. STARK. Thank you for the question.

I can't speak to the number of projects in total that the Farm Credit System is involved in. We roll these numbers up on a national basis. If I just use some swag numbers, if you look at about $1 per gallon investment, debt investment, at $2.8 billion, that is about 2.8 billion of the production of five billion gallons that is in production today, that would be well over half that is in production, and we are still involved in plants as they move forward. So, it is a significant investment in the industry today.

Mr. LUCAS. What do you think is the most important issue in affecting the systems capacity to tolerate the risk that is involved in this?

Mr. STARK. Well, I think the issue that we are facing today, one of the most critical issues, as new plants are developing interest in continuing and/or expanding, we are finding it more difficult to find partners that are willing to step up, primarily as a result of the fact that many of the early entrant lenders, as I mentioned, are filling up on their capacity.

Many of the lenders have established in-house hold positions in total for this and that capacity is filling, combined with the issues that Mr. Book mentioned, when you look at the economic issues with the price of fuel, the inputs, and the fact that with the current plants that are under construction right now, of about six billion that will come online in the next 18 months or so, combined with the five billion there, puts us at 11 billion roughly, in terms of total production. There is a real concern by lending institutions about the economic viability of the plants in the near term, and so, that is a concern that, as Mr. Books indicated, that investors as well as lenders are watching very closely.

Mr. LUCAS. Mr. Reyher, what is the biggest challenge that community bankers face in financing local owned biorefineries?

Mr. REYHER. Mr. Lucas, really, the—in our bank's opinion, the local community banks are so interested in seeing that economic development come to their communities that we really don't face many of the problems that I can see.

We mentioned the alliance that we have with the placement agent, and we have had an opportunity to look at financing some ethanol facilities, and quite frankly, if we don't get in there, we don't get a piece of it. And we mentioned the project that we have going on in our area right now. We actually contract with the agent to do the underwriting. In the county where I am located, we have

four community banks, and each one of them wanted a piece of it. We have taken the lead, and are actually working with the placement agent. Each bank will then take a part of that, and we will then be able to participate in the economic viability of the community.

I was particularly sensitive to Ms. Musgrave's remarks, in that we are located in her Congressional district in Colorado, and she is right, and we are looking for ways to enhance our economic viability of our local economy, but we are regulated by the FDIC and all the other bank regulators from a risk standpoint. One thing that we found lately is a lot of these projects are coming in with over 50 percent equity in them. There is not a lot of risk in a deal like that, where companies such as Broin are coming in with their own money, and they are looking to finance the equity at 50 percent. There is not a lot of risk in those projects, quite frankly.

Mr. LUCAS. Mr. Chairman, if you would indulge me for 1 more question to Mr. Barker.

Coming from a part of the country where there is a mature oil and gas industry, and there is a huge amount of infrastructure that goes to making that work, I notice in your testimony, you comment about the challenges of trying to establish an ethanol pipeline to move your product around. Could you expand for a moment on those kind of technical challenges, and it is more than just building the plant at a particular point. It is more than financing that, more than having so many months worth of stock and a contract to sell your product. You have got infrastructure issues, too.

Mr. BARKER. Absolutely right. I appreciate the question.

One of the more rapidly developing and largest challenges that our industry faces, in addition to technology, is the infrastructure. As this industry grows, it is very analogous to oil and gas. As our senior management has decades of oil and gas experience, and in its infancy, the oil and gas market moved its product by rail and truck, just like the ethanol industry moves by rail and truck today.

Mr. LUCAS. True.

Mr. BARKER. However, today, the oil and gas industry moves its products primarily by pipeline and barge. As the ethanol industry grows and matures, the same advancement is going to take place. It is going to take enormous amounts of capital investments to replace existing pipelines, old, abandoned pipelines that are eroding and environmentally unsafe can be replaced. It is cheaper than building a new pipeline outright.

Western Kansas and Western Oklahoma are perfect places to that, and aggregate the supply, and take advantage of existing pipeline infrastructure to get the new product into where the demand is.

Mr. LUCAS. Thank you. Thank you, Mr. Chairman.

Mr. HOLDEN. Thank the ranking member. I recognize the gentleman from Kansas, Mr. Moran.

Mr. MORAN. Mr. Chairman, thank you very much.

Mr. Denniston, perhaps what you were saying more eloquently than I is this urgency, it is—you specifically talked about the research, and particularly, cellulosic research, but it is that kind of I don't know, Manhattan type project that I think this country should be engaged in, and I just wanted to give you the opportunity

to agree with me, or disagree with me, but to make that compelling point that there is a lot of benefit to be gained here about the future of our country's economy, our national security, and it requires that basic investment in research that we made in other circumstances, that we apparently are not yet making today. Accurate?

Mr. DENNISTON. Completely, Congressman. I would love to elaborate, if you would allow me to do so.

Mr. MORAN. Please.

Mr. DENNISTON. So——

Mr. MORAN. The chairman may give me a bit more time this time.

Mr. HOLDEN. No one's in line, Mr. Gentleman. You can take your time.

Mr. DENNISTON. Okay. I think it is important for us to step back and the question what is it that we are trying to solve. And so, one issue that is clearly on the agenda is a boost to rural and agricultural communities in the U.S., no question about that.

Second is to reduce our dependence on foreign, imported oil. No debate. Third is to propel American competitiveness in new technologies. In my mind, there is no question but new energy technologies will be a very large wave of innovation in this forthcoming century.

And fourth is climate change. And I think all four of those are issues that we are trying to solve for. We are in a flat world. In this last year, I traveled to Asia, to Europe on business. They are moving forward on the energy front, propelled by Government policy, incentives, research incentives, production incentives, purchasing incentives, we are behind the curve. And as a result, the companies in those countries have an advantage for the moment over our domestic companies, because the public policy, with all due respect, in some of those countries overseas, is a little bit ahead of where we are.

And so, I couldn't agree with you more that where this all starts is with research. There will be innovation, and I am very hopeful and confident that the innovation will come from America, and will lead to great prosperity in all regions of the country, including agricultural areas.

Mr. MORAN. I never thought that I would agree with a statement that I heard former President Clinton say in Kansas last week, but his point was that in the '90s, we had job growth in the United States, due to the Silicon Valley revolution, and the job creation that resulted from that basic change in our economy. And his point was the same can occur in regard to biofuels, in regard to new energy sources, and that he cited growing economies in European countries, based upon job creation, based upon energy development, nontraditional, at least nontraditional to date, energy development.

And I really took his comments with great skepticism. I thought this is kind of pie in the sky, easy thing to say, but what I am hearing you say is that there may be significant opportunities to alter the entire economy, not just the energy sector, not just rural America, but a significant change in opportunity in the United States, and a growing economy based upon a change that can occur in the energy sector.

Mr. DENNISTON. I agree with that, and let me take half a minute just to paint the picture of why now, why not 10 years ago, why not 20 years ago? What is happening now?

First is energy prices are up 3X over where they were five years ago, oil prices at least. At our venture capital firm and other firms, we are seeing innovation in different technical areas, material science, physics, electrical engineering, synthetic biology, synthetic chemistry, and all of that is coming together that now, for the first time in a very long time, I think permits these alternative energy sources to have a chance to compete on price with the incumbent sources of energy. And we have not really seen that before, and so, given the confluence of technology that we haven't had before, higher energy prices, and I think a sense of public opinion that the problems I identified before, that everybody on this subcommittee has talked about, are real problems that are at the very highest level of priority for the country. I think this will be a large wave.

Mr. MORAN. Well, it concerns me that—I mean, I am pleased at the price that we pay at the pump is less than it was some time ago, but I think it has an unfortunate consequence upon public policy, because our focus shifts. We are interested in "solving the problem" when our constituents are telling us how desperate they would like to see, you know, gas prices to come down, and when they come down even to the degree that they have, which is much less than where they used to be, they are much higher than they used to be, our focus shifts, or the consumer's mindset changes, and we don't seem to have the, perhaps, crisis mentality, or at least, the intensity, to focus on these energy issues that I wish we had.

Mr. Chairman, do you anticipate a second round of questioning, or——

Mr. HOLDEN. The gentleman may proceed.

Mr. MORAN. Thank you, sir.

I wanted to—Mr. Barker talked about inability to finance with Wall Street, and it has been said that there was concern about the tax credit, the uncertainty of Congress' commitment to renewable fuels. What are the factors that—what is the uncertainty that we place here in Washington, D.C., that is read by the financial markets, that then has a consequence for those people who are out there trying to raise capital, in order to build an ethanol plant? And, you know, I assume it is the tax credit, or they talk about the tariff. I assume that generates interest in the financial markets. The price of oil, I assume, is a significant determining factor into whether anybody wants to loan money. Is there more to it than those things, or what is the role those play?

Mr. DENNISTON. Congressman, the risk aversion of the people who manage America's money would probably please you. There is a very different risk profile in institutional investors. The venture capital community is not only innovators and operating managers, they are also investors. So, they bring some skin to the game. They control things a lot better. A small equity stake in a public company is something you don't typically control until you research it very carefully, and you look through a litany of risk disclosures any time you look at an offering memorandum, and you say gosh, why would I ever do this?

And the answer is because of opportunity. And the growth rate the Renewable Fuel Standard provided was one of the principal selling points of ethanol transactions. The idea was that all other things being equal, the demand was going to effectively double in the United States by mandate. The concern was that supply was growing even faster. And so, one of the fundamental economic questions that has been asked of me, in trying to parse this town for those guys, is basically when are they going to raise the demand levels at a Federal level? Because that is a principal concern. There is certainly ethanol supply, every hydrocarbon-importing nation in the world is facing the same basic challenge. Oil is up. Agriculture resources can be an answer.

What happens when all the refined product gets out there into the world? Suddenly, you have a significant oversupply, potentially not just here in the U.S. Add in refinery capacity. It would amaze you, I think, how far to the *n*th degree the folks who manage money look at risk. But that deters them, because in the end, what they are motivated by is rate of return, and they adjust their rate of return by an expected value of risk, and if they have a high risk coefficient, then the project has to return far more to reach their hurdle rate, and they will just move their money, your money, into something else.

Mr. MORAN. So the Renewable Fuel Standard is the motivating factor for the movement of capital into this industry?

Mr. DENNISTON. The risk of oversupply is the first—on every meeting I have had, that has been the number 1 thing. The tariff, the political factors that keep the tariff in place, given that it is paired with the excise tax credit, seem less unstable. We are unlikely, I believe, Wall Street believes we are unlikely to subsidize our nations' production.

Mr. MORAN. You are better able to answer the questions than I get regularly at home, which is what is Congress going to do about X, Y, and Z? You do this for a living, I guess, is predict what we are going to do.

Mr. DENNISTON. Well, I think that is going to be interesting to watch. I am here to learn, Congressman.

Mr. MORAN. My final question, Mr. Chairman, thank you for your indulgence—and from our lenders or others, are there examples of where banks, lending institutions, investors have lost significant sums in investing in these plants? Is there the disaster that has occurred that also sends a signal out there?

Mr. DENNISTON. I can only speak from my own experience and our company, Congressman, and really, the answer is that has not occurred at this point in time. Given the economics of the industry over the last few years, the plants that got into production very early on, as was stated here earlier, with lower cost production, and very reasonable breakevens, have really made outstanding revenues at this point in time. So, they have returned an extremely attractive returns to their owners and their investors initially. So, that has not occurred at this point.

Mr. MORAN. Finally, my last question, Mr. Chairman.

My question was asked earlier of the first panel, and I am not certain it was answered in a way that I understood it. Are we to the point in which it is, the days of the local farmer/investor put-

ting in $5,000, pooling that money with his or her neighbors, are those days gone, and it really is about hedge funds and venture capitalists?

Mr. REYHER. Congressman, I will take a shot at that. I don't believe so. We have a great interest of local individuals who are willing to pool their money. We mentioned the 50 percent into these ethanol plants, these $100 million projects. That is $50 million in equity or cash that is going into these things, and there is money out there, and they are more than willing to put it in. And so, I don't believe that we have reached that break-over point at all. I believe that there is still room for the small time cooperative investors to pool their resources, to create these marketing co-ops that help them streamline their risk, and eliminate some of the risk that they have, and just putting a seed in the ground and growing it for a price that you hope to get. This offers them a lot more diversity, and some different avenues that they have, in marketing their products. So——

Mr. MORAN. Thank you for your answer. That is very pleasing to me, particularly in light of the weather patterns that your customers and my constituents have encountered over the last 4 or 5 years, that there is still capital that can be raised in Western Kansas and Eastern Colorado.

Thank you, Mr. Chairman.

Mr. HOLDEN. Thank the gentleman. And I thank the panel for their testimony and for their comments.

Under the rules of the committee, the record of today's hearing will remain open for 10 days to receive additional material and supplementary written responses from witnesses to any question posed by a member of the panel.

This hearing of the Subcommittee on Conservation, Credit, Energy, and Research is adjourned.

[Whereupon, at 3:30 p.m., the Subcommittee was adjourned.]

Opening Statement of
Agriculture Committee Chairman Collin C. Peterson
House Committee on Agriculture
Subcommittee on Conservation, Credit, Energy, and Research

Public Hearing to review the financial structure of renewable energy sources
March 7, 2007

Thank you, Chairman Holden and Ranking Member Lucas, for holding this hearing today on the financing of renewable energy sources.

One of the biggest developments that agriculture and rural America has seen in a many years has been the growing demand and expanding market for agriculturally-based energy sources, including ethanol and biodiesel. This excitement is not just rooted in farm country. It has spread into our suburbs and cities, as everyone is eager about the potential for ethanol and other renewable fuels to reduce our nation's dependence on foreign energy once and for all.

When the USDA unveiled their Farm Bill proposals earlier this year, one of their ideas that I immediately agreed with was their

conclusion that additional resources are needed for renewable fuel programs. The 2007 Farm Bill our committee will consider this year will include an energy title that will help meet this demand by supporting domestic alternative energy sources.

For example, we know how to make cellulosic ethanol. It's been done. What we need to do now in this Farm Bill is to provide the incentives to get companies to produce it on a commercial scale until conventional lending can take over. Federal loan guarantee programs will be essential to move this next generation of alternative energy sources into commercial production.

I am curious to hear about the efforts of the Department of Energy's Biomass and Biorefinery Systems program to meet this growing demand for the next stage of ethanol and biofuels. It has been my position that the Department of Energy is simply unable to effectively administer a loan guarantee program for agriculture-based renewable energy sources. They do not have an established experience

with loan guarantee programs or the necessary infrastructure within the department to meet the appetite for renewable fuels. Furthermore, they are not currently rooted in farm country, close to the farmers and rural businesses who want to be the drivers of this industry part of the fabric of rural America.

The Department of Agriculture is far more experienced with loan guarantee programs and has the track record and infrastructure in place to assist farmers who want domestic, homegrown renewable energy to be part of the fabric of rural America's future. I look forward to cooperating with the Energy and Commerce Committee to examine and reevaluate this administrative arrangement and will continue to do so as we consider the 2007 Farm Bill.

In the meantime, I also look forward to hearing from the witnesses today who are involved in the private financing of these projects. Specifically, I am interested to know what kind of market signals they are looking for to determine whether or not the government takes its role

as loan guarantor seriously and is committed to fostering private investment in alternative, homegrown energy sources.

We need to get the next stage of alternative energy industry moving forward done in the most timely and efficient way possible. We can do this if we do it right. I look forward to hearing from each of the witnesses today about their views on the future of domestic alternative energy sources and I yield back my time.

Statement of Representative Tim Walz

This farm bill presents us with an extraordinary opportunity in the area of renewable energy production. Although renewable energy production from farm-based energy sources has grown in recent years, we still have a long way to go. I am pleased that today we will learn more about the different federal programs that help promote that energy production. We will hear about what is working and about what needs improvement.

I am constantly hearing from producers that renewable energy production has the potential to literally transform American agriculture. I'm proud that Minnesota has long been recognized as a national leader in the promotion of biofuels such as ethanol and biodiesel. In fact, Minnesota has more E-85 fueling stations than any other state in the nation. And the promise of cellulosic ethanol has the potential to promote economic development to parts of rural America that have not yet felt the lift from corn-based ethanol.

But in addition to ethanol, we have a plentiful supply of wind energy as well! Minnesota's First Congressional District has received more grants under Section 9006 of the Farm Bill for renewable energy production than any other Congressional District in the U.S.

I look forward to receiving the testimony of our witnesses here today, and I thank the Committee for holding this hearing.

TIM HOLDEN, PENNSYLVANIA
CHAIRMAN

STEPHANIE HERSETH, SOUTH DAKOTA
HENRY CUELLAR, TEXAS
JIM COSTA, CALIFORNIA
BRAD ELLSWORTH, INDIANA
ZACHARY T. SPACE, OHIO
TIMOTHY J. WALZ, MINNESOTA
DAVID SCOTT, GEORGIA
JOHN T. SALAZAR, COLORADO
NANCY E. BOYDA, KANSAS
KIRSTEN E. GILLIBRAND, NEW YORK
DENNIS A. CARDOZA, CALIFORNIA
LEONARD L. BOSWELL, IOWA
STEVE KAGEN, WISCONSIN

COLLIN C. PETERSON, MINNESOTA
EX OFFICIO MEMBER

NONA DARRELL
STAFF DIRECTOR
(202) 225-0420

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Conservation, Credit, Energy, and Research
Room 1301, Longworth House Office Building
Washington, DC 20515–6001

FRANK D. LUCAS, OKLAHOMA
RANKING MINORITY MEMBER

MIKE ROGERS, ALABAMA
STEVE KING, IOWA
JEFF FORTENBERRY, NEBRASKA
JEAN SCHMIDT, OHIO
TIMOTHY WALBERG, MICHIGAN
TERRY EVERETT, ALABAMA
JERRY MORAN, KANSAS
ROBIN HAYES, NORTH CAROLINA
SAM GRAVES, MISSOURI
JO BONNER, ALABAMA
MARILYN N. MUSGRAVE, COLORADO

ROB GOODLATTE, VIRGINIA
EX OFFICIO MEMBER

March 21, 2007

The Honorable Thomas C. Dorr
Under Secretary for the Rural Development
United States Department of Agriculture
Washington, D.C. 20250

The Honorable Alexander Karsner
Assistant Secretary
United States Department of Energy
Washington, D.C. 20585

Dear Under Secretary Dorr and Assistant Secretary Karsner:

We would like to follow up on our exchange with Under Secretary Dorr and Assistant Secretary Karsner during the March 7, 2007 *Hearing to Review the Financial Structure of Renewable Energy Sources* for the Subcommittee on Conservation, Credit, Energy, and Research. This letter and your response will be made part of the official record if timely received.

We are seeking clarification on the current coordination and collaboration of projects that deal with renewable energy research. It is important to prevent the possible redundancy of research being done across the Agencies, and in particular, the funds designated on behalf of the USDA and DOE, both independently and jointly. In order to assess and review the current research being done, we are seeking clarification for the projects currently underway between the two departments in order to maximize efficient use of taxpayer dollars.

We suggested such a project was needed to aid in formation of the 2007 Farm Bill Energy Title. Both Under Secretary Dorr and Assistant Secretary Karsner agreed, and alluded to the fact that a project is currently underway. If so, what does this project entail? What is the spectrum of projects and amount of detail to be included in this venture? What kind of timeline or schedule can we anticipate for this inventory or matrix to be completed? How has this information been tracked in the past and what will be done in the future to check our progress?

agriculture.house.gov
agriculture@mail.house.gov

Second, it was said that the Energy Council at USDA has begun conception of a matrix to identify research and business development strategies. Undersecretary Dorr stated that meetings have been held with the Departments of Energy, and Transportation and the Environmental Protection Agency. What kind of progress has been made through this collaboration and what has been done to encourage these and other agencies to participate?

Finally what progress has the Interagency Biomass Research and Development Coordinating Council made, and what do they expect to accomplish in the future to coordinate and disperse projects to limit the amount of duplication and ensure that our budget is being used most efficiently to fund research our nation's energy future?

Tim Holden
Chairman

Jeff Fortenberry

Jim Costa

For release only by the
House
Committee on Agriculture
March 7, 2007

RURAL DEVELOPMENT

Statement of Thomas C. Dorr, Under Secretary
before the Subcommittee on Conservation, Credit, Energy and Research

Mr. Chairman and members of the Subcommittee, it is a distinct pleasure for me to appear today to discuss USDA Rural Development's programs which cover housing, infrastructure and economic development for rural areas. Our focus in this presentation is renewable energy and energy efficiency programs and activities. Since a kilowatt saved is an important as a kilowatt produced, I will discuss our energy conservation as well as our renewable energy development programs.

All of us recognize the strategic imperative of reducing our dependence on imported oil, the environmental concerns surrounding fossil fuel use, and the importance of conservation. All of us, I am sure, also understand the immense potential of renewable energy for spurring growth, jobs, and wealth creation in rural America. I appreciate this opportunity to testify and I look forward to working with this Subcommittee to advance these important objectives.

Renewable energy is a high priority for our Nation. It has been a high priority for both President Bush and the Congress over the past six years. On renewable energy in

particular, we are making significant progress: installed wind capacity in the United States has quadrupled since 2000; ethanol production has more than tripled; and biodiesel production has soared over 100-fold. Several solar technologies are also growing rapidly.

The international comparisons are telling. Although previously we were not prominent in developing renewable energy, the U.S. is now the world leader in ethanol. We trail only Germany in biodiesel, and we are growing fast. According to the Global Wind Energy Council, we led the world in wind capacity added in 2005 and 2006. The U.S. total installed wind capacity is now essentially tied with Spain for second place behind Germany: 20,622 MW (Germany) vs. 11,615 MW (Spain) vs. 11,603 MW (U.S.) at the end of last year. Again, our progress in this decade has been very rapid.

This is, however, not a race against other nations. It is a race against our own potential. The renewable fuels revolution is still in its infancy. A wide range of renewable energy and energy efficiency technologies are in play. Several of these – ethanol, cellulosic ethanol, biodiesel, and wind – involve a predominately rural resource base. That is why USDA Rural Development is involved.

The Administration's proposals, both for the 2007 Farm Bill and the Fiscal Year (FY) 2008 budget, include important new initiatives in this area. These build on the comprehensive energy strategy outlined by the President in 2001, the Energy Title of the 2002 Farm Bill, the Energy Policy Act of 2005, and the State of the Union Address

delivered by the President in January 2007. We are no longer at the starting line; we are some distance down the track and picking up speed.

The growth of renewable energy has been encouraged by several factors: the rise in global oil and natural gas prices; turmoil in the Middle East; the emergence of major new energy consumers in international markets; improvements in technology; and supportive federal and state policy. It is imperative we sustain this progress in the years ahead.

USDA Energy Council

USDA has a significant role to play in this effort. The FY 2008 budget requests a program level of $397 million across USDA for bioenergy and renewable energy programs. These activities include commercialization, research and development, education and outreach, and energy efficiency and conservation. The Agricultural Research Services; Cooperative State Research, Education and Extension Service; Forest Service; Economic Research Service; National Resources Conservation Service; Office of the Chief Economist; and Rural Development all have activities in these areas.

In December 2005, Secretary Johanns formed the USDA Energy Council to better coordinate USDA's myriad energy and energy conservation activities across the Department and with other federal agencies. As Under Secretary for Rural Development, I am the Chair of the Energy Council. Under Secretary Mark Rey and Chief Economist

Keith Collins are the Vice Chairs. The breadth and variety of USDA's involvement is remarkable.

- Dr. Collins administers the Biodiesel Education Program. Under Secretary Rey administers the diverse contributions of the Forest Service and the Natural Resources Conservation Service. As Chairman of the Energy Council, I would like to briefly acknowledge the important contributions of our sister agencies.

- The Agricultural Research Service (ARS) and Cooperative State Research, Education, and Extension Service (CSREES) conduct or sponsor research on a wide variety of subjects, including many that are energy related. Their work has allowed American producers to steadily improve yields, increase drought resistance and reduce the intensity of fertilizer, herbicide and pesticide use. This translates into fewer passes over fields, and thus lower fuel usage; lower water and power consumption due to reduced irrigation; and reduced energy inputs in the form of agricultural chemicals. These are significant conservation and energy efficiency benefits. In addition, ARS and CSREES are playing key roles in the accelerating effort to improve ethanol conversion efficiencies, optimize feedstocks for energy production, and overcome the barriers to cellulosic ethanol production. These are major research priorities with important long-term implications for the Nation's energy posture.
- USDA's Office of Departmental Administration works to reduce USDA's fossil fuel consumption and increase our use of biofuels and biobased products.

- Finally, the Farm Service Agency administers the Conservation Reserve and Conservation Reserve Enhancement Programs. CRP and CREP have traditionally been considered environmental, not energy programs; they are designed to conserve the Nation's natural resources by reducing soil erosion, enhancing water quality, and providing wildlife habitat. Though they are not listed in USDA's energy crosscut, as cellulosic ethanol is commercialized in the near to intermediate future, CRP and CREP lands may begin to assume a significant energy role in the production of dedicated energy crops. This prospect is addressed in the President's Farm Bill proposals.

Rural Development

Rural Development administers a wide range of housing, infrastructure, business, and community facilities programs. The President's FY 2008 budget requests an overall discretionary budget authority of $2.1 billion to support a program level of $14.9 billion in these areas. Renewable energy and energy efficiency related activities are present in most Rural Development program areas. This includes some activities that have not traditionally been defined as "energy" programs, but which nonetheless have significant energy implications.

Business and Cooperative Programs: For FY 2008, the President's budget proposes $112 million in budget authority to support $1.3 billion in grants, loans, and loan guarantees for Rural Development's Business and Cooperative Programs. These support

a wide range of business development, community capacity building, and technical assistance initiatives.

Renewable energy and energy efficiency are priorities across this entire program area. Since 2001, eight different Business and Cooperative Programs have invested in projects involving wind, biodiesel, ethanol, methane gas recovery, biomass, geothermal, and hydrogen technologies, as well as research on cellulosic ethanol.

- **The Renewable Energy and Energy Efficiency (Section 9006) Program:** For FY 2008, the budget requests $34 million in budget authority to support $195.5 million in Section 9006 loan guarantees and $15 million in Section 9006 grants.

- **Energy Investment by Other Business and Cooperative Programs:** In addition to the Section 9006 Program, Secretary Johanns has directed that every Rural Development business and cooperative program have a priority on energy and energy efficiency. These programs continue on a competitive basis to finance a broad spectrum of projects, so it is not possible to project the share of funding that will be awarded to energy related projects in FY 2008. Past experience, however, provides some guide.

  From FYs 2001 through 2006, for example, Rural Development has invested over $480 million in 1,134 renewable energy and energy efficiency projects, $349 million of this total has been invested through Business and Cooperative

Programs. Another $119.1 million has been invested through the Rural Electric Program, and $22.1 million has been provided through the High Energy Cost grant program. The Section 9006 Program accounted for over 800 of the individual projects but less than one-quarter of the total funding. This is an across-the-board priority.

- **Energy Infrastructure Issues:** The development of large scale, distributed renewable energy industries will also require construction of a supporting business infrastructure. The ripple effect is very large. The President, for example has proposed a target of a 35 billion gallon renewable fuels standard by 2017. Meeting this goal is likely to require significant new investments in water, electric, pipeline, trucking, and rail infrastructure, as well as the expansion of construction and support industries in rural areas. Our Business and Cooperative Programs staff stand ready to support rural entrepreneurs in engaging with these emerging opportunities. Rural Development is studying a wide range of issues related to the rapid development of rural renewable energy including regulatory and logistical barriers, business and investment models, and technical issues related to the integration of large scale distributed power generation into the grid.

Housing and Community Facilities Programs: Rural Development's Housing and Community Facilities Programs support single family homeownership, affordable multi-family housing, expanded opportunities for low-income and minority homeownership, and a wide range of critical community services. The FY 2008 budget requests budget

authority of $714 million to support $6.3 billion in grants, loans, and loan guarantees for these purposes.

While not typically categorized and discussed as "energy" programs, our Housing Programs are energy conscious. Our programs conform to the Model Energy Code and in most localities the International Building Code as well. We provide financial incentives for meeting the stricter energy efficiency standards and for additional energy efficiency investments.

- **Single Family Energy Conservation: The Rural Energy Plus Pilot Program** became effective nationwide in June 2006, and provides special eligibility consideration for low- and moderate-income applicants to the Rural Development Section 502 homeownership loan program. Under the pilot program, if eligible applicants are purchasing a newer, energy-efficient home, they will receive an increase of up to two percentage points on the qualifying ratio used to determine their ability to repay a home loan. This relaxes the underwriting requirements – because utility costs are expected to be lower – and makes it easier for a low-income family to qualify for their first home loan. Any home that meets the 2000 International Energy Conservation Code or a subsequent comparable code is considered energy efficient.

- **Multi-Family Energy Conservation:** Properties being rehabilitated under the **Rural Development Multi-Family Revitalization Initiative** that include an alternative energy component such as windmills or geothermal heating systems

are provided with special eligibility consideration. Properties undergoing restructuring and rehabilitation are thus incentivized to add an alternative energy component to their plans.

Under the program, Rural Development will finance the alternative energy system. This special consideration encourages efforts to expand access to property rehabilitation, while emphasizing the importance of energy conservation.

Utilities Programs: For FY 2008, the President's budget proposes $538 million to support $6.6 billion in rural electric, telecommunications, water, and waste disposal infrastructure. These programs support the Nation's renewable energy and conservation goals in several ways.

- **Rural Electric Programs:** The Rural Electrification Administration was created in 1935 to meet the challenge of providing modern infrastructure to a dispersed population across great distances. That challenge remains today: USDA Rural Development borrowers sell 6.95 percent of the electricity sold in the United States, but they do this in a service area spanning 80 percent of the Nation's landmass. The FY 2008 budget requests a program level of $4.1 billion for rural electric program loans. Because of the extremely high performance of the electric loan portfolio, this program level is supported by a requested budget authority of just $120,000.

Energy Efficiency. Rural Development's Electric Program recognizes that energy efficiency and conservation are important means of moderating the growth of power demand and, therefore, demand for new generation facilities. As a matter of routine practice, our program staff requires borrowers to include energy efficiency and conservation forecasts in load forecasts.

Rural electric cooperatives have historically been oriented toward maintaining low consumer rates rather than maximizing margins. As a result, REC's are recognized industry leaders in demand side management. Techniques include energy audits of homes and farms, promotion of energy efficient technologies, demand side metering, automated meter reading, time of use billing, and automated load management to shave usage at peak times.

Renewable Energy Development. Rural electric cooperatives (RECs) are also becoming strategic partners in innovation. While most electric generation will be powered by coal, nuclear, and natural gas for many years to come, an increasing number of RECs are now exploring renewable energy options, particularly wind.

USDA Rural Development has funded REC renewable energy projects on a case-by-case basis. Since FY 2001, the Rural Development Electric Program has invested over $119.1 million in 15 renewable energy projects including wind, solar, anaerobic digesters, hydropower, and landfill gas recovery technologies.

We will continue to welcome opportunities to cooperate with RECs in this area and are prepared to use a variety of program platforms to do so.

- Transmission Issues. Finally, it should be noted that wind and solar are inherently distributed resources. Large scale distributed generation will create both capacity and integration challenges for the existing electric grid. This is likely to add to the financing needs of REC's in the years ahead and we anticipate a continuing dialogue with Congress to ensure that evolving rural infrastructure needs continue to be met.

Telecommunications Program: The Rural Development Telecommunications Program also has significant although indirect energy implications. Information technology drives efficiency across all sectors of the economy. Rural America is no exception. Investments in rural broadband improve efficiencies in transportation and manufacturing. By accommodating decentralized forms of organizations, they allow us to disperse jobs, develop employment centers in small communities, and reduce commutes. I cannot put a "gallon of gas" or "kilowatt hours saved" figure on these economies, and we do not identify rural broadband as an "energy" program. Nonetheless, it is important to acknowledge that information technology and broadband are important contributors to greater energy efficiency.

For FY 2008, the budget provides $4 million in budget authority to support $690 million in telecommunications loans. All telecommunications infrastructure financed by Rural Development is broadband capable. In addition, the budget requests $25 million for Distance Learning and Telemedicine grants and $6 million in budget authority to support $300 million in Broadband Program loans.

Farm Bill Initiatives

Finally, the Administration's Farm Bill proposal contains several initiatives that will greatly enhance our efforts in renewable energy and conservation. Pending enactment of the 2007 Farm Bill, funding for these initiatives is included in the Commodity Credit Corporation section of the budget request.

- **Energy:** The Farm Bill proposal includes more than $1.6 billion over 10 years in new renewable energy funding. The proposal also targets an increased share of this funding to cellulosic ethanol projects. These initiatives cut across several USDA Mission Areas. The major initiatives for Rural Development include:

    - $500 million for a Bioenergy and Biobased Product Research Initiative. Approximately $50 million a year in mandatory funding will support a USDA bioenergy and biobased products laboratory network utilizing existing USDA research facilities as well as engaging universities through a competitive process and connecting them to the USDA lab network.

- $500 million over 10 years for the Renewable Energy and Efficiency Improvements Grants Program; and

- $210 million over 10 years for the Renewable Energy and Efficiency Improvements Loan Guarantee Program to support an estimated $2.1 billion in loan guarantees for cellulosic ethanol projects in rural areas.

The remaining $390 million in the Farm Bill energy package will fund a wide variety of programs elsewhere across USDA, including a proposed Cellulosic Bioenergy Program, an expansion of the BioPreferred program, a proposed biomass reserve program within the CRP, increased funding for bioenergy, bioproducts, and biomass research in several USDA agencies.

The 2007 Farm Bill proposal also calls for a consolidation and streamlining of Rural Development programs. In preparation for this we have been working closely with the Office of Management and Budget on a proposed rule to consolidate and streamline the common elements of our loan guaranteed programs within our existing authorities. This rule will be published in the Federal Register for public comment. I would emphasize that we are committed to supporting renewable energy and energy efficiency projects across our full range of programs and have demonstrated a capacity to use different platforms to advance these goals. Streamlining and simplification of our program structure will enhance our ability to do so in the future.

Conclusion

Renewable energy and energy efficiency are high priorities for this Administration and for USDA Rural Development. We also recognize that renewable energy is a critical national security issue. It is an environmental and economic security issue. It is also perhaps the greatest opportunity for economic growth and wealth creation in rural America in our lifetimes. We are committed to realizing that potential.

We have built significant momentum on renewable energy in recent years and I appreciate the generous support of this Subcommittee for these efforts. We are in the very early stages of a historic transformation, and we look forward to working with you to ensure that rural America continues to share fully in the extraordinary opportunities that lie ahead.

Thank you.

Statement of Alexander Karsner
Assistant Secretary for Energy Efficiency and Renewable Energy
U.S. Department of Energy

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Conservation, Credit, Energy & Research

March 7, 2007

Mr. Chairman, thank you for the opportunity to participate in this hearing on the financing structure of renewable energy sources. I will discuss initiatives under way in the Office of Energy Efficiency and Renewable Energy (EERE) at the Department of Energy (DOE), and focus on activities within our Biomass and Biorefinery Systems program that provide incentives for ethanol production and support the development of biofuels.

I would like to say, at the outset, that the Department of Energy shares an excellent working relationship with the U.S. Department of Agriculture (USDA). Under Secretary Dorr and I collaborate on a variety of renewable energy issues, each bringing the unique perspectives of our agencies to the table in order to achieve the goal of enhancing our energy independence. This Committee has the weighty charge of reauthorizing the Farm Bill this year, and there appears to be strong consensus that a robust energy title is essential. America's farmers and ranchers have the opportunity to play a historic role in shaping domestic energy policy, while creating new jobs and stimulating economic growth in rural America. I look forward to assisting USDA in working with Congress on these efforts.

In his 2007 State of the Union address, President Bush challenged our country to reduce gasoline consumption by 20 percent in the next 10 years, our "20 in 10" plan. In that plan, the President called for a new mandatory fuel standard, requiring the equivalent of 35 billion gallons of renewable and alternative fuels in 2017, nearly five times the target now in law. Expanding the current Renewable Fuel Standard (RFS) established by the Energy Policy Act of 2005 (EPACT 2005) should decrease projected gasoline use by 15 percent. The renewable and alternative fuels included in the expanded standard are sources such as corn ethanol, cellulosic ethanol, biodiesel, methanol, butanol, hydrogen, and other alternative fuels.

President Bush believes our scientists, farmers, entrepreneurs, and industry leaders will continue to lead the world in developing and investing in cutting-edge technology, infrastructure, and farming methods. Advances in many fields will play an important role, such as continued improvement in crop yields, optimization of crops and cellulosic materials as fuel feedstock, and cost reduction in the production of cellulosic ethanol and other alternative fuels. The increased and expanded fuel standard creates a tremendous incentive for research, development, and private investment into alternatives to oil.

The Department of Energy is dedicated to helping our Nation develop a full portfolio of renewable and alternative fuels technologies. Because biomass is the most viable renewable option for producing liquid transportation fuels in the near term, conducting research that can help further grow our biofuels industry is a priority. The Department is funding research, development, and demonstration (RD&D) programs through the use of cost-shared partnerships with industry, universities, and the National Laboratories to advance biofuels technologies.

The Department is funding a biofuels demonstration program authorized in EPACT 2005, Section 932. Under the commercial-scale biorefineries solicitation, the Department recently announced selection of awards worth up to $385 million over five years to six different companies, subject to negotiation and future appropriations. These projects are for the commercial demonstration of near-term technologies in integrated biorefineries for the production of liquid transportation biofuels, biobased chemicals and products, and heat and power from cellulosic biomass feedstocks. While these "first of a kind" facilities will likely have higher costs of production than subsequent cellulosic biorefineries, they will initially help identify scale-up issues and direct further research, and could launch cellulosic ethanol technologies into the marketplace in the future. Further, many of these facilities will be located in rural communities, bringing valuable investment to the backyards of America's farmers and ranchers. Moreover, the Department is partnering with other Federal Agencies through the Biomass Research and Development Initiative to guide the Federal investment effort.

Ethanol is currently the renewable fuel having the most success in the market, with potential for both near and long-term displacement of gasoline. The focus of DOE's Biomass Program is to make cellulosic ethanol cost-competitive by 2012, a target put forth in the President's 2006 Advanced Energy Initiative (AEI). In Fiscal Year (FY) 2007 the Administration has budgeted approximately $150 million for EERE's Biomass and Biorefinery Systems R&D program to implement key activities necessary to achieve the 2012 "Biofuels Initiative" goal for cost-competitive cellulosic ethanol.

Over the next two years, the Department, together with a number of our key strategic partners in government, including USDA and the Environmental Protection Agency (EPA), will undertake five key activity areas to accelerate the development, production, and deployment of cellulosic ethanol.

FINANCING

EPACT 2005 created the Title XVII Loan Guarantee Program. This program seeks to facilitate financing for commercial projects that avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases while employing advanced technologies. Under Section 1703 of EPACT, renewable energy systems, such as advanced biofuels projects are eligible for Title XVII loan guarantees.

To continue advancing cellulosic ethanol technologies, DOE's Biomass Program is planning a solicitation in support of biorefinery processing technologies at 10 percent of commercial scale this year. Many industry leaders have expressed the need for biorefinery technology demonstrations at this less costly scale, which is roughly a 1.5 million gallon per year size facility, in order to resolve remaining technical and process integration uncertainties for the "next generation" of biorefinery process technologies. Ultimately, such demonstrations reduce the overall cost and risk to both DOE and the industry, while improving the likelihood of obtaining financing for larger, commercial-scale facilities.

DOE is also working to implement Section 942 of EPACT 2005 which directs the establishment of a reverse auction incentive program in consultation with USDA, the Environmental Protection Agency, and the Department of Defense for the production of cellulosic biofuels. The FY 2008 budget request includes $5M to establish this incentive program. This program is authorized to provide a production incentive for cellulosic ethanol production on a per-gallon basis, and could help to accelerate deployment and commercialization of biofuels, facilitate the delivery of billions of gallons of biofuels, and ensure that small feedstock producers and rural small businesses are full participants in this industry.

BIOENERGY RESEARCH AND DEVELOPMENT

DOE continues to work on reducing enzyme costs, which are currently too high for cost-competitive cellulosic ethanol production. The Department has already invested approximately $35 million in a cost-shared project with Novozymes, Genencor, and the National Renewable Energy Laboratory (NREL) that led to a 2004 R&D 100 Award for "Enzymatic Hydrolysis of Biomass Cellulose to Sugars." On February 22, President Bush toured Novozymes' plant in North Carolina to see firsthand this important enzyme research. Until the advent of this breakthrough technology, other methods of hydrolyzing cellulose to sugars were inefficient, expensive, and had low sugar yields. By improving the pretreatment process, engineering new enzymes that are exceptional at breaking down cellulose, and optimizing enzyme production, NREL and its partners developed a technology that dropped the cost of cellulose hydrolysis by 20-fold. We believe that improvements in enzymes and pretreatment technologies have the potential to decrease the pretreatment cost by another order of magnitude or more, so the Department will run another industry cost-share solicitation in this important area.

A major cost component within the "conversion" cost category for producing cellulosic ethanol is developing fermentation organisms to convert multiple sugars found in biomass for ethanol production. While there are some organisms that have this capability, they have not reached commercial readiness. To address this challenge, DOE issued a solicitation for development of fermentation organisms. Awards could be valued as much as $37.4 million over four years, subject to appropriations, for cost-shared projects leading to commercial- ready organisms for cost-competitive cellulosic ethanol.

DOE efforts in the Biomass Program also include gasification and pyrolysis technology development that can process biomass resources better suited to these "thermochemical" technologies, such as forest resources and lignin-rich process residues. The funding to develop these technologies has almost quadrupled from the FY 2006 appropriated level to the FY 2008 request. DOE plans on running a solicitation on integrated gasification fuels synthesis cost-shared projects.

In recognition of the complementary goal of improving the characteristics of plant biomass feedstocks for conversion to biofuels, DOE's Office of Science, Office of Biological and Environmental Research (OBER), and the USDA, Cooperative State Research, Education, and Extension Service (CSREES), National Research Initiative (NRI) have jointly initiated a fundamental research program in Plant Feedstock Genomics for Bioenergy to facilitate the use of woody plant tissue, specifically lignocellulosic materials, for bioenergy or biofuels. In FY 2006, the joint program awarded $4 million for genomics research on a variety of plant feedstocks, including poplar, alfalfa, sorghum, wheat and other grasses; an additional $4 million is expected to be awarded in FY 2007.

To accelerate the transformational scientific breakthroughs necessary to advance the development of new approaches to cost-effective production of biofuels and bioenergy, including cellulosic ethanol, DOE's Office of Science is investing $375 million over five years to support the establishment and operation of three Bioenergy Research Centers. These centers, to be selected in FY 2007, will conduct comprehensive, multidisciplinary research programs on microbes and plants to develop innovative biotechnology solutions to energy production. The centers will concentrate appropriate technologies and scientific expertise and focus research on areas spanning genomics to integrated systems understanding of the metabolic pathways and internal structures of plants and microbes most relevant to steps required to develop bioenergy compounds. The centers will serve as catalysts for the broader bioenergy research program of OBER. The research and technology development of these centers may also help overcome some key scientific and technical bottlenecks necessary advance DOE's R&D goals.

REGIONAL BIOMASS ENERGY FEEDSTOCK PARTNERSHIPS

To address biomass resource availability and feedstock infrastructure, DOE will continue to support the Regional Biomass Energy Feedstock Partnerships with USDA and its Sun Grant Initiative universities as identified in the 2002 Farm Bill. These partnerships are integral in order to unlock the potential biomass resource base and to identify the regional biomass supply, growth, and biorefinery development opportunities across the country. Using regionally available feedstocks, produced and used near where they are grown, will allow a "distributed" transportation fuels approach that will minimize shipping and transportation issues.

ETHANOL AND BIOFUELS INFRASTRUCTURE DEVELOPMENT

In addition to basic research for breakthroughs in systems biology to identify new biofuel-producing organisms or new bioenergy crops that will reduce the cost of producing cellulosic ethanol and other biofuels and applied research advancing biomass conversion technologies, the Department is working with other public and private sector partners to encourage the development and deployment of the biofuels distribution infrastructure which will be necessary for displacement of petroleum transportation fuels and increased consumer choice. To foster and sustain growth of the ethanol industry, DOE has also developed a biofuels infrastructure team comprised of staff from our Vehicle Technologies/Clean Cities programs and the Biomass Program to resolve fueling issues and encourage automobile manufacturers to significantly increase the production of E-85 vehicles. Activities include analysis of pipelines, water issues, and support of vehicle technology improvements. The infrastructure team may be expanded to include other agencies.

INTERAGENCY BIOMASS COLLABORATIVE EFFORTS

The Interagency Biomass Research and Development Board, which I co-chair with Under Secretary Dorr is the governing body that coordinates biomass R&D activities across the Federal Government, pursuant to the Biomass R&D Act of 2000. Under the auspices of the Biomass R&D Board, in November 2006, DOE hosted the National Biofuels Action Plan workshop in Washington DC, where representatives from multiple Federal agencies came together to identify agency roles and activities, assess gaps and synergies, and establish agency budgets in the area of biofuels. The Federal participants also made recommendations for improved coordination and collaboration of Federal agencies. The input collected at the meeting is currently being combined to form the National Biofuels Action Plan workshop report. Ultimately, the plan aims to improve the Board's ability to bring coherence to Federal strategic planning for biofuels production and use to meet the President's goals.

CONCLUSION

In conclusion, I believe that the President's Advanced Energy Initiative and "20 in 10" goal hold the promise of accelerating the penetration of cellulosic ethanol into the marketplace and bringing the benefits of a clean, renewable energy source more quickly to our Nation. The Department of Energy is investing in RD&D to overcome barriers to market entry of cellulosic biofuels, forging strategic cost-share partnerships with private industry, collaborating with other agencies of the Biomass R&D Board, and working with the different regions of our country to bring the promise of biofuels to fruition. Combined with the financial tools and tax credits included in EPACT 2005, this multi-pronged effort will help biofuels made from agriculture, forestry, and other domestic biomass resources to become an increasingly important contributor to our Nation's energy supply and economic future.

This concludes my prepared statement and I would be happy to answer any question the Subcommittee members may have.

House Subcommittee on Conservation, Credit, Energy, and Research
of the Committee on Agriculture
Testimony on Financing of Renewable Energy Sources
Kathleen A. McGinty, Secretary
Pennsylvania Department of Environmental Protection
March 7, 2007

Chairman Holden and members of the Committee: I appreciate the opportunity to appear before you today to talk about the vital role of federal funding in development of new renewable energy projects that attract investment, create jobs and bring agriculture into the forefront of America's new energy economy.

Federal energy dollars have been vital to our efforts to invest in renewable energy to cut our reliance on imported fuels, increase our energy security, and generate tremendous new economic opportunities.

Production of fossil fuels – coal, oil, natural gas – has been a mainstay of Pennsylvania's economy for over 200 years, providing good jobs and building an industrial economy that helped make America a world power. But we now face a new energy economy dominated by imported fuels that drain billions of dollars from our state each year and give little back to support our communities.

As we've seen time and again, from the Arab oil embargoes of the 1970s to the dramatically higher prices following disruptions of oil and gas supplies in the wake of Hurricanes Rita and Katrina, our reliance on imported fuels leaves us at the mercy of severe weather events and political upheavals in an unstable world.

It has become apparent to all of us that it is time to rethink our energy policies and make production of homegrown, renewable energy an engine for economic growth. We need to stop exporting money and start putting our farmers and businesses to work producing the fuels that will allow us to declare our energy independence.

Four years ago, Pennsylvania's renewable energy program was not even on the map. Today we are a world leader as a result of investment partnerships forged between state and federal government and private industry, and a strategic shaping of our energy policy.

In 2003, when Governor Rendell took office, Pennsylvanians were spending approximately $30 billion each year on energy resources that were produced outside of the state. The Governor mounted a focused effort to start keeping these energy dollars at home to support our own economy and make Pennsylvania a national leader in the production of renewable energy sources.

This effort started with a small investment in our farmers called the Energy Harvest grant program that channeled federal energy dollars and state funds to agriculture to encourage

development of clean energy from Pennsylvania's indigenous resources to ensure reliable, affordable and secure energy supplies.

The first year we awarded 32 grants for $5 million, which was leveraged with $12.8 million in private investment. Among those early investments were $2.5 million in grants to build five bio-digesters that helped farmers turn an environmental challenge – manure management – into clean energy and an opportunity for economic growth. Other grants that first year went to energy efficiency measures and renewable energy projects such as waste coals.

Over the past three years, the Energy Harvest Grant Program has awarded a total of $21 million and leveraged another $51.9 million in private funds to develop renewable energy sources such as wind, solar, biomass, waste coal and recycled energy.

The Governor also revived the Pennsylvania Energy Development Authority which had been dormant for many years and made it part of his strategy to build a diversified energy industry for the state that would build our energy security. Over the past three years, PEDA has used a mix of federal and state dollars to award $21 million in grants and loans to develop 57 large-scale clean energy projects that leveraged an additional $240 million in private investment. The projects financed by PEDA will create 975 permanent and construction jobs.

As I mentioned earlier, we must do more than just distribute money and fund research. Without policies to create a business climate that encourages growth in the renewable energy industry, we will see little return on this investment.

In 2004, we enacted one of the most ambitious Alternative Energy Portfolio Standards in the country to ensure that by 2020, 18 percent of all energy generated in Pennsylvania will come from efficient and renewable sources.

Pennsylvania's alternative energy law provides strong incentives for clean and renewable energy. We were the first restructured state to include demand-side management measures, or "negawatts," as a means to achieve portfolio standard compliance. This better ensures that approximately 5,000 megawatts of new electricity generation that comes on line over the next 15 years will be from resources indigenous to Pennsylvania, thereby reducing our demand for natural gas in the electricity sector while improving the quality of our environment.

By mandating the use of alternative energy sources, we have given business the confidence to invest in clean energy development in our state.

The results have been impressive. In the past four years, our efforts have attracted some of the world's largest renewable energy companies to Pennsylvania including international wind energy giants Gamesa and Iberdrola, BioEnergy (in partnership with Russian oil giant Lukoil), and the world's largest solar energy project integrator, German-based Conergy AG.

In the coming months we expect to announce that a Canadian advanced battery manufacturer and one of the world's largest renewable energy electricity producers will be locating facilities and business enterprises in Pennsylvania. We are confidant that many other announcements will be forthcoming.

Governor Rendell announced last Friday that Pennsylvania's economic growth continues at a record-setting pace, recording the largest one-month gain in the last 18 months. January's statewide job count also set a new record for the seventh straight month. In just four years, Pennsylvania has grown from 48th in the nation to number 1 in creation of manufacturing jobs as a direct result of our investment in production of clean, renewable energy.

This success has not been without it difficult moments. We have a textbook example of what is both right and wrong with the process as it relates to a cutting-edge clean energy project slated for Congressman Holden's district in Schuylkill County, Pennsylvania.

At a time when many have asserted that oil refineries can't be built in the United States, and haven't been for decades, private industry is preparing to break ground for the nation's first plant to turn waste coal into no-sulfur diesel fuel – a plant that essentially is a refinery. The project is being developed by WMPI, Inc. near Frackville.

Public funding for this project includes a $100 million no-interest loan from the Department of Energy and $47 million in tax incentives, but even with this level of support, the financial community was reluctant to invest in a technology that did not have a guaranteed customer base. At the Governor's direction, we assembled a coalition of public and private customers to purchase nearly all of the plant's output, enabling this new technology the opportunity to attract financing and compete in the energy marketplace. The Commonwealth put its purchasing power to work, committing to purchase some 19 million gallons of fuel for transportation and heating needs, and lock in that purchase for 20 years or more.

Once the WMPI facility is operating, it will convert 1.7 million tons of waste coal per year into 60 million gallons of non-petroleum based liquid fuel, of which 40 million gallons will become zero-sulfur diesel fuel and 20 million gallons will become naptha, a gasoline production feedstock.

The added benefit here is that in addition to creating liquid fuels to reduce imports of foreign oil, the proposed plant will -- at no cost to the taxpayers -- reclaim dangerous abandoned mine sites and remove waste coal piles that pollute thousands of miles of our waterways. Pennsylvania has over two billion tons of waste coal, and more than 180,000 acres of abandoned mine lands left over by the unregulated mining practices of the past, and investments in waste coal technologies will help us to keep chipping away at this problem and help our former mining communities develop new economic opportunities.

As some of you may be aware, a $100 million no-interest loan for the project, promised by the Department of Energy in 2003, was pulled from the President's proposed fiscal 07-08 budget. Through the hard work of Congressman Holden, Governor Rendell, Senators Specter and Casey and other members of Pennsylvania's congressional delegation, that funding has been restored, but the continued uncertainty surrounding how clean energy projects are funded does nothing to calm the fears of potential investors.

Wall Street remains very cautious about new clean energy technologies and will look for strong state and federal support to mitigate risk. However, delays and confusion in enacting the federal loan guarantee program on the part of the Department of Energy have further shaken investor confidence in this cutting edge project. This delay has been incredibly injurious to the project. Private sector financing has been on hold, awaiting federal action. Further, the Chinese have moved forward to order some dozen similar plants, reducing the availability and increase the cost of the required equipment. Third, construction costs generally have increased in the intervening years, inflating the overall cost of the project.

Make no mistake: The loan guarantee is very important to the viability of the WMPI plant and other cutting-edge clean energy initiatives. But steps must be taken to ensure expeditious, efficient, effective implementation of the federal loan guarantee program.

Federal and state government, in partnership with private industry, has been the key to development of many other renewable energy sources including Pennsylvania's wind energy market. With 179 megawatts of wind energy capacity, Pennsylvania is a leader in wind generation east of the Mississippi.

Federal dollars funded the development of a business plan for Community Energy, Inc. to market wind energy from Pennsylvania wind farms, and a wind energy marketing program for the Mid-Atlantic region, which has expanded the voluntary market and paved the way for development of the approximately 4,000 Megawatts of wind energy capacity expected by 2020 through full implementation of the Alternative Energy Portfolio Standard.

More recently, Pennsylvania established collaborative partnerships between the wind industry, state and federal agencies, local governments and non-profits to create a model local government ordinance, a clarified tax policy, and best practices to insure that development of wind energy will ensure thorough protection of our wild resources.

For the second consecutive year, the U.S. Environmental Protection Agency has recognized Pennsylvania for its national energy leadership in putting landfill gas to work, powering economic growth and reducing greenhouse gas emissions. Pennsylvania is home to 24 operational gas-to-energy projects. We estimate these projects generate more than 100 megawatts of electricity, enough to power more than 250,000 homes for a year. Additionally, the projects annually generate approximately 7,000 million standard cubic feet of landfill gas for industrial/commercial uses.

Turning to the farm, we are confident that animal wastes, like municipal waste, can also be a robust source of clean gas that can either be used as natural gas substitute or to generate electricity.

With an effective partnership among state, federal and private sector interests, alternative transportation fuels face a bright future in Pennsylvania, and farmers and rural communities will reap significant benefits.

The commonwealth is already a national leader in the production of renewable fuels. Construction preparation has begun on one of the largest ethanol plants in the east, and approximately 340 million additional gallons of ethanol production are planned to come on-line in the next two years.

Similarly, companies in Pennsylvania are expected to produce 60 million gallons of biodiesel by the end of 2007, and other new plants being built are expected to produce an additional 170 million gallons within the next two years. To put that into perspective, current national production of biodiesel amounts to 225 million gallons, putting Pennsylvania's total production near the top of all states.

The possibilities for exponential growth of homegrown renewable energy received a significant boost on Feb. 1 of this year when Governor Rendell unveiled his Energy Independence Strategy -- a visionary plan to invest $850 million to cut consumer energy costs by $10 billion over the next decade, stabilize electricity rates for businesses, significantly expand Pennsylvania's alternative fuel and clean energy industries and reduce our dependence on foreign oil.

To guarantee that the shift to cleaner alternative fuels occurs, and to bring economic stability to the alternative fuels sector in PA, The Energy Independence Strategy will codify the "PennSecurity Fuels Initiative" by requiring that we use one billion gallons of domestically-produced clean and renewable fuels. One billion gallons of biofuel represents about 12.5 percent of all fuel consumption in the state, and by 2017, would equal approximately the amount of fuel Pennsylvanians buy from the Persian Gulf. Instead of sending billions of dollars overseas each year, more of these funds will be spent purchasing fuel from Pennsylvania's companies and farmers.

Fuel sold in the five-county Philadelphia area is already required to contain 10 percent ethanol, and the Governor's plan calls for expanding that requirement to include all 67 counties in the state.

Additionally, we will invest in developing and expanding agricultural energy industries in Pennsylvania, and require increasing amounts (up to 20 percent) of soy or other renewable biofuels in all diesel sold in Pennsylvania as production increases.

We have made investing in farmland and open space preservation a priority, and Pennsylvania now has the biggest program in the country. But even with this effort, we still lose three acres of farmland for every acre we save. If we give our farmers a chance

to grow our energy, we can turn that around and help our farming families while we bolster our energy security.

Pennsylvania's renewable and alternative energy programs have been called a success story, but the story is far from over and federal energy program funding will be critical to expanding the work we've started.

Roughly 1 out of every 4 to 5 dollars of funding used for Energy Harvest has come from federal energy programs. Since 2003, approximately $7.5 million in federal expenditures have resulted in the outlay of $21 million in state funds and leveraged another $51.9 million in private funds for 59 energy projects.

Nationally, for every federal dollar invested, over $7 is saved on energy costs and over $10 in state, local or private funds are leveraged for renewable and energy efficient programs and projects, according to testimony from the National Association of State Energy Officers (NASEO).

Long-term benefits to Pennsylvania include $10 billion in increased output for the commonwealth, $3 billion in additional earnings and as many as 4,000 news jobs for residents over the next 20 years.

Due to the importance of the State Energy Program to our efforts to encourage the growth of renewable and alternative energy, we fully support the efforts of NASEO to lobby for restoration of these funds in the federal budget in light recent attempts to zero-out SEP funding entirely. Those efforts are proving successful, at least initially, as proposed funding has been tentatively restored by the Bush Administration in the FY08 budget.

Currently, the proposed Bush Administration budget includes $35 million for the base grant to be divided among the various states, and an additional $10.5 million which would be awarded competitively. This is below the FY '07 budget request of $49.5 million for the base amount, and will be the fourth straight year that this grant amount has been reduced.

So many of the renewable energy opportunities we have talked about today directly benefit farmers and rural communities, and the US Department of Agriculture has an opportunity to significantly shape the future of America's energy economy. To do this, the Department of Agriculture, and the federal government should focus on funding partnerships of state, federal and private interests, and enacting policies that will give our clean energy sector opportunities to succeed. My suggestions include:

1) Use Federal Purchasing Power to create demand for alternative fuels - direct federal departments to purchase and use domestically produced fuels and distributed electricity systems (solar, wind, fuel cells, methane digesters, etc).

2) Direct federal departments to purchase fuel from manufacturers situated close to federal facilities, where feasible, to reduce energy consumed in transporting fuel,

cut costs otherwise needed to extend infrastructure from more central points of fuel production, enhance security by using less-centralized stations and enable farm-based operators and organizations to compete in the fuel marketplace.

3) Pass a federal renewable electricity portfolio standard, similar to what Pennsylvania and other states have enacted, calling for at least 18 percent of the nation's electricity to come from renewable energy sources.

4) Pass a federal "net metering" requirement to ensure that generators of clean, distributed energy are paid a fair market rate for electricity they generate and sell to the grid.

5) Pass a federal "interconnection" requirement that ensures the reliability of the grid, while preventing excessive interconnection tariffs or study charges.

6) Fully Fund Reauthorization of Section 9006 – Renewable Energy Systems and Energy Efficiency Improvements. This section of the 2002 Farm Bill provides grants, loans and loan guarantees to farmers, ranchers, and rural small businesses to purchase renewable energy systems, and make energy efficiency improvements. This program was authorized at $23,000,000 for fiscal years 2003 through 2007.
    1. There should be some changes to the way this program is managed. Historically, funds have primarily been directed to only a few states, i.e. Louisiana and Minnesota. Funds should be dispersed regionally or on a state formula basis, instead of a single national competition. The single national competition leads to one-off projects that don't maximize the potential for state partnership. A regional or state focused program could coordinate financial opportunities and leverage additional funds.

7) Promote no-till farming – Farm Bill 2007 should include incentives to encourage and reward the agricultural community for adopting alternative farming techniques, such as no-till farming. Alternative farming practices can meaningfully reduce nutrient run-off and sequester carbon, while being significantly less energy-intensive and expensive than conventional farming practices. However, up-front capital costs and some loss of yields during the transition from conventional farming is a barrier to many farmers. Capital funding and bridge assistance for farmers adopting alternative farming techniques should be provided.

8) Solar Farmers – Farm Bill 2007 should specifically include a "Solar Farmers" section that provides grants funds to farmers for the installation of solar systems.

9) Consider changing the farm bill energy programs from once-annual award programs to state allocations like the State Energy Plan administered by the Department of Energy.

10) Increase funding for the Conservation Reserve Enhancement Program, but ensure that the program is restricted to stream side practices and does not lock up whole farms.

11) Fix the federal loan guarantee program that the Department of Energy is charged with implementing. Loan guarantees are needed for qualifying projects in real time and delays have been extremely injurious to important energy security projects.

12) Set aside more funding for residential energy and energy efficiency projects, both of which are vitally important if we are to cut our electricity demand during extreme hot and cold weather, and forestall or even eliminate the need to build expensive new power plants or interstate transmission lines to handle projected growth in electricity use. Rural Electric cooperatives have some of the best programs in this regard, and should serve as a model for broader-based federal action.

13) Make permanent the current 'Production Tax Credit' and the 'Investment Tax Credit' programs that support renewable electricity projects. The short-term nature of the credit programs is very harmful to renewable energy production since it causes uncertainty, cost increases and instability in the industry.

14) Increase federal support for basic and early state energy technology research. Breakthroughs are still needed to enhance the efficiency and affordability of renewable electricity technology. And advancements are needed to broaden the feedstocks that are be used in renewable fuel production, and the ensure consistency in project quality and performance.

15) Improve the methods by which USDA promotes and solicits Title 9 grant applications for clean energy projects. At a time when Pennsylvania can only fund one in every ten dollars of funding requests, USDA is receiving and funding on average, fewer than ten applications per year. The Cooperative Extension and County Conservation District offices are well suited to help promote federal energy grants to farmers.

I have long believed that environmental challenges present economic opportunities, and our experience in Pennsylvania over the past four years has shown that even small investments in renewable energy projects can yield big results – drawing billions in investment, creating new jobs and setting us on the path to energy independence.

Governor Rendell and I look forward to working with you to help our farmers grow and deliver the homegrown fuels and jobs that will strengthen and diversify our energy supply and our economy.

Chairman Holden, members of the Committee: I thank you for your time and attention. I'd be happy to answer any questions you have at this time. Thank you.

TESTIMONY OF
JOHN DENNISTON
PARTNER
KLEINER PERKINS CAUFIELD & BYERS

BEFORE THE
HOUSE COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON CONSERVATION, CREDIT, ENERGY, & RESEARCH
MARCH 7, 2007

Introduction

Good afternoon, Chairman Holden, Ranking Member Lucas and Members of the Subcommittee. My name is John Denniston and I am a Partner at the venture capital firm Kleiner Perkins Caufield & Byers. It's my privilege to be here today and to have the opportunity to share my views on moving advanced energy technologies to the marketplace.

Ensuring a sound energy future is one of the most urgent policy challenges facing our nation and indeed the global community, and I sincerely appreciate this Committee's leadership in this arena.

Along with the rest of America, venture capital and technology industry professionals – Republicans and Democrats alike -- are deeply concerned about the risks to our nation's welfare posed by our energy dilemma. Specifically, this includes the looming climate crisis, our oil addiction, and the very real danger of losing our global competitive edge. Yet our industry is also in a unique position to recognize that each challenge presents dramatic new opportunities to build our economy, creating jobs and prosperity.

Kleiner Perkins is a member of the National Venture Capital Association and a founding member of TechNet, a network of 200 CEOs of the nation's leading technology companies. I serve on TechNet's Green Technologies Task Force, which next week will release a detailed set of policy recommendations to drive the development and adoption of technologies we believe can help solve some of the world's most pressing energy and environmental problems. We refer to this emerging industry as "greentech," and it includes everything from fuel cells to biofuels to the mechanics enabling solar and wind power, geothermal and tidal power and small-scale hydropower. We look forward to sharing that report with the Committee. My testimony today reflects my own views.

Based in California's Silicon Valley, and founded in 1972, Kleiner Perkins is one of America's oldest venture capital firms. We have funded more than 500 start-up companies over the years, backing entrepreneurs who have introduced innovative advances in such vital growth industries as information technology, medical products and services, and telecommunications. More than 170 of our companies have gone public, including Amazon.com, AOL, Compaq Computer, Electronic Arts, Genentech, Google, IDEC Pharmaceuticals, Intuit, Juniper Networks, Millenium Pharmaceuticals, Netscape,

Sun Microsystems, Symantec, and VeriSign. Today, our portfolio companies collectively employ more than 275,000 workers, generate $90 billion in annual revenue, and contribute more than $400 billion of market capitalization to our public equity markets.

Before joining Kleiner Perkins, I was a Managing Director at Salomon Smith Barney, where I served as the head of Technology Investment Banking for the Western United States. Prior to that, I was a Partner at the law firm Brobeck, Phleger & Harrison, where I was the head of its Venture Capital Practice Group.

In the 1990's, I served on the Board of Directors of a California-based fuel cell start-up firm. The experience opened my eyes to both the daunting energy challenges our country faces and the myriad opportunities we have to solve our problems through technology innovation.

You've asked me specifically to address the current conditions of the biofuels market, including public policies affecting the industry, and to recommend policy initiatives going forward. Before I speak to that, I'd like to take just a few minutes to offer an overview of how I and many of my venture capital colleagues perceive the energy challenges and opportunities facing our country today.

The Challenges

I believe there is an unprecedented degree of consensus in America today as to our three main energy challenges: the climate crisis, our dependence on oil, and the risk of losing our global competitive edge by failing to champion new technologies that are becoming a huge new source of economic growth, jobs and prosperity.

The Climate Crisis

Just last month, the most recent report of the more than 2,000 scientist members of the Intergovernmental Panel on Climate Change warned us, once again, that the planet is warming, glaciers are melting and sea levels are rising. The panel concluded, with ninety percent certainty, that most of this warming is due to higher greenhouse gas concentrations in the atmosphere, including fossil fuel emissions from human activities.

Many scientists predict we have only a short period of time to make dramatic cuts in our greenhouse gas emissions or risk irrevocably changing the climate. In fact, the IPCC report concludes temperatures and sea levels would continue to rise even if we were somehow able to immediately stabilize atmospheric concentrations. To date, we have failed to heed such warnings.

I want to note that in the venture-capital profession, we never make commitments without thorough research and consideration. Professionally and personally, I'm convinced, on the basis of exhaustive scientific evidence, we need to take bold action to solve our climate crisis. But wherever you stand on this issue, it's clear a lot of creative momentum is building in this country to seek solutions to global warming, including new collaboration between energy companies, civic groups and scientists, such as the United States Climate

Action Partnership (USCAP). This trend is promising not only for our environment, but for our national security and our economy.

Energy Security

As for our energy security dilemma, this Committee is well aware the U.S. imports about 30% of its overall energy needs, including approximately 60% of its oil. Rapid growth in worldwide energy demand has stretched supplies, tripling the price of both crude oil and natural gas. And there is every reason to assume this trend will continue, as world population and energy demand increase.

Global Competitiveness

Finally, our future prosperity is at risk, and here I speak from very personal experience. Just in the past year, as I've traveled on business to China and Europe, I've witnessed how the rest of the world is striving, and often succeeding, to emulate the technology innovation that has been a hallmark of the U.S. economy and perhaps the single most important driver of our enviable standard of living. Increasingly, entrepreneurs overseas enjoy advantages in the form of determined government policies, including financial incentives and large investments in research and education.

Credible economic studies suggest our technology industries are responsible for roughly one-half of American GDP growth. Our country would look quite a bit different today had we not, several decades ago, become a global leader in biotechnology, computing, the Internet, medical devices, semiconductors, software and telecommunications.

Today, as our global energy challenges become ever more pressing, it's clear future economic growth throughout the world will depend to a great degree on new technologies to help us preserve our environment. Green energy technologies could very well become the economic engine of the 21st Century. Given its potentially massive market size, "greentech" could be the most powerful economic force of our lives. But will America again lead the way?

The Opportunities

Kleiner Perkins has been investing in the greentech field for the past seven years, backing more than 15 innovative companies in the fields of biofuels, coal gasification, energy efficiency, energy storage, fuel cells, solar energy, thermoelectrics and transportation. In the process, we've witnessed how technological progress is already revolutionizing our relationship with energy, solving problems that only recently seemed all but intractable. Solar manufacturers are innovating their way around silicon shortages, with next-generation materials including pioneering thin-film technologies. The agriculture industry is producing transportation fuels from plant matter – even from microscopic algae -- and is developing technologies so we can economically convert non-edible plants to biofuels. And nanotechnology breakthroughs are creating the promise of new ways to

store energy, which in turn could dramatically accelerate market adoption of solar and wind power.

At Kleiner Perkins, four accelerating trends have encouraged us to make greentech a core investment sector:

- The promise of exponential growth in the energy technology field. The rapid cost-reduction curve we are already witnessing will become ever steeper over time, making emerging sources of energy more and more competitive in the marketplace;

- Rising prices for fossil fuels – oil, gas and coal – are making competing alternative energy sources more attractive;

- World class talent, with both missionary and monetary motives, is racing into the greentech sector;

- Americans are growing much more aware of and concerned by our energy crises, a development we believe will lend support to more sweeping policy solutions.

Moore's Law & The Pace of Technological Progress

In Silicon Valley, we often refer to a principle known as Moore's Law, which I'd like to explain briefly here, as it's fortunately quite relevant to what we see happening in the energy field. Intel co-founder Gordon Moore has been credited with predicting, back in the 1960s, that semiconductor performance would double every 24 months. That prediction was spot on, and helps explain the information technology revolution of the past three decades. Better, faster, and cheaper silicon chips led our transition from an era – remember, it was just 25 years ago! – of big, mainframe computers used principally by university researchers, to our capacity today to read the morning's headlines on our cell phones.

Today, we can already see a Moore's Law dynamic operating in the energy sector, giving us confidence the rate of greentech performance improvement and cost reduction will offer new energy solutions we can't even imagine right now. At Kleiner Perkins, we are excited by the accelerating evolution we have seen in a host of scientific disciplines relating to the energy sectors, including material science, physics, electrical engineering, synthetic chemistry, and even biotechnology. (We are particularly encouraged by innovations resulting from combining breakthroughs in several of these separate disciplines into single products.)

Witness some of these examples of the greentech equivalent of Moore's Law:

- The price of wind power has plummeted by an order of magnitude since 1980, to the point where it is now very close to being able to compete with coal and gas power;

- Solar power costs have fallen by more than 60% over the past fifteen years;

- Ethanol production efficiencies per gallon have improved by more than 45% since 1982. Back then, state-of-the-art technologies produced a gallon of ethanol using 55,000 Btus with a capital cost of $2.25 per gallon of annual production capacity. Today, we can produce that same gallon of ethanol with nearly half the energy previously required, and at nearly half the cost.

These and other improvements have occurred over a period of time in which there was relatively little government policy or entrepreneurial focus on these sectors. Imagine what American ingenuity could accomplish in the future as more and more of our best and brightest devote their efforts to the greentech field.

But now I'll move on to explain how I view the emerging biofuels industry, and to recommend how government policy might encourage this exciting new field.

The Biofuels Market

Kleiner Perkins has invested in several biofuel start-up companies, each with a different approach to the market. All of the companies we support are pursuing ways to produce biofuels from sources other than corn.

The biofuels market has been extraordinarily volatile. In the summer of 2006, crude oil prices briefly surpassed $70 per barrel, and market corn prices were approximately $2.50 per bushel. At that time, ethanol prices were pushed to unsustainably high levels for a short while, partly due to the phase-out of methyl tertiary-butyl ether ("MTBE"), the previously dominant U.S. fuel additive, which had been found to be a carcinogen. These market conditions permitted the ethanol industry to operate at attractive profit margins.

Later in the summer of 2006, however, commodity prices changed so as to narrow industry profits. Crude oil prices declined dramatically over a very short period, from $78 per barrel to $49 per barrel, while corn prices increased from roughly $2.50 per bushel to over $4 per bushel. As a result, at that time, the average production cost for ethanol makers in the United States increased, while the market price for ethanol declined. These commodity prices vary geographically.

The ethanol industry today is highly fragmented. In the past year, a large number of new companies have announced plans to build ethanol production facilities. However, the rapid deterioration of commodity prices has reduced the market capitalization of publicly held biofuels companies, with a ripple effect on private companies. As a result, I expect some of the announced plants will not be completed on schedule, and others will not be completed at all.

Biofuels industry leaders know they must continue to reduce production costs and increasingly use non-edible feedstocks in order to grow and help end our nation's

dependence on foreign oil. Cellulosic ethanol, which can be made from many sources of biomass, including weeds, prairie grass and even waste, holds the promise of reducing carbon emissions and benefiting the agricultural economy. Cellulosic biomass is cheap, relatively abundant and also popular, since it won't compete with food production. We have the technology today to produce mass quantities of cellulosic ethanol. However, that dream will be realized only when the industry lowers plant construction and production costs below where they are today.

Scientists and engineers are attacking this cost challenge with four tactics: crop engineering; pre-treatment of the cellulose to facilitate conversion to sugar; novel enzymatic conversion processes; and the use of a gasification conversion process instead of the conventional enzymatic approach. Meanwhile, other technical experts are working to develop low-cost methods of producing alternative fuels such as butanol, and applying synthetic biology tools to create even newer forms of biofuels.

Existing Policy

The two most important statutes relating to the biofuels industry are the renewable fuel requirements established by the Energy Policy Act of 2005 and the federal blender's credit, an excise tax incentive program first implemented in 1979 (Volumetric Ethanol Excise Tax Credit, also called "VEETC").

The 2005 Energy Policy Act put in place a Renewable Fuels Standard ("RFS"), which requires minimum volumes of renewable fuel, such as ethanol, to be used by petroleum refiners in the fuel supply. The annual requirements start at 4 billion gallons per year in 2006 and grow to 7.5 billion gallons by 2012. In my opinion, these minimum volumes have not affected the market, since the demand for these new fuels has quickly surpassed the statutory minimums.

The blender's credit allows gasoline distributors that blend ethanol with gasoline to receive a federal excise tax reduction of $0.51 per gallon of ethanol.

Policy Initiatives

To address the climate change crisis and our oil dependence, and to strengthen American competitiveness, federal biofuels policy could be strengthened in several respects, including:

1. **Increase RFS Requirements**. Consistent with the "20 in 10" initiative announced by President Bush in his 2007 State Of The Union Address, Congress should significantly increase the RFS requirement to spur innovation. Congress should separately establish minimum E85 standards. The RFS requirements should include ethanol and all other alternative fuels.

2. **Create A Safety Net**. The blender's credit, as currently structured, does not create a safety net for the biofuels industry. Oil and corn commodity prices could once again move against the biofuels industry, draining profits and investment capital in the process. Two modifications to the blender's credit could assure the survival of today's nascent biofuels industry. First, change the structure of the credit so the amount is inversely related to the price of ethanol – at low ethanol prices, the credit is relatively high, and at high ethanol prices, the credit is relatively low. Second, change the payment mechanism so ethanol producers, not gasoline distributors, receive the subsidy. As an aside, I applaud Congress' recent vote to repeal the $14 billion in subsidies the oil and gas industry has enjoyed for many years now.

3. **Provide Incentives for Non-Edible/Cellulosic Feedstocks**. Create a volumetric incentive, in addition to the blender's credit, for biofuels created from non-edible feedstocks. Congress might consider using some portion of the federal gasoline tax to partially fund this incentive.

4. **Mandate Flex Fuel Vehicles and E85 At Gas Stations**. The industry currently faces a chicken and egg problem in which E85 producers are reluctant to invest in distributing their fuel because there are so few flex fuel vehicles, and vehicle makers are reluctant to bring flex fuel vehicles to market because there are so few gas stations serving E85. Congress could break the log jam by requiring auto makers to produce a gradually increasing number of flex fuel vehicles, and by requiring a gradually increasing number of gas stations to be fitted with E85 pumps.

5. **Strengthen CAFÉ Standards**. A significant increase in CAFÉ mileage standards would without a doubt help kickstart the growth of all alternative fuels.

6. **Fast Track Approval For Energy Crops**. Many companies are pursuing modifications of non-edible crops so they can be used for biofuel feedstock. The USDA and, where applicable, the FDA and EPA, regulatory approval processes can be quite lengthy. Congress could accelerate the adoption of cellulosic biofuels by creating a statutory "fast track" approval process for non-edible feedstocks. The "fast track" process should not and need not compromise on safety issues.

7. **Federal Research Funding**. Total federal research funding for renewable energy (excluding nuclear power) and energy efficiency amounts to less than $2 billion per year. Energy consumption and transportation account for roughly 15% of U.S. gross domestic product, which is approximately the size of the U.S. health care system. But research and development funding for new and necessary energy technologies is not commensurate. By comparison, the NIH budget this year is around $28 billion. To oversee our federal energy research funding, I suggest Congress consider creating a new agency – you might call it the National

Institute of Energy – to consolidate and rationalize federal energy research funding.

8. **Federal Fuel Procurement**. The federal government could lead by example and become the single largest consumer of biofuels in the country. For example, the Congress could impose stringent RFS standards on federal vehicles.

9. **Cap And Trade**. Congress should apply a carbon cap and trade system to transportation fuels. A well-designed national cap and trade system could simultaneously address all three of America's energy-related crises: climate change, national security threats stemming from energy dependence, and the danger of losing American competitiveness. America had great success with such a system in the 1990s, when it was used to curb sulfur-dioxide emissions causing acid rain. Applied to the transportation industry, the system would help place a price on greenhouse gas emissions, today a costly externality of our energy production and use, and reward companies producing cleaner transportation fuels.

Once again, I want to thank the Subcommittee for inviting me here today. I believe we all have an opportunity to be part of the solution to our country's energy challenges. I look forward to today's hearing and to learning about how we can work together to build a more secure future.

Testimony of Kevin Book
Senior Vice President, Senior Analyst
Friedman, Billings, Ramsey & Company, Inc.

Before the
House Committee on Agriculture
Subcommittee on Conservation, Credit, Energy and Research

March 7, 2007

Chairman Holden, Ranking Member Lucas and distinguished members of this Committee, thank you for the privilege of participating in this important discussion. The opinions I will share are my own and do not represent the views of my employer, Friedman, Billings, Ramsey & Company, Inc.

My testimony today provides my observations regarding capital markets transactions to finance biofuels production and my assessment of how institutional investors may respond to future opportunities within the sector. As an energy policy analyst who serves Wall Street institutional clients, I evaluate the potential investment impacts of government and regulatory actions for the men and women who manage other people's money. During the more than 18 months since President Bush signed the Energy Policy Act of 2005 (EPAct05) into law, I have met with several hundred asset managers and investment analysts to discuss the domestic and international political contexts surrounding investments in ethanol, biodiesel and second-generation biofuels, including cellulosic ethanol and bio-butanol. Also during that time, I provided analytical support to two ethanol transactions (one late-stage private financing, one initial public offering) and conducted due diligence for several transaction prospects.

The Investment Decision

An investor's charter or institutional mandate may define the class and type of portfolio assets in which he or she might invest. These choices may vary considerably across different firms, funds and asset classes but, whatever the criteria, timeframe or style involved, investors generally allocate the capital entrusted to their care to the highest-

yielding investments on a risk-adjusted basis in the hope of generating returns that outperform designated benchmarks.

Investments in businesses that produce or sell commodities often prosper when those commodities are scarce. This holds true for oil, diesel and motor gasoline and many of the unconventional and renewable alternatives to these fuels. At the same time, the oil and refining industries have historically experienced fairly dramatic corrections following periods of high prices and price spikes, often because high prices can stimulate a combination of demand abatement on the part of customers and overinvestment on the part of producers, and both of these responses can significantly lag the price signals that provoked them. The prospect that a supply glut might show up after price-sensitive customers have already started to conserve is a principal concern of energy investors.

An oil price reduction can affect different investments in different ways. For oil producers that may spend hundreds of millions of dollars (or more) before a field begins producing, falling oil prices are likely to diminish the margins earned above these immense, fixed costs. For refiners that use oil to make gasoline, falling oil prices can actually increase profit margins, provided that demand and industry-wide production capacity remain essentially constant. As a result, investors consider oil price risk very seriously when examining investments in "upstream" and "downstream" segments where cash flows and securities values are a first-order derivative of oil price.

The securities of businesses that profit from second-order scarcity, like the contract drillers that work for oil companies and the renewable fuels producers that sell alternatives to oil-based products, often exhibit even greater volatility in response to crude oil price changes. The high per-gallon cost of producing ethanol from corn can make ethanol a less-attractive economic choice, relative to gasoline or other petrochemicals, for the refiners and blenders who buy it. Even though falling oil prices typically result in lower gasoline prices, corn prices and oil prices are largely uncorrelated and high corn prices may persist even when oil prices decrease.

Institutional Investors and Ethanol

In many ways, the U.S. capital markets are an unlikely mechanism for financing biofuels production. Until EPAct05 created a national renewable fuels standard (RFS), the primary U.S. producers of biofuels – mostly fuel ethanol – fell into two categories: mature, incumbent producers, many of which owned and operated legacy "wet mills" capable of high fructose corn syrup production and decomposition of corn kernels into fiber, oilseeds and germ, which have high-resale-value; and farmer- or farm cooperative-owned facilities that provided a natural way to hedge against corn price volatility because, when corn prices fell, ethanol production became more profitable. The first group of producers could draw upon collateralized credit lines from their commercial lenders, and some producers with diversified business models or greater asset bases had even issued equity and debt securities to finance operations. The second group largely relied upon relationships with rural lenders and trade credit for financing. Until very recently, few new entrants into U.S. ethanol and biofuels production were likely to meet institutional investors' requirements for investment size, production scale, demand stability and projected revenue growth.

Enactment of the RFS provided a stable and growing market for ethanol and biofuels, but several other events helped generate interest in biofuels deals on Wall Street, too. The first of these was the steady rise in crude oil prices since 2002 due to geopolitical instability in Venezuela and Nigeria, supply uncertainties surrounding the Iraq War and the unprecedented escalation of Asian energy demand, among other factors. Second, growth of the global hedge fund asset class over the same period of time meant that more institutional dollars were available to invest in smaller companies and in companies with different risk-return profiles, including new ethanol and biofuels producers. Third, hurricane activity in 2004 and 2005 exacerbated U.S. refinery capacity constraints, rekindling investor interest in alternatives to refined petroleum. Fourth, by the time the RFS went into force on January 1, 2006, more than 25 states had banned, or planned to ban, the use of an octane- and oxygen-enhancing petrochemical compound called methyl tertiary butyl ether (MTBE) in motor gasoline, potentially increasing demand for ethanol as a substitute. Fifth, and not to be discounted, the President's emphasis on domestic

biofuels production for energy security during the 2006 State of the Union speech inspired new enthusiasm among institutional investors.

Even so, investors expressed a number of concerns regarding biofuels investments, too. It may take years for project sponsors to receive regulatory approval for a new oil refinery and years longer to actually build it, but investors worried that the regulatory and practical barriers to entry were so low that the ethanol production might outstrip demand, diminishing investment values. Investors harbored doubts regarding ethanol's suitability as an MTBE replacement given that its water-attracting properties and blending characteristics prevented shipment via pipeline. Some investors wondered how the RFS credit trading mechanism would work, especially whether refiners could meet their national compliance obligations by using another renewable fuel in the place of ethanol. Virtually all investors recognized that ethanol investment profitability could be influenced by a lapse or rescission of two principal legislative constructs, the $0.51/gallon volumetric ethanol excise tax exemption and the $0.54/gallon secondary tariff on fuel ethanol importation, even though neither event seemed an imminent threat.

It is the nature of markets that investors may find opportunity in crisis. By March 2006, the prospect that refiners' impending withdrawal of MTBE from the U.S. gasoline supply might leave the nation short of octane, oxygen and gasoline by midsummer encouraged another wave of investor enthusiasm for biofuels. Shortages of railcar capacity increased this scarcity premium. Although the regional ethanol spot markets represented only a small fraction of domestic production, price spikes to levels 250% above production cost set the stage for several equity offerings on favorable terms for the issuers. Concurrent geopolitical events and domestic supply interruptions associated with Prudhoe Bay pipeline leaks propelled oil prices to new nominal highs, keeping investor enthusiasm for the entire sector at high levels.

By the beginning of the fourth calendar quarter, however, oil prices had fallen and the rationalization of gasoline, ethanol and shipping market dislocations had eroded ethanol's scarcity premium. Listed equity securities of biofuels producers declined substantially

and several would-be issuers delayed and, in some cases, withdrew their public offerings. Construction costs rose, too. Industry contacts have offered anecdotal estimates to suggest that, during the course of 2006, the price of building new ethanol capacity had increased from approximately $130 million to build a 100 million gallon dry mill to as much as $175 million for the same project. Likewise, oil isn't the only commodity that influences biofuels valuations – corn matters, too. The doubling of corn prices during 2006 thinned producers' margins, although the resale of distillers' grains and other byproducts should theoretically dilute the impact of a $1.00/bushel corn price increase to a $0.25/gallon increase in production cost. This year began, however, with corn prices at 10-year highs and oil prices at 20-month lows. Investors considering ethanol producers' securities who had previously set their expectations for $60 oil and $2.50 corn during the next several years may have been somewhat reluctant to add to their positions these securities or to own new issues of biofuels companies after recalibrating their models for $50 oil and $4.00 corn. For traditional, long-term buyers of stocks, depressed securities prices may have presented opportunities. Some of the "faster" money in hedge funds where investment performance is evaluated on a monthly basis probably chose to exit the biofuels sector upon signs of impending weakness.

Looking Ahead

Although it may be a long-term policy goal to decouple the price of biofuels from the price of oil, oil prices remain investors' first consideration today. Continuously rising average oil prices can affect institutional energy investors in different ways. In general, I have encountered more skepticism on Wall Street that oil has "peaked" than I have here in Washington. Although the Energy Information Administration long-term oil prices targets have risen from $33/barrel in the *2005 Annual Energy Outlook* to $54/barrel in the 2006 *Outlook* and $59/barrel in this year's *Outlook*, investors with lower risk tolerances tend to base their investment decisions on lower crude oil price projections. Some investors fear oil prices have been too high for too long and are due for a meaningful correction; these investors are unlikely to favor biofuels investments at current production price points. A smaller proportion of clients cite the durability of high oil prices during a warm winter as evidence that prevailing Asian demand growth and

ongoing OPEC resolve will sustain current levels; these investors tend to be much more enthusiastic about prospects for biofuels investments.

The latter group remains interested in corn ethanol opportunities, particularly given the prospect of an increase of federal renewable fuels requirements. Likewise, corn ethanol production remains below the theoretical capacity constraints imposed by U.S. land availability and farm productivity. On the other hand, high corn prices have led investors with higher risk tolerances to look again at the economic viability of second-generation biofuels derived from cellulosic biomass and, to a limited extent, at biodiesel. Investors have also expressed curiosity about whether new technologies will enable existing ethanol facilities to produce butanol from corn, sugar or sorghum.

Many of these asset managers possess the requisite conviction that coming oil scarcity will create demand for second-generation biofuels. Many are also willing and able to commit capital to the enterprise. However, investors in public securities tend to avoid the "bleeding edge" of untested technologies. It is my view that the vast preponderance of asset managers who invest in the U.S. capital markets will require either a production-scale demonstration of cellulosic technologies or the untoward event of a major and sustained oil supply disruption before they will seriously consider new stock or debt issues to develop second-generation biofuels.

Even though Wall Street may be unlikely to provide favorable financing terms to, and enduring support for, second-generation biofuels investments at their current stage of development, there are nonetheless important roles to be played by government, commercial lenders and early-stage corporate and venture financiers. The stewardship of top venture capitalists encourages healthy interplay between nascent technologies and future markets. Sand Hill Road has clearly identified the opportunity ahead. Likewise, pre-competitive R&D funding may lead the nation's researchers closer to affordable ways to decompose wood pulp, plant waste and "energy crops" into fermentable sugars. On the other hand, the projected capital costs of building cellulosic ethanol plants may be three or four times as much, on a per-gallon basis, as building a dry mill. This highlights

the importance of federal loan guarantees in capitalizing demonstration projects, particularly if these projects operate at lower volumes, because the combination of higher up-front costs and lower volumes means longer payback periods relative to corn ethanol production, potentially increasing the price project sponsors must pay to attract debt or equity investment. Commercial lenders, in partnership with federal guarantors, may play critical roles in helping smaller, corn-based producers to source the capital necessary to retrofit their plants for any second-generation technology that may emerge.

This concludes my prepared testimony. I will look forward to any questions at the appropriate time.

Statement Of

Larry Ward

Vice President, Project Development

Broin Companies

Before the
Agriculture Subcommittee for Conservation, Credit, and Energy

MARCH 7, 2007

Preamble:

Mr. Chairman and distinguished committee members, thank you for the opportunity to visit with you today. My name is Larry Ward. I am Vice President of Project Development for the Broin Companies. I would like to talk with you today about financing challenges for the cellulosic ethanol industry.

BROIN COMPANIES – INTRODUCTION

Broin Companies, headquartered in Sioux Falls, South Dakota, is the largest dry mill ethanol producer in the United States. Broin Companies is an established leader in the bio-refining industry through project development, design and construction, research and development, plant management, ownership, and product marketing. The 20-year old company has built twenty-five (25) ethanol production facilities and currently manages nineteen (19) plants in the United States while marketing more than one billion gallons of ethanol annually.

Since 2000, *Broin & Associates*, Broin Companies' design/build subsidiary, has constructed nineteen (19) green field ethanol plants in five (5) states and completed five (5) major expansions of existing facilities. The value of our design build contracts since 2000 has exceeded $900,000,000. Additionally, four (4) green field projects of similar size and scope are currently under construction with several others in development. Each project has been successfully designed, built and managed by Broin Companies. These projects have resulted in the addition of 875 millions of gallons per year (MGPY) of new fuel ethanol capacity.

The Broin Companies development model is unique. It started on the Broin family farm in Minnesota and has spurred the growth of investment by thousands of farmers and individual main street investors. Broin Companies' business model is to invest in, develop, design, construct and manage ethanol production facilities called Premier Partner Plants. However, the facilities are independent limited liability companies (LLC) owned primarily by individuals and local farmers that provide the corn feedstock. Broin Companies employs the facilities general manager and on-site technical engineer. All other employees are employed by the LLC. Broin Companies also has Board of Director representation at each plant.

By leveraging business size and position, Broin Companies has created the most successful and profitable ethanol facilities in the industry. Broin Companies has achieved breakthrough progress beyond ethanol processing, extracting extraordinary new value from each kernel of corn.

COST OF CONSTRUCTION

Just 10 years ago, most ethanol plants' capacity was 10 – 15 MGPY. Broin's first plant was 1 MGPY and was one of the largest in operation at the time. Traditional ethanol plants were built in corn producing states which put incentives in place to stimulate

investment by farmers and other local main street investors. Incentives stimulated development of an industry at a time when new interest was sparked by technology advancements. Public policy, which was driving these incentives, was sparked by the oil crisis in the 1970's and the clean air initiatives that followed. The cost per gallon to build and fund working capital for these plants was approximately $1.75 per gallon or a total of $20 - 25 million dollars.

Those plants are small by today's standards. Most dry mill ethanol facilities are now designed at 50 – 125 MGPY capacity. The cost of an ethanol plant project just five years ago was ~$1.20 per gallon capacity. Today, the design and construction costs exceed $2 per gallon, reaching upwards of $250,000,000 to $300,000,000 or more to deliver a completed project. The significant increase is due to inflation of construction materials and labor. Most notably are stainless steel, concrete, other metals and qualified, skilled, manpower.

While certain economies of scale can be achieved in the capital cost of construction, it is not as much as you might think due to the volumetric nature of the process and equipment. The most influential cost factor in the success of the operation will be the cost of corn which is strongly influenced by supply and availability near the plant.

Due to additional storage, feedstock and waste handling, and pre-treatment equipment, the cost to expand an existing facility to a cellulosic ethanol facility is approximately 100% greater than a traditional corn-to-ethanol facility. Project LIBERTY, Broin & Associates' commercial cellulose project for converting corn fiber and corn cobs to ethanol, will expand an existing 50 MGPY traditional corn-to-ethanol plant in Emmetsburg, IA to a 125 MGPY bio-refinery. Expansion costs to an existing facility are projected in the range of $4.00 per gallon expanded capacity. A cellulose facility designed and constructed on a "green field" site would be substantially greater due to utility and product handling infrastructure.

The following table depicts the design and construction costs ($) per gallon of plant capacity:

Corn-to-Ethanol Facility 1995	**Corn-to- Ethanol Facility 2000**	**Corn-to-Ethanol Facility 2007**	**Cellulose-to-Ethanol Expansion Facility 2009**
$1.75 - $2.00	$1.15 - $1.35	$2.00 - $2.25	$4.00 +

As technology develops and the cellulosic ethanol industry matures, the cost of construction is predicted to go down as long as the materials of construction do not inflate at a greater rate.

Historically, the majority of financing for ethanol plant construction has been accomplished using local individual investment and bank debt financing provided

through the farm credit system and a few other Midwestern lending groups. All Broin Companies projects have a strong local farmer investment component, which promotes not only delivery of corn to the plant but ownership as well. Common financing structures require a 40 – 55% equity contribution in the project with the rest provided by debt. Severe restrictive covenants are common; these, together with loan amortization schedules, commonly retire debt in a 6 – 12 year period. This timeframe is exceptionally short for this type of long term asset. Minimal opportunity has existed for the use of federal grants or loan guarantees.

In the last couple of years, public financing and venture capital began emerging with interest in the industry and will play a role in future growth along side traditional and other models.

In terms of financing cellulose-to-ethanol production facilities, success will be achieved using new cellulosic processing technology. To achieve production at commercial volumes, we believe federal grants and the use of properly designed loan guarantee programs will be absolutely necessary to attract investors, creditors and banks. The involvement of these groups is essential in supporting rapid development of these new, evolutionary cellulosic technologies.

CURRENT FEDERAL LOAN GUARANTEE PROGRAMS

Broin Companies has considered utilizing the three (3) programs below:

- DOE Loan Guarantees for Projects that Employ Innovative Technology in Support of the Advanced Energy Initiative
- USDA Business and Industry
- USDA Renewable Energy Systems and Energy Efficiency Improvements Guarantee program

Broin Companies has not utilized any of the above loan guarantee programs due to the challenges detailed in the next few paragraphs.

Department of Energy (DOE) Loan Guarantees for Projects that Employ Innovative Technology in Support of the Advance Energy Initiative

While the Broin Companies have submitted a pre-application to guarantee a $137 million loan under this program for construction of a cellulosic ethanol facility, we see the following challenges to a successful final application and issuance of a loan guarantee:

- §1702(g)(2)(b) requires, with respect to any property acquired pursuant to a guarantee, "the secretary" shall be superior to the rights to any other person with respect to the property. This statutory provision requires DOE to possess a first lien priority in the assets of the project and other collateral security pledged. Therefore any holders of non-guaranteed debt have a subordinate claim to the DOE in the event of default and will not

receive payment on their debt until the DOE is paid in full.
Since the need for a guarantee is a result of a lender's perceived higher risk, when compared to other lending opportunities, it will be difficult, if not impossible to obtain commitments for the un-guaranteed portion of the loan, due to the un-guaranteed portions' subordinate position.

- The guaranteed portion of the loan must not be separated from, or stripped from the un-guaranteed portion of the loan, or sold in secondary debt markets. To meet this requirement, the lender that originated the guarantee is required to hold the un-guaranteed loan. It is highly probable that a lenders risk appetite, at least one who is willing to do a guaranteed loan, is much different than a lender who focuses on the subordinated debt market. Since the originating lender is required to hold both types of debt, it will be difficult, if not impossible to find a lender to hold both portions of the loan.
- Delays in processing our application may cause delays in start-up and delays in the commencement in construction of the project.
- The guaranteed loan cannot be subordinate to other debt. In some cases the new loan is for expansion of an existing facility with prior debt that is still outstanding.
- Payment of fees to cover administrative cost for DOE issuing the guarantee, servicing and monitoring costs of the DOE, and normal fees charged by the originating lender, are a significant challenge for a start-up or expanding company.
- The subsidy cost of the expected liability to the federal government from issuing the guarantee, which is the estimated net present value at the time the guaranteed loan is dispersed, is an extreme burden to a start-up or expanding company. The liability would be a result of default payments made to the originating lender on the loan, due to lack of payment by the company from cash-flow or liquidation of the collateral. The subsidy cost is wholly distinct and separate from fees for issuing and servicing the loan guarantee. The subsidy fee can either be an appropriation by congress or payment by the borrower.
  At present, it is our understanding that the borrower is expected to make this payment and no appropriation has been made. Since we do not intend to bring a project that we do not expect to be successful, we do not feel a subsidy payment should be required. Should the DOE, through their analysis, require an upfront cash subsidy payment, this undo burden may keep the project from moving forward.

United States Department of Agriculture (USDA) Business and Industry Loan Guarantee Program

- The Maximum Loan amount of $25 million is too low. Most renewable energy projects are now of a capacity in excess of 50 million gallons, with total project costs in excess of $100 million. (current facilities cost $2.00 - $2.25 per gallon to construct).

- Loans greater than $5 million require national office approval. (Due to the seasonal nature of construction in cold climates, if the time to receive a commitment for guarantee is lengthy, the project could be delayed for a full year.)
- The percent of the loan guarantee diminishes to 60% for loans greater than $10 million. Lending institutions see almost no value in a guarantee at the 60% level.
- When adding the potential one-time 2% fee and the annual renewal fee for a guarantee to a lender's typical cost, the total financing costs are excessive and very challenging for an expanding or start-up company.
- Since in most circumstances ownership is by a large group of rural investors, personal and corporate guarantees are not possible.
- If the guarantee is contingent upon successful start up, performance guarantees and no substantial deterioration in financial position, limited or no-value will be given to the guarantee by a lender considering financing for the project.

USDA Renewable Energy Systems and Energy Efficiency Improvements Loan Guarantee Program

- Loans cannot exceed 50% of total project costs.
- The maximum loan amount is $10 million. This is too low. (Current ethanol facilities cost $2.00 to $2.25 per gallon to construct with most project scopes being in excess of 50 million gallons.)
- Loans greater than $5 million can only be guaranteed for a maximum of 70%. (This results in a maximum of 35% of the total project cost being guaranteed. Fifty percent of the total project costs times 70%.) This provides no value to the lender.
- Loans greater than $5 million require national office approval. (Due to the seasonal nature of building in cold climates, if the time to receive a commitment for loan guarantee is lengthy, the project could be delayed for a full year.)
- The one-time 1% guarantee fee and annual renewal fee along with typical lender fees result in total financing costs that are very challenging for a start-up or expanding company.
- Personal and corporate guarantees are not possible due to the large number of investors and the need to treat investors equally regardless of percent ownership.

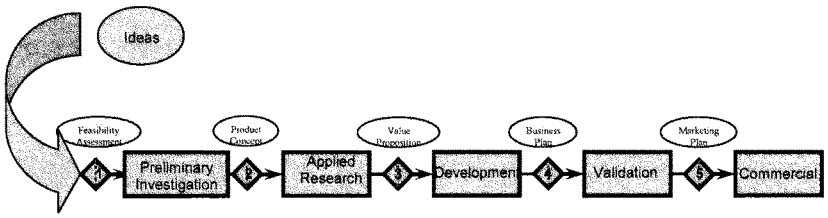
CURRENT FEDERAL GRANTS

Department of Energy (DOE)

The DOE utilizes the project management process called "stage gate management" to manage projects investigated internally and by industrial partners. The DOE has been instrumental in providing grant funding for applied research and development stages of

pre-treatment technologies and fermentative organisms for the conversion of lignocellulosic biomass to ethanol. Broin Companies' partners and suppliers, most notably NREL, DuPont and Novozymes, are past awardees and potential future recipients of such awards.

Broin Companies utilizes the same project management process to validate organisms and processes prior to scaling up to commercial scale. Broin Companies is self-funding a cellulosic ethanol demonstration plant at our Scotland, SD facility in 2007 in order to validate fermentation organisms and pre-treatment processes.



Broin & Associates was recently named a recipient of the DOE Integrated Bio-refinery Commercial Demonstration grant in which a 50 MGPY ethanol plant will be converted to a 125 MGPY bio-refinery. This grant represents the first commercial cellulosic ethanol demonstration project. Broin & Associates is honored to be a recipient.

The basis of the commercial integrated bio-refinery proposal was a 2002 DOE grant to validate an advanced corn dry milling technology, BFRAC™, which fractionates the corn kernel into three segments: endosperm, bran or fiber, and germ. The endosperm is processed in Broin's BPX™ fermentation process. The germ and bran are sold as animal feed product. However, the bran along with corn cobs will be utilized as feed products for the commercial cellulosic ethanol bio-refinery demonstration. Broin Companies and partners, DuPont and NREL, are leveraging knowledge and processes gained from past DOE grants to further cellulosic ethanol technology.

Broin Research is the only industrial ethanol partner in three DOE GTL Bioenergy Research Center applications. If awarded, Broin Research, along with university and industrial partners, will conduct comprehensive, integrated research and training programs in energy-related systems and synthetic biology.

United States Department of Agriculture (USDA)

USDA Rural Development Renewable Energy and Energy Efficiency Grants

Whereas the DOE is interested in applied research, development, and validation project stages, the USDA – Rural Development is primarily interested in technologies that have

been validated and ready for commercial application. The most notable grant program is the Renewable Energy Grants (up to $500,000) and Energy Efficiency Grants (up to $250,000). Similar to the comments above regarding the Renewable Energy and Energy Efficiency Loan Guarantee program, these grants are better suited for projects with limited cost scope. The grant application and approval process becomes cumbersome with eligible project costs above $400,000 for Renewable Energy and $250,000 for Energy Efficiency projects.

The Premier Partner Plants in which Broin Management operates would be interested in utilizing the above programs for solid fuel boilers and energy efficiency projects. Our cellulosic ethanol integrated bio-refinery design calls for anaerobic digesters. Again, the scope of these projects is above $20 million – well above the designed scope of these grant programs.

USDA Cooperative State Research, Education, and Extension Service (CSREES) National Research Initiative (NRI) Grant Program
Dakota Gold® Research Association, a non-profit organization associated with Broin Companies, is currently investigating a development research grant for animal nutrient studies utilizing dried distillers grain, a co-product of ethanol production.

Small Business Innovation Grants (SBIR)

The DOE, USDA, and National Science Foundation (NSF) offer SBIR grants for applied research (Phase I) and development (Phase II) stage projects. Broin Companies is currently investigating SBIR grants for our four independent research companies ranging from cellulosic ethanol fermentation organisms, animal nutrient studies, specialty chemical development, and alternative co-product utilization.

RECOMMENDATIONS

The primary economic challenges facing the developing cellulosic ethanol industry are (1) biomass collection and logistics; and (2) economic process to breakdown cellulosic sugars to convert to ethanol. Until biomass collection processes and cellulosic technology is proven, government support will be crucial to launch the cellulosic ethanol industry to a sustainable level.

Farmer Incentives - Biomass Collection and Logistics

The call to action to the biofuels industry and the American farmer to address the nation's energy demands via cellulosic ethanol is the most significant business and behavioral change the farm industry has seen in decades. In order for cellulosic ethanol to be economic on a large scale, the government, biofuels and farm industries need to remove barriers for the American farmer. The farmer needs to be engaged as soon as possible and as aggressively as possible, in order to meet specific plant requirements as well as the nation's goal of significantly replacing petroleum imports.

Government assistance is required to remove economic barriers in order to supply sufficient feedstock to the cellulosic ethanol facilities. Broin Companies respectively

suggests an incentive to cellulosic growers for each ton of biomass delivered to an ethanol plant.

1. We suggest an incentive of a *$50 per dry ton of biomass delivered to a cellulosic ethanol plant gate* based on modeling of farmer economics as well as the cellulosic ethanol plant economics.
2. The ethanol plant will make a payment in addition to the incentive directly to the farmer to make the cellulosic logistics sufficiently attractive to the farmer for infrastructure investment to take place.
3. This incentive payment would be terminated after the industry has proven the technologies and gained some critical mass.

Harvesting, drying, storing, and transporting biomass material is a new business model for the farmer, which means the economics behind changing their current business practices need to be very persuasive in order to motivate local farmers. Farmers will need to invest in additional equipment including: (1) combine modifications to harvest biomass; (2) storage to keep biomass relatively clean; (3) dryer equipment to meet specifications; and (4) trucks and specialized trailers to transport the biomass to ethanol plants.

The American farmer would benefit from several united fronts working together to provide education. The following is a suggested list of public and private agencies that can partner to provide education:

- USDA – Rural Development
- University Agricultural Extension Agents
- Farm and Commodity Organizations
- Cellulosic Ethanol Producers
- Harvest Machine Manufacturers
- Seed Corn and other Biomass Seed Companies

Loan Guarantee Program Recommendations

The 2007 Farm Bill has a USDA loan guarantee program for broad renewable energy initiatives as well as specific cellulosic ethanol projects. The $2 billion DOE loan guarantee program targets broad renewable energy initiatives as well. Federal loan guarantee programs will be essential to commercialize cellulosic ethanol plants until technology is proven and the industry is matured to a point where conventional lending is feasible.

As outlined above, we have found challenges with all three (3) guarantee programs: USDA Business and Industry Loan Guarantee Program, USDA Renewable Energy Systems and Energy Efficiency Improvements Guarantee program, and DOE Loan Guarantees for Projects that Employ Innovative Technology in Support of the Advance Energy Initiative. An enhanced program that draws from aspects of all three programs, we believe, would be acceptable to the lending community and significantly increase

investments in new technologies that will enable renewable fuels to replace our dependence on imports of fossil fuels.

The following are specific recommendations for a proposed federal loan guarantee program supporting the Advanced Energy Initiative:

Eligible Areas

- Projects that employ innovative technologies for renewable energy and energy efficiency.
- Loans can be guaranteed in cities with a population of up to 50,000.
- Priority given to applications for working in rural communities of 25,000 or less.

Eligible borrowers

- Any legal entities, including individuals, public and private organizations and federally recognized Indian Tribal groups may borrow.
- There is no size restriction on the business.

Benefits to the business:

- Higher loan amounts, stronger loan application, less equity injection, lower interest rates, and longer repayment terms assist businesses that may not qualify for conventional lending or financing.
- Assist business in stability, growth, expansion, and rural development.
- Assist in brining new technology to commercial scale much sooner.
- Assist in deploying new technology on a broad scale faster.

Eligible Lenders

Most lenders are eligible, including national and state chartered banks, farm credit system banks, and savings and loan associations. Other lenders, such as insurance companies and mortgage companies may be eligible if approved by USDA.

Benefits to Lenders

- Provide lenders with another tool to expand their loan portfolio.
- Improve the economic and environmental living climate in rural communities.
- Guaranteed and or/un-guaranteed portion can be sold to enhance liquidity and increase profitability while limiting financial exposure.
- Allows lender to make loans above its loan limits.

Eligible Project Costs

- Cost of acquisition, lease or rental of real property, including engineering fees, surveys, title insurance, recording fees, and legal fees incurred in connection with land acquisition, lease or rental, site improvements, site restoration, access roads and fencing.

- Engineering, architectural, legal, and bond fees, and insurance paid in connection with construction of the facility and materials, labor, services, travel and transportation for facility construction start-up and test.
- Equipment purchase and start-up testing.
- Cost to provide equipment, facilities, and services related to safety and environmental protection.
- Financial and legal services and costs, including other professional services and fees necessary to obtain required licenses and permits and to prepare environmental report and data.
- Interest cost and other normal charges affixed by lender.
- Necessary and appropriate insurance and bonds of all types.
- Costs of start-up, commissioning and shake-down.
- Cost of obtaining licenses to intellectual property necessary to design, construct and operate the project.
- Machinery, equipment and storage facilities to support the collection and storing of raw materials for the production of cellulosic ethanol.
- Other necessary and reasonable cost approved by the Secretary.

Maximum Loan Amount

Loans would be limited to a maximum of $200 million per borrower. Loans greater than $10 million require national office concurrence.

Loan Guarantee Limits

$160 million (80% of $200 million)

Loan to Appraise Market Value Ratios

- 80% Real Estate
- 75% receivables
- 75% inventory
- 80% machinery and equipment

Interest Rate

Interest rates for loans may be fixed or variable. The rate is negotiated between the lender and borrower and will not be more than those rates customarily charged to other borrowers in similar circumstances. The variable rate must be tied to a nationally published rate. Variable rates cannot be adjusted any more than every 30 days.

Borrower Equity Requirements

A minimum of 15% tangible balance sheet equity is required for exiting business. A minimum of 25% tangible balance sheet equity is required for new businesses. Personal and corporate guarantees are not required. Tangible balance sheet equity will be determined accordance with generally accepted accounting principles (GAAP).

Maximum Repayment Terms

- Working capital – 7 years
- Machinery and equipment – 10 years or useful life
- Real estate – 20 years
- Combination real estate, machinery and equipment – 15 years

Fees and Costs

A one-time guarantee fee not to exceed one half of 1% of the guarantee principle amount along with an annual renewal fee not to exceed one tenth of 1%. No subsidy costs should be assessed for potential future costs to the federal government for making payments due to lack of cash-flow or if upon liquidation, the proceeds received do not fully repay the loan. It is our belief that a subsidy payment by the borrower defeats the purpose of a guaranteed loan program. Other typical lender costs may also be incurred.

Appraisals and Appraisal Report

Appraisals and appraisal report prepared by an independent, qualified fee appraiser will be required on property that will serve as collateral. Appraisals will be made in accordance with the accepted format and standards of the industry.

Collateral

All collateral pertaining to the specific project supported by the guarantee shall secure the entire loan. Repayment of the loan must be reasonably assured. Personal and corporate guarantees are not required.

Loss Sharing

In the event of default if the liquidation of the collateral or cash-flow payments do not repay the guaranteed and un-guaranteed portions of the loan, shortages would be shared on a pro-ratio basis, 80% of the shortage being paid by the guarantor and 20% of the shortage being covered by the holder of the unguaranteed portion of the debt.

Loan Covenants/Conditions

Normal and customary commercial lending covenants that are reasonably acceptable to financial institutions. Contingencies of issuing the guarantee based on successful completion and start-up of the project without financial deterioration are not acceptable. A clause of this type will eliminate the value to a lender since the lender must commit the loan prior to commencing construction or expansion. The lenders greatest risk is during construction and start-up.

Report

Once the project has been constructed, the lender must provide the agency annual financial reports from the borrower.

Servicing Liquidation

Annual financial statements should continue to be required. Lender services and liquidates with USDA or appropriate agency concurrence.

The USDA is in a particularly good position to facilitate grant and loan guarantee programs due to personnel capacity and office location infrastructure. USDA has an established reputation and integrity with farmers. The local and state offices have outstanding personnel who are eager to assist with applications and knowledgeable about programs and processes. However, if one were to inquire with a local or state USDA Rural Development officer, they would agree both the loan guarantee and grant processes are ripe for improvement and stream lining. As much as the local director would like to assist, his/her hands are tied by application and approval processes and turnaround.

Grants

Broin Companies solidly supports the recommended appropriations for research grants: (1) DOE Biomass R&D ~$500 million; and (2) USDA Biomass R&D ~$500 million. The following suggestions further expand the referenced recommendations:

Feedstock development, production practices and collection logisitics

The development of cellulosic feedstocks is limited by the current germplasm developed for corn protein and starch processing. The development of new genotypes for biofuels production (e.g. corn plants with starch potential and accessible and processible cellulose/hemicellulose) offers greater yield of biofuels per acre. The acceleration of no-till farming practices could yield significantly more biomass per acre while maintaining environmental benefits. Research to understand and develop corn no-till practices and corn-on-corn farming practices and implications is required. Collection, storage and transportation of low bulk density cellulose biomass remain a daunting challenge. Research to support each of these areas is needed to provide one billion tons of biomass desired in order to address our need for energy independence.

Analytical chemistry, instrumentation and data processing

The development of chemical and physical methods, instruments, and data processing capabilities used to understand the products of pretreatment, saccharification and fermentation will greatly accelerate the development of new and novel processes from which to produce biofuels. Real time analyses will also allow improved processing and reduced cost of operation.

Development of novel processes

The development of the potential to consolidate multiple bioprocesses will provide for reduction of biofuels production costs. The integration of pretreatment, saccharification and fermentation holds potential for a step change in ethanol and other biofuels development.

Development of specialty chemicals / materials at biofuel refineries

An important aspect of refineries is the ability to produce multiple products. The emerging bio-refineries are limited in the number of chemicals that can be cost effectively produced using biotechnology. Applied research, development, and validation of specialty chemicals and materials is needed to increase the economic viability of bio-refineries.

Evaluation of higher ethanol blends in conventional gasoline engines

The current market for gasoline/ethanol blended fuels is 10% or 85%. An effort to address the maximum ethanol/gasoline displacement potential using the existing gasoline engine is required.

Bio-refinery construction grants will be essential to validate bio-refinery research described above, incrementally drive down operations costs, and improve unit operations.

Carbon Credits

Broin Companies supports the system of monetizing greenhouse gas credits. Further, we support the recommendation for the USDA to develop a system to monetize greenhouse gas credits generated by production of ethanol and other products from agricultural feedstocks.

SUMMARY

Broin Companies is honored to testify to the Agriculture Subcommittee for Conservation, Credit, and Energy. On behalf of the renewable fuels industry, we applaud the Department of Agriculture 2007 Farm Bill recommendations. The initiatives outlined in the new Farm Bill will accelerate cellulose ethanol to the marketplace. Without the initiatives outlined, the industry would have difficult, and in some cases impassable, financial barriers to conduct research and development, validate, and commercialize renewable fuels technology, particularly cellulosic ethanol.

In order to launch the United States cellulosic ethanol industry, we respectively submit the following recommendations for your review and consideration for the 2007 Farm Bill:

1. Incentive to the farmer to encourage adoption of new farm practices required to provide stover for cellulosic ethanol processing of $50 per dry ton of biomass delivered to a cellulosic ethanol plant gate.

2. Modified loan guarantee programs will be essential to commercialize cellulosic ethanol plants until technology is proven and the industry is matured to a point where conventional lending is feasible. This document provides specific recommendations in the loan guarantee recommendation.

3. The proposed Department of Energy and United States Department of Agriculture research grants will accelerate the development of cellulosic ethanol technology.

Specific program suggestions are outlined in the grant recommendations in this document.

4. The expansion of a carbon credit system to monetize greenhouse gas credits.

Thank you for the opportunity to submit recommendations. Broin Companies looks forward to working in partnership with the DOE and USDA to reach the national goal of 35 billion gallons of renewable fuel produced per year by the year 2017.

Testimony on Ethanol and Agriculture
Committee on Agriculture
U.S. House of Representatives
March 7, 2007

Introduction

Chairman Holden, Ranking Member Lucas and distinguished members of the committee, thank you for the opportunity to address you regarding the most exciting and rapidly growing industry in the United States; our domestic ethanol industry. My name is Tim Barker and my title is the Executive Vice President of Development for Orion Ethanol. Orion is a renewable fuels company focusing on ethanol production based in Pratt, Kansas. It is nearing completion of its first ethanol refinery in Pratt, Kansas and has 5 more refineries under development, 3 in rural Kansas and 2 in western Oklahoma.

Orion Ethanol, Inc.

Like the entire United States ethanol industry, Orion is a tale of the American dream. It began in the hearts and minds of people from Western Kansas that dreamed of spurring economic growth in their deteriorating home communities. Despite many peaks and valleys along the way, in 4 short years Orion has positioned itself to be on the leading edge of the emerging ethanol industry through its investments and focus on new technologies and infrastructure development. These advancements will allow Orion to be a leader in the challenge we have received from both President Bush and from Congress to become more energy independent.

To stay on the cutting edge of these emerging technologies, Orion is working with and following the progress of several different universities to assist them in making their technology a commercial successes. These universities include Kansas State, Purdue, Oklahoma State and MIT. New technological advances are inevitable in the ethanol industry and only those companies that embrace these changes and growth opportunities will thrive. These new technologies will make ethanol more price-competitive with gasoline and expand the areas in which we can produce ethanol.

Although Orion is a successful business venture and well positioned for rapid growth, the journey has not been without its peaks and valleys. In

to drought and other environmental conditions, today's high prices are being driven by demand (at least perceived demand). Although these high prices are terrific for the American farmer, they have sparked concern over their effect on food prices.

While this Committee debates the current Farm Bill, there are two important issues to address. First, what is the best use of American farm ground and should our Conservation Reserve Program (CRP) be revisited? Second, how can the Farm Bill bring balance to the corn supply and demand equation? Failure to address these two questions appropriately will result in America being dependent on foreign ethanol like we are dependent on foreign oil today.

Our country is undergoing a paradigm shift in how we view agriculture. Traditionally our agricultural resources have served one primary purpose, providing cheap and dependable food for our people. In addition to this noble duty, today's agricultural community is faced with providing the energy necessary to produce our transportation fuel. These are both noble purposes and the Government needs to encourage a healthy balance in order to fulfill both purposes. Providing the American farmer the choice to remove land from the CRP program to grow sources of energy or food is one way this Committee could encourage this balance.

According to Kansas State University there are over 30 million acres of tillable agricultural ground in the United States that are in the CRP program. This represents approximately 10% of total agricultural land in the United States. The program accomplished the goal of removing excess grain supply in order to bolster crop prices. However, with the amount of ethanol production coming on line, this artificial protection is no longer necessary. In the last four years America has raised four of the largest corn crops on record. Yet prices remain near record highs and I believe this can be attributed at least in part to the CRP. The ethanol industry used approximately 15% of the corn crop and 14% of the sorghum crop in the United States last year. According to Wall Street expectations these numbers are projected to grow to over 25% by next year.

Providing the farmer this flexibility would have dramatic effects on rural America. For example, in Pratt County, Kansas there are over 50,000 acres of tillable farm land enrolled in the CRP program. This comes at a cost to the Federal Government of over 2 million dollars per year. If these

continued support of this Committee that will make this technology available.

Ethanol and Energy Policy

The Renewable Fuel Standard (RFS) is working. Since the RFS was passed in 2005, the amount of ethanol capacity that is either under construction or currently producing has grown from under 5 billion gallons of annual capacity to over 8 billion gallons. The RFS solidified the role of ethanol in the United States fuel supply. It has helped ease the financial community's concern about the ethanol industry. The only way to ease the investment community's concerns over price volatility is to send a message to that community that you will support its investment. Although you have sent, and the industry has received that message, today the financial community is listening for a reconfirmation of that message.

Even though the RFS has been a resounding success, several headwinds have slowed the building of new ethanol capacity. Corn prices are at the highest level in more than a decade, oil prices have remained volatile, construction costs have risen, and public sentiment has faded. These factors have made it difficult to raise the capital necessary to build new capacity. Although it is important to increase the overall usage of ethanol in the United States, usage in and of itself does not revitalize rural America. It is the injection of millions of dollars of capital into a community that drives rural expansion and creates jobs. American energy policy needs to continue to support the blending and usage of ethanol, but also needs to promote the building of new capacity in America. It is the production of ethanol, not the blending of it, that raises grain prices and revitalizes rural America.

Another issue that is a growing area of concern for the expansion of the industry, whether from grain or other feedstock, is the existing transportation infrastructure. The most efficient way to transport ethanol today is by rail. Our railroad companies have done well to meet the challenge of transporting our product so far. However, these same rail lines are either at or nearing capacity. This is causing our transportation rates to increase. I would urge this Committee and Congress to explore ways to provide incentives for new and innovative ways to transport ethanol. We believe in the ability to transport ethanol in large quantities by pipeline.

Summary

The Government and this Committee assisted in the growth of the ethanol industry. The Energy Policy Act of 2005 moved our Country toward energy diversity and reduced dependence on imported oil. Focused research on the logistics and transportation of ethanol, the development of new technologies for ethanol production, the increase in value added bi-products as well as revisiting our CRP policy will ensure that our domestic ethanol industry thrives and is competitive in the global marketplace.

Statement of Doug Stark, President and CEO
Farm Credit Services of America, Omaha, NE
On Behalf of the Farm Credit System

Mr. Chairman and members of the Committee, thank you very much for the opportunity to appear before you this afternoon to discuss the status of the Nation's ethanol industry. I am pleased to appear before you today on behalf of the institutions of the Farm Credit System.

My name is Doug Stark, and I am President and CEO of Farm Credit Services of America. Farm Credit Services of America is one of the 100 institutions that comprise the Farm Credit System. Together at the end of 2006 these institutions had more than $123 billion in loans outstanding to farmers, ranchers, rural homeowners, cooperatives, rural utilities, rural water systems as well as to certain farm-related business and marketing and processing companies.

Farm Credit Services of America serves the states of Iowa, Nebraska, South Dakota and Wyoming, areas where there is a high concentration of ethanol facilities. We have more than $10 billion in assets, and we are owned by over 65,000 farmers who borrow from us. We are a cooperative, and I am proud to say that over the last three years our institution returned over $150 million of our earnings, in cash, to those farmer-owners.

Farm Credit's historic mission has been to facilitate the flow of capital into agriculture and rural America by efficiently accessing the Nation's money markets and delivering credit to those that are eligible to borrow from us. The Farm Credit Act sets out several pretty specific goals for us – one of which is most important, however, and that is to accomplish the objective of improving the income and well-being of American farmers and ranchers. We got involved in financing the ethanol industry because of this direction – because of the industry's potential to improve the income and well-being of farmers.

The Farm Credit System through our sister institution CoBank, first got involved in the financing of ethanol plants about 15 years ago when CoBank stepped forward to work with a group of farmers who needed financing for an ethanol production plant they wanted to build in Aberdeen, South Dakota. Since that time, System institutions have been leaders in financing the growth of the ethanol industry. We play a unique role in support of the industry. Not only do we finance the construction of these plants and provide them operating credit, but we also provide farmers the opportunity to unlock some of the equity they have built up in their land so they can invest it and build equity in ethanol facilities. Because of our structure, we help create new economic activity in rural communities using funds brought in from the national money markets, and then because we are a cooperative, we share the profits generated in accomplishing this with local farmers. This keeps those profits working in the local economy as well. This is a true win/win situation.

As of the end of 2006, the Farm Credit System institutions reported loans outstanding and commitments to bio-based energy operations of just over $2.8 billion. Since that is a

point-in-time number, it really understates the total financing we have provided the industry over the last 15 years, and it does not include the financing we have outstanding with farmers that have invested in these facilities. We are very proud of this record of success in helping to build this industry – but it is essential to understand that we have approached the financing of each of these businesses recognizing that the goal of all involved is to make sure they succeed as a business.

As you consider the future direction of the ethanol industry and looking ahead to a transition to cellulosic ethanol, biodiesel and other forms of bio-based energy, I'd like to share with you how we approach a potential loan when we are putting our owners capital at risk by extending financing to one of these facilities.

In general, when we look at a proposed deal we undertake a comprehensive underwriting due diligence. We consider the economics of the proposal, including what is the plant's sensitivity to fluctuations in the price of key inputs such as its primary feedstock or the power required to operate the pant. We look closely at who will be doing the engineering and design of the plant and are the contractors that will be doing the construction experienced in building this type of facility. We consider logistics, such as the adequacy of local transportation facilities to ensure that feedstocks can get to the plant and product can efficiently be moved to end users. Also critical to our financing decision is understanding the types of marketing relationships that the plant's owners have in hand or that they are negotiating – put differently, how will this plant be ensured a steady stream of feedstock and what buyers of the product have been lined up and locked in.

We will want to know everything we can about and will work with a company to put in place their capitalization plan to make sure they have sufficient equity and liquidity both to operate during normal times but also to survive the stressful ones. We want to know the backgrounds of and understand the quality of management that are going to be involved in a plant – what experience do they have and do they know what to do in good times as well as the tough times. We constantly monitor the status of government policy as it relates to the industry – is tax or import policy changing or are there unresolved environmental or regulatory issues involving the plant site and what are the risks associated with shifts in policy.

Finally, we structure the loan so that it will best meet the needs of the ethanol production facility and its owners, and so that it will best reduce the risk to our farmer-owners and those investors that buy Farm Credit System bonds. Most often this means that we put together a lending syndicate to provide the financing. This can take many forms including multiple Farm Credit System institutions or, as is often the case, a syndicate that involves a Farm Credit institution as the lead lender, combined with other System institutions and commercial banks. A lending syndicate reduces the risk associated with this type of large credit by spreading the risk associated with any individual facility or company around to may different financial institutions. Again, our goal is to be involved with successful projects, because those that fail do not do anyone any good.

Favorable government policies have been absolutely essential for the success of this developing industry. Renewable Fuels Standards both at the Federal and state level have served to ensure a market for the product. Minnesota, for example, has a mandate for E85 fuel, as does California and several Northeastern states, while many of the Sunbelt States have no similar ethanol requirement. If we are serious about achieving the 25 X 25 goal which Farm Credit endorses, it is critical that government policy encourages an adequate marketplace for the end product. Federal support for increased ethanol use not only promotes the long-term development of ethanol, but it will also help to absorb the increased production that will be coming online in the near term.

Aside from mandates for ethanol use, we also believe that the current level of tax support at the pump is important to the continued vitality of the industry. Also, while our industry continues in its development stage, tariff support continues to be important so that our industry is not disrupted by imports. Predictability is an issue as we look at projects and shifts in these policies or the threat of shifts are problematic.

Improved infrastructure is another area of focus. As plants are constructed in rural areas stress is placed on transportation and roads. These needs should not be ignored. We also are now seeing increased demand for financing of storage facilities as increased production comes on-line. Locating tank farms near transportation hubs may increase the efficiency of ethanol distribution.

We strongly support efforts to develop a cellulosic ethanol industry along side of the existing corn-based industry today, but we caution that policies not be adopted that might result in the government picking winners and losers in the development of various types of ethanol. Again, if the goal is to succeed in achieving less reliance on foreign oil, we believe that government policy must continue to provide support for all segments of the bio-fuels industry.

While we caution against tipping the scales to one form of ethanol over another, the practical reality is that the cellulosic ethanol industry needs support in order for it to take hold. New technologies involve heightened risk and this has been recongnized in the loan guarantee programs that have been put in place already and that are being proposed. We strongly support these efforts but offer two suggestions for your consideration. First, our view is that USDA has a proven track record of success in running guaranteed loan programs in rural America for business development. We urge that USDA be the lead agency for loan guarantees for cellulosic production facitilities.

Second, the form of guarantees should also be reconsidered to make available "last-dollar" guarantees instead of "a percentage of loss sharing" guarantees. Under a loss-sharing form of guarantee, the lender is unable to determine, up-front, the maximum loss that it would incur in the event of default. In other words, the lender is unable to assess the true risk of the loan. Accordingly, we do not view loss-sharing guarantees as the best inducement to lend. "Last dollar" guarantees, which allow a lender to determine, up-

front, the maximum loss that might be incurred, would be more effective for attracting financing. An effective loan-guarantee program is important as Farm Credit puts stockholder equity at risk to continue to support the growth of ethanol. We believe this form of guarantee provides us the best opportunity to responsibly manage our risk.

While appropriately structured loan guarantees help address the inherent risk with cellulosic production, it is vital that the government take the lead in supporting research and development programs to support this industry. There is much we do not yet know about what crops offer the most efficient source of cellulose and how the development of the market for cellulose will impact cropping patterns across the country. As a lead lender to all types of agricultural producers, we are very sensitive as to how the success of this industry is rippling through and impacting other segments. More work needs to be done in terms of economic risk analysis and to determine the implications both good and bad for the livestock industry. We urge the committee to make sure this is given the support it needs so that we not dislocate one vital agricultural segment while building another.

Finally, we are seeing the beginnings of a challenge in finding sufficient interest from other lenders to fill out the projects that Farm Credit is leading. Existing ethanol projects are looking to build additional storage to increase their feedstock inventory, and this is driving an increase in requests for additional funding for these existing plants. As this demand is occurring, several "early entrant" lenders to the industry have reached or are close to reaching their lending capacity for ethanol. Put differently, regulators do not like to see risk exposures in institutions that are too heavily concentrated in any one industry. Although ethanol has generated tremendous interest from Wall Street and other non-rural investors, that interest can evaporate quickly when the economics of the industry change.

The increase in corn prices and the decrease in oil prices from the highs experienced in the summer of 2006 have slowed the level of interest in projects from non-farm investors. The substantial returns early investors were realizing are moderating and now folks are trying to weigh alternative options for their money given the relative risk. Some groups that were contemplating building an ethanol plant and who got on the list for construction priority are now withdrawing their project for several reasons, including rising capital costs, equity shortfall, debt shortfall, and potential for lower return on investments due to rising corn costs. I mention this because it is an important factor as you seek to attract greater private capital to grow the industry even further.

Mr. Chairman, American farmers are the most efficient and productive in the world and energy is a critical backbone of our economy. The Farm Credit System stands ready to work with the Committee as you consider policy options to continue the growth of renewable fuels in meeting these demands. We are working in all areas from supporting ethanol, bio-diesel and wind turbines to the conversion of manure to methane for electricity production. Our farmers and rural residents are saavy entrepreneurs, and we are proud to work along side them to improve the energy independence of our Nation. I would be happy to answer any questions you might have.

Testimony of

Dave Reyher
President, Colorado East Bank and Trust

On behalf of the

Independent Community Bankers of America

Before the

Congress of the United States
House of Representatives
Subcommittee on Conservation, Credit, Energy, and Research
of the
Committee on Agriculture

Hearing on

"Review of the Current Financial Structure of Renewable Energy Sources"

March 7, 2007
Washington, D.C.

Good afternoon. Chairman Holden, Ranking Member Lucas, Members of the Subcommittee, I appreciate being invited to testify on the important topic of financing renewable energy sources. It is an honor to be here this afternoon representing the Independent Community Bankers of America. My name is Dave Reyher. I currently serve as President of an independent community bank, Colorado East Bank and Trust with headquarters in Lamar, CO. Colorado East Bank & Trust has assets of nearly $500 million and currently has 12 branches scattered throughout eastern Colorado and western Kansas. Eight of these branches are located in and serve smaller rural communities where agriculture is the center of the economy. Each of these branches is operated under the community bank model. I have over 25 years of banking experience, primarily in agriculture and commercial banking. I have served on our local economic development committee for the past eight years.

Community Banks' Commitment to Renewable Fuels

ICBA and its members are committed to meeting the capital and credit needs of America's farmers, agribusiness and rural America. Because they understand the importance of renewable fuels to the economy of rural America, the environment and the nation's energy security, ICBA and its member banks are strong supporters of renewable fuels and are partners in the 25x'25 Alliance, which promotes the goal of producing 25 percent of the nation's energy from renewable sources by 2025.

Community bankers play an active and important role in financing renewable fuel facilities. They finance the construction of plants and provide working capital loans to renewable fuel facilities. Community banks also lend money to their farm customers to buy shares in ethanol and other renewable fuel companies.

ICBA recently conducted a survey of 1,000 randomly selected community bankers on a number of issues regarding farm credit, including a question on the financing of ethanol. Seventy-eight percent of the 318 bankers who responded to the survey indicated that their institutions were actively involved or desired to be involved in financing ethanol facilities. (A summary of the responses is attached to the testimony.) Participants were asked whether their institution was willing to finance plants and facilities or farmers' equity investments in facilities. The responses prove overwhelmingly that community banks are very willing and active participants in the financing of all aspects of ethanol and alternative energy facilities. Additionally, the survey results revealed that community bankers are more than willing to provide financing to their farmer customers so that the customers can invest in alternative fuel projects. The farmer investments financed by community banks help bring renewable fuel facilities to communities and support local ownership and control of these facilities. Through these investments farmers reap the rewards of value-added agricultural endeavors.

Experience at Colorado Bank and Trust

Biodiesel Project

My own bank first became involved in the financing of renewable energy sources through a contact from the local economic development committee. We were approached by a large earth-moving company that was interested in locating a biodiesel plant in our area. This excavating company is located and does most of their work along Colorado's rapidly growing Front Range.

Biodiesel is a domestically produced, renewable fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is safe, biodegradable, and reduces serious air pollutants such as particulates, carbon monoxide, hydrocarbons, and air toxins. Blends of 20% biodiesel with 80% petroleum diesel (B20) can generally be used in unmodified diesel engines. Biodiesel can also be used in its pure form (B100), but it may require certain engine modifications to avoid maintenance and performance problems. Source: U.S. Dept. of Energy, Energy Efficiency and Renewable Energy (www.eere.energy.gov)

There has been a sharp increase in the number of biodiesel users, which now include the U.S. Postal Service and the U.S. Departments of Defense, Energy, and Agriculture. Countless school districts, transit authorities, national parks, public utility companies, and garbage and recycling companies also use the fuel. In Colorado, many of the transit authorities located in the mountain resort towns

as well as the colleges and universities transit services utilize biodiesel in their vehicles.

Armed with this information, we could see that the company's vision for their biodiesel facility had many benefits for not only them, but for our community and the Front Range, as well. These benefits are cost savings for the company, cleaner emissions for the Front Range where a large majority of their work was taking place, and a future alliance with local producers of oil seed plants from which the oil is extracted to manufacture the biodiesel. Our customer has started small and is manufacturing biodiesel for their own use. We are now in the process of working with them on an expansion project that will allow them to produce biodiesel on a commercial basis.

Going forward, there are some challenges for the biodiesel industry. Based on 2005 numbers, consumption of gasoline reached an all time high of 385 million gallons per day. Diesel fuel consumption for the same time period was 173 million gallons per day, most of this being consumed by the over-the-road trucking industry. Gasoline consumption amounted to 69% of this total. With this discrepancy, the average consumer may not see the need for an active bio-diesel program in our country.

I do not believe however that this will significantly deter the construction and financing of these plants. Markets for the biodiesel products are growing daily.

Additionally, the sales of the bi-products of the biodiesel manufacturing process can be marketed, thus helping to reduce the cost of producing biodiesel. From a capital outlay basis, the costs to construct a biodiesel plant are much less than that of an ethanol plant. Community banks recognize these benefits for their customers and for economic health that these projects provide to their trade areas.

Community Banks Finance Ethanol Plants

From the initial success of the biodiesel project, we have also joined with other community bankers from the area and become involved in the financing of a large ethanol plant located in a small community in central Kansas. This plant will provide much needed jobs and provide economic diversification to an agricultural-based area that is not unlike my own. This relationship was developed through an alliance that we and other community bankers have developed with an underwriting, originator and placement agent, discussed below.

At present, our bank is in the process of working through an economic development effort where an owner of a local feedlot is working to establish a relationship with an ethanol company that will locate next to the feedlot. The two companies would work together to produce ethanol and ethanol production bi-products to be utilized as livestock feed at the feedlot. If completed, this project will create additional jobs for our community as well as provide another much needed market for farm products for local growers.

Partnering with Other Community Banks

Community banks have formed a variety of alliance that allow them to finance ethanol projects even though the cost of these projects are often enormous and often exceed the lending limits of the smaller community banks that are located in areas where the projects seek to locate. One such alliance is the one that we have reached with an underwriting, originator and placement agent to community banks. The placement agent will underwrite a project for a large renewable fuel facility and bring community bankers together to finance it through loan participations where individual banks each share in a portion of the financing. In addition, community banks come together on their own to finance these projects through informal networks, and use alliances with regional Bankers' Banks and correspondent banks to provide project financing for renewable fuel facilities. Working together in this fashion, community banks have been able to bring these projects to life in their communities.

Conclusion

Our nation's community banks play an integral part in the economic well-being of the communities that they serve. They are the backbone for economic development for their communities. For this reason, community banks are actively involved in bringing renewable fuel facilities to their local communities through loans to build plants, working capital loans to the facilities and loans to finance their farmer customers' investments in renewable fuel companies. As

our survey revealed, community banks are ready, able and willing to finance all aspects of ethanol production.

The economic development opportunities afforded rural America by alternative energy projects financed by community banks are substantial. These projects provide excitement and new markets through value-added products that will help enhance the overall economic health of our communities. Policymakers should encourage the continued participation of community banks in financing the alternative fuels sector.

Additionally, the federal government should support research and development that will lead to new technologies and to improvements of existing technologies that will make these facilities more efficient and keep these industries moving forward, thus reducing our reliance on foreign sources of oil. We specifically urge Congress to provide funds to support the development of cellulosic ethanol.

Thank you.

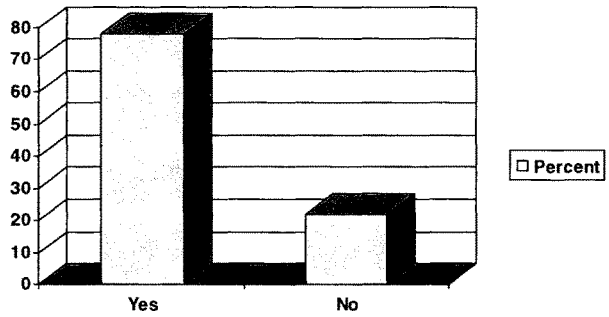
Appendix to Testimony of Dave Reyher

Ethanol Financing Survey
Sample Responses from Community Bankers

Responses of 318 bankers to survey sent to 1000 bankers, geographically dispersed across the U.S.

Question

Are you involved or desire involvement in ethanol financing?



Percentage of Survey Respondents Answering Yes: 78%

Question

If yes, what are you willing to finance (plants & facilities or farmers' equity investments / other)?

- We have financed a portion of about 5-6 different plants thus far. We also have loaned millions of dollars to our farmers for investment into ethanol and biodiesel.
- We have assisted in the facility financing on one plant and regularly finance farmer equity investment based on the strength of their operation
- We have been involved in several ethanol projects from the investor financing side and the organization of entities to invest in these projects
- We currently have financing extended both to farmer equity investments and plant & facility financing.
- I have helped finance an ethanol plant under construction and also make loans to farmers to invest in ethanol plants.
- We have loans on facilities and loans on stock purchased by farmers to finance ethanol plants.

- We would gladly finance plant, facilities, operating capital, and all other legitimate credit needs of a qualifying ethanol enterprise. We have already solicited the business of a bio-diesel plant proposed for our area.
- Would be willing to consider any viable credit package. Economic development financing from state, local, and regional entities is also readily available.
- We would take a look at anything that is feasible for loans
- Plants & facilities; farmers' equity investments
- Plants, equipment, facilities, and working capital.
- Plants, facilities, and farmer's equity investments
- Plant & Facilities
- We'll finance all aspects
- We have financed Farmers' investment in local Bio-Diesel plant.
- Both investment and plant and facilities if the project is viable
- Farmers' equity investments and possible plants & facilities if opportunity came.
- We would finance all entities. We have financed a Biodiesel plant and a lot of the investors in the project.
- We are very active in funding farmer's equity investments. We have participated with other Banks in plant and facility financing as well.
- Primarily farmer customer investments but also in the plants themselves
- Plants & facilities and farmers' equity investments
- Most interested in farmer equity. We are involved in two projects that are lead bank originated and we are a participant bank
- We have extended financing to the local shareholder owned ethanol plant. In addition, we have extended loans to many individual shareholders for the local ethanol plant and several other plants.
- We currently finance all of these
- We are involved in plants & facilities and farmers' equity investments.
- We have financed and are willing to finance all aspects.
- Currently committed to financing a portion of new Bio-diesel plant and have supported local farmer investment in local ethanol plants.
- All aspects of financing
- All financing aspects are possibilities;
- Both facilities and farmer/customer investments
- Have made loan to ethanol with other banks
- Whatever makes sense given prudent lending practices
- We are always seeking good loans
- We purchased a participation on a ethanol plant
- Facilities. We have received no requests to finance equity investments.
- Equity investments, buy participation in plant & facility loans
- We have financed both plants & facilities and farmer equity plans
- Virtually any involvement
- Currently financing biodiesel plant
- Plants and facilities
- We actually participated in several ethanol loans
- We would look at any reasonable request.
- We finance farmer's equity investments and purchase participations for financing plants
- Plants & facilities and farmers' equity investments and feedlots that would complement
- Plant & Facilities
- TIF Bonds, plant and facilities, farmer equity investments

- We are presently participating in the financing of an ethanol plant in Iowa through the United Bankers Bank of Minnesota
- We would like to be involved at a participation level.
- We currently finance plants and many equity investors in these plants.
- We currently are involved in several ethanol plant financing ventures through the purchase of participations. We are interested in expanding our participation portfolio for value-added ag ventures.
- We have participated in two bio fuels manufacturing loans. We are willing to finance this type of entity
- This bank would welcome an opportunity to participate in this type of credit.
- Farmer equity investments- directly. Plant & facility through purchased loan participations
- We are working with a new company whose business plan is to establish a Bio-Diesel production plant using Sunflowers as the primary raw material
- We have financed stock purchase loans.
- Farmer Equity Investments
- Equity investments, assuming adequate collateral and repayment ability
- Plants & facilities and equity investments
- Stock purchase, construction, etc...
- We would be willing to finance all types of credit needs as long as the plan is feasible
- All of the above, subject to normal underwriting.
- We are financing seed production for switch grass and many corn operations
- We have participated in financing at both the plant and farmer investor level.
- We have financed the equity investment for the farmers in both ethanol plants and Bio-diesel plants. Along with funding with other area plants of a corn processing plant.
- Plants, facilities most aspects of ethanol financing. We currently finance an ethanol plant
- We are a participant in an Ethanol Plant being built in KS
- We are already involved in plant financing of an ethanol plant and are expecting a loan package on a bio diesel plant.
- Farmers Investments
- Farmers equity investments
- We look for opportunities in any promising area/sector
- Have done plant and equipment thru participation loan
- Any viable and credit worthy business.
- We are currently financing plants & facilities, farmers' equity investments
- We are and have been involved in both plant facilities thru participations and have financed loans for farmer equity investments
- Plants, facilities, farmers equity, and operating
- Our bank is involved in financing a local ethanol plant in conjunction with other area banks. We also provide our customers with financing for stock purchases.
- Have purchased participations in two ethanol plant construction loans and one TIF bond related to a start-up ethanol plant.
- All aspects of financing
- We are interested in loan participations
- We currently participate in a couple facilities and would be willing to finance more

Supplemental Questions to Under Secretary Tom Dorr for the Hearing Record
Review of the Financing Structure of Renewable Energy Resources Hearing
March 7, 2007
~~Submitted by Committee on Agriculture Staff~~
Subcommittee on Conservation, Credit, Energy and Research

1. The Administration is proposing the creation of a multi-department energy grants platform supported with mandatory funding. Can a multi-department energy grants platform provide quality employment and economic development potential in rural America? Are other federal agencies also proposing mandatory money for this joint venture?

Response:
The energy grants platform proposed in the Administration's Farm Bill would consolidate the USDA energy grant programs under the Biomass Research and Development Act of 2000 authority. Programs included in this platform will be Section 9006 Renewable Energy Systems and Energy Efficiency Improvements Grants and Section 9008 Biomass Research and Development Grants. In addition to the mandatory funding proposed in the farm bill, the Administration's Fiscal Year 2008 budget requests a program level of over $195 million in Section 9006 loan guarantees and $15 million in Section 9006 grants.

The proposal does not seek to combine USDA energy programs with those administered by other departments, such as the Department of Energy (DOE), into this platform. DOE also awards grants under the 9008 program authority. Each year, USDA and DOE jointly announce the availability of each department's appropriated funding level, and later, the awarding of grants. DOE's funding is separate and we are not requesting or suggesting that it be combined on the platform.

USDA's focus on rural wealth creation opportunities allows these two funding streams to exist simultaneously, and without duplication. We are working effectively with the Department of Energy and other Federal partners in the development of our renewable energy programs to minimize duplicative efforts.

2. As chair of the Energy Council, can you elaborate on the Council's activities? Do you meet with other Departments to coordinate energy policy recommendations?

Response:
The Energy Council was implemented to examine departmental programs and authorities, ensuring they fit into a comprehensive energy strategy. The council also seeks to ensure agricultural producers have a place at the table for national energy discussions. The Council was created by Secretary Johanns in December of 2005. Membership includes a broad spectrum of departmental leadership and has regular attendees observing from the Department of Energy, Department of Transportation, Department of Interior, Environmental Protection Agency, and State Department.

The Secretary oversees the Council's implementation of the President's energy initiatives, policies, and programs within USDA and in coordination with other Federal Departments. For

example, in October 2006, the Council organized a 3-day renewable energy conference *Advancing Renewable Energy; An American Rural Renaissance,* where key government and industry leaders met to discuss renewable energy and policy. It was the first time a President and three Cabinet members stood together to discuss renewable energy with industry leaders.

The Council developed a new web-based tool, the Energy Matrix, designed to make energy-related activities from across the Department accessible from a single web page. The Matrix identifies all of USDA's energy-related programs, research efforts, funding opportunities, and technical assistance. You can visit the site at www.usda.gov/energy.

3. Many people point to the Renewable Fuel Standard (RFS) as a major catalyst for growth in the ethanol industry. Given that the RFS is administered by EPA and given the Administration's effort to expand it, can you explain your prior role in developing the rules for RFS and how you envision USDA's role in expanding it?

Response:
We do not feel this question should be addressed by Rural Development.

4. In the Administration's farm bill proposal you recommend increasing the cap for cellulosic projects to $100M but do not recommend increasing any other programs to allow for the amount of capital needed to finance a plant. Why?

Response:
It is envisioned that funding from a variety of sources, including Section 9006 loan guarantee funding, will be needed to support construction of the first few commercial sized cellulosic ethanol facilities. Based on the anticipated costs for these first cellulosic ethanol facilities, $100 million loan guarantees should be sufficient, along with the other funding sources, to construct these facilities. However, it is unknown yet whether the initial needs for new start-ups will be large or relatively modest. Recent investments in early cellulosics appear to concentrate on smaller facilities, distributed around low cost woody biomass concentrations. Should this trend continue, these early component sized plants may well be more in the 10-20 million gallon range, with phased plans to expand as biomass becomes economically available and technology improves cash flow. In either case, we believe the $100 million dollar cap is realistic for this program. At the present time the loan levels for other types of renewable energy projects are sufficient to provide adequate capital to finance other types of plants.

5. Given that the White House and OMB had to sign off on the Administration's farm bill proposal, am I correct in assuming that the Administration supports having a cellulosic ethanol loan guarantee operating at USDA, in addition to what's taking place at DOE?

Response:
Yes. The Administration believes that the issue of renewable energy is so important that we propose to develop and implement an array of energy programs at USDA and DOE. Currently, USDA programs are differentiated from DOE programs in that:

1. USDA offers loans as well as loan guarantees;

2. USDA offers these financial instruments primarily to renewables, while DOE's programs:

   (a) will cover 10 technology areas (including renewables);
   (b) is focused on avoiding, reducing, or sequestering air pollutants or anthropogenic greenhouse gas emissions;
   (c) can/may support very large-scale commercial production; and
   (d) focuses on advanced technologies.

3. USDA offers these financial instruments only in rural areas, while DOE covers projects located in urban, suburban, and rural areas, including Indian lands.

Examples of coordination include DOE's participation in USDA's Energy Council and co-chairing of the Biomass Research and Development (R&D) Board created by the 2000 Biomass R&D Act.

6. Has the B&I guaranteed loan program funded energy related projects? If yes, what is the breakdown of the energy portfolio and what is an approximate percentage of funds used for those projects? What are the differences between USDA loan program and the proposed DOE guaranteed loan program?

Response:
Yes, we have funded a variety of energy projects with the B&I program. The primary purpose for energy loans made under this program has been for ethanol production; however other energy related purposes are eligible. In Fiscal Year 2006 we used a total of $52,500,000 in B&I authority for energy related loans. This equates to approximately 7 percent of funds obligated in FY 2006.

Currently, USDA programs are differentiated from DOE programs in that:

1. USDA offers loans as well as loan guarantees;

2. USDA offers these financial instruments primarily to renewables, while DOE's programs:

   (a) will cover 10 technology areas (including renewables);
   (b) is focused on avoiding, reducing, or sequestering air pollutants or anthropogenic greenhouse gas emissions;
   (c) can/may support very large-scale commercial production; and
   (d) focuses on advanced technologies.

3. USDA offers these financial instruments only in rural areas, while DOE covers projects located in urban, suburban, and rural areas, including Indian lands.

7. Of the $2 billion in loan guarantee authority that your farm bill proposal would make available, how are you envisioning it being used? For the roll-out of the first small-scale plants?

Or further down the road when the cellulosic biofuels industry becomes cost-competitive and is ready to take off?

Response:
The production of ethanol from cellulosic material is not commercially viable at the present time. When Congress enacted the 2002 farm bill, the process of converting corn into ethanol had been well established. This is not the case for converting cellulosic material into ethanol. The Administration's 2007 farm bill proposal's primary emphasis is increased funding for research that would improve the economic viability of producing ethanol from cellulosic material. Since little ethanol is currently being produced from cellulosic material, there is no way of knowing how much ethanol production the proposal would incentivize.

The Administration's proposes to promote ethanol production from cellulosic material by funding research and providing incentives through a variety of program initiatives. The Administration proposes a loan guarantee program funding level of $210 million, which would support $2.1 billion of guaranteed loans over 10 years for cellulosic projects. Other initiatives in the 2007 farm bill proposal would promote research and development, feedstock availability, and cellulosic ethanol production. With respect to R&D, the 2007 farm bill proposal would create an Agricultural Bioenergy and Biobased Products Research Initiative. This initiative would be funded at $500 million over 10 years and would focus research and development on: improving biomass production and sustainability, and improving biomass conversion in biorefineries. A second proposal would build on the Biomass Research and Development Act and provide $150 million over 10 years to increase competitive grant funding for biomass research, focusing on cellulosic ethanol.

To insure ethanol producers have access to a reliable feedstock, the 2007 farm bill proposal would provide the authority for a Cellulosic Bioenergy Program. The Cellulosic Bioenergy Program would be funded at $100 million and would share the cost of biomass feedstocks used by cellulosic ethanol producers. In addition, the 2007 Farm Bill proposal includes a Biomass Reserve Program (BRP) operated under the Conservation Reserve Program (CRP). The BRP would establish clear requirements that biomass could only be harvested with sufficient environmental and wildlife protections, and rental payments would be limited to income forgone or costs incurred by the participant to meet conservation requirements in those years biomass was harvested for energy production.

The 2007 Farm Bill proposal would create a Forest Wood-to-Energy Program. This program would be funded at $150 million over 10 years and its goal is to accelerate development and use of new technologies to more productively utilize low-value woody biomass resources, offsetting the demand for fossil fuels and improving forest health. The 2007 Farm Bill proposal would also reauthorize the Renewable Energy Systems and Energy Efficiency Improvements loan guarantee and grants programs.

These policies are reflected in our Farm Bill proposals and we believe that the resources projected are sufficient, leveraged with investments from the private sector to rapidly develop a strong domestic cellulosic ethanol industry. These efforts are in coordination with DOE efforts to take advantage of synergies between the programs and minimize duplicative effort. The key is

positioning the Federal research and financing programs to lead and encourage work with promising technologies. Once a technology or process is recognized as commercially viable by private capital markets and lenders, the Federal government should allow the private sector take over.

8. In your testimony you mention streamlining and program consolidation under the guaranteed loan program. When do you anticipate a proposed rule?

Response:
Rural Development is already working with the Office of Management and Budget to consolidate and streamline the common elements of our loan guarantee programs within our existing authorities. We are also developing improved performance measurement standards for these programs so we can better evaluate their effectiveness in order to improve their performance in the future. We anticipate publication of the proposed regulation change should occur within the next few months.

9. What rural development programs focus primarily on technology advancement?

Response:
The Biomass Research and Development Initiative (Section 9008) program, a joint solicitation between USDA and DOE, provides grants to applicants addressing research and development of biomass based production, bioenergy, biofuels and related processes that directly supports the advancement of biomass technologies. The program is intended to promote greater innovation and development related to biomass technologies in the technical topic areas of feedstock development, overcoming recalcitrance of cellulosic biomass, product diversification, and strategic analysis.

The Renewable Energy Systems and Energy Efficiency Improvements (Section 9006) program provides grants and guaranteed loans for farmers, ranchers, and rural small businesses to purchase and install renewable energy systems or make energy efficiency improvements. Eligible renewable energy technologies include wind, solar, geothermal, hydrogen from a renewable source, and biomass. The Section 9006 program directly supports the advancement of renewable energy technologies in the pre-commercial and commercial stages by helping to maintain and expand the current renewable energy technology infrastructure in rural America.

10. How does USDA determine risk?

Response:
We work closely with DOE and rely on their technical expertise to determine the viability of the proposed technology. Internally, we rely on our own expertise to evaluate the business aspects of the project and for the delivery structure that carries the loan origination and servicing expertise.

11. We often hear that technology and infrastructure are the largest barriers to the growth of renewable energy sources. While research and development funding is available through several programs, specifically what programs are currently available for brick and mortar? For example,

if someone wants to put up an ethanol or biodiesel plant, what RD programs are available to help them do that currently? How much can you lend under them?

Response:
The Renewable Energy Systems and Energy Efficiency Improvements (Section 9006) offers grants and guaranteed loans to rural small businesses and agricultural producers for the purchase and installation of renewable energy systems such as ethanol and biodiesel plants, anaerobic digesters, wind farms, solar, and geothermal systems. Under the Section 9006 program, the maximum guaranteed loan is $10 million or up to 50 percent of the total eligible project cost and the maximum grant for renewable energy systems is $500,000 or up to 25 percent of total eligible project cost. In addition to the Section 9006 program, Business and Industry (B&I) guaranteed loan program funds brick and mortar energy projects up to $25 million.

12. You mention the role of the rural electric cooperatives and an evolving rural infrastructure. What do you think are our biggest challenges in meeting transmission goals? Will we need any legislative changes?

Response:
The biggest challenge in improving the transmission capacity for getting electricity generated from renewable resources is developing methods of paying for the additional capacity and then allocating the cost to the developers and consumers. Rural Development is finalizing a study of the obstacles and possible solutions to the lack of transmission capacity, and looks forward to working with members of Congress to address this issue.

13. Do you believe that USDA should be involved in biofuels derived from all types of technologies? In other words, should USDA or another agency be responsible for programs promoting thermo-chemical or chemical process as long as they're still using agricultural biomass as their feedstocks?

Response:
The 200 Biomass R&D Act laid out parameters of the Federal Biomass Initiative, along with the President's 20 in 10 Initiative. These efforts are across the federal community, not solely the province of one department or another. We are working on building a federal strategic plan for biomass to address how the research and commercialization will be addressed.

○