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USDA RURAL DEVELOPMENT PROGRAMS AND THEIR ECONOMIC IMPACT ACROSS AMERICA

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BEFORE THE

SUBCOMMITTEE ON RURAL DEVELOPMENT AND ENERGY

OF THE

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

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USDA RURAL DEVELOPMENT PROGRAMS AND THEIR ECONOMIC IMPACT ACROSS AMERICA

Wednesday, April 6, 2016

UNITED STATES SENATE, SUBCOMMITTEE ON RURAL DEVELOPMENT AND ENERGY,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC

The committee met, pursuant to notice, at 10:02 a.m., in room 328A, Russell Senate Office Building, Hon. Joni Ernst, Chairman of the subcommittee, presiding.

Present or submitting a statement: Senators Ernst, Hoeven, Tillis, Heitkamp, Brown, Klobuchar, Bennet, and Donnelly.

STATEMENT OF HON. JONI ERNST, U.S. SENATOR FROM THE STATE OF IOWA

Senator ERNST. Good morning. Thank you, Ranking Member Heitkamp, for being here today. We do expect that we will have other members of the subcommittee coming in and out this morning, as well, So I apologize for that. But, I call this hearing of the Senate Committee on Agriculture, Nutrition, and Forestry's Subcommittee on Rural Development and Energy to order.

I feel fortunate to be chairing this committee, considering my upbringing in rural America and the critical role that Iowa plays in producing energy for the nation. Today, over half of Iowa's three million residents live in rural communities. Each year, I do a tour of our state's 99 counties, and 75 of those counties have a population of 25,000 or less.

As I am committed to do when I came to the Senate last year, I really do want to focus on the things that make sense while working to streamline or even eliminate federal programs that foster bad behavior by both the government and the people. I believe it is imperative that we focus on the causes of rural poverty and work to provide opportunities for folks to overcome obstacles that have created many of the problems we see throughout rural America. Lack of jobs and poor rural housing are just two examples I hear about while traveling throughout Iowa.

Since the early 1900s, the Federal Government has administered various programs aiding communities in rural America. Today, the major agency tasked with carrying out the bulk of these programs is USDA's Office of Rural Development. Created under the 1990 Farm Bill, the Office of Rural Development's main function is administering grants, loans, and loan guarantees to support a number of services in rural communities, including the construction and maintenance of electric and telecommunications infrastructure,

rural business development and retention, water and wastewater treatment facilities, and rural housing.

In continuing with my commitment to bring effective oversight of programs within the Federal Government, and as we begin preliminary discussions about the next Farm Bill, it is imperative we look at programs under my subcommittee's jurisdiction to ensure that Congress is being an effective steward of the taxpayers' money and that USDA is implementing programs as we intended.

In Iowa, production agriculture takes the center stage, as our state's fertile soil and ideal growing conditions have allowed us to lead the country in the production of pork, corn, and soybeans. In addition to that, Iowa is proud to lead the nation in ethanol and biodiesel production. Many of the energy programs administered by USDA's Rural Development help support Iowa's biofuels industry, employing over 45,000 Iowans, and nationwide contributing over $52 billion to annual GDP.

Ms. Under Secretary, I look forward to hearing your testimony today and asking you some questions in regards to the state of USDA Rural Development.

But, before we hear from you, I want to turn things over to Ranking Member Heitkamp for any opening remarks.

STATEMENT OF HON. HEIDI HEITKAMP, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator HEITKAMP. Thank you, Chairman Ernst, and thank you for being a great partner in putting together this critical hearing.

Our subcommittee, we want to point out, is the only one so far in this Congress in this committee to hold a hearing, and last Congress, when I chaired this subcommittee, we were only one of two. I think it highlights for us the importance of rural development.

I often say this, and I think it is true, with the exception of my partner on this subcommittee, we wake up every morning thinking about rural America. Not a lot of folks in the Senate do. That is because we come from rural America and we know what a great opportunity it is to grow our economy if we focus on these areas.

I do not think there is any doubt that USDA Rural Development is one of our country's greatest success stories. It has brought electricity, clean water, broadband, and critical infrastructure to remote areas of our nation. We have seen great progress, but there is still more to do.

I think a lot of people do not realize it, but 85 percent of our country's persistent poverty counties are in rural America. Poverty is not just an urban issue. We need to remember that when it comes to these critical issues of economic development.

I grew up in a small rural community that served our farmers. It is a little town called Mantador. If you do not know where that is, it is between Barney and Great Bend.

[Laughter.]

Senator HEITKAMP. But it tells you—yes, you have been there, right? My family, incidentally, was one-tenth the population, so we have great bragging rights.

[Laughter.]

Senator HEITKAMP. But, growing up in those communities, we know how difficult it is for communities to modernize wastewater

facilities, expand high-speed internet, or invest in community facilities. USDA Rural Development's partnership with rural America makes that possible.

I am proud to have been part of writing a 2014 Farm Bill where we continued critical investments and improved the way we operate, such as incentivizing greater regional coordination to make the best of our federal investments. As we will hear this morning, rural economic success is not exclusive to USDA. Other important policies, like the Renewable Fuel Standard, also play an important role in providing business certainty and ensuring markets for developing technologies.

Most people do not know this, but North Dakota has a vibrant start-up community and we are proud to have new small businesses popping up all the time. In fact, I recently did a tour of northeast North Dakota where I heard from rural developers, and one of the issues that I heard, which was fascinating to me, is we used to believe in economic development back in the 1990s that if you simply created primary sector jobs, and new wealth creation jobs, that would revitalize rural communities. What we are finding out is that we need to create other kinds of opportunities and look at growing communities, whether it is the internet, whether it is a more vibrant retail sector, things that would attract businesses to those communities.

In fact, those three communities that I visited in that region have almost 100 primary sector jobs wide open with no applicants. It is a reminder that the work that we do in building infrastructure is absolutely critical, along with affordable housing, which tends to be a real challenge in rural America.

So, I am excited that one of those small businesses is with us today, a company that would not exist but for a rural development loan and which utilizes RD programs to grow their business. I will do a full introduction in a bit, but Dakota Turbines is an excellent and perfect example of how federal investments can grow small businesses, create jobs, and build a small rural community.

So, thank you, all of our witnesses, for being here today. I look forward to a productive discussion on the importance of rural development and the ways that we can work together to continue these investments.

Thank you, Chairman, and I turn the microphone back to you.

Senator ERNST. Thank you, Ranking Member.

Today, for our first panel, I am pleased to welcome Ms. Lisa Mensah, the Under Secretary of USDA Rural Development. Ms. Mensah had an impressive track record in the private sector before being nominated to this role by President Obama and confirmed by the Senate in November of 2014. Previously, she was the founding Executive Director of the Initiative on Financial Security at the Aspen Institute, where she led a national bipartisan effort to promote solutions to the complex problems of helping Americans save money, buy homes, and finance retirement. She has also served at the Ford Foundation, where she was responsible for the Nation's largest philanthropic grant and loan portfolio of investments in rural America.

In her role as Under Secretary, Ms. Mensah leads the three agencies tasked with improving the economic well-being of rural

America, the Rural Housing Service, the Rural Utility Service, and the Rural Business Cooperative Service.

Born and raised in Oregon, she is the daughter of an immigrant from Ghana and of a former Iowa farm girl, and Ms. Mensah noted earlier that her mother was born and raised in Atlantic, Iowa, again, one of those small communities, Atlantic, Iowa is where my sister and her husband farm, and it is just up the road a bit from where I live today in Red Oak, Iowa.

So, I appreciate it so much. Ms. Under Secretary, I look forward to hearing your testimony today and asking you some questions in regards to the state of USDA Rural Development.

So, with that, Ms. Under Secretary, I would love to hear your comments. Thank you so much.

STATEMENT OF LISA MENSAH, UNDER SECRETARY FOR RURAL DEVELOPMENT, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, DC

Ms. MENSAH. Thank you very much, Chairman Ernst and Ranking Member Heitkamp and members of the subcommittee. Thank you for the opportunity to be here this morning to discuss the Department of Agriculture's Rural Development mission area.

Rural Development, or RD, as we are known in our communities, manages a loan portfolio that is now $212 billion, and we are organized into the three agencies that you mentioned, Rural Utility Programs, Rural Business and Cooperative Services, and Rural Housing and Community Facilities. Our fundamental mission is to increase economic opportunity and improve the quality of life for all rural citizens. Our investments support rural residents looking for safe and affordable housing, municipalities seeking water, infrastructure, and community facilities, and small rural businesses, co-ops, and ag producers who are looking to expand to new markets. RD investment capital spurs economic development and the jobs that come with it.

I appreciate the authorities and the resources that are provided to us by Congress to allow us to continue to work on behalf of rural America. Your work on the 2014 Farm Bill renewed our authority to strengthen our efforts on our core programs to invest in rural America. Through the energy titles, in particular, this legislation expanded our ability to spur growth. Rural America is at the forefront of cultivating innovations in the renewable energy sector and driving efforts to increase energy efficiency.

The 2014 Farm Bill also encouraged RD to develop and implement regional strategies for investments in rural America. We set aside $316 million in fiscal year 2016, specifically for projects that were engaged in regional collaboration and in long-term growth strategies, leveraging, and in capitalizing on regional strengths.

Each day, I am determined to fully utilize the enormous potential and opportunity that RD funds provide to economic growth. Since becoming Under Secretary, I have visited many projects to see how rural America benefits from our investments. I have also met with many of our dedicated field staff, who engage directly with local lenders and community partners to solve problems. Both our investment dollars and our people are key to delivering economic impact.

RD continues to make investments in water, electric, and broadband because they continue to be necessary for rural America to be competitive. Last year, I traveled to North Dakota to announce a nearly $47 million electric guaranteed loan for Central Power Cooperative. This loan will allow the co-op to build line and make other system improvements, including funding for smart grid projects.

RD contributes to economic growth. Since 2009, we have created or saved more than 450,000 jobs and helped 112,000 rural small businesses. There is tremendous opportunity to spur economic development in rural communities through renewable energy technologies. In Iowa, RD awarded the Reinhart family a $16,000 REAP grant to more efficiently operate their small town grocery stores in three different Iowa towns. This grant will pay for upgrades for refrigerators, freezers, and for the installation of high-efficiency lighting and cooling fans.

Since 2009, RD has helped more than a million rural families to buy, repair, or refinance homes. In fiscal year 2015, we did not leave one dollar left unspent in our program to provide direct mortgages to low and very low-income rural Americans. We understand the unique needs of rural residents and we remain committed to serving them.

RD really works in communities to improve the quality of life for rural residents. In my travels to North Dakota, I saw the ongoing construction of the future, Richardton Health Care, a new nursing home and health clinic. A $5.5 million community facilities loan is supporting the project, which replaces an existing nursing home and clinic that was really inadequate for the changing needs of the community.

I would like to end on RD's work to help develop low-income communities. RD plays a key role in USDA's place-based efforts in ensuring that our loan and grant programs are available and accessible, even in persistently poor areas. Our proactive approach to community economic development identifies and assists areas of greatest need in rural America, and I am committed to providing increased opportunities to allow everyone to share in the prosperity of a growing economy.

Congress has provided significant resources to make real economic impacts in rural places, and I assure you, that not only are we careful with the dollars we receive, we are always working to collaborate to stretch them further.

So, thank you for your continued interest and your support of RD programs and the people who deliver them. I believe together we can continue to make key investments in rural America's future. I do appreciate this hearing and the chance to testify and I look forward to your questions.

[The prepared statement of Ms. Mensah can be found on page 45 in the appendix.]

Senator ERNST. Wonderful. Thank you very much, Ms. Under Secretary, and we appreciate you taking the time to appear today before our subcommittee.

I would love to go ahead and start with questions and then we will turn to the Ranking Member for questions.

First, as a veteran of the Armed Services myself, I believe it is critical we work to support those that have served our country. While I understand the Office of Advocacy and Outreach is the lead agency at the USDA for assisting underserved groups, can you update us on how USDA is making sure programs are being inclusive of our veterans' population, and if you could just expound on that and let us know where the USDA is in regards to those programs.

Ms. MENSAH. Thank you for your service, first, and thank you for highlighting the important role of veterans, many of whom come from rural America.

Senator ERNST. Right.

Ms. MENSAH. You are correct that we have an overall agency effort. But, key parts of our efforts with veterans reside in rural development. I would like to speak to one of those areas which was strengthened in the Farm Bill, and that is our Value Added Producer Grant Program.

We made a special effort to make sure those funds were reaching veterans. It is often the way people get into new areas of value added agriculture. What we find is that this program helps people who are new to this, whether it is doing some kind of micro-green growing or something that has a high potential of immediate income. I am very proud that program resides in Rural Development, and I think it is a good example of how Rural Development's loan and grant programs really support veteran farmers, people who are coming in, particularly who are starting out or returning to the land. That's just one of our efforts.

Think of RD as nearly 5,000 folks, 70 percent of them in states. The joy I have is running a field-based agency where there are actual people on the ground who are the neighbors of the veterans, who are really there in place. It is those staff members in our localities who help connect our programs every day in a proactive way to communities and to people who need us, and that is a particular advantage we have.

Senator ERNST. Wonderful. I thank you for that, and I have visited with a number of veterans, one in particular that returned to Iowa and is working in agriculture. He does bison farming, many of the veterans have expressed a real connection to the land, and it is often very therapeutic, as well, working with animals or working in the soil. We love those programs and we are glad that you participate in those, so thank you very much for that.

There has been a lot of recent attention surrounding lack of adequate drinking water in large urban areas due to lead poisoning. There was also a recent article in the Wall Street Journal about drinking wells in Vermont testing for high levels of hazardous chemicals. What steps are USDA taking to monitor the viability of rural water systems and prioritize funding to communities with the greatest need?

Ms. MENSAH. Thank you for highlighting our work in water, and as you mentioned before, the age of this agency. Our water and waste treatment work is some of our oldest work and some of our strongest.

You asked specifically what kind of steps, and I think it is good to think of this agency as working in two ways. One is when we originate new loans and grants for water and wastewater treat-

ment for the system maintenance. That is important work. We do that every day. Sometimes it takes communities up to three years to put in a whole new upgrade and system, so there is constant outreach going on.

But, the other way—I call it the softer side of our rural water programs—is the support you give us under the Farm Bill for things like circuit riders, technical assistance, ability to work with rural water associations throughout rural America. It is our team, our engineers, our circuit riders who support those programs that enable us to keep working with small systems throughout rural America.

You mentioned small, most of our funds, 85 percent of them, are reaching communities of under 5,000 residents. So, that is exactly our sweet spot and I think it is an appropriate place for federal dollars. So, thank you for asking about it.

Senator ERNST. Yes, thank you. Do you happen to know off the top of your head, are there any rural communities that you can think of out there that are struggling with water issues, where we need to focus more of the attention? Of course, Flint has been the focus, but I know across Iowa, I personally know of a few communities that are struggling. Do you happen to know of any examples?

Ms. MENSAH. Well, one recent example was in Sebring, Ohio, where our State Director was just there recently. It is one of these examples where we can bring to bear our Emergency Water Assistance Grants, cleverly named ECWAG, and we could bring technical assistance to bear. So, I do not think there is a state where Rural Development is not active with what we call our community program staff, and often, it is to give those alerts, to give assessments. These are systems that are maintained by community water boards.

The one that comes to mind is the recent one in Ohio, but really, all of our states are active in these programs and the funds you give us to support things like technical assistance allow us to be proactive with our water portfolio.

Senator ERNST. Very good. Well, I appreciate that. I know this is a struggle. The Ranking Member had mentioned it as well. Many of our small communities do not have the taxing base——

Ms. MENSAH. Yes.

Senator ERNST. —to bring their systems up to standards. So, that certainly is something that we want to keep an eye on and make sure that our citizens are adequately protected with their water treatment systems.

Ranking Member, please, questions.

Senator HEITKAMP. Thank you so much, Under Secretary, and thanks for the continuing commitment that USDA has, not just to the farm economy, but the rural economy, which is, I hope, what we are talking about today.

If you are like me, you have traveled all over and you have heard a lot of the concerns of rural communities, and it is not just creating those primary sector jobs. It is, in fact, being able to create a community environment in which people want to live.

Ms. MENSAH. Yes.

Senator HEITKAMP. My great concern is that we will end up, even in states like North Dakota, being a place where people will only

find opportunity in cities over 50,000, 60,000 people. Now, that may sound humorous to some people when we are talking about those being cities, but those are our large communities in North Dakota.

One of the challenges I think we have seen overall is what I like to call siloing. USDA does these programs, Small Business does these programs, Department of Commerce or the Export-Import Bank does these programs. Sometimes, it is very confusing to rural communities as they look at opportunities to access programs.

So, as in kind, I would think the umbrella agency for rural development, what can you tell me about your work in trying to bring these programs together, get more education out there in terms of what is available, and actually coordinate delivery of federal services?

Ms. MENSAH. Well, thank you, Senator Heitkamp, for the good insight that we have to bust some silos if we are going to really get to the kind of economic impacts that we are talking about.

Under this Secretary, we have done so much to really turn around the customer styled focus of this whole agency. There has been a cultural transformation underfoot at the Department to not just do excellent work, but to do more to connect people that come to us, not just to say you are here for a home, but to ask if there are other needs. I would say that it is a whole effort to look at sort of what we call a community economic development approach to needs.

Our strength as an agency of rural development is, again, our field presence——

Senator HEITKAMP. Right.

Ms. MENSAH. —and our ability for our State Directors, people to be co-located, to share information——

Senator HEITKAMP. But, I will tell you, in visiting, people feel like these programs are disjointed, that all of a sudden, they will hear something from SBA that they had not——

Ms. MENSAH. —across the federal——

Senator HEITKAMP. —in terms of an opportunity, because everybody is trying to fill up the silo, whether it is the rural water silo, whether it is the rural electric silo, whether it is the broadband silo. We have not said—we have done this in the Farm Bill by creating a regional focus——

Ms. MENSAH. Yes.

Senator HEITKAMP. —so that everybody kind of gets an example of what the needs are. But, I do not feel like, on the other side of this, that we have agencies that are as collaborative or as cooperative as maybe what they should be in terms of one-stop shopping for programs, what do we know, who is coming to the table. I am not saying consolidate programs, but I am saying that we need to have a specialist out there who understands the whole broad array of opportunities, including opportunities under the Export-Import Bank or under SBA.

I just did a start-up bill. North Dakota has a large start-up community. We are hopeful that we will be able to see some of those resources going to rural communities, to use the infrastructure that you have spent so much money to build.

Ms. MENSAH. Yes.

Senator HEITKAMP. So, what take-aways do you have, just in your short period of time, about how we can better coordinate?

Ms. MENSAH. My take-away is observing up close our StrikeForce Zones and our Promise Zones, and I think what you are pointing out is not just intra-agency, but across the federal family. In those areas, where we have been bringing the force of all of our partners, on the Pine Ridge Reservation, where we have asked to work across agencies, my take-away is that that is a very different way to work and it is much easier for a community, particularly one that does not have often fancy consultants to do all the work for it.

My success is to see where we have done it in places like that, where there is a Promise Zone approach, or in Kentucky, where they have started something like the "Shaping Our Appalachian Region"(SOAR) approach——

Senator HEITKAMP. Yes.

Ms. MENSAH. —where they have come together as a community first and then brought the federal partners to the table to follow a plan.

I think in the Farm Bill, section 6025, you did give us a boost to work at least within our own agency in a way to come together regionally, to prioritize things.

So, two take-aways. Where I have seen it work is where there was already a push to do that.

Senator HEITKAMP. I think it is, not to belabor the point too much, but we are going to continue to ask these questions about consolidation and coordination, better coordination of these programs, especially in rural communities, where we have not done as well in attacking persistent poverty.

For me, a lot of this lies in maximizing the availability of federal resources, maximizing the knowledge of federal resources and where we come talk to Penny Pritzker, talk to anyone that I can, Maria Contreras-Sweet, about rural development and about making sure that we have communities who know where these programs are and how they can access them, because it is going to take more than what we are doing right now to tackle this problem of rural and persistent poverty in rural communities.

Senator ERNST. Senator Tillis.

Senator TILLIS. Good morning, Madam Chair. I am sorry I am running late. I was actually meeting with a group of advocates for Alzheimer's.

Under Secretary Mensah, I want to thank you for being here. I am particularly appreciative of some of the work that your folks and the Department are doing to focus on broadband and communications in rural areas. That is something that I did when I was in the legislature, and hope that we can come up with a strategy that not only expands infrastructure, but also increases the take rate, because many people do not realize that even among homes in urban areas that have access to broadband, they have only got about 47 percent of them signing up. Let us work on something that is balanced but not building something with the hope they come. This is very, very critical to the rural areas for economic development, for agriculture, for public safety, and a number of other things.

Also, when I was in the legislature, we focused a lot on development and regional approaches to rural areas. How do we do a better job of providing economic development opportunities, job creation, and housing. One of the things that we focused on is the need for regionalization, and looking at it in a different way. I do not know about other states, but we tend to define areas along traditional county borders, and what you may find out if you do that, that there are these areas, for example: a coastal county like Brunswick County could be considered a wealthy county, but it is on a band along the coast and it has more in common with adjacent counties. So, how do you go back and rethink the way that we look at our state in terms of regional economic zones so that we can better work with the Federal Government? Now that I am on this side, how can we better work with the state government on rural economic development?

The question I have for you is in your travels, you have seen states taking regional approaches to economic development. Can you speak to the USDA's Rural Development work to promote those kind of efforts? In other words, incentivize states to come up with, and maybe reward, those who seem to be working better on a regional basis for economic development?

Ms. MENSAH. Yes. Thank you, Senator Tillis, and you used the exact word about what is the incentive——

Senator TILLIS. Yes.

Ms. MENSAH. —that the Federal Government can give. So, in this Farm Bill under section 6025, you gave us a new authority to really prioritize grant applications that came to us in some of our biggest programs, our Community Facilities Program, now a $2.2 billion loan program, Community Facilities Grant Program, our critical infrastructure program under the Business and Industry Program, our Rural Business Development Grants. We were incented to do a set-aside. We issued this rule last year, and this year, we set aside over $300 million to prioritize applications that come to us in these very competitive programs. You have been on the other side. You know how competitive it is to get federal grants.

But, we have said, when those grants show evidence of regional development collaboration, sometimes across those county lines—we were not specific to exactly how it had to be, it looks different in other states—but when you show us an economic collaboration across regional, you are prioritized for some of those core programs.

Senator TILLIS. Is that measurable in some way? I mean, how do you go about determining the value of one proposal that shows economic collaboration versus another one? How do you do that or measure it?

Ms. MENSAH. Luckily, I have a strong team around us, but it really depends on the four different programs. It is obviously a little different for water than if you are doing a Rural Business Development Grant, or a Business and Industry Grant. But, in each of these, we have come together to establish a set of priority points, so—and that is part of our—we are public about that priority.

So, we are saying that we have taken some of our core programs, both grants and loan, and said there will be a priority. We tried it without set-aside officially last summer and we made some of our

first awards and we are back at it this year. Already, some of our water grants have been awarded using those priority points.

So, I think you will see this agency has kind of heard that message and heard what was done in the Farm Bill. We understand, I think, what Senator Heitkamp was also pointing out, the need to collaborate across, that can often lead to stronger work, longer-term work. You see some early—we have made some early gains.

Senator TILLIS. Right. Thank you. Quickly, because I think it could take up time, we may request a meeting so we can talk a little bit about the strategy related to broadband. I am a big proponent of public-private partnerships——

Ms. MENSAH. Yes.

Senator TILLIS. —so that we have something that is sustainable and at some point the market forces can take over, make it less likely that we have something that state or local governments would own. So, I would like to meet with your staff about that.

Also, we can talk a little bit more about what we refer to as the urban crescent, from Charlotte to Greensboro to Raleigh. You are seeing cranes in the sky. Housing is coming back and commercial development. But I am concerned, since we are about a 49 percent rural state——

Ms. MENSAH. Yes.

Senator TILLIS. —I am concerned with affordable housing in the rural areas and things that we can do to really promote that, because it not only is for the people who need a place to live, but it is also critically important for the workforce to serve the rural areas, which all go hand-in-glove with rural development, so——

Ms. MENSAH. Exactly.

Senator TILLIS. —I look forward to meeting with your office to talk about that.

Ms. MENSAH. I look forward, and thank you——

Senator TILLIS. Thank you.

Ms. MENSAH. —for making that connection.

Senator ERNST. Senator Klobuchar.

Senator KLOBUCHAR. Thank you very much.

Under Secretary Mensah, as you know, you were just in our state——

Ms. MENSAH. Yes.

Senator KLOBUCHAR. —in Little Falls, Minnesota, which seems very far from here, at a food hub ribbon cutting, which was a really great project, and I thank you for your support of that project.

Ms. MENSAH. It was a joy to be there with you, and great—biggest food hub I have seen——

Senator KLOBUCHAR. Okay. Well, just do not tell the rest of the Senators that——

Ms. MENSAH. I will not.

[Laughter.]

Senator KLOBUCHAR. —that is not a good thing. She did not really say it was the best one.

[Laughter.]

Senator KLOBUCHAR. I thought I would start out—I had done some work on some provisions in the Farm Bill on beginning farmers, and could you talk about what USDA Rural Development is doing to help our youngest farmers overcome some of the chal-

lenges they face economically as we look at an aging farm population and the fact that we still need to produce food and we need people who are running the farms.

Ms. MENSAH. Thank you, and your question allows me to refer to what we just saw together, because what RD has done as it regards beginning farmers is a couple of things. I spoke earlier just about the Value-Added Producer Grants, but also, it is our whole focus on how a local food, local place's economy can generate opportunities for new and beginning farmers.

I think that is the critical story to tell, that some of what RD has done is welcome new farmers by increasing the attention to local foods, and that means a real economy around food. So, what I was able to see in Minnesota is that some of the growers, some of the new farmers who entered into the marketplace were able to do so because of the aggregation of their food and the marketing. They did not have to play all roles to be able to serve a local school district or a hospital or resort communities, and I think that is a new approach that the agency has doubled-down on, so that new farmers actually have markets organized for them and aggregation roles. To me, that is the key, not only to support how you are adding value to the produce yourself, but how you market, how you grow.

Senator KLOBUCHAR. Maybe when you were in our state, although the particular part you were in does not have quite the issues that we have in other areas on the North Dakota border—thank you, Senator Heitkamp—and the Iowa border—thank you Senator Ernst——

Ms. MENSAH. We have the whole——

[Laughter.]

Senator KLOBUCHAR. —regarding housing——

Ms. MENSAH. Yes.

Senator KLOBUCHAR. —and I know you have heard this in other places, and hopefully in our state from some of our agriculture leaders, but it is a huge problem, not just for the farm communities, but also for rural workforce, in general, for manufacturing facilities——

Ms. MENSAH. Yes.

Senator KLOBUCHAR. —from ag equipment manufacturing to companies like Digi-Key near the North Dakota-Canadian border that have job openings all the time. That is up in Thief River Falls.

I am really concerned. I know you have the housing programs sections 515, 521, 538, and also the Low-Income Housing Tax Credit, but what do you think USDA could be doing more of, or should we be doing here in terms of legislation, because I am just—we are going to start losing business because we do not have enough workers——

Ms. MENSAH. Yes.

Senator KLOBUCHAR. —and it is going to go to foreign companies if we cannot fill these jobs.

Ms. MENSAH. Yes.

Senator KLOBUCHAR. The housing is such a critical part of it.

Ms. MENSAH. One of the joys of being the Under Secretary of Rural Development is having these connections between housing, infrastructure, and business. Our housing portfolio is our largest

portfolio. You have referenced both the need for single-family housing and affordable multi-family housing, and I have both of those portfolios under my jurisdiction. They are critical, and they are aging.

We use every tool at our disposal to keep properties, keep them modernized, but dollars matter and this is an issue that we see coming, both in our rental housing and RD did so much after the housing crisis to make sure more people could get into homes, particularly low-income.

So, what I appreciate is any effort to keep the focus on the needs for rural housing. It is an economic need and every dollar will be well spent.

Senator KLOBUCHAR. Right, and as I look at the Southern Minnesota initiative that Tim Penny runs, former Congressman, which I know Senator Heitkamp was asking about these regional initiatives, and this is clearly something that they have identified as a major challenge.

One of the things that a few of the mayors have brought up to me is this idea that they would build more housing for seniors, condo housing, apartments, in the towns, and then that housing stock would then open up that the seniors are currently living in and that would then be maybe rehabbed some for families with children and otherwise, just because building a bunch of new houses may not quite work financially——

Ms. MENSAH. Right.

Senator KLOBUCHAR. —and yet the market may be there for some of that with this, what I used to call the "silver tsunami," but then I got criticized by senior groups, so I now call it the "silver surge"——

Ms. MENSAH. Okay——

Senator KLOBUCHAR. —as we see the aging of the population and more seniors, this idea that they probably are not going to want to live in their farmhouse or live in a bigger place yet. Then they could move closer to town and closer to their friends and health care, as a way—sort of a more regional planning way to get at this problem. I do not know if you have looked at that.

Ms. MENSAH. I love the efforts that are innovative to use this combination of rental and single-family stock. What I continue to feel is that the tools are in place. We have these sections of our code, section 515, section 538. They are underfunded. The tools are in place to be strong in rural housing. We are here and ready to go, and the groundwork is laid. I love the innovative partners, often at the nonprofit level, who are ready to work with us. Thank you for highlighting that.

Senator KLOBUCHAR. Okay. Well, thank you, and I will put a question about broadband on the record——

Ms. MENSAH. Thank you.

Senator KLOBUCHAR. —and how important that is, but thank you very much.

Thank you, Madam Chair and Senator Heitkamp.

Senator ERNST. Senator Brown.

Senator BROWN. Thank you, Madam Chair.

Thank you very much, Madam Secretary, for joining us. Thank you for what you did and what rural utility services did in Sebring,

Ohio, with the grant that was there. It was much less of a problem, but a significant problem if you lived there, than was Flint, and the similarities were—the difference is it was not inflicted by state government like Flint was, but it was ignored by state government for too long. The state EPA knew about the contamination and the high lead levels in water that people were exposed to and sat on it. The state EPA and the state government sat on it for weeks and weeks and weeks. But, your grant really mattered, so thank you so much for that.

Ms. MENSAH. Thank you.

Senator BROWN. What else do you do to help rural communities? I mean, when housing stock is at least 50 years old, whether it is inner city, whether it is in the ring suburbs, or whether it is small towns, the chances of lead paint are pretty high and the chances of, obviously, water contamination are higher than we would like. What are you doing sort of proactively?

Ms. MENSAH. Yes. Well, thank you, Senator, and I was able to mention, when your Chairman asked about water systems, we mentioned Sebring. To me, what it highlights is the tools you have already given us, and they are that combination of loan and grant, which we are constantly monitoring to get out new and upgrades to systems.

But, it is also the softer side of circuit riders, of investments in technical systems, in the Emergency Community Water Assistance Grant (ECWAG) Program. Those tools which you give us in the 2014 Farm Bill and which Congress funds, are our way of staying proactive, ahead of the time, working with our borrowers, with rural water associations. That is where we are strong. These are old systems, often, and we are able to be proactive when we use those tools and are able to work with communities.

So, I need to say thank you for the authorities you give us. I feel the tools are there and we want to use every dollar you give us to stay active with our communities.

Senator BROWN. Thank you, and let me ask you briefly on the StrikeForce that has been successful around the country. USDA is expanding in my state into 11 counties. What can this committee learn from the success of the StrikeForce Program?

Ms. MENSAH. Yes. Well, I love that program. Again, it is our program to target communities of high poverty, but to put a lead staffer also in place, to make sure that somebody—all of our states in Rural Development identified at least two communities in their states which were StrikeForce. Again, this ability to have someone—I think Senator Heitkamp referred to it as someone who is proactive in not just our own agencies, but stretching across federal agencies. It is not just the communities' responsibility to find their way through the thicket of federal grants and opportunities.

One of the big lessons is putting a proactive person in place, asking the agency to turn outward and to help communities, not just wait for them to come in and apply for a single effort. That is one of the big lessons of the StrikeForce, that and highlighting the fact, the statistic that you already said, which is that persistent poverty is often a much heavier rural phenomenon and not always known, and we have to get at this by both the way we turn outwardly in our federal reach, but also the way we partner. I think our Com-

munity Economic Development efforts have really led to strong partnerships with nonprofits, with other philanthropy efforts that has shifted how we come into communities. I think those are some of the take-aways.

Senator BROWN. Thank you.

Thank you, Madam Chair.

Senator ERNST. Thank you.

I know I have just a very brief follow-up question. I know the Ranking Member has one, as well.

I would like to follow up on Senator Tillis' point and really gauging those priority points, as you said, being competitive for grants and loans. But, I would also like to follow up on the back side. Once those loans and grants have been provided to those communities, to those participants, we want to know how those programs are faring, how those loans are doing. Are they being successful?

One of the new provisions that was passed in the 2014 Farm Bill was section 6209, program metrics. This provision requires that the Secretary of USDA collect data regarding economic activities created through these grants and loans and measure the short-and long-term viability of award recipients and those that are getting assistance through those funds.

So, I know we are still a few years away from having that fully implemented, but if you could, Under Secretary, if you would just please give us an update on how we are coming with those metrics and give us guidance in that area?

Ms. MENSAH. Well, thank you. You know, I started my career in banking and one of the things about being a lending agency is that some of the metrics are very clear to begin with. Is the loan still paying? Are people still deriving benefit from a lending tool? So, some of this, we are ahead of our other partners because we actually have quarterly and annual reports from all of our borrowers. So, this is something not new to us on loan performance.

What is new is to get deeper into jobs and into other economic impacts, some of this—the title of this hearing. We are working on that regulation, or will be moving that forward. I work for a Secretary of Agriculture who is a fan of measurement in every aspect, and he told me when I came in, if you cannot measure it, how do you know you are doing this? He has a great card system for doing that.

But, what I can say is that there is a seriousness to this portfolio, to all three of its aspects, its housing, its infrastructure, and its business. We have $38 billion a year, and we have authority. So, there is a seriousness to the metrics, the deeper metrics of short-and long-term impacts, which sometimes you have to ask additional questions, sometimes it is additional expense to find.

We are putting in place how we will do these measures—some of that is tracked and always has been, but I think you are going to see some other kinds of routine reports from us about this portfolio. I can say that I am very proud of the kind of core work. Some of it is quite obvious. Is the family still in the house? Is the business still producing income in a rural area?

So, for one thing, it will be wonderful to be able to talk about that. My favorite report is our progress report, where we go state by state and say what we have done and say a few reports of what

has been achieved, and I look forward to doing that more when we have a rollout of how we will be speaking about all of our programs.

Senator ERNST. Wonderful.

Ms. MENSAH. But, thank you for your interest in the longer-and shorter-term impacts.

Senator ERNST. Very good, and we look forward to having those metrics in place and really gauging where we are being successful and maybe where we can improve in those areas, as well.

Ranking Member Heitkamp.

Senator HEITKAMP. Just to reiterate, and in case you did not get it from the questioning, housing is absolutely critical. We have done all this wonderful work in creating primary sector jobs. Maybe there are 20 jobs in the community. We cannot fill them because people cannot find affordable housing where they live.

I want to reiterate Senator Tillis' problem, because it is a problem in North Dakota. Having a county having too broad of a measurement to determine qualification is critical, especially when you have such a diverse county as maybe a seaside county, where you have very wealthy participants and then the interior, where you do not. That happens all across rural America. We need to take a look at how we measure qualifications, because it is—the way we are doing it right now is not meeting the needs, in my opinion.

The other issue is when we talk about housing, we have HUD. We have weatherization. We have all these other programs. What are we doing to coordinate and collaborate so that when we, in fact, do what Senator Klobuchar has recommended we do, which is begin that process of rehabbing older homes in communities, that we know those resources are there to create an environment.

The third thing, when I talk to people, it is not so much building the home, it is the cost of development, whether it is sewer, whether it is city water and sewage, and building that infrastructure and look at regional infrastructure development is absolutely critical if we are going to meet the needs.

If you take nothing away from this, take back housing, housing, housing, because if you said, what is the largest critical need in my rural communities, I would tell you it is affordable and available housing. Thank you.

Senator ERNST. Thank you so much.

Thank you, Under Secretary Mensah, for your participation this morning and the great information that you have provided. You can tell, we have a number of members here that are very passionate about their rural communities and ensuring that they are successful. So, thank you. We do hope that we will continually improve the effectiveness of these programs. I think some of those concerns were shared with you this morning.

This will conclude the first portion of our hearing this morning. For our members, I would ask that any additional questions you may have for the record, if you could please submit those to the Committee Clerk five business days from today, or by 5:00 p.m. next Wednesday, April 13.

Thank you very much, Under Secretary.

We will now move to our second panel. Thank you.

[Pause.]

Senator ERNST. Okay. I think we will go ahead and start the second portion of our meeting this morning, and thank you to the members of the second panel who are joining us, and I have the pleasure of introducing two Iowans to testify before us today, and I will then turn to Ranking Member Heitkamp, who will introduce our third panelist, who hails from her home State of North Dakota.

First, Craig Hill.

Mr. Hill and his family farm near Milo, Iowa, which is not all that far from where I live. He is the President of the Iowa Farm Bureau Federation and has served in this role for over four years. So, thank you very much for stepping up to the plate there, Craig. He is a well respected leader in the community and he served as the first Chairman of the Iowa Ag State Group, which brings together representatives from all sectors of Iowa agriculture. Additionally, he serves on the American Farm Bureau Board and was recently appointed to the USDA's Agriculture Technical Advisory Committee on Trade.

Welcome, Craig. It is nice to see you again.

Monte Shaw, another Southwest Iowa farmer, is the Executive Director of the Iowa Renewable Fuels Association. Monte works tirelessly to promote our vibrant biodiesel and ethanol industry. Monte has also worked out here for the Renewable Fuels Association and for numerous candidates and elected officials, including Iowa's senior Senator, Chuck Grassley.

Craig and Monte, it is great to see you again, and thank you very much for taking time away from Iowa and joining us here in the Nation's Capital to testify on this important topic.

With that, I will turn it over to Senator Heitkamp for her introduction.

Senator HEITKAMP. It is my distinct honor to introduce you to an amazingly entrepreneurial North Dakotan that we have invited here to speak. Cris Somerville is co-founder, co-owner, and President of Dakota Turbines, located in Cooperstown, North Dakota. Cris has 25 years of experience working with and developing hydraulic, pneumatic, and mechanical systems. He is credited with six patents, two of which are for Dakota Turbines, and an additional two patent pendings also for Dakota Turbines.

He has extensive knowledge and experience in 3–D modeling and design software. Taking on difficult projects and providing innovative solutions is something that Cris takes great pride in. Cris is more likely to be found in the shop or playing on a wind turbine tower than in a board room. He is a hands-on manager that never asks an employee to do anything he would not do himself.

In addition to being co-owner of Dakota Turbines and its parent company, Posi Lock Puller, Cris started P.L. Manufacturing, a precision machining company. He is a North Dakota registered journeyman machinist and sits on the Griggs-Steele Empowerment Zone board as well as their loan committee.

Unfortunately, Cris' wife, Jodi, and three daughters, Morgan, Alicia, and Ellie, were not able to be here today with him, but I know they share great pride in your accomplishments, as I do, Cris. Thanks so much for coming and sharing your information.

Senator ERNST. Great. Thank you, gentlemen, very much for being with us today.

Mr. Hill, we will start with your testimony.

STATEMENT OF CRAIG HILL, PRESIDENT, IOWA FARM BUREAU FEDERATION, MILO, IOWA

Mr. HILL. Good morning. I am Craig Hill, President of the Iowa Farm Bureau Federation, representing 159,000 member families across the great State of Iowa. I do serve on the Board of Directors of the American Farm Bureau. I am a farmer from Milo, Iowa, raising corn, soybeans, and hogs with my wife and son.

I want to begin by thanking the Chairman of this committee, Senator Ernst, who also was raised on a farm herself and understands very well the issues and concerns of rural America. I would also like to thank the Ranking Member, Heidi Heitkamp. I want to thank you for allowing me the opportunity to share with you my testimony today, as well as all of the efforts that you make representing rural America.

Today, I will talk about the challenges and opportunities that Iowans and the people across America face in our rural communities.

In the farm economy, we are facing many challenges. With lower commodity prices, farmers will have to find new, innovative ways to remain profitable and continue farming in future years. While farmers deal with economic challenges that threaten our profitability, we are also dealing with a Federal Government that continues to pass rules and regulation that threatens our businesses, our productivity, and, most importantly, our way of life.

With new rules, such as Waters of the U.S. and a clean power plan, and the decreased RFS, there is a growing disconnect between those that write the rules in D.C., and those that depend on the strong, vibrant rural communities in America. As farmers undertake these challenges, we recognize the vast majority of farm families rely on off-farm income to diversify their risk and keep the family economically viable. That is why it is so important that we have vibrant rural economies to sustain those off-farm incomes and resources. Today, we must infuse new knowledge, new leadership, new entrepreneurship, new business development in our communities. Nothing is more important in those communities.

I was a member of a group called Making Agriculture Productive and Profitable a few years ago when a professor from the University of Missouri stated that farms are today more dependent upon rural communities than are rural communities dependent upon farms. While Farm Bureau has always recognized the importance of strong rural economies, this task force that I served on resulted in several ambitious endeavors by the Iowa Farm Bureau and the American Farm Bureau.

In an effort to promote and support rural development across the state, the Iowa Farm Bureau launched an effort with Iowa State University to encourage entrepreneurship in the classroom, investing in our young folks. Ag Econ 334 is a class that we sponsor with a $100,000 contribution each year, and that has evolved into bringing about 200 students to developing not only new ideas for business, but a business plan, and many of those concepts have been brought into commercialization and fruition.

We also help entrepreneurs with Renew Rural Iowa, and this is the second stage of our program, where we offer mentorship and coaching to these new young entrepreneurs, assisting them in applying for state and federal funding, as well, through USDA.

Along with that mentoring role of rural businesses, Iowa Farm Bureau helps also in the third level of investing, and we have invested many dollars over the course of years in these new start-up businesses. In fact, $32 million has been invested by Iowa Farm Bureau across 13 companies that have had an impact in rural Iowa. This has resulted in about $125 million of economic impact in our rural communities across Iowa.

In addition to that, we teach entrepreneurs how to utilize USDA programs. One of those companies was Harrisvaccines. Harrisvaccines leveraged Small Business Innovation Research funding and our equity investment dollars from the Iowa Farm Bureau to create a new synthetic vaccine platform, and this vaccine platform played a critical role in rapidly responding to both swine flu outbreak of 2008 and also played a role in the PEDv outbreak of 2013-2014, two devastating disease outbreaks in swine production.

Nationally, the American Farm Bureau has developed programs to further continue this business development. One of the innovative programs that American Farm Bureau administers is the Rural Entrepreneurship Challenge. If you are familiar with Shark Tank, the TV program, you will recognize this program, because the past two years American Farm Bureau has sponsored this, we had 128 applicants the first year that competed in this exercise, 165 companies that competed in the second year, and I will tell you with some pride that these companies that won both the first year and the second year, ScoutPro and AccuGrain, both came through these three tiers of effort through the Iowa Farm Bureau, all being Iowa companies that won this American Farm Bureau Award.

AFBF also has developed a survey of which we will evaluate programs administered by the USDA, and the goal of the survey is to pinpoint what is working and what can be improved in these programs. We will use this survey and the results of that to develop a series of recommendations for USDA to strengthen those programs and help make them more effective for farmers and ranchers. Those results will be available in May. They are not quite available yet, as some 2,000 farmers are being surveyed as we speak. We will tabulate those results and provide those to the committee as well as USDA.

It is important that we continue to support initiatives and improve rural communities through growing incomes, expanding employment, and increasing populations of rural Iowa and rural America. Through the efforts of organizations like the Farm Bureau and the USDA Rural Development, I hope that we can continue to improve the health and vitality of rural America. It is a collaborative effort, as you mentioned, Senator Heitkamp, a collaborative partnership that we share.

Thank you.

[The prepared statement of Mr. Hill can be found on page 41 in the appendix.]

Senator ERNST. Thank you very much, Mr. Hill.

At this time, I am going to turn the gavel over to Senator Tillis and excuse myself for a vote. I will return.

But, Mr. Shaw, if you would, please proceed with your testimony.

STATEMENT OF MONTE SHAW, EXECUTIVE DIRECTOR, IOWA RENEWABLE FUELS ASSOCIATION, JOHNSTON, IOWA

Mr. SHAW. Well, good morning to Chairman Ernst, Ranking Member Heitkamp, and other members of the subcommittee. My name is Monte Shaw, and I am the Executive Director of the Iowa Renewable Fuels Association.

I would just like to start by noting that it is our focus that renewable fuels have been and remain one of the best tools available to promote rural development.

Growing up on a farm in Iowa, I can tell you that despite years of talk about value added agriculture that stemmed out of the farm crisis of the 1980s, nothing really changed in our part of the country until the Renewable Fuel Standard kicked production into high gear in the 2000s. Then, the American farm economy went on an amazing eight-year run of prosperity. So, I think it can be fairly stated that no other effort to improve rural economies made the impact that renewable fuels did.

However, then in late 2013, the Obama Administration proposed RFS levels far below statutory levels. The rural economic fallout was both predictable and painful. The last two years have seen a dramatic downturn in the health of rural America. Corn prices have plummeted. Land values fell. Farm income plunged. Agribusinesses have laid off workers by the thousands, and that is just in Iowa.

Today, as farmers look toward the future, it is more often with angst than it is with optimism. However, if allowed, renewable fuels can once again play a quick and positive role on impacting rural economies.

Looking to the topic here today of the energy title, at least for me, in the Farm Bill, I surveyed our producers in Iowa and came up with some general observations.

First, there is strong support for the energy title from the renewable fuels family. Obviously, I have to overview these in the time allowed.

The second main point would be that the energy title does provide a massive return on investment. If you look at fiscal year 2015, I think we had a total budget in the energy title of $109 million. That leveraged billions in private investments and thousands of projects moved forward that were able to make a positive difference in rural communities.

However, the third point would be that the effectiveness of these programs is reduced by a lack of consistent and timely funding. Yes, there are some implementation issues we would like to iron out, but Congress needs to take responsibility for this. We need to recognize that we are well into the second year of a severe rural economic downturn and rural leaders here need to push appropriators to properly fund these programs and to stop using them as more or less a cash reserve when some other need in some other area of the budget comes up.

That's for today, then as you are looking forward to the next Farm Bill, the energy title programs should be a priority and funding levels should meet the needs and opportunities that are out there for rural America.

Now, just a few brief observations on specific programs. Early on, Iowa plants that sought to use the Biorefinery Assistance Program, section 9003, were stymied by a lack of funding. More recently, they have told me that the funding cycle has gotten better and we have seen projects move forward in Iowa. But looking forward, I can tell you that I heard back from several plants that are looking at this program for future innovations that if they move forward will require large capital expenditures. Therefore, finding ways to smooth out the funding and implementation of this program could have a meaningful impact on rural economic development.

The Bioenergy Program for Advanced Biofuels, section 9005, is vital to biodiesel producers, helping many withstand volatility in both the energy markets and, quite frankly, over the last few years, government policies. New cellulosic ethanol producers are also looking toward this program to help provide stability. I want to stress, it is not just about cash flow. It is about providing the private sector investors and lenders with confidence that there will be a return on their investment. If properly funded, this program will play an important role in helping advanced biofuels reach their full potential.

The Biomass Crop Assistance Program, section 9010, was designed to help farmers bridge the gap in establishing dedicated energy crops and to perfect harvest, transportation, and storage of biomass. However, Iowa's cellulosic producers tell me that it is simply not working. There needs to be sufficient funding to incent farmers to change the old ways of doing things. Just as important, it needs to be rolled out in a way that matches the biomass cycle. Instead of the middle of the year, the program needs to be rolled out by the end of a calendar year to ensure there is time to plan and contract with growers. But, despite these shortcomings, if properly implemented, BCAP will be—quite frankly, must be—a vital program in moving our nation toward advanced renewable fuels.

Finally, the REAP program, section 9007, is one of the most popular energy title programs. Biodiesel producers have used it with low-interest loans. Ethanol plants have used it to put in turbines to convert excess steam into electricity. But demand for REAP, even with some better funding there, has continued to outstrip the available funding levels.

I would also note that Iowans are very disappointed that in the last Farm Bill the Congress took REAP's ability away to incent renewable fuels infrastructure. Under the current Farm Bill, REAP is statutorily forbidden from funding blender pumps. Allowing consumers to make their own fueling decisions at the pump is vital if you want more competition and you want to boost production of advanced biofuels.

Finally, and I know I am running out of time here, so I would just note that as Senate ag leaders, you could also engage on some issues outside the Farm Bill. When REAP was shut down, the USDA now incents blender pumps through a Biofuels Infrastruc-

ture Partnership, or BIP, and that has been very successful. But, predictably, petroleum interests are already asking Congress to stop the BIP program. I do not know if we can go back and put renewable fuel infrastructure in the REAP program like it should be, but for goodness sakes, we can surely stop it from being taken out once again here. Let us not make that same mistake.

I would also be remiss if I did not stress today that the single most important policy impacting rural economies is the Renewable Fuel Standard. By leveraging access to the marketplace, the RFS boosts rural economies. There are myths about the blend wall, but if you look at actual sales where consumers have been allowed to have the choice of fuels, there is no problem reaching statutory levels. Retailers today with blender pumps are meeting the 2022 RFS levels in their sales, not just the levels that are set out today. There is no blend wall. There is only a lack of consumer access, and that is exactly what the RFS was put in place to do. We urge you to oppose any Congressional efforts to pull that back and urge the EPA to implement it as it is supposed to, as it was passed.

So, with that, I would like to thank the Senators for letting me be here today, for their dedication to rural America and their recognition of the role that renewable fuels plays, and I would be happy to answer any questions.

[The prepared statement of Mr. Shaw can be found on page 54 in the appendix.]

Senator TILLIS. [Presiding.] Mr. Somerville.

STATEMENT OF CRIS SOMERVILLE, PRESIDENT, DAKOTA TURBINES, COOPERSTOWN, NORTH DAKOTA

Mr. SOMERVILLE. Well, thank you, Chairman Ernst, Ranking Member Heitkamp, and subcommittee members, for inviting me here to testify before you today.

My name is Cris Somerville and I am co-owner of the small wind company Dakota Turbines from North Dakota. I am also a member of DWEA, the Distributed Wind Energy Association, which is our national trade group, with over 100 members, dedicated to promoting the distributed wind industry in America.

Today, I would like to share with you my perspective of the U.S. distributed wind energy industry and how it relies on our government's continued support through effective incentive programs like the USDA REAP program and the small wind ITC.

First, I would like to explain what distributed wind is. It is sometimes referred to as small wind because it is usually a single turbine under 100 kilowatts that serves an individual local site. However, distributed wind can also include larger turbines and community wind projects that are deployed behind the meter. But, large wind farms are not included. Electricity produced by distributed systems is consumed locally, offsetting power purchased from the utility, which results in reduced electric bills. The typical customer is rural, because a proper wind turbine installation requires adequate land space and tall towers for unobstructed access to the wind.

Distributed wind has all of the typical renewable energy benefits, including environmental, electric price stability, energy independ-

ence, and national security. But, what I really want to focus here today is one very special benefit, which is made in the U.S.A.

The U.S. small wind industry is comprised of 90 percent American-made machinery. American small businesses like Dakota Turbines are employing thousands of skilled workers, and we have a network of over 3,000 suppliers nationwide. Our projects require local construction labor and O&M support, concrete, wiring, trucking, trenching, backhoes, and cranes; all combined typically represent 50 percent of the cost of the system. So, our industry truly is American small businesses, which are often rurally located, doing work with other American small businesses. When a U.S. small wind project receives an incentive, those taxpayer dollars are staying in this country, benefiting our small businesses and our citizens.

Just in the U.S., there are literally tens of millions of suitable sites for distributed wind systems. They represent the potential of 1,400 gigawatts of installed capacity. This industry simply has enormous potential to be a very significant factor in our domestic energy mix, and DWEA's vision for our industry is to reach 30 gigawatts of domestic capacity by 2030. This can give rise to 150,000 new and skilled American jobs.

Republicans and Democrats alike, in fact, 90 percent of the U.S. population want renewable energy to become a bigger part of our country's energy mix. The technology is ready and the people are ready, and I would say the planet is ready. All that is needed right now is a commitment to longer-term smart policies so that our industry is allowed to grow and reach parity with more mature technologies.

In terms of federal policy that we support, first and foremost is the energy title of the Farm Bill. In particular, we are big proponents of REAP, but we see a little bit of room for improvement. This is a very well run program. It has been very successful, funding energy efficiency and renewable energy projects all across the U.S. in every single state. In fact, most of my customers of Dakota Turbines have been awarded REAP grants.

I would also like to briefly mention federal tax policy, even though that is not the purview of this committee. Dakota Turbines and DWEA are urging Congress to extend the small wind ITC for businesses and residents in sections 48(c) and 25(d). Though extended for solar, the ITC for small wind and other clean technologies expires this year. If all renewable technologies are not treated fairly, then Congress is picking winners and losers and putting valuable growing American small companies, like Dakota Turbines, and American jobs at risk.

In closing, the U.S. distributed wind industry is all about supporting small businesses and American jobs. Its customers are rural and ag related. Supported by strong policies, such as the REAP program and the small wind ITC, it is a shining example of positive economic development in rural America. I cannot think of a more responsible use of taxpayer dollars, and I strongly urge continued federal support.

So, thank you again for having me here today and I am happy to answer any questions.

[The prepared statement of Mr. Somerville can be found on page 35 in the appendix.]

Senator ERNST. [Presiding.] Thank you very much, gentlemen, this morning for your testimony.

We will go ahead and start with proposed questions. The Ranking Member will join us shortly, after she votes.

First, to all of our witnesses on the panel, I again want to thank you for making this trip to Washington, DC. This is a very important topic for all of us and we appreciate the time that you are taking away from home. We do appreciate all that you do back home, as well, not only for our farmers, but also to support our rural economy. So, thank you for that.

Thank you, Mr. Somerville, for your work in North Dakota and for joining us.

Both the rural development and energy titles of the Farm Bill are extremely important to my state, as they are to many others, and as we continue to exercise oversight of the USDA, we also need to begin discussions about what the next Farm Bill will look like, and I would like to hear your perspective on what programs under USDA Rural Development are the most effective, but I think more importantly, as well, what improvements need to be made to ensure we are being responsible stewards of our taxpayers' money.

So, again, focusing on what programs are really effective, where do we see the most good, and then, secondly, are there programs that need to be improved, combined, or otherwise. That question goes to all the members of the panel, and Mr. Hill, if we could start with you.

Mr. HILL. Well, currently, I think, the business and industry loan guarantees that we use in Iowa, rural energy and energy efficiency programs are important. The Rural Business Development Grants, Intermediary Relending Programs, and Small Business Innovation Research are just a few of the examples of what is important.

But, you mentioned stewardship, and water in Iowa is a very critical issue. We have municipalities that are dealing with wastewater, sewer water, water treatment. This is a very big issue for our communities and we are going to have to focus on that in the next Farm Bill title, as well. That interlocks with, I think, the conservation title, as well.

We have 11 field offices in Iowa, and they are doing a great job. The officials involved there are doing good work and we would not want to lose the personnel that provide that technical assistance and that help there.

Simplifying the application process might be something that we need to work on. It is one of those things that we need some improvement upon.

Senator ERNST. Thank you very much.

Mr. Shaw.

Mr. SHAW. Yes. There are a number of ideas out there. A couple that I might mention, in the 9003 program, I have been told by some of our producers that have applied—I do not claim to be an expert, I rely on their experiences that I pass along here—that some of the times, you actually have to get into full production before the funding or the grant or whatever will be released, and that causes you during construction and commissioning to probably go

out and have to seek what can be some very, very costly bridge financing, and in some cases that flat out stops the program.

So, I know we have to be careful and not throw money out there that then nothing ever comes of it, but at the same time, if there is some way to maybe achieve some benchmarks to where you get some funding prior to full operational production so that you do not have to seek out and perhaps be stymied by a lack of bridge financing could be something in that program to look at, according to my members.

With the REAP program, it had some problems that I think the last Farm Bill addressed, and so that is a case where you can be proud that we did not just throw our hands up. We actually tried to improve a program. I had a guy tell me he had 18 inches of paperwork for it originally and then got a $5 million loan guarantee instead of the 20 he was expecting, and the Senate and the Congress worked with USDA to change the rules so that it is different applications for different sizes of things.

I think now the main issue with REAP is just that there is more demand for REAP programs than there is funding, even though it has been one of the areas of the Farm Bill energy title that has received support more closely to its mandatory funding levels than some programs.

The final one I would say is really take a look at BCAP. BCAP needs to be the next REAP. BCAP is simply not working. The funding levels are not there to incent the farmers to make the changes. Even when we do roll some programs out, I am told that they are rolling them out at an annual time frame in the middle of the summer when it is impossible then to do the work. So, when you have two of the leading commercialized cellulosic plants in the nation in Iowa, one does not use the program and one got into it and is trying to get out of it because it is not working. I think that is pretty bad.

But, do not give up. I want to be very clear.

[Laughter.]

Mr. SHAW. The message here is not to take that problem and say, well, fine, we are just going to kill the program. This is a vital link to that next step of advanced biofuels, but I think we need to fix it.

Senator ERNST. That is the feedback that we are looking for, as well. Are there programs that can go away because there is no longer a use for them, but are there programs that exist where there is potential, but maybe needs to be restructured so that we are seeing taxpayer dollars going to good use. So, thank you for those.

Mr. Somerville.

Mr. SOMERVILLE. Thank you, Chairman. As far as the small wind industry, the REAP program is really absolutely vital. We would like to see continued support for that program well beyond 2019, increased funding, if available. A small complaint that we believe is being addressed is in the scoring process of REAP, how distributed wind applications are competing against more mature technologies within the REAP applications. But, again, I believe that issue is currently being taken care of, so we are big fans of REAP. We love REAP, and go REAP.

[Laughter.]

Senator ERNST. Very good. Good plug. Thank you very much.

Craig, beyond my role today examining programs that are in existence through USDA Rural Development, I came to the Senate committed to cutting pork and working through unnecessary and burdensome regulations, finding where we can get rid of those imposed upon our farmers and in our rural economies. If you could, talk about any of those types of regulations, rules that exist out there that are hampering industry in our rural areas. What are those regulations and why do you see them as being an impediment to developing the rural areas?

Mr. HILL. I think, speaking for farmers in general, we have an understanding of the rules of the game. Conservation compliance, a component of the Farm Bill through crop insurance and other mechanisms to provide ourselves with—or avail ourselves of any of the programs from USDA, we want to be compliant. We understand those rules.

But, when EPA, an agency of government, creates the uncertainty that they have with Waters of the U.S., it has been something that has just stymied and crippled our farmers. They do not understand the rules and they ask for help. What is a definition of Waters of the U.S., and what features on their land would be permittable or not, what is jurisdictional or not, are unanswered. There is not an office in Iowa that can answer those because it is the Army Corps of Engineers that would produce that answer——

Senator ERNST. Right.

Mr. HILL. —and there is no office in Iowa.

So, to implement and execute upon those new rules, new definitions that have never been created before by EPA that do not stand up to court decisions and defy, actually, what Congress has set out in the Clean Water Act, is just a very, very difficult thing for agriculture to accept.

Senator ERNST. The way I understand that, the expanded definition of Waters of the U.S. would include what percent of Iowa, Mr. Hill?

Mr. HILL. Most experts would declare 97 percent of Iowa to be jurisdictional under the new rule, tributaries being the definition that was created that expands that authority across nearly all of Iowa.

Senator ERNST. Yes.

Mr. HILL. I would make a statement that it is very disingenuous when it is said by agencies of government that, for example, ditches are exempt. There is no definition for a ditch. There are only definitions for tributaries, which is a bed bank high water mark, wet or dry, intermittent or perennial, manmade, man-altered, or natural, which that includes everything that conveys water. But, yet, it is said that, oh, no, agriculture is exempt. Ditches are exempt. There is no definition for a ditch, only a tributary.

Senator ERNST. Right.

Mr. HILL. Those kind of things are troubling, and I would ask the committee to consider what actually Congress has established in the Clean Water Act rather than this agency.

Senator ERNST. Very good.

Mr. Shaw or Mr. Somerville, any thoughts on regulations that might be hampering industry in the rural areas?

Mr. SHAW. Well, and I will not belabor this, because you are well aware of it, but the proper implementation of the Renewable Fuel Standard would be one area that would have a big boost, and I think we have seen that with the data I submitted in my prepared remarks.

But, also, there is S. 1239, which is a bill to equalize the summertime vapor pressures of E10 and E15. We need to move to use more advanced biofuels and even more traditional biofuels. We need to get to higher blends of ethanol and the largest impediment to that, despite a lot of roadblocks thrown up by some of the oil companies, the largest impediment to that is this, what I think was truly an unintentional regulatory difference between how we handle E10 and E15, which just ties retailers' hands and they cannot sell the fuel. If we could simply make that common sense correction, I think you would see the move to higher blends come pretty rapid. If E15 became the new normal like E10 is now, that would be seven billion gallons of additional biofuels. That would spur an awful lot of rural economic development.

Senator ERNST. Very good. So, not just the rules and regulations, but making sure they are being implemented correctly.

Mr. SHAW. Absolutely.

Senator ERNST. Mr. Somerville.

Mr. SOMERVILLE. Yes, just one quick point. With regards to REAP, within REAP is the NEPA rules. We have a little bit of a struggle with how NEPA is being interpreted within REAP with regards to it being applied fairly to all distributed energies. For example, solar has a categorical exclusion, but distributed wind systems do not. So, that issue, I believe, is also being taken care of, so thank you.

Senator ERNST. That is good. I appreciate it so much.

Senator Hoeven.

Senator HOEVEN. Thank you, Madam Chairman. Thanks for holding this hearing. I appreciate it very much, on rural development.

I would like to thank all of our witnesses for being here and for the work that you are doing. In particular, I would like to thank Mr. Somerville. Welcome. How are things in Cooperstown?

Mr. SOMERVILLE. They are very good. Thank you, Senator.

Senator HOEVEN. Good. With your company, tell me how your company is doing.

Mr. SOMERVILLE. The company is doing well. Dakota Turbines has a dozen employees. We have a bright future. We need a little bit of help with federal policies, but we are pretty excited to be, hopefully, a major player in our small wind industry.

Senator HOEVEN. How long ago did you start the company, and what led you to do it?

Mr. SOMERVILLE. Well, how far back do you want me to go, Senator?

[Laughter.]

Senator HOEVEN. Well, I have four minutes and 46 seconds.

Mr. SOMERVILLE. Okay. I will use it all.

[Laughter.]

Mr. SOMERVILLE. Well, you know my father, Dean Somerville.

Senator HOEVEN. Very well.

Mr. SOMERVILLE. He started our Posi Lock company over 40 years ago with his invention of the Posi Lock gear and bearing puller. Together with my mother, they grew Posi Lock slowly over many years. As my two sisters and I grew up, we were involved with the company. When we were done with our schooling, we found our own place within the family company and we all have kind of branched out into other new, exciting areas of interest.

My sister, Stacy, started Dynamics Marketing, which employs 150 North Dakota residents in three locations in North Dakota. What they do is they are a high-tech teleservices company that focuses primarily on market research.

My sister, Tamara, is focusing on the Posi Lock sales and marketing efforts, and in particular, international marketing. She has grown the Posi Lock sales unbelievably, and more importantly, the export markets now make up almost 30 percent of our total sales volume. Interestingly, most of that product is going into China. So, she is doing some wonderful things with the Posi Lock company. In fact, she is going to be here in two weeks to accept an award from the Manufacturing Institute as being one of the top 100 women in business.

Senator HOEVEN. Fantastic.

Mr. SOMERVILLE. What I have done with the company is I started the precision machining operations for Posi Lock. We make our own precision components for our own products. We also do job shop work for other area companies. That was started in large part with the help of a zero percent USDA loan. So, I can honestly say, without that loan, the precision machining operations would not have gotten the start and would not have eventually created Dakota Turbines. So, I really appreciate that program, as well.

Dakota Turbines was started ten years ago out of my love for renewable energy, and because we had developed engineering and manufacturing capabilities, we thought that we could contribute to our small wind industry here in America. It has been a long, difficult road. Developing a wind turbine is the equivalent of creating an automobile that will drive 150,000 miles per year for 20 years with almost zero maintenance over its life. So, it is a very, very expensive and long duration development project, but we are ten years in. We have been marketing our products for several years and we have a small fleet of 40 wind turbines throughout the Upper Midwest. Like I said, our future looks bright.

Senator HOEVEN. What is the key to getting the utility companies to work with you on the distributed wind piece?

Mr. SOMERVILLE. Well, that is a loaded question.

[Laughter.]

Mr. SOMERVILLE. Well, in a state like North Dakota, we run into problems where the fossil fuel industry pretty much has a grip on our state. It is hard to make inroads with utilities. It is hard to make inroads with legislature when we are such a fossil fuel known state, to be honest with you, Senator.

Senator HOEVEN. Well, what economic model would work for them as well as for individuals that want to have the windmills and provide the energy?

Mr. SOMERVILLE. Great question. I would love to see the utilities invest in more renewable energy, specifically distributed wind energy. We believe that distributed wind has a great benefit to the utility. Distributed wind, because it is spread out over a vast area, it strengthens outlying weak grid systems that we common have in areas in rural North Dakota.

The utilities can benefit from renewable energy by charging a retail rate now for that energy rather than the large wind farms where that energy is valued at a wholesale rate. So, we think the utilities have great promise to be able to harness distributed wind energy, in particular.

Senator HOEVEN. Right. This is a big step for you, right, because, I mean, right now, you can provide energy on the farm or to a home or business, wherever. But, kind of the next step for you would be that distributed energy piece, right, and so you need an economic model that works both for the individual and for the utility company, right? I mean, that is kind of the key we have to figure out, is it not, to really take that next big step?

Mr. SOMERVILLE. Yes. You are absolutely correct, Senator. Our industry is currently developing leasing models that will mimic the solar leases that have brought the solar industry their big boom in recent years. These small wind leases will allow individuals to get into the equipment with a very small or, frankly, no capital investment and take full advantage of a renewable energy system day one without the huge burden of the capital expenditures.

Senator HOEVEN. Thanks for your entrepreneurship. It is a great story and we want to see more of that, not just in North Dakota, but across the country. Thanks so much.

Mr. SOMERVILLE. Thank you, Senator, and thank you for your support.

Senator ERNST. Senator Heitkamp.

Senator HEITKAMP. Thanks, Madam Chairman.

Cris, just an update on your testimony. You talked about the work that we did at the end that provided wind tax credits, production tax credits, and ITCs for solar. We are now working on an amendment that would correct and include those who were left behind in that effort. So, from your ears to our work, or from your mouth to our work, we are, in fact, working on an amendment that would accomplish including small wind ITCs in our FAA reauthorization, so we will keep you posted on that.

I want to just switch from wind, because, obviously, I believe that a lot of your market could be the international market. I have been all across the world and have seen firsthand the need for a product that you develop, that can be managed locally, that may not, in fact, ever need to attach to a grid, but can provide that opportunity for electricity in areas that do not have electricity.

One of the challenges we have is so much of our public policy has really been large command control, with huge distribution systems that may not be, in fact, the system that is needed in a village in Africa. It may, in fact, be something very similar to what you are producing. So, we are very excited and very grateful that you are also looking at producing a product that is low maintenance, because I think one of the things we get afraid of is if you put it there, can, in fact, the people who live there manage the project.

I'm really looking forward to seeing your business grow. I look forward to seeing your efforts populate not only the rural landscape in North Dakota, but also across the world. We think that is a real growth model.

Now, with that said, you are also on the Empowerment Zone committees. You also work very closely with rural development in general, not just in your project. We are looking for some advice here on how we can fashion the programs that we have that could be more responsive to not just you, but all of the efforts that are going on in that region, that Empowerment Zone. I am wondering if you have any advice for us relative to priorities for rural development?

Mr. SOMERVILLE. Well, thank you for the question, Senator. I think I am going to have to get back to you on that.

Senator HEITKAMP. Okay. I mean, it would——

Mr. SOMERVILLE. That is a wonderful question. I am just—I am at a loss right now.

Senator HEITKAMP. Just to give you an example, I was all over Northeastern North Dakota. I did a panel and a roundtable in Walhalla, I was in Cavalier, I was in Grafton, all places that have some great primary sector development. I mean, we have Marvin Windows, we have biofuels; we have a lot of projects out there.

Their problem that they have right now is they cannot find workforce, and so, let us say, Cris, that you were able to land a couple of big contracts and needed to triple your workforce. Do you think you could find folks immediately that could be ready to work and develop your business with you?

Mr. SOMERVILLE. No. That is a terrible problem in our area of North Dakota. We have one of the lowest unemployment rates in the country. It is very difficult to find workers, particularly that have a technical skill. Housing is a big issue in our area. Education is another issue. I think that we could do more to promote our trade schools. Not everybody has to become a doctor and lawyer. It is okay to be a precision machinist. Go get a two-year degree and come work for us in Cooperstown, North Dakota.

Senator HEITKAMP. Yes. We——

Mr. SOMERVILLE. We have good jobs in these small towns.

Senator HEITKAMP. We had a long discussion in these meetings about how you educate people who are even in grade school and then growing up in high school about what these opportunities are and what the skill sets are that people need, and I think we are failing miserably because we created a presumption that without a four-year degree, you will be an economic failure, which is absolutely not true.

We are going to work really hard on that piece of it, but I am very concerned about this idea of quality of life. By that, I mean many of our young folks think you have to live in, in our case, in Fargo or Grand Forks or Bismarck or Minot in order to enjoy quality of life, and we need to do a better job selling the Cooperstowns and the Walhallas, and there are some great recreational opportunities. You are not that far from a ball game if you want to go watch a ball game.

But, it all is part of that continuum of development of kind of infrastructure and rural places that I think can help your business

grow right there in Cooperstown. We have great successes all across North Dakota in small communities. I am concerned that as we promote those small businesses and as we talk about what we do and your patent work and all the things that you are creating, we want you to thrive, but we want you to thrive in Cooperstown because we think that is a model that is going to grow rural communities. In order to make that happen, we need to make sure there is affordable housing, that there are amenities, like you can run to the grocery store and get a gallon of milk. That may sound like a small thing, but those of us who are in rural North Dakota worry about that. Whether, in fact, you have to drive 15 miles to get a gallon of milk is a huge impediment to developing our rural communities.

I want to congratulate Mr. Hill and Mr. Shaw, as well. We will continue to fight for the RFS. We will continue to challenge the assumptions about the blend wall. Know that one of the things we do not say enough on biofuels is we do not talk enough about how it is the building block for other advanced manufacturing. You know, I used to say, let us move beyond food, fiber, and fuels and I got schooled very quickly from the biofuels industry that a lot of the beginning process that you would use in advanced manufacturing in agriculture really starts at the work that you have done.

We are not unmindful in North Dakota. In fact, I think we are challenged more by Waters of the United States, given that we are the fly zone for the prairie pothole region, given that there are very, very few sections of land in North Dakota without some kind of water on them, and that has created a huge disruption.

But, we are serious in this committee and I am serious about rural development and making sure that we extend economic opportunity not just to agriculture and agriculture-based industries, but that we look at how we can expand and utilize those rural communities and the rural infrastructure that we have.

So, congratulations. We are all in this fight together, and thank you, Chairman, for calling this hearing.

Senator ERNST. Thank you. I appreciate it very much.

I just want to follow up briefly with one point, Monte, that you had made, with second generation biofuels. There are some challenges that the second generation biofuels have faced, and if you could give an example of other energy programs that were supported by the government until they became more mature and they could compete on their own. If you would just follow up, that would be helpful.

Thank you.

Mr. SHAW. Well, the first one that jumps to mind is outside of renewable energy. I mean, clearly, we have a hundred years of tax credits targeted at petroleum. In the Senate, I think it is now two years ago—I would have to look it up and get you the exact site—but there was a hearing about the intangible drilling cost expensing provisions that petroleum companies get. They had a CEO of a very large fracking company in and he talked about how this was very important because it allowed us to try and fail for 20 years to make fracking a reality. But because of this very lucrative tax provision, they were able to recoup a lot of those costs and try again.

I could not help but sit there and think, and people were applauding and this was great and America's success story. But, I could not help but think that if you replaced intangible drilling cost expensing and fracking with the biodiesel tax credit and biodiesel, many of the people around that particular Senate—it was not the Agriculture Committee—many of the people around that committee table would have been saying, oh, that is horrible. That is picking winners and losers. The government should not get involved.

I do think—you mentioned the FFA—FAA bill. Excuse me. I am from farm country, so FFA comes out often.

[Laughter.]

Mr. SHAW. But, in the FAA bill, there might be a chance to also extend out the advanced biofuels tax credits. Biodiesel and cellulosic ethanol are still very young, very immature, and they have—they are showing promise and they are growing and they are becoming more efficient, but we are not there yet. Particularly when we are competing against commodities that continue to receive government support, that are profitable and have gotten it for literally now, I think, 103 years. I think it goes back to 1913. So, that would be an example of something where, let us do the same thing there.

Biochemicals, section 9003, I think there is some ability there to help streamline some stuff to make sure that stand-alone biochemical facilities can apply for that program. In Iowa, at the state level, we just passed a biochemical tax credit bill. Anything we make out of a hydrocarbon, we can make from a carbohydrate. Fuels are just the tip of the iceberg. Whether it is at that renewable fuel plant or across the fence or even a stand-alone facility, we are very excited about those opportunities.

Senator ERNST. Well, great. I thank you for that. I think we have some exciting technology.

I know we do have to wrap up our hearing, but I do want to thank all of our witnesses here today and the Under Secretary for appearing earlier. The testimonies provided today are valuable to us and to all of us as we move through any rules, regulations, and, of course, any legislation that is put forward here.

So, thank you, Senator Heitkamp. Truly, what an advocate you are for rural development. We appreciate it so much.

A lot of real challenges have been identified today and we hope that we are able to follow up on those, as well as continuing to focus on those programs that are truly working for rural America and for the betterment of our United States in general.

So, again, I want to thank you very much for appearing in front of us today and thank you for your time and your attention to these types of matters, and we hope to work with you continually in the future, as well.

So, with that, we will go ahead and close the hearing. Thank you for attending today.

[Whereupon, at 11:45 a.m., the subcommittee was adjourned.]

A P P E N D I X

APRIL 6, 2016

Thank you Madam Chairman.

I want to thank the witnesses for their time today and look forward to hearing more about USDA Rural Development and its work in our rural areas.

The North Carolina Chamber of Commerce recently started a project to look at the obstacles our state will face in 2030. It is estimated that by this time, the population will grow from roughly 10 million to 12 million people, making North Carolina the seventh most populous states in the nation.

Like many other states, North Carolina's economic prosperity is not evenly felt across the counties and we have areas of significant economic stagnation or decline—unfortunately more common in rural communities. I see USDA Rural Development as a tool that North Carolina must use as we shape our economic strategy for the future.

The North Carolina Office of State Budget and Management forecasts that nearly a third of our counties will experience population loss over the next 15 years and of those losses, nearly half will be working-age individuals. This greatly concerns me and it is imperative to states like North Carolina that USDA Rural Development continue to promote economic development in our rural areas and remain focused on solutions that will assist realistic economic drivers in our rural communities.

111 9th St. SE, Unit 1
Cooperstown, ND 58425
Ph. 701-797-3830
www.dakotaturbines.com

TESTIMONY OF

CRIS SOMERVILLE

PRESIDENT of
DAKOTA TURBINES

and

MEMBER of
DWEA (Distributed Wind Energy Association)

BEFORE

US SENATE
COMMITTEE ON AGRICULTURE, NUTRITION AND FORESTRY
SUBCOMMITTEE ON RURAL DEVELOPMENT AND ENERGY

REGARDING

USDA RURAL DEVELOPMENT PROGRAMS AND THEIR ECONOMIC IMPACT ACROSS AMERICA

April 6, 2016

111 9th St. SE, Unit 1
Cooperstown, ND 58425
Ph. 701-797-3830
www.dakotaturbines.com

Thank you, Chairman Ernst, Ranking Member Heitkamp, and Subcommittee Members for inviting my testimony. My name is Cris Somerville and I am co-owner of the small-wind turbine company Dakota Turbines, from North Dakota. I am also a member of DWEA, the Distributed Wind Energy Association (please find the enclosed information about DWEA). DWEA is our industry's premier national trade group with over 100 members, dedicated to promoting and advancing the distributed wind industry in America. I'd like to share with you my perspective of the US distributed wind industry and how it relies on our government's continued support through effective incentive programs like the USDA Rural Energy for America Program, known as 'REAP', and the small wind Investment Tax Credit, or 'ITC'.

Distributed Wind in America

First of all, what is 'Distributed Wind'? It is sometimes referred to as 'Small Wind', because it is typically a single wind turbine under 100 kW that serves an individual local site. However, distributed wind can also include larger turbines and 'Community Wind' projects deployed 'behind the meter', but does not include large wind farms. Electricity produced by these distributed systems is consumed locally, offsetting power purchased from the utility resulting in reduced electric bills. The typical customer is rural because a proper wind turbine installation requires adequate land space and tall towers for unobstructed access to the wind.

Distributed Wind has all of the typical renewable energy benefits including: environmental, electric price stability, energy independence, and national security. But I really want to focus on one very special benefit that is not shared by most other clean-tech industries: MADE IN

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Cooperstown, ND 58425
Ph. 701-797-3830
www.dakotaturbines.com

THE USA. The US small wind industry is comprised of 90% American-made machinery. American small businesses like Dakota Turbines are employing thousands of skilled workers, producing the world's most robust and efficient small wind turbines. We purchase materials and services from over 3,000 suppliers nationwide. Our projects require local construction labor and O&M support, concrete, wiring, trucking, trenching, backhoes and cranes: all combined, typically representing 50% of the cost of the system. So our industry truly is American small businesses, often based in rural America, doing work with other American small businesses. When an American distributed wind project receives an incentive, those tax-payer dollars are staying in this country benefitting our small businesses and our customers. And then there is the export potential: typically 30 - 50% of America's annual production of small wind systems is exported. How many American industries can say that?

Just in the US there are literally tens-of-millions of suitable sites for distributed wind systems. They represent the potential of 1,400 GW of installed capacity. This industry has enormous potential to be a very significant factor in our domestic energy mix. DWEA's vision for our industry is to reach 30 GW of US distributed wind capacity by 2030. This can give rise to 150,000 new and skilled American jobs. Many other benefits are focused on rural America, providing more energy choices and cost controls to ever-rising energy prices. Republicans and Democrats alike, in fact 90% of the US population, want renewable energy to be a larger part of our country's energy mix. The technology is ready, the people are ready and the planet is ready. We are currently on-track to reducing our LCOE (Levelized Cost of Energy) and we have greatly improved equipment performance and reliability. All that is needed right now is a

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Ph. 701-797-3830
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commitment to longer-term smart policies so that our industry is allowed to grow and reach parity with more mature technologies.

Federal Policy

In terms of federal policy that Dakota Turbines and DWEA fully support, first and foremost from an Agriculture Committee perspective would be the energy title of the farm bill. In particular we are big proponents of REAP. Though we see room for improvement, this well-run program has been very successful funding energy efficiency and renewable energy projects in every State. In fact most of Dakota Turbines' customers have been awarded REAP grants to incent their projects. That being said DWEA has two issues with REAP for distributed wind. One is the scoring process that has significantly limited distributed wind applications and grants. The other is NEPA related. Fortunately we believe that USDA is correcting both of these problems this year.

I'd like to also briefly mention federal tax policy even though this is not the purview of this Committee. Dakota Turbines and DWEA are urging the Congress to extend the small wind ITC for businesses and residences, sections 48c and 25d. Though extended for solar, the ITC for small wind and other clean technologies is expiring this year. If renewable energy technologies are not treated fairly, then Congress is picking winners and losers and putting valuable, growing American small and rural companies and American jobs at risk. Ultimately we'd like to see a "distributed wind ITC" that incorporates community scale projects, and legislation has been introduced to that affect. In the meantime, given the urgent need to extend the small wind ITC credits, we'd be excited to see these extensions passed at the earliest possible opportunity.

111 9th St. SE, Unit 1
Cooperstown, ND 58425
Ph. 701-797-3830
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And I'd be remiss if I didn't mention how important DOE funding and support is to us as well. DOE and USDA have worked hand in hand on many Farm bill energy title programs over the years, including REAP and the Biomass R&D Act. DWEA would very much like to see further collaboration and simply put more mission critical funding out of DOE for this nascent technology for important research, development and deployment initiatives.

Dakota Turbines

Dakota Turbines belongs to a trio of small, woman-owned companies in rural ND owned and operated by my Somerville family in Cooperstown, ND. Wanting to be involved in our country's renewable energy revolution, we started the Dakota Turbines project in 2006. We produce the DT-30, a 30 KW, utility-interactive, single-phase small wind system that is designed and manufactured in Cooperstown. We manufacture our own blades, alternators and power electronics with our small but dedicated staff of 12 employees. We have received two patents and have two additional patents pending. Most of Dakota Turbines' customers are farmers and ranchers in the upper mid-west. We have identified a particular market niche in hog confinement operations, since the average hog barn electricity usage is on-par with our turbine's average production. We currently have a fleet of 40 machines and have plans for dramatic growth within the next few years.

I have to add that Cooperstown, ND is located within one of the ten USDA-Designated 'Empowerment Zones' within the US. Please find the enclosed paper regarding our Empowerment Zone. The Griggs-Steele EZ is responsible for the industrial building that

111 9th St. SE, Unit 1
Cooperstown, ND 58425
Ph. 701-797-3830
www.dakotaturbines.com

Dakota Turbines calls 'home'. As a volunteer member of the EZ's revolving-loan committee and business leader in the zone, I want to emphasize my appreciation for the Empowerment Zone program and thank you in advance for its continued support. And Dakota Turbines literally would not be in existence if it were not for a USDA zero-interest loan that our mother company, Posi Lock Puller, received almost 20 years ago. It was this loan that funded the growth of our precision-machining department. This in-turn gave rise to the manufacturing and engineering capabilities that would one day produce Dakota Turbines.

In closing, the US distributed wind industry is all about supporting small businesses and American jobs. Its customers are rural and ag-related. Coupled with strong policies such as the REAP program and the small wind ITC, it is a shining example of positive economic development in rural America. I can't think of a more responsible use of taxpayer dollars and I strongly urge continued Federal support.

Thank you, again, for the opportunity to present this testimony. I welcome any questions you may have.

Enclosure: Rural Empowerment Zone Program in Griggs and Steele Counties of North Dakota
Enclosure: DWEA Distributed Wind Vision - 2015-2030

Testimony of

Craig Hill, President

Iowa Farm Bureau Federation

Milo, Iowa

"USDA Rural Development Programs and their Economic Impact Across America."

United States Senate

Committee on Agriculture, Nutrition, and Forestry, Subcommittee on Rural Development and Energy

April 6, 2016

Washington, DC

Craig Hill, President
Iowa Farm Bureau Federation
Milo, Iowa

Good morning. I'm Craig Hill, President of the Iowa Farm Bureau Federation representing 159,000 member families from across the great state of Iowa. Additionally, I serve on the Board of Directors of the American Farm Bureau Federation. I'm a farmer from Milo, Iowa where I raise corn, soybeans, and hogs with my wife and son. Let me begin by thanking the Chair of this subcommittee, Iowa Senator Joni Ernst. Senator Ernst herself was raised on a farm in rural Iowa and understands the challenges we face in rural America. I would also like to thank Ranking Member Heidi Heitkamp, and Members of the Subcommittee for allowing me the opportunity to share my testimony with you today.

Today I will talk about the challenges and the opportunities that Iowans and people across America face in rural communities. In the farm economy we are facing many challenges. With lower commodity prices farmers will have to find new and innovative ways to remain profitable and continue farming in future years. While farmers deal with the economic challenges that threaten our profitability, we are also dealing with a federal government that continues to pass rules and regulations that threaten our businesses, our productivity, and most importantly our way of life. With new rules such as the Waters of the U.S., the Clean Power Plan, and the decreased RFS, there is a growing disconnect between those who write the rules in DC and those who depend on strong rural economies. As farmers undertake these challenges we recognize the vast majority of farm families rely on off farm income to diversify risk and keep the family economically viable. That is why it is so important that we have vibrant rural economies to sustain those off-farm income sources.

Years ago I was part of a long-term task force Farm Bureau put together called 'Making American Agriculture Productive and Profitable.' During a meeting of this committee we were informed by Dr. Tom Johnson of the University of Missouri that 'farms are more dependent on rural communities than rural communities are dependent on farmers.' While Farm Bureau has always recognized the importance of strong rural economies, this task force resulted in Farm Bureau creating a rural development action plan to promote and improve rural development.

In an effort to promote and support rural development across the state, Iowa Farm Bureau developed a partnership with Iowa State University's Agricultural Entrepreneurship Initiative. Iowa Farm Bureau invested $100,000 annually for the last four years to support the initiative and assist more than 200 students each year develop rural and agriculture related businesses. Iowa Farm Bureau created the Renew Rural Iowa program to mentor these rural business startups. This program provides education with peer learning, an experienced staff to provide mentorship, and expert assistance for businesses applying for state and federal funding.

Along with our role as a mentor for rural business startups, Iowa Farm Bureau also helps entrepreneurs secure the necessary capital to grow their businesses. The Renew Rural Iowa start up competitions have provided new platforms to show case entrepreneurs to potential capital sources and provide prize money to the winner. This investment by the Iowa Farm Bureau has

grown over the years to a total of $32 million invested across 13 companies making an impact in rural Iowa. We reached a major milestone in 2015, with Iowa Farm Bureau's investments totaling $125 million of economic impact in rural communities.

In addition, the Renew Rural Iowa program teaches the entrepreneurs how to utilize USDA Rural Development programs. The Business and Industry Loan Guarantees, Rural Energy and Energy Efficiency Programs, Rural Business Development Grants, Intermediary Relending Program, and Small Business Innovation Research funding are just a few examples that our participants learn about through the Renew Rural Iowa program.

One shining example of this is Harrisvaccines, Inc. based in Ames, Iowa. This business leveraged Small Business Innovation Research funding and our equity investment dollars to eventually commercialize their next generation synthetic vaccine platform. This vaccine platform played a critical role in rapidly responding to both the "Swine Flu" outbreak in 2008 and the Porcine Epidemic Diarrhea Virus (PEDv) outbreak of 2013-2014, two devastating disease outbreaks in swine production.

While USDA has been a great partner for our rural businesses there are some concerns about how these programs are administered. The length of time for application approval is a hindrance to business development and harms the viability of the programs. Additionally, the complexity of the application creates an unnecessary and prohibitive barrier for those hoping to utilize these programs. These are a few examples of how the process could be streamlined and improved so programs are more frequently utilized to promote business development in rural communities.

Nationally, the American Farm Bureau Federation has also developed programs to promote rural business development. One of the innovative programs AFBF administers is the Rural Entrepreneurship Challenge. If you are familiar with the 'Shark Tank' program on television, then you will quickly recognize the rules of this competition. The Farm Bureau Entrepreneurship Challenge is a business competition for entrepreneurs with agriculture and food business ideas being cultivated in rural regions of the United States.

Over the past two years, I'm proud to say that Iowa entrepreneurs have won this national competition. Competing against 165 applications from 33 states, the 2016 Farm Bureau Entrepreneur of the Year winner was a startup called AccuGrain. Led by Iowa Farm Bureau members Ryan Augustine, Steven Brockshus, and Rob Taylor from Rose Hill, this team developed patented x-ray technology to accurately measure flowing grain in real time. The 2015 winner was ScoutPro, Inc. led by Michael Koenig and Stuart McCulloh from Lone Tree. They developed a mobile phone app used by farmers to identify weeds and pests while walking their fields. This program fulfills Farm Bureau's mission to enhance and strengthen the lives of rural Americans and to build strong, prosperous agricultural communities.

AFBF also recognizes the importance of rural development programs offered by the USDA. In an effort to determine how well USDA programs are working for U.S. farmers and ranchers,

Craig Hill, President
Iowa Farm Bureau Federation
Milo, Iowa

AFBF developed a survey to analyze and evaluate these programs. The goal of this survey is to pinpoint what's working and what can be improved in these programs. We will use the survey results to develop a series of recommendations on how USDA can strengthen its programs to make them more effective for farmers and ranchers. AFBF estimates that the final survey results and recommendations should be completed by the end of April 2016, and AFBF plans to share the results with USDA in May 2016 through a series of fact sheets and briefings. Additionally, I will ensure that these fact sheets are delivered to the members of this subcommittee.

In conclusion, I would like to again thank this subcommittee for holding a hearing on this important topic. As urban consolidation continues across the country it is important that we continue to support initiatives that improve rural communities through growing incomes, expanding employment, and increasing populations. Through the efforts of organizations like the Farm Bureau and USDA Rural Development, I hope that we can continue to improve the health and vitality of rural America.

Thank you.

Lisa Mensah
Under Secretary for Rural Development
Before the Senate Committee on Agriculture, Nutrition, and Forestry
Subcommittee on Rural Development and Energy
April 6, 2016

Chairman Ernst, Ranking Member Heitkamp and members of the subcommittee, thank you for the opportunity to be here to discuss how the Department of Agriculture's Rural Development (RD) Programs contribute to economic growth in America.

Rural Development's fundamental mission is to increase economic opportunity and improve the quality of life for all rural citizens. There are 46 million people living in rural America who provide the food, fiber, fuel, and durable goods the rest of the nation, and the world, depend upon. Consequently, the economic well-being of all Americans is indelibly tied to rural growth. Rural Development investments nurture that growth to fuel the national economy.

Each day I am determined to fully utilize the enormous potential and opportunity Rural Development funds provide to that economic growth. My prior experience at Citibank, the Ford Foundation, and the Aspen Institute taught me how to analyze the strength of a commercial venture and how to invest in public/private partnerships to reach people in need. These lessons guide my current approach to dedicate our primary focus on our core programs. Our efforts to support rural utilities infrastructure, expand business opportunities, and create prosperous, sustainable communities are all directed to building an improved quality of life and a brighter future for rural Americans.

I know that in rural America, there is a vital need for development capital and for strong federal, state, local, and private sector partnerships. Together capital and the right partnerships can drive opportunities for economic success and growth in rural America's communities. Today's agriculture producers and rural business owners are entrepreneurs and innovators of new cutting edge products. Our dedicated field staff in nearly 400 offices live in the areas they serve closely collaborating with those communities to engage directly with local lenders and

partners to solve problems and explore options for sustainable economic development. Our work is designed to maximize taxpayer dollars, leverage private sector financing or provide a guarantee to private banks.

During my time at Rural Development we have focused on our core mission and use all our resources wisely in the hard to reach areas with the most need. I am grateful to Congress for giving us the ability to conduct this important work strengthening rural America. Your work through the 2014 Farm Bill renewed our authority to strengthen our efforts on our core programs for rural America. Through the energy titles in particular, this legislation expands our ability to spur growth and cultivate new innovations that rural America is at the forefront of, in the renewable and alternative energy sector. I want to thank the Members of the Subcommittee for your continued commitment to the well-being of rural America and for your support of Rural Development investments in towns and communities across the country.

The Rural Utilities Service (RUS) has an 80-year history of funding basic infrastructure, providing the critical financial support for electric infrastructure, clean, safe water and wastewater services, and finally, bridge the digital divide with broadband service to help healthy rural communities grow and prosper. Since FY 2009, Rural Development has invested a total of $13.3 billion in new or improved infrastructure in rural areas through over 10,600 water projects. These improvements helped nearly 18 million rural residents gain access to clean drinking water and better waste-water disposal. As a subset of that, Rural Development staff provided grants and loans for water and waste-water projects that specifically helped to safeguard the health of approximately 15.7 million rural residents.

For example, Rural Development provided $500,000 to the community of Rock Rapids, Iowa for an emergency community water assistance grant. The Rock Rapids Municipal Utilities (RRMU) has seen a steady decline in the reliability of its water source and recent droughts have led to declining groundwater levels. The RD funds will assist in the completion of a six mile proposed pipeline project that will connect the Rock Rapids Municipal water treatment plant to the Lyon and Sioux Rural Water Systems elevated tank.

During 2015, RUS provided over 5.5 million rural consumers with improved electric service and funded over 180,000 miles of electric lines. Last year, I traveled to North Dakota in announcing the Central Power Cooperative would receive a nearly $47 million Electric Guaranteed Loan to build or improve additional miles of line and make other system improvements. The loan also included $171,000 for smart grid projects.

Since 2009, Rural Development has awarded $6.7 billion for nearly 550 projects to improve telecommunications infrastructure in rural communities — including broadband delivery, distance learning and telemedicine systems, and expansion of rural 911 systems — which expands access to state-of-the-art health care, educational and cultural resources, and provides the opportunity for local businesses to compete in the global economy.

In Minnesota's "Iron Range" region USDA RD provided $43.5 million through the Recovery Act to the Northeast Service Cooperative (NESC) for a high-speed, multi-use broadband network. The Iron Range is a geographically and economically diverse eight county territory covering almost 24,000 square miles. Even though building the network was challenging, strong partnerships helped make it happen. National and local contractors installed the fiber optics, creating hundreds of season construction jobs for local residents. Local utilities contracted to expand last-mile connectivity for their members. Today, middle-mile connections are providing broadband access to about 320 critical services sites, including Minnesota Tribal Nations, colleges and universities, K-12 schools systems, healthcare facilities, community libraries, and other public local, county, and State facilities.

Overcoming geographic and demographic challenges to offer access to robust broadband service is difficult and among the reasons that less than 40 percent of those living in rural communities have high speed internet service. In September 2015 the White House released a report submitted by USDA and the Department of Commerce on ways to continue to bring broadband to unserved areas. Work continues on those next steps of getting robust broadband service available to all who live in rural areas. I'm proud that as part of those efforts, many RD programs can be an important resource in this effort.

Efforts such as the Community Connect grant program provide broadband grants to better target last-mile funds to rural communities that are least likely to have broadband infrastructure needed for economic development. Rural Development also invests in Distance Learning and Telemedicine Programs (DLT) to provide innovative breakthroughs and increased medical care access for rural citizens.

The Rural Energy for America Program (REAP) has significantly contributed to doubling the number of farms using renewable energy production in the last five years. Since 2009, the Rural Business-Cooperative Service (RBS) renewable energy programs have made 11,649 awards to provide over $720 million in funding to agricultural producers and rural small businesses to strengthen rural economies. REAP is bringing down energy costs for rural small businesses and agriculture producers and making them more competitive in the global marketplace.

In 2015, RBS awarded a nearly $16,000 REAP grant to the Reinhart family who operate small-town grocery stores in three Iowa towns. The grant will help pay for the upgrades to include 31 doors of refrigerator and frozen food and beverages. The new coolers are well insulated and use high-efficiency LED lighting and cooling fans.

RBS continues to bring investments and jobs to rural areas that improve lives of rural Americans. Since 2009, RBS has helped over 112,000 rural businesses start or expand operations with nearly $11 billion in investments and an estimated 450,000 jobs created or saved.

The Rural Economic Development Loan and Grant Program has made over 600 awards totaling over $365 million assisting nearly 1,100 businesses and helping create or save an estimated 31,000 jobs since 2009. In FY 2015, RBS made under this program 38 loans, totaling $38.6 million, and 33 grants, totaling approximately $9.2 million. One example is a $2 million loan to East Mississippi Electric Power Association to provide a loan to Winston Plywood & Veneer, LLC to purchase machinery and equipment needed for an $85 million plywood and veneer manufacturing facility to be located in Winston County, Mississippi, a consistent poverty/StrikeForce county. The project is expected to create 300 new jobs.

Today, we are using lessons learned from our lengthy experience in rural America to help communities capitalize on emerging opportunities in the 21st Century economy. Consider our work in the rapidly expanding the area of local and regional food systems. In FY 2015, RBS provided $88 million to assist over 1,400 producers and businesses for local and regional food systems. Last year, I visited a food hub serving thousands of customers throughout Appalachian Ohio and West Virginia. At the Chesterhill Produce Auction, hundreds of growers use the auction to sell locally-grown produce at wholesale to other businesses in the region including pop-up markets in rural areas with limited fresh food access. These local and regional food systems are vital links for farmers to increase their revenues by allowing them to access bigger markets for their crops.

A special point of pride for Rural Development is our housing programs. The Rural Housing Service and Community Facilities (RHS and CF) make critical loans and grants to support rural residents and the communities in which they live. Congress has defined for us a tremendous set of housing and community development programs to ensure that rural families have access to safe, affordable homes and thriving communities.

Since 2009, Rural Development has helped more than 1.1 million rural families buy, refinance and maintain homes with $137.5 billion in RHS investments. During FY 2015, our Rural Development housing programs provided $19.5 billion to help more than 141,300 families with modest incomes buy, finance, or repair their homes. These programs mean that low and moderate income borrowers are now on the journey to homeownership, which will help build wealth and security for rural families. We offer one of the best home mortgages in the United States and boast a low default rate. Additionally, we left no dollar unused in our 502 direct mortgage program and we plan to do this again in 2016. We understand how vital this core program is to rural America.

Another significant part of our housing program provides rental assistance to low-income people who live in USDA-financed multi-family housing. During FY 2015, RHS helped 10,840 families by building and renovating about 450 multi-family housing rural apartment complexes through $277.2 million in funding. We have worked hard to address recent

challenges of providing sustainable rental assistance to those who rely on this program, and I am optimistic that these efforts and the FY 2017 investment build a stronger program to better serve rural residents.

RHS continues to make tremendous gains to its systems and processes. As of this spring, our guaranteed Single Family Housing loan program is now paperless. Not only are we saving 37,500 reams of paper every year, we've lowered postage costs, saved printer ink, and are moving loan guarantees out the door more efficiently, making our programs easier for our customers to use.

USDA Rural Development, through its expanded Community Facilities programs, has taken a leadership role in facilitating and strengthening public private partnerships to ensure that rural residents have the opportunity for a brighter future with good schools, quality health care and other critical community infrastructure needs. Since 2009, this program has improved the quality of life for rural residents by investing $9.6 billion in more than 9,000 community infrastructure projects.

Last summer, I traveled to Richardton, North Dakota to see the construction of the future Richardton Health Center, a new nursing home and clinic. This facility will have 19,000 square feet dedicated to a 24-bed skilled nursing home and an additional 3,000 square feet for use as a clinic with three exam rooms and one procedure room. A $5.5 million community facilities loan is supporting the estimated $6.2 million project cost. This facility replaces an existing nursing home and clinic that was inadequate for the changing needs of the community and provides a cost saving and convenient way to provide care to the nursing home residents.

Under Secretary Vilsack's leadership, there has been a push to transform rural America from a primarily agri-based economy to one that makes, creates and innovates. A focus on taking advantage of the emerging bio-economy, including bio-manufacturing and advanced biofuels, local and regional food systems, broadband, and telemedicine has not only supported the most productive agricultural sector in the world, but also assisted rural communities to be places where all businesses have prospered and created jobs. I am committed to continue this

work of providing increased opportunities to allow everyone to share in the prosperity of the growing economy.

Rural Development plays a key role in USDA's place-based efforts making sure that the programs that help alleviate the impact of poverty are available and accessible even in the poorest and persistently poor rural communities. Over the course of the last several years, we have been proactive in identifying and assisting areas of greatest need in rural America. I visited Mississippi on the first trip I made in this position. During my visit, I participated in Partners Roundtable that included individuals from the Delta Regional Authority, Planning and Development Districts, Local Elected Officials, State Universities, Hospital Associations, Rural Water Associations and Credit Foundations to coordinate and collaborate on our efforts to leverage Rural Development funding. What was true in Mississippi, and is thankfully true throughout rural America, is that Rural Development and its grounded staff are a key source of key funding and partnerships.

Earlier this year, the StrikeForce Initiative added four additional states to include a total of 970 counties, parishes, boroughs, and census areas in 25 states and Puerto Rico. We know that place-based efforts work and we have seen StrikeForce bring economic opportunity directly to rural Americans where they live and help rural communities leverage their assets. In 2015, in StrikeForce target areas, USDA partnered with more than 1,000 organizations to support 56,600 investments that directed more than $7.5 billion to create jobs, build homes, feed kids, assist farmers and conserve natural resources in some of the nation's most economically challenged areas. Since the initiative was launched in 2010, USDA has invested more than $23 billion in high-poverty areas, providing a pathway to success and expanding the middle class.

Across the country poverty rates are in decline. Yet tragically, still, in 2014, roughly 2.5 million children in rural areas were poor and approximately 1.2 million children lived in rural families with cash incomes below half of the poverty line. Rural and tribal communities face distinct challenges to combating rural poverty, including limited access to critical services, fewer job prospects, and in some places, relative lack of institutional capacity. The budget

requests $20 million in grants to rural communities to implement two-generation strategies that seek to intentionally align high-quality workforce development programs with high-quality child-focused programs. In addition, the budget requests $5 million to support data systems alignment across several USDA and HHS programs to gain efficiencies and maximize impact of existing programs.

Throughout my travels to rural communities, it is clear that addressing the challenge of outmigration and giving our next generation of rural Americans opportunities to stay and use their skills to earn a living in their communities was extremely important to local community leaders, family members and businesses. I know this can be done.

All that Rural Development does is possible because of the people who do this work. Every day, 5,000 Rural Development professionals work to help rural business, provide affordable rural housing, and maintain and upgrade infrastructure investments. Because Congress has supported our field based delivery structure, Rural Development has staff in every state to make and service the loans and grants that help our rural communities become stronger and more vibrant.

Over the course of my career, I have had the opportunity to work with great people. Since becoming Undersecretary, I have visited many projects to see how rural America benefits from our investments. I have also met many of our dedicated field staff who engage directly with local lenders and community partners to solve problems and explore options for economic development. I could not be more impressed with the men and women of USDA Rural Development. They are smart, dedicated and resourceful. Fewer personnel have done more work. Our field based staff works, lives and raises their families in the communities they serve. They deserve our praise and support for the work they do.

RD works to modernize rural America; we connect citizens to broadband; we build a cleaner future through renewable power and energy efficiency; we reduce child poverty by investing in businesses; we help manage the growing healthcare needs of an aging population; we build rural places where young people want to stay, start families, build businesses and create futures.

I will focus on increasing investments in our people to continue to provide quality service in both our national office and in the field, where staff are part of our rural communities. There is a need for new employees to fill mission-critical skill shortages, particularly important since Rural Development's loan portfolio has grown to more than $212 billion.

Congress has provided significant resources to make a real impact in rural places. Yet the opportunities and the challenges of rural America make it clear to all of us that taxpayer dollars will continue to deliver stronger economies in rural communities. There is something extraordinary about rural America's ability to survive and thrive. It is a place where values count and where stewardship is a meaningful obligation.

Thank you for your continued interest and support of Rural Development programs. Together, we can coordinate and leverage our resources to invest in our country's future and turn Rural Development's transactional work into transformational work.

I appreciate the opportunity to testify before you today. At this time, I am happy to answer your questions. Thank you.

Agriculture, Nutrition, and Forestry Committee
Subcommittee on Rural Development and Energy
United States Senate

Hearing on
USDA Rural Development Programs and their Economic Impact Across America

Testimony of

Monte Shaw
Executive Director, Iowa Renewable Fuels Association

April 6, 2016

Good morning, Chairman Ernst, Ranking Member Heitkamp, and Members of the Subcommittee. My name is Monte Shaw and I am Executive Director of the Iowa Renewable Fuels Association (IRFA), a stand-alone, state-level trade association representing Iowa's biodiesel and ethanol producers. I appreciate being asked to testify this morning and I hope to show that renewable fuels have been – and remain – one of the best tools available to promote rural development. Further, I intend to show that several USDA programs have been useful tools in leveraging advances in renewable fuels, but that more could be accomplished if some straight-forward changes are made.

With 43 ethanol biorefineries capable of producing more than 4 billion gallons annually, 12 biodiesel production facilities capable of producing 315 million gallons annually, and three cellulosic ethanol plants with a combined annual production capacity of nearly 55 million gallons, Iowa is the nation's premier renewable fuel producer. Iowa is also the largest producer of both corn and soybeans in the U.S.

According to a recent IRFA-sponsored study, the renewable fuels industry has the following impacts on Iowa's economy:

- Accounts for more than $4.6 billion, or about 3.5%, of Iowa GDP;
- Generates $2.3 billion of income for Iowa households; and
- Supports more than 43,000 jobs through the entire Iowa economy.[1]

Though these economic numbers were down a bit from previous years due to reductions in the Renewable Fuels Standard and federal policy uncertainty, renewable fuels continue to be a

[1] http://iowarfa.org/wp-content/uploads/2016/03/EconImpactFactSheet.160304.pdf

strong economic driver for the state. Therefore, Iowa has a great deal at stake when it comes to USDA rural development programs and IRFA is uniquely suited to comment on their impact.

The Multifaceted Benefits of Renewable Fuels

My role here today is to discuss the economic impacts of renewable fuels on rural America. However, it is worth taking a moment to review the multifaceted benefits of renewable fuels far beyond economics and rural America.

Renewable fuels help lower consumer fuel prices. By expanding overall fuel supplies and replacing higher priced blendstocks, renewable fuels put downward pressure on the prices that consumers pay at the pump.

According to recent Energy Information Administration data, U.S. ethanol production hovers just under one million barrels per day and is on pace to well exceed 15 billion gallons for 2016.[2] This represents more than 10 percent of U.S. gasoline demand. Some in the petroleum industry try to downplay this impact, but could you imagine if – heaven forbid – a weather or geopolitical event knocked offline 10 percent of America's gasoline production? The impact on fuel prices would be swift and brutal. Some have even tried to suggest that ethanol is no longer needed because gasoline demand hasn't grown according to the forecasts made 10 years ago. Certainly the "Great Recession" had an impact on gasoline demand, but as the economy regains its footing, gasoline demand has increased rapidly. In fact, none other than the American Petroleum Institute reported that in February of this year "gasoline demand rose to a new all time [sic] record for the month as drivers took advantage of the low prices."[3]

Numerous academic studies over the last several years have detailed the impact of renewable fuels on fuel prices. Keeping to my Iowa roots, I'll reference a study done in 2012 by economists from Iowa State University and the University of Wisconsin for the Center for Agriculture and Rural Development (CARD). The study found that ethanol reduced wholesale gasoline prices by $0.29 per gallon on average over multiple years and can save motorists over $1 per gallon during times of high crude oil prices.[4]

However the most important, and least understood, aspect of ethanol's cost-savings stems from the fact that ethanol (with the exception of E85 blends) is used as an octane enhancer.[5] Using ethanol instead relying solely on petroleum-based octane sources reduces costs – even if ethanol prices were above base gasoline prices. Researchers from the Department of Agriculture and Consumer Economics at the University of Illinois noted on February 3rd that "ethanol appears to

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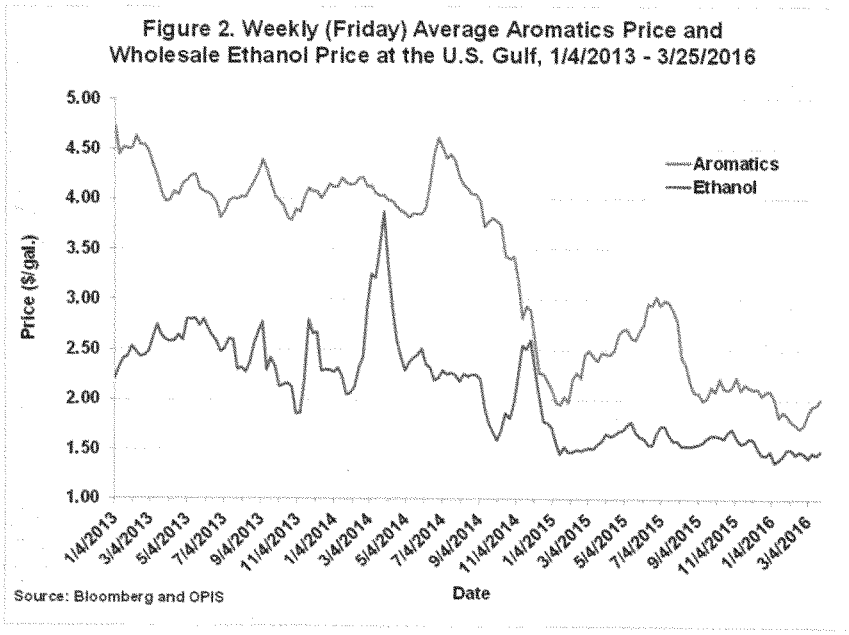
[2] https://www.eia.gov/dnav/pet/pet_pnp_wprode_s1_w.htm
[3] http://www.energyglobal.com/downstream/refining/18032016/API-reports-record-gasoline-demand-rise-in-petroleum-demand-for-February-2796/
[4] http://www.card.iastate.edu/publications/dbs/pdffiles/12wp528.pdf
[5] http://www.eesi.org/papers/view/fact-sheet-a-brief-history-of-octane

have retained its position as the low cost octane enhancer even as ethanol prices have increased relative to gasoline prices."[6]

Since that Feb. 3rd report, crude oil prices have rebounded from around $33 per barrel to around $40 per barrel.[7] To help with my testimony today, the University of Illinois researchers graciously updated their aromatics vs. ethanol price chart to reflect the available data as of this writing. As expected, ethanol's economic advantage as an octane enhancer rebounded along with higher crude prices, now at roughly 50 cents per gallon.

With permission, I have reproduced the FarmDoc Daily aromatics vs. ethanol price chart below.



The researchers correctly note that there are some scenarios where this relationship may not remain – in the case of a short corn crop, for instance. But it should also be noted that crude oil price spikes, and the resulting price impacts on petroleum based octane components, have occurred with much greater frequency than meaningfully short corn harvests. Further, one must

[6] Irwin, S. and D. Good. "The Competitive Position of Ethanol as an Octane Enhancer." *farmdoc daily* (6):22, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, February 3, 2016.

[7] http://www.bloomberg.com/quote/CL1:COM. One-year price series.

consider that the petroleum industry does not simply have 15 billion gallons of aromatics laying around in storage. If, and I stress if, ethanol prices ever eclipsed aromatic prices by a meaningful margin for a timeframe sufficient to encourage substitution, there would be a sharp upward pressure on the price of aromatics that could likely maintain the attractiveness of ethanol.

The petroleum industry has spent considerable money to fund convoluted studies questioning the simple fact that renewable fuels lower fuel prices. They twist logic into a pretzel in an attempt to "explain" that expanding the fuel supply with lower-cost alternatives actually increases fuel costs. Even though this "logic" stretches the credulity of most motorists, it has found a cheering section in the anti-renewable fuel Members of Congress. Therefore, to cut through all the academic jargon on both sides, I will borrow the official slogan of the state to Iowa's south, "Show Me."

The photo below was taken on March 18, 2016, at the Kum & Go convenience store located at 5225 NW 86th Street in Johnston, Iowa. For those not familiar with Iowa, Super Unleaded is how most Iowa fuel retailers describe 87-octane, E10 (10 percent ethanol blend). In other words, Super Unleaded in Iowa is the "standard" fuel purchased by most consumers nationwide. It typically costs 30 to 40 cents per gallon less than the non-ethanol 87-octane fuel available at many Iowa fuel retailers. (In Iowa, the non-ethanol blend is labeled simply "Unleaded.")

Source: IRFA staff photo, March 18, 2016

However, as you can see in this photo, Kum & Go has made additional ethanol blend options available to its customers. E15 (15 percent ethanol blend) is available for vehicle model years 2001 and newer. Consumers choosing E15 – just 5 percent more ethanol than normal – save an additional 10 cents per gallon compared to E10. E85 (85 percent ethanol blend) is available for those driving flexible fuel vehicles. Those consumers can save a whopping 45 cents per gallon.

Clearly, adding ethanol to petroleum fuel lowers its cost – even at a time of relatively cheap crude oil.

Renewable fuels reduce harmful emissions. It is helpful to think of renewable fuels as a form of solar energy. Energy from the sun is utilized to produce corn, soybeans, biomass and other renewable fuel feedstocks. From an environmental standpoint, this is essentially "free energy" because the sun was going to shine whether we produced renewable fuels or not. Obviously, there are energy and other inputs into producing, transporting, and processing feedstocks into finished renewable fuels. Yet, even when these are factored in, renewable fuels are strikingly positive for the environment.

Biodiesel is an important lubricity agent in low-sulfur diesel. Further it reduces emissions of particulate matter (PM), carbon monoxide (CO), and hydrocarbons (HC).[8] Finally, according to the latest study, biodiesel has the largest positive fossil energy balance of any commercial fuel. For every unit of fossil energy used to create biodiesel from soybean oil (full life cycle), biodiesel yields 5.5 units of energy.[9]

Ethanol reduces tailpipe emissions of fine particulate matter (PM), carbon monoxide (CO), and toxics.[10] As mentioned in the previous section, if ethanol were not blended with gasoline to increase octane, aromatics and other petroleum components would be used. Nearly all of these components, such as benzene, toluene and xylene, are highly toxic and known human carcinogens (in addition to being more costly).

Improvement in both corn and ethanol production have led to an ever increasing positive fossil energy balance for ethanol. According to the latest research from USDA, for every one fossil energy unit used to produce corn ethanol (full life cycle), ethanol returns 2.3 units of energy.

The positive fossil energy balance of biodiesel and ethanol are at the heart of why everyone, from the EPA in its Renewable Fuel Standard (RFS) program to the State of California in its Low Carbon Fuels Standard (LCFS) program, has certified that renewable fuels lower greenhouse gas (GHG) emissions compared to petroleum fuels. Further, the footprint of renewables is improving every year while the footprint of petroleum is getting worse.

Renewable fuels boost U.S. energy security.

Much has been made of recent gains in U.S. production of unconventional crude oil. When done appropriately, this development is certainly an American success story that has profound impacts on the economy and U.S. national security. However, despite heated messaging from the petroleum industry, this development does not erase the fact that crude oil prices are driven by a foreign cartel, which includes many countries unfriendly to the U.S. And while U.S. imports of foreign oil have gone down, they have NOT ended. In fact, net petroleum imports accounted for 24% of petroleum consumed by the U.S. in 2015.[11] If you back out U.S. exports of crude oil, the import number jumps considerably higher. In fact, the most significant area of reduced dependence on foreign fuel sources is found in the reduction of finished gasoline imports. In

[8] http://www.afdc.energy.gov/vehicles/diesels_emissions.html
[9] http://www.usda.gov/oce/reports/energy/EnergyLifeCycleSoybeanBiodieselI6-11.pdf
[10] http://www.ethanolrfa.org/wp-content/uploads/2015/09/nec_whitten.pdf
[11] http://www.eia.gov/tools/faqs/faq.cfm?id=32&t=6

2005, the U.S. imported nearly 220 million barrels of finished gasoline. Last year, that number dropped to around 25 million barrels – or roughly 11% of the 2005 high.[12]

During that time, ethanol use expanded dramatically under the Renewable Fuel Standard (RFS). Therefore it would be a mistake to overlook the impact of renewable fuels on energy security even in the aftermath of the advances in shale oil production. Ethanol supplies important octane to the fuel supply not easily replaced by domestic oil. And while renewable fuels production continues to grow, every barrel of oil consumed –whether conventional or shale or tar sands – is one less barrel of oil that exists. We cannot escape the fact that fossil fuels are finite.

The Impact of Renewable Fuels on the Rural Economy

Returning to the topic at hand, a review of the last 35 years clearly demonstrates that the development and growth of renewable fuels has been one of the major driving forces in the rural economy, and a case can be made that renewable fuels are the most important force in the rural economy. This statement in no way diminishes the importance of livestock, exports, or manufacturing to rural economies. Further, I am very excited about the possibilities for renewable products beyond fuels. But in my lifetime, nothing has had the impact of renewable fuels on the rural economy.

Forests could be felled printing out all of the USDA statistics and economic reports to back up my point, but I am neither an economist nor a researcher. I am, however, a farm boy from southwest Iowa – I grew up not too far from the Chairman – whose consciousness of the wider world began just as the boom times of the late 1970s turned into what would become known as the Farm Crisis of the 1980s. I remember the farm auctions, the curses directed at local bankers, the plywood going up on main street store windows, and yes, even the suicides resulting from foreclosures of family farms.

Farm bills were enacted, value-added agriculture became the new buzz word, and towns fought for any chance to diversify their local economy with a small manufacturing plant. The crisis bottomed out and things stabilized. Through it all, farmers did what they always do – they fed the world.

As time passed, the rest of the country began to rave about the new "information economy" and marveled at internet start-ups of the 1990s. I remember the 1990s in small town Iowa differently. In most respects, the economic boom of the 1990s bypassed rural America. The rural economy really didn't get better. About the best you can say is that the rural economy wasn't getting worse like it did in the 1980s. However, while we didn't know it at the time, seeds of change for rural America that had been planted during the oil embargoes of the 1970s were at long last beginning to germinate. As an Iowan, it pains me to admit that this germination was occurring primarily in Minnesota. With the help of innovative state policies, Minnesota farmers and investors were in the process of proving that smaller scale, dry mill ethanol plants could function and make economic sense.

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[12] https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MGFIMUS1&f=A

As we entered a new millennium, a new factor entered the picture. The same petroleum industry that had brought us leaded gasoline to improve octane, chose MTBE as its clean air additive-of-choice in the 1990s. After only a few years of MTBE use, states were discovering that when underground tanks leaked, MTBE was contaminating groundwater. What made MTBE "special," however, was that it made water smell and taste horrible with only the slightest contamination – only a few parts per billion. While scientists and petroleum lobbyists argued over the science of whether MTBE was a human carcinogen, millions of Americans were faced with a simple fact: they could not stand to drink or bathe with the water pouring from their faucets, given its disgusting smell and taste.

Large states like California and New York were taking action to ban MTBE. (For full disclosure, it was at this time that I first began working on behalf of the ethanol industry.) Corn growers and ethanol proponents kicked into high gear to demonstrate that ethanol could cost-effectively replace MTBE on the coasts. Supplying those markets led to the first sizable burst of ethanol plant building. And while the impact on communities where those plants were located was phenomenal, it did not yet reach the national stage. With lawsuits mounting, the petroleum industry desperately wanted to end the oxygenate requirement from the 1990 amendments to the Clean Air Act. The ethanol industry did not want to give up on a policy that promised to drive growth and environmental improvements. Thus "The Great RFS Compromise" was born.[13]

The oxygenate requirement was eliminated (although petroleum interests also sought liability protection from MTBE lawsuits, which was not included in the final bill) and the original Renewable Fuel Standard was created to take its place.[14]

Passage of the RFS in 2005 provided a level of certainty for growth in the ethanol industry that had never been seen before. Investors and farmers reacted quickly. At one point there were more gallons of ethanol capacity under construction than were in operation. It was during this time that the ethanol industry's impact on the rural economy, not just select communities, began to emerge and be felt. Simply put, the growing ethanol industry kept pace with growing corn yields and production.

For the first time since the 1970s, rural America entered a sustained period where farmers made planting decisions based on the market, not a Farm Bill program. To try to explain this, I created the chart below to gain a high-level look at corn production cost vs. price trends according to USDA data. What the chart shows is striking. From 1981 through 2005 (the year the original RFS was enacted), the national average cost to produce a bushel of corn was ***higher*** than the national average price a farmer received for that bushel of corn in 22 of the 25 years. In other words, for 25 years the average corn grower was in the red and relied on the Farm Bill to make them whole. The result was depressed farm income, high costs borne by taxpayers for Farm Bill programs, and rural economic doldrums.

The expansion of the ethanol industry changed all that, and did so rapidly. With the implementation of the RFS, the American farm economy went on an amazing eight-year run of prosperity – what some observers have called the best eight contiguous years in the history of

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[13] http://ethanolproducer.com/issues/browse/47

[14] https://www.congress.gov/bill/109th-congress/house-bill/6

American agriculture. From 2006 to 2014, the average price of a bushel of corn was higher than the average cost to produce it. The growing demand for ethanol had finally provided the sponge necessary to soak up excess supplies of corn. As a result, we saw a strong rural economy help power many states through "The Great Recession," while farm income and production across the globe set new highs.

I think it can be fairly stated that no other effort or endeavor to improve farm income and rural economies coming out of the Farm Crisis made the impact that renewable fuels did. It went beyond an isolated boost to a single community or region. Renewable fuels transformed the entire rural economy for the better.

Then, in late 2013, the Obama Administration shocked the industry by proposing RFS levels far below statutory levels. The breaks on ethanol production and rural prosperity had been hit, and hit hard. 2014 witnessed a return to corn prices below the cost of production (on average) and the economic fallout was predictable, immediate and painful.

[Note: Historic corn price vs. production chart appears on following page.]

National Corn Statistics:
Average Cost of Production vs. Average Price Per Bushel

Year[1]	Cost per Acre[2]	Yield[3]	Production Cost per Bushel (calculated)	Average Price per Bushel[3]	Below Cost Differential (calculated)	
2015	$676.66	168.4	$4.02	$3.65	($0.37) *	
2014	$689.80	171.0	$4.03	$3.70	($0.33)	RFS Paused
2013	$676.45	158.1	$4.28	$4.46	$0.18	
2012	$653.57	123.4	$5.30	$6.89	$1.59	
2011	$613.46	147.2	$4.17	$6.22	$2.05	
2010	$550.20	152.8	$3.60	$5.18	$1.58	RFS
2009	$550.70	164.7	$3.34	$3.55	$0.21	
2008	$529.38	153.9	$3.44	$4.06	$0.62	
2007	$443.97	150.7	$2.95	$4.20	$1.25	
2006	$409.74	149.1	$2.75	$3.04	$0.29	
2005	$386.88	147.9	$2.62	$2.00	($0.62)	
2004	$377.50	160.3	$2.35	$2.06	($0.29)	
2003	$354.41	142.2	$2.49	$2.42	($0.07)	
2002	$334.31	129.3	$2.59	$2.32	($0.27)	
2001	$348.53	138.2	$2.52	$1.97	($0.55)	
2000	$378.32	136.9	$2.76	$1.85	($0.91)	
1999	$364.73	133.8	$2.73	$1.82	($0.91)	
1998	$362.86	134.4	$2.70	$1.94	($0.76)	
1997	$363.73	126.7	$2.87	$2.43	($0.44)	
1996	$353.94	127.1	$2.78	$2.71	($0.07)	
1995	$333.42	113.5	$2.94	$3.24	$0.30	
1994	$321.47	138.6	$2.32	$2.26	($0.06)	
1993	$287.10	100.7	$2.85	$2.50	($0.35)	
1992	$302.33	131.5	$2.30	$2.07	($0.23)	
1991	$292.55	108.6	$2.69	$2.37	($0.32)	
1990	$292.52	118.5	$2.47	$2.28	($0.19)	
1989	$284.89	116.3	$2.45	$2.36	($0.09)	
1988	$262.57	84.6	$3.10	$2.54	($0.56)	
1987	$244.57	119.8	$2.04	$1.94	($0.10)	
1986	$243.12	119.4	$2.04	$1.50	($0.54)	
1985	$277.01	118.0	$2.35	$2.23	($0.12)	
1984	$289.02	106.7	$2.71	$2.63	($0.08)	
1983	$258.45	81.1	$3.19	$3.21	$0.02	
1982	$270.86	113.2	$2.39	$2.55	$0.16	
1981	$278.60	108.9	$2.56	$2.50	($0.06)	

Footnotes * first 5 months of marketing year

1 Corn Marketing Year

2 USDA Economic Research Service:
http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx

3 USDA National Agricultural Statistics Service:
http://quickstats.nass.usda.gov/

The Current State of the Rural Economy

An old and all-too-accurate joke in farm country is: "if you give a farmer a market, he'll over-produce it." The hard work and productivity of the American farmer is much more than a cliché to be bandied about every four years during the Iowa caucuses. It is a statistical fact. Even with a growing world population and increasing worldwide middle classes demanding higher amounts of grain-intensive meat in their diets, the American farmer continues to overproduce the market. Ending stocks for the 2015 marketing year (which ends August 31, 2016) are projected to be over 1.8 billion bushels, the highest since the RFS was implemented.[15] If Mother Nature cooperates, the USDA projects those ending stocks will increase to nearly 2 billion bushels the following year.[16]

The last two years have seen a dramatic downturn in the health and outlook of rural America. Corn prices have plummeted below the marginal cost of production,[17] land values have fallen for two straight years,[18] farm income plunged 38% in 2015 and is forecast to drop again in 2016,[19] agribusinesses[20] have laid off[21] workers[22] by the thousands,[23] and tax revenue generated in Midwest states for both state and federal governments has dropped.[24]

During a 2015 presentation to the Kansas City Federal Reserve Agricultural Symposium, Purdue University economist Mike Boehlje warned that "farmers need to batten the hatches now if they want to survive." Purdue University's study forecasts "revenue per acre falling below the cost of production each year from 2014 to 2017 for Midwest corn and soybean producers." Those most at risk are "young, beginning farmers who don't have a land base." Boehlje also noted that 25 percent of farm equipment dealers went out of business in the 1980s and he predicted "we will see another washout in dealers in the next two to three years."[25]

The monthly Creighton University Rural Mainstreet Index survey (March 2016) of bank executives found that farmland prices had fallen by 6.7 percent over the last year, farm equipment sales declined to record low levels, and that farm loan defaults are expected to rise over the next 12 months.[26]

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[15] http://www.worldofcorn.com/#us-corn-ending-stocks
[16] http://www.agweb.com/article/usda-brace-for-big-ending-stocks-naa-alison-rice/
[17] http://www.extension.iastate.edu/agdm/crops/html/a1-20.html
[18] http://www.card.iastate.edu/land-value/2015/
[19] http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/highlights-from-the-farm-income-forecast.aspx
[20] http://thegazette.com/subject/news/business/deere-company-announces-layoffs-more-than-550-coming-in-waterloo-20150123
[21] http://www.desmoinesregister.com/story/money/2016/02/12/dupont-pioneer-job-cuts-climb-175-since-merger-plan/80282102/
[22] http://www.desmoinesregister.com/story/money/2016/03/10/deere-continues-layoffs-cutting-125-workers-ankeny-dubuque/81600250/
[23] http://www.thegazette.com/subject/news/business/kinze-manufacturing-lays-off-215-20150624
[24] http://www.desmoinesregister.com/story/news/politics/2015/10/13/iowa-revenue-forecast-slashed-121-million/73882744/
[25] http://northernag.net/AGNews/AgNewsStories/TabId/657/ArtMID/2927/ArticleID/4863/Time-to-Batten-Down-the-Hatches.aspx
[26] https://www.creighton.edu/economicoutlook/mainstreeteconomy/

Today, as farmers look toward the future, it is more often with angst than with optimism. And yet, being farmers, they will carry on. Quitting simply isn't in a farmer's DNA. But they could use some help. Farmers would embrace the chance to again farm for the market. As in the past, there are many factors that can impact this, but renewable fuels still stand out clearly as the best option for making a quick and meaningful impact for farmers and rural America.

Unleashing Renewable Fuels to Boost Rural Economic Development

I do not come before you as an expert in every aspect of USDA's rural development programs or every nook and cranny of the the Energy Title of the Farm Bill. But I did conduct a survey of Iowa's renewable fuels producers regarding these programs and some definite themes emerged.

The first universal theme to emerge was praise for the Farm Bill Energy Title. There is a clear perception that these programs are well-intentioned and have made a positive difference. The phrase "we are thankful for the programs" cropped up several times. All subsequent comments on the Energy Title programs should be viewed through this prism – there is strong support for the programs from the renewable fuels family.

The second universal theme to emerge was that the Energy Title programs provide a massive return on the investment. With funding of only $109 million in FY2015,[27] billions in private investments have been leveraged and thousands of projects have moved forward making a real, positive difference in people's and communities' lives. Economic development has occurred, environmental emissions have been reduced, and energy security has been enhanced. And all for less than the $116 million cost of one F-35C fighter jet.[28] In Iowa, we call that pretty good bang for the buck.

The third universal theme that surfaced is that the effectiveness and impact of these programs is dramatically reduced by a lack of consistent and timely funding. The current Farm Bill cut many of these programs from previous levels. Yet, the cuts didn't stop there. Almost every appropriations cycle or omnibus spending bill makes further cuts to what was supposed to be mandatory spending. I can say with certainty that rural America knows that Congress needs to get its fiscal house in order. Ag groups stepped up and worked with Congress during the debate on the current Farm Bill and brought forward changes that saved billions. I'm not aware of a single other instance of that happening. And how is the one group that stood up, acted in good faith, and worked to cut the cost of their programs treated? Well, it seems the first place Congress looks to cut additional money when they want to pay for something new is crop insurance or the Energy Title.[29]

The funding issues undercut the impact of the Energy Title in more than the obvious way. Of course, when funding is cut it results in less research and development, innovation grants, and commercialization loan guarantees. But programs also need a critical mass of funding to be

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[27] http://www.eesi.org/papers/view/issue-brief-obama-fy2017-budget-proposal-sustainable-energy-buildings-trans
[28] https://en.m.wikipedia.org/wiki/Lockheed_Martin_F-35_Lightning_II
[29] http://www.eesi.org/articles/view/house-appropriators-seek-deep-cuts-to-environmental-farm-and-renewable-ener

effective and the funding needs to be timely. One innovative ethanol producer in Iowa who has used, or tried to use, many of the Energy Title programs noted: "I think USDA has some very useful programs…If there is a way to be sure there is always funding certainty to the programs, they will be more useful." The company went on to say: "From a practical point of view, 'get it done' companies will not wait around for a program to be funded…" And I think we can agree the point of these programs is to help the "get it done" companies reshape rural economies through innovation and investment.

Funding is one vital area where Congress must take responsibility. This is not an agency or bureaucracy problem. Folks in Congress who care about rural America need to push appropriators and leadership to properly fund these programs and to stop using them as a cash reserve when some other need arises. That might have been tempting to do during the 8 years of profitable commodity prices and rural economic expansion, but we are well into the second year of a severe rural economic downturn. As work begins on the next Farm Bill, Energy Title programs should be a priority and funding levels should meet the needs and opportunities in rural America. The bleeding must be stopped.

Specifically, both an ethanol and a biodiesel company in Iowa sought to use the **Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program** (section 9003) when traditional sources of credit had soured on renewable fuels. But lack of funding and funding over a long enough period to "prove out" the new technologies held back the projects. More recently, it appears that the funding cycle has gotten better, and at least one Iowa ethanol plant utilized the program, noting: "The experience was good. It was slow and patience is needed." They also noted that program rules require the plant to be operational before funding is made available. It is difficult for some of the new, innovative projects to put in all of the equity up front. Often they must resort to extremely costly financing, which can prevent a project from ever reaching operational status. I understand that the funds must be used wisely and not wasted. However, it would seem there might be ways to bridge this gap with the achievement of certain benchmarks by a producer to secure some assistance prior to full-scale operations. I will note that several plants are eyeing this program for future innovations that will require large capital expenditures to commercialize. So the interest in this program remains strong despite some of these challenges. Therefore, finding ways to smooth out some of these bumps could have a meaningful and positive impact on rural economic development. And while I represent renewable fuel producers, there is increasing interest in adding renewable chemicals and products to the mix. Some of this will occur at existing facilities. But some of this will occur in "over the fence" and truly standalone settings. We should make clear that these facilities can benefit from this program.

We have had plants inquire about the **Repowering Assistance Program** (section 9004). Yet the program hasn't been funded, is restricted to biomass energy, and has grandfather and other problematic requirements. Why shouldn't there be a discussion about reviving this program and opening it up to all forms of renewable energy? While we certainly support biomass energy sources, wouldn't it also be a positive step forward if our renewable fuel biorefineries were powered by wind or solar energy as well?

The **Bioenergy Program for Advanced Biofuels** (section 9005) was a program vital to biodiesel producers during the early build out of that industry. More recently, funding restrictions have reduced the benefit of the program. According to plants, it takes "considerable paperwork and effort" and "significant time" in return for "a very small amount" of funding. With the commercialization of cellulosic ethanol, there is a new group of producers looking toward this program to help provide stability. It's not just about cash flow, it's about providing private sector investors and lenders with the confidence there will be a return on their investment so they will support full scale commercialization of new, advanced biofuels technologies.

When it comes to research and development for the bioeconomy, no state is prouder of its land grant university than Iowa. Iowa State University is at the cutting edge and its work can be boosted by the **Biomass Research and Development Initiative** (section 9008). And while university and government R&D is important, some of the innovations making the quickest impact on rural America are coming out of private business. We want to encourage you to ensure that this program continues to value the R&D being done by private companies. For example, a grant from this program enabled Quad County Corn Processors in Galva, Iowa to develop a unique process that converts corn kernel fiber into cellulosic ethanol. With quite a bit of inspiration and perspiration, Quad County went from being one of the nation's smallest corn ethanol producers to the largest producer of cellulosic ethanol to date. Now they are working to spread their "Cellerate" technology to other producers.

One of the most anticipated Energy Title programs also elicited perhaps the most surprising responses from Iowa plants. In order to take renewable fuels to the next level and to expand its footprint in a meaningful way outside of corn and soybean country, we need cellulosic ethanol. Iowa is home to three cellulosic ethanol producers, two of which utilize corn stover as a feedstock. The **Biomass Crop Assistance Program** (BCAP, section 9010) was designed to help farmers bridge the gap in establishing dedicated energy crops, which can take several growing seasons to establish, and to perfect the harvest, transportation and storage of biomass (whether dedicated energy crops or crop residues like corn stover).

Any one driving near Emmetsburg or Nevada, Iowa, will see stacks of corn stover bales at the side of some farmers' fields. Yet, one of the cellulosic producers does not utilize the BCAP program and the other says it is not really working. Many folks feel there has not been a consistent message from the USDA staff, but most of the problems go back to funding. There needs to be sufficient funding to incent farmers to change old habits and it must be timely. Rolling out the program in the early summer does not match the biomass cycle. The program needs to be rolled out by the end of a calendar year to ensure there is time to plan and contract with growers. I want to be clear about one more thing: the challenges and shortcomings of BCAP to date are not an excuse to quit on the program. BCAP will be a vital program in moving our nation toward advanced biofuels. Rather, folks need to roll up their sleeves and work together to make BCAP into the kind of game-changing program it was intended to be.

I saved the most popular program for last. The **Rural Energy for America Program** (REAP – section 9007) has been used by many types of entities in many ways. REAP provides support for a broad range of energy efficiency and renewable energy technologies that can benefit all ag

sectors in every state.[30] Renewable fuel projects have been a part of REAP. Biodiesel producers have received low-interest loans to make improvements. Ethanol producers have utilized REAP for projects, such as steam turbines to convert excess steam into electricity. According to my friends at the Environmental Law and Policy Center, REAP has also been outstanding at leveraging private investment – over $170 million in Iowa alone and over $2 billion nationwide.

REAP Awards, 2008-2015

Row Labels	IOWA	Total US
Total Project Awards	1,401	10,127
Total Grant Amount	$30,286,723	$314,603,320
Total Loan Guarantee Amount	$49,019,975	$413,053,232
Total Leveraged Amount	$172,045,088	$2,212,358,127

Source: Environmental Law and Policy Center

Despite that REAP has been funded closer to mandatory levels than many Energy Title programs, demand still outstrips funding. REAP also provides an example that improvements to Energy Title programs can occur if Congress takes an active interest. For example, in the early days of REAP, after compiling 18 inches of documents for a REAP loan guarantee, one Iowa biodiesel producer was awarded a $5 million loan after being initially approved for a $20 million loan. Stories like this prompted Congress to demand streamlined procedures from USDA, and they were adopted in the last Farm Bill. Since that time, folks report a good overall experience with REAP.

Before I go on, I'd like to note that the previous comments on the Energy Title programs are shaped by the feedback I received directly from Iowa renewable fuels producers. While I did not want to put anyone on the spot by attributing names today, IRFA would be happy to work with any interested Senators or staff to facilitate further conversations regarding any of the comments summarized above.

There is one more thing that needs to be said about REAP. If you remember nothing else I've said today about the Energy Title programs, please remember this. The fourth universal theme that I heard from Iowans was that Congress should restore the ability to use REAP to incent renewable fueling infrastructure.

Within the realm of REAP there are no prohibitions, save one. Under the current Farm Bill, REAP is statutorily forbidden from funding blender pumps or other renewable fueling infrastructure. Given all of the programs in the Energy Title to help increase the production of renewable fuels, it may seem odd to you that helping create demand opportunities for renewable fuels would be singled out for prohibition. How this occurred is a sad chapter in the history of Congress and power politics.

Starting in 2011, the USDA successfully utilized REAP as a tool to help retailers expand their fueling options with higher ethanol blends. Almost immediately the petroleum industry and their supporters in Congress moved to squash this. As work began on a new Farm Bill, IRFA

[30] http://farmenergy.org/wp-content/uploads/2014/03/FarmEnergySuccessStories2014-FINALweb.pdf

contacted the Iowa delegation and the leaders of the Senate Agriculture Committee to state that REAP funding for blender pumps was our number one Farm Bill priority. Yet, when it came to the House-Senate conference committee on the Farm Bill in 2014, I have been told the House came with one non-negotiable for the Energy Title – stop funding blender pumps through REAP. I was not in the room. I cannot vouch that this is accurate, but I was told that by several people close to the negotiations.

Imagine that, out of everything in the Farm Bill Energy Title, killing the blender pump program in REAP was the number one priority for the House. In the end, the House prevailed and the blender pump prohibition went into effect – the only specified prohibition of any Energy Title program to my knowledge.[31] I remember being amazed and disgusted at the same time, considering how far the petroleum industry will go to protect their near monopoly over our fuel supply. I have no illusions that petroleum's power and influence in Congress has waned. Yet, this is a fight worth fighting. Giving consumers the choice to make their own fuel decisions at the pump is vital to a more competitive fuel marketplace and to boosting production of advanced (and traditional) renewable fuels. Allowing the natural demand that exists for renewable fuels to be acted upon by consumers may very well do more to boost rural economic development than the rest of the Energy Title combined.

Rural Economic Development Opportunities Beyond the Current Energy Title

As recognized leaders on agricultural issues in the Senate, you can engage in several other areas to promote renewable fuels and rural economic prosperity both in and outside your direct jurisdiction. Let me mention a few areas on which any friend of rural America should focus.

USDA's Biofuel Infrastructure Partnership

After blender pumps were singled out for discrimination in the REAP program, USDA moved last year to incent blender pumps through its Commodity Credit Corporation (CCC) with a new **Biofuel Infrastructure Partnership** (BIP) program. Cost-share funds were awarded to states,[32] and states have been busy working with retailers eager to diversify their fuel options. Iowa recently awarded the last of its $5 million in BIP funding. In Iowa, 213 blender pumps and 24 underground storage tanks will be installed at 73 sites by 20 companies to provide consumers with access to higher blends of ethanol through the program.[33] It is not just the Midwest. Retailers and consumers across the country want greater access to low-cost, higher ethanol blends – Colorado, Florida, Louisiana, North Carolina, Virginia, and even Texas to name a few.[34]

The overwhelming response to the BIP program utterly destroys the false petroleum industry narrative that retailers don't want to sell and consumers don't want to buy higher ethanol blends.

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[31] http://www.reuters.com/article/usa-agriculture-farmbill-biofuel-idUSL2N0L32EX20140129
[32] http://www.usda.gov/wps/portal/usda/usdahome?contentid=2015/05/0157.xml
[33] https://governor.iowa.gov/2016/03/branstad-reynolds-northey-announce-second-round-of-funding-awards-for-%E2%80%9Cfueling-our-future
[34] http://www.fsa.usda.gov/programs-and-services/energy-programs/bip/

In a predictable response, petroleum's forces in Congress are already attempting to prevent the USDA from continuing the BIP program.[35] While you may not be able to turn back the clock and restore blender pump programs to their rightful place in REAP, surely you can prevent the same mistake from happening again. As leaders of the Senate Agriculture Committee for rural development and energy, we implore you to fight this latest move by the petroleum forces to prevent consumer choice and market competition.

The Renewable Fuel Standard

The single most important policy impacting rural economies is the Renewable Fuel Standard (RFS). By leveraging access to the marketplace for renewable fuels, the RFS unleashes pent up demand for agricultural commodities and boosts rural income. The RFS is so impactful that many ag leaders think it may have eclipsed even the Farm Bill in determining the future of rural America.[36]

The RFS works because Congress crafted it to allow market forces to accomplish its goal of increasing competition in the fuels arena. There is no one path for compliance. Different parties can take different paths – blending renewable fuels, acquiring credits from those who do, and other contractual arrangements. Meanwhile the RFS credits serve as a huge incentive for retailers to make renewable fuel options available to consumers. And when consumers have options, they choose low-cost renewable fuels.

The large petroleum companies and their trade associations continue to focus their efforts on creating the myth of a "blend wall." They seek to create the image of a physical barrier that simply cannot be surmounted in a timely fashion. This is false. The only physical barrier to the greater use of renewable fuels is the inability of the average motorist to pull up to a fuel pump and choose from various fuel options.

This restriction on competition is not the result of consumer preference, equipment availability, or renewable fuel supply. Iowa retailers have had great success with higher ethanol blends like E15 and E85, when they are allowed to sell it. Customer demand is high. Contrary to the blatantly false claims that a "blend wall" exists, even more motorists would buy E15 and E85 if it were simply available for them to choose.

In a poll by the Tarrance Group, when asked if they would consider using E15 if they owned a 2001 and newer vehicle and it was cheaper than E10, an overwhelming 70 percent of respondents said yes. Seventy-six percent of these respondents said they would drive out of their way to buy E15 to save between 5 and 10 cents a gallon if their usual station did not offer E15.[37]

Here in Iowa, one of the largest retailer chains, Kum & Go, recently made a commitment to add E15 to many of its stores over the next year – and we're seeing E15 being adopted by other large retailers in other states as well.

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[35] http://brownfieldagnews.com/2016/02/26/vilsack-goodlatte-debate-biofuels-policy/
[36] http://energy.agwired.com/2012/02/28/rfs-may-top-farm-bill-in-importance-to-corn-growers/
[37] http://iowarfa.org/2015/09/low-cost-e15-now-available-in-iowa-again/

Noting that customers can save 5 to 10 cents per gallon with E15 (compared to E10), Kum & Go's Vice President of Fuels Jim Pirolli noted: "It offers the sustainability component that aligns with our company strategy and also aligns with our strategy to offer customers a great value and great quality product."[38]

Research conducted by the convenience store industry found "consumers are A-OK with E15 Fuel." Research showed that if E15 is priced 5 cents less than E10, 49 percent of consumers said they would likely buy E15, while a 10-cent difference would entice 60 percent of consumers to purchase E15 over E10.[39]

While this polling and these exciting project announcements should help EPA understand the growth potential for higher blends if made available to the public, what can we actually expect in terms of sales? To answer that, IRFA contacted a number of retailers offering higher blends. Based on their responses, it is clear: there is no "blend wall." If consumers are simply given a choice – retailers, obligated parties, and our Nation as a whole will have no problem reaching the statutory RFS levels in 2016. But more than that, they'd be meeting the ultimate RFS standard for 2022.

The U.S. EIA currently projects 188 billion gallons of gasoline and diesel to be used in 2022. If the RFS goal of 36 billion gallons of renewables was realized (and factoring in biodiesel's RIN equivalent), the 2022 RFS level would be around 18 to 19 percent.

Fuel Time in St. Ansgar, Iowa takes advantage of low-priced E85 in its blender pump to offer E10, E15, E30, and E85. They also offer E0 (no ethanol) to their customers. Even with 10% of their sales going toward E0, their average ethanol content is 34.6 percent.

Fast Stop in Cresco, Iowa offers five levels of ethanol blends through its blender pumps with an average ethanol content of 43.5 percent. Five Star Coop reported that its three blender pump locations averaged an ethanol content of 23.7 percent. These three cases studies are representative of Iowa blender pump stations. All not only exceed the 2016 statutory RFS level, but the 2022 RFS level as well.

You would be hard pressed to find a retailer with a blender pump offering E15 and E85 not meeting that level today. If they also offer biodiesel blends, their own "station RFS" would be even higher. There is no "blend wall." There is only a lack of consumer access to higher ethanol blends – a challenge the RFS was specifically implemented to remediate.

Biodiesel is making strong inroads in the diesel market as well. A recent study conducted by the trucking industry shows biodiesel is now the most commonly used alternative fuel option on the market. According to the survey, 18 percent of fleets currently use biodiesel, up 3 percent from last year.[40]

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[38] http://www.cspnet.com/print/csp-magazine/article/csp-fuel-fuel-forward-thinking
[39] http://www.csnews.com/node/87845
[40] http://www.biodieselmagazine.com/articles/921423/biodiesel-no-1-alternative-fuel-choice-for-fleet-owners

Echoing their false narrative for ethanol, some in the petroleum industry have tried to suggest there is a "blend wall" for biodiesel as well. The facts paint another picture entirely. Iowa-specific data, courtesy of the Iowa Department of Revenue, demonstrates the remarkable growth in availability and use of higher biodiesel blends in our state over the past few years.

Since 2010, when the expanded RFS went into effect, both biodiesel production and biodiesel sales in Iowa have soared, multiplying by a factor of roughly four and a half. Biodiesel production has jumped from 48 million gallons in 2010 to 242 million gallons in 2015,[41] while total B100 sales in Iowa have expanded from 7.4 million gallons in 2010 to 37.5 million gallons in 2015. In addition, biodiesel-blended gallons in Iowa have increased from 239.8 million gallons in 2010 to 342 million gallons in 2015, a 43 percent jump.

Even more remarkable is the growth in the average blend level of biodiesel-blended gallons sold. In 2010, the average blend level of biodiesel-blended gallons sold in Iowa was 3.1 percent. By 2015, the average biodiesel blend level in Iowa had jumped to 11 percent – a level that simply could not have been reached without selling a significant amount of B11 and B20.[42]

We urge you to strongly oppose any congressional effort to undermine the RFS, and to encourage the EPA to implement the RFS in accordance with statute.

End E15 Regulatory Discrimination

Since the approval of E15 as a registered fuel, the IRFA has focused on making this new fuel widely available so Iowans have access to another fuel choice and the lowest-cost registered fuel on the market. In addition to being approved by the EPA for all light-duty passenger vehicles 2001 and newer (which accounts for over 80 percent of the U.S. passenger vehicle fleet), there are more vehicles on the road today expressly warranted by the manufacturer for the use of E15 than there are flexible fuel vehicles, diesel vehicles, or vehicles requiring premium fuel. E15 clearly has the potential to become a large market for renewable fuels very quickly.

Despite large petroleum companies using restrictive branded supply contracts that either out-right prohibit the sale of E15 or make it too cumbersome or costly to offer a non-petroleum-controlled product, the largest obstacle to our efforts to make E15 widely available has been the inability for a retailer to offer E15 year-round. The summer blending restrictions have been the breaking point for several potential E15 retailers.

The ability to offer E15 year-round as a registered fuel (as opposed to offering it to only flexible fuel vehicles during summer months) is a serious issue. Retailers who have switched from offering E15 as a "flex-fuel only" to a registered fuel have seen their E15 sales increase by 93 percent. Many Iowa retailers are seeing E15 capture 27 to 47 percent of their total fuel sales during the "winter" season.

Without access to low vapor pressure blendstock during the summer, the sale of E15 in states like Iowa (conventional gasoline areas) is essentially prohibited as a registered fuel. During this

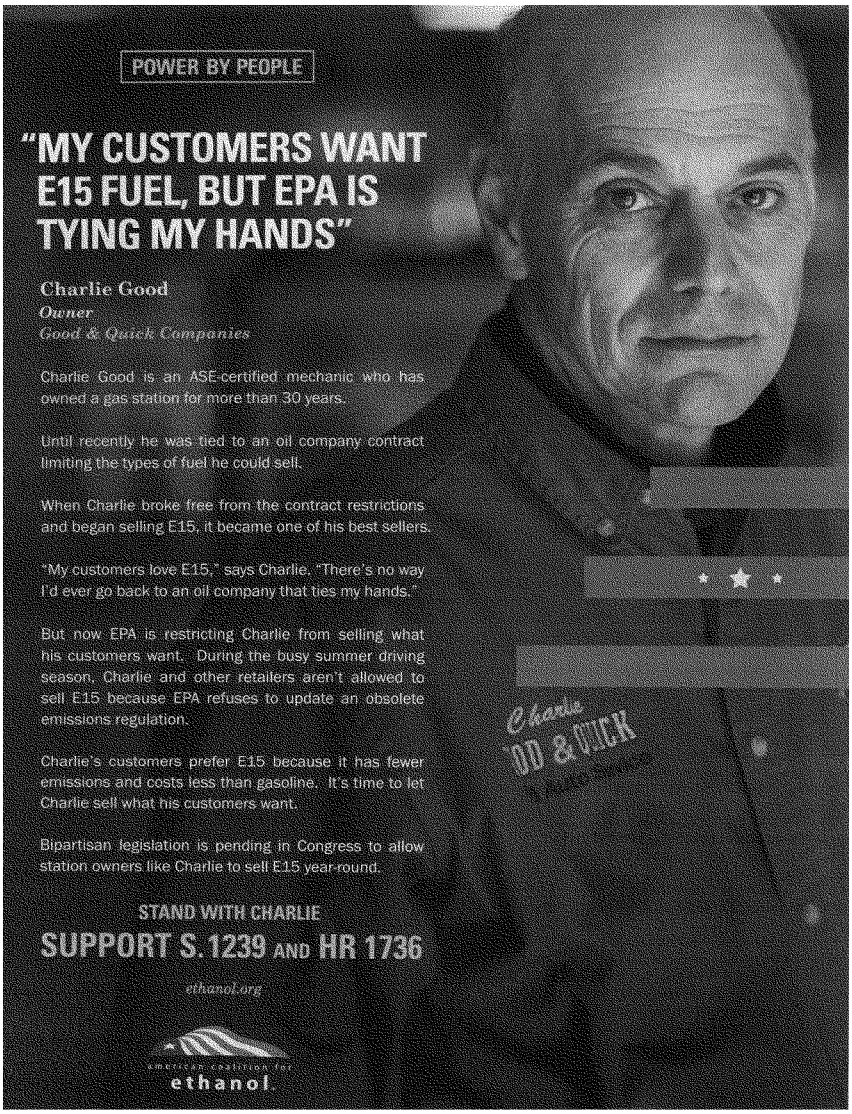
[41] http://iowarfa.org/2016/01/iowa-biodiesel-production-breaks-record-in-2015/
[42] https://tax.iowa.gov/sites/files/idr/2014%20Motor%20Fuel%20Retailers%20Gallons%20Annual%20Report_0.pdf

time, E15 sales plummet. As an example, a retailer in northern Iowa has vigorous E15 sales during the fall and winter; however, during the summer blend season his E15 sales decline by 72 percent.

Retailers are unnecessarily losing revenue and also incurring the additional expense of re-labeling their registered E15 to sell it as a flex-fuel during the summer months. This is followed by a barrage of inquiries from customers who want to know why they can no longer purchase E15 for their 2001 and newer vehicle. Consumers want more choices and a consistent type of fuel to use in their vehicles all year. Fuel retailers want to meet their customers' needs, but are hampered by EPA's flawed policy that failed to equalize RVP limits for E10 and E15.

With motorists wanting more affordable, American-produced fuel choices, blending more ethanol in gasoline can be done, despite oil companies' statements to the contrary. Equalizing E15 and E10 RVP limits in the summer would enable E15 to become the "new normal" in the U.S. fuel market, boosting ethanol demand by 50 percent.

An infographic from the American Coalition of Ethanol on the following page tells one Iowa retailer's story of overcoming petroleum industry roadblocks to offer E15 to his customers, only to be thwarted by convoluted RVP regulations during the summer.


POWER BY PEOPLE
"MY CUSTOMERS WANT E15 FUEL, BUT EPA IS TYING MY HANDS"
Charlie Good
Owner
Good & Quick Companies
Charlie Good is an ASE-certified mechanic who has owned a gas station for more than 30 years.
Until recently he was tied to an oil company contract limiting the types of fuel he could sell.
When Charlie broke free from the contract restrictions and began selling E15, it became one of his best sellers.
"My customers love E15," says Charlie. "There's no way I'd ever go back to an oil company that ties my hands."
But now EPA is restricting Charlie from selling what his customers want. During the busy summer driving season, Charlie and other retailers aren't allowed to sell E15 because EPA refuses to update an obsolete emissions regulation.
Charlie's customers prefer E15 because it has fewer emissions and costs less than gasoline. It's time to let Charlie sell what his customers want.
Bipartisan legislation is pending in Congress to allow station owners like Charlie to sell E15 year-round.
STAND WITH CHARLIE
SUPPORT S. 1239 AND HR 1736
ethanol.org
american coalition for ethanol

Retailers do not want to restrict the sale of E15 during the summer or take the blame for denying their customers an affordable fuel choice. But until the RVP limits for E10 and E15 are equalized, retailers are becoming the scapegoats for flawed federal policy. IRFA urges you to support and enact S.1239 to equalize the vapor pressure regulations for E10 and E15 as soon as possible.

Support Flexible Fuel Vehicles

Ironically, just as blender pumps are starting to spread rapidly across the county, some auto makers are starting to reduce their production of flexible fuel vehicles (FFVs) capable of operating on any blend of ethanol from zero to 85 percent. In a rule making, the EPA removed a long-standing credit for automakers to produced FFVs. Consumers can stand up for FFVs by going to FlexMyChoice.com. We urge members of this subcommittee to work with EPA, USDA and the automakers to maintain a commitment to FFVs.

The Fuel of the Future

Earlier I reviewed the performance of existing Energy Title programs. Asking "are these existing programs working" is always a good thing to do, but you should not stop there. It is also useful – even vital – to take a step back and ask a broader question: what are the most important opportunities for rural America in the future, and are USDA programs helping make these opportunities a reality?

Speaking for renewable fuels, there is a general consensus that our future, and the biggest impact on rural America's future, lies with high-octane, mid-level ethanol blends. Research at national labs is already being conducted to determine the best blend level (E25 to E40),[43] and auto makers[44] have zeroed in on high-octane ethanol blends as the best way to meet more stringent CAFE standards.

Simply put, an engine designed for a high-octane fuel can be higher compression (more efficient) and smaller (down-sizing), while supplying equal or better performance with higher fuel economy. Ethanol blends are attractive because they are cheaper, and ethanol's cooling effect in the engine cylinders allows for even greater compression than other fuels of the same octane.

However there is a classic chicken-or-the-egg dilemma holding back this fuel of the future. Automakers are reluctant to produce vehicles with engines dedicated to a fuel not yet widely available. To achieve the full benefits of the high-octane fuel, these vehicles would not be FFVs. So, to paraphrase a line from the movie *Field of Dreams*, should automakers build it and hope the fueling stations come?

A properly implemented RFS will expand consumer access to blender pumps, which could offer the necessary fuel. The USDA BIP program is helping build a nationwide higher-blend infrastructure. Some have suggested a two-step approach, where the first generation would be FFVs, not in the E85 sense, but at least to the extent where they can operate fine on E10 and

[43]https://cleancities.energy.gov/files/u/news_events/document/document_url/158/CC_HOF_Webinar_Combined.pdf
[44] http://www.greencarcongress.com/2013/04/e30-20130419.html

achieve their highest performance on E30. Assuming this motivates retailers to add blender pumps, the second generation would be dedicated to E30 (or the E25 to E40 blend chosen).

With national labs engaged, and the RFS and the BIP program ongoing, I must admit that I do not come before you today prepared with an E30 action plan for this committee to adopt. Instead of an answer, I bring a question. Keeping in mind the impact of renewable fuels on the rural economy, asking how this committee and USDA can be more involved in the move to E30 is a useful exercise. IRFA and many other interested parties are ready to engage in that ongoing discussion with you.

Conclusion

I want to thank Chairman Ernst for inviting me to address this committee. I hope you have found it useful. I also want to thank the committee members for their dedication to rural America and their recognition of the role that renewable fuels play in boosting the rural economy. IRFA looks forward to working with you in the future to develop and implement policies that not only bring economic opportunities to rural communities, but help address the national priorities of economic growth, new jobs, cleaner air, and national security. Thank you.

DOCUMENTS SUBMITTED FOR THE RECORD

APRIL 6, 2016

DWEA
DISTRIBUTED WIND ENERGY ASSOCIATION

OUR WIND OUR POWER OUR FUTURE

DWEA Distributed Wind Vision – 2015-2030

Strategies to reach 30 GW of "behind-the-meter" wind generation by 2030

March 2015

DWEA Distributed Wind Vision 2015-2030

DWEA Distributed Wind Vision – 2015-2030

Strategies to reach 30 GW of "behind-the-meter" wind generation by 2030

Executive Summary

Distributed Wind (DW), defined as "behind the meter" wind power, has the potential to create 150,000 jobs and contribute 30 GW of energy supply, spread across all fifty states, by 2030. In 2014 over 90% of the small and medium wind energy systems installed in America were built in America, so Distributed Wind could be the best option for thousands of consumers to produce their own clean energy using equipment "made in America". And by virtue of the sheer number of homes, farms, businesses, and public facilities that could use Distributed Wind its potential is on par with seabed-anchored offshore wind as well as the existing total U.S. generation capacity of all types. With policy support comparable to that already provided to other clean energy technologies, Distributed Wind could be the next clean tech boom.

Distributed Wind is typically a single or small number of wind turbines serving a local or on-site load. The turbines can be 1 kW for a cabin, a 10 kW for a home, a 50 kW for a farm, a 250 kW for a school, or a 2 MW for a factory. In a windfarm the energy generated is sold to a utility for resale; in Distributed Wind the energy generated is first used in the customer's home or building and only the excess is sold to the utility. The Distributed Wind Energy Association (DWEA) represents the industry that manufactures, sells, finances, installs, and supports distributed wind energy systems.

DWEA estimates that in 2030 there will be 23.7 million homes and buildings suitable for Distributed Wind and that together they represent a potential for 1,100 GW of generating capacity. DWEA also estimates that other related market segments, such as community wind, wind gardens, and virtual metered systems, could boost the potential for non-windfarm wind energy to 1,400 GW. The energy production potential for the 1,100 GW in 2030 is estimated at 2,900 TWh; which is 70% of the net electricity generation in the U.S. in 2014.

Distributed Wind's Levelized Cost of Energy (LCOE), which includes the capital, operating, and financing costs of the system over a 25-year operating life, currently ranges from 10¢ – 28¢/kWh but could be reduced to 4.6¢ - 11¢/kWh, as shown in the following table:

Turbine Size	Recommended Height	Typical User	2014 LCOE (¢/kWh)	2030 LCOE Target (¢/kWh)
1 – 3 kW	60 ft.	Off-Grid, Residential	28	11
4 – 15 kW	120 ft.	Residential, Small Farm	20	6.5
16 – 100 kW	150 ft.	Farm, Commercial, Public Facility	16	5.7
101 – 1,000 kW	180 ft.	Commercial, Industrial, Public Facility	12	5.4
1.1 – 2.5 MW	240 ft.	Industrial, Institutional	10	4.6

Smart policies that grow the market and advance the technology of Distributed Wind also provide important benefits in addition to the 150,000 jobs created, including:

- Economic development serving primarily rural areas
- Additional clean energy choices for Americans, promoting competition
- Leveraging America's technology and manufacturing strengths
- Contributing to the renaissance in American manufacturing
- Strengthening the grid and promote resilience
- Ramping faster than some other clean energy technologies
- Placing more wind energy in the public eye, fortifying support for renewables
- Expanding exports

As the price of solar modules have plummeted in recent years, many solar-focused programs have been scaled back and Distributed Wind is beginning to attract increased interest among policymakers. The Indiana utility NIPSCO, for example, two years ago had a Feed-in Tariff (FIT) program that paid solar 30¢/kWh and wind 17¢/kWh, but in recognition of current cost disparities now has a program that pays solar 17¢/kWh and small wind 25¢/kWh. In Japan, the FIT program now pays distributed wind up to 20 kW over twice the rate of solar PV "to encourage technology diversity."

To achieve 30 GW of Distributed Wind by 2030 DWEA recommends the following policies:

1. Remove the 100 kW cap on the wind Investment Tax Credit (ITC) and provide a long-term extension of the ITC
2. Enact a 40% ITC for residential wind systems up to 20 kW as part of the ITC extension
3. Increase the U.S. Department of Energy budget for Distributed Wind RD&D to at least 15% of the DOE wind budget as part of a new focused DOE initiative on distributed wind
4. Maintain funding for the USDA REAP program through and beyond 2019
5. Encourage states and utilities to provide incentives for distributed wind on par with the solar incentives they have successfully employed to grow their solar markets.

Now that windfarms and solar electricity, among other technologies, are well established in the marketplace DWEA believes it is time to bring Distributed Wind to the policy forefront at the federal and state levels.

DWEA Distributed Wind Vision – 2015-2030

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DWEA Distributed Wind Vision – 2015-2030

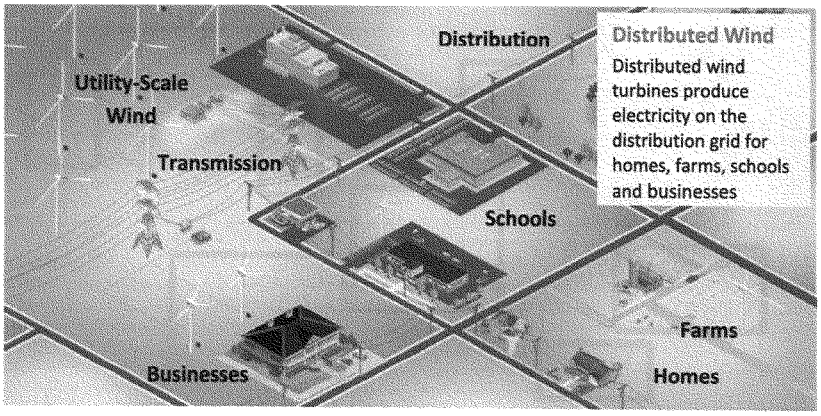
Strategies to reach 30 GW of "behind-the-meter" wind generation by 2030

1. Distributed Wind

1.1 What is Distributed Wind?

Distributed wind (also referred herein as "DW") energy systems offer reliable "behind-the-meter" electricity generation in a wide variety of global settings, including households, schools, farms and ranches, businesses, towns, communities and remote locations, as depicted below. Distributed wind systems offset all or a portion of local energy consumption at or near the point of end use.

This is in contrast to the recently predominant form of U.S. wind development, the wind farm, where an array of large wind turbines is constructed on windy land and all the energy produced is sold to a utility, which then sells the wind energy to its customers. Distributed and Community Wind projects are typically smaller with different business structures.



Distributed wind turbines on the distribution grid. Source: U.S. Dept. of Energy

The sheer number of sites across the nation with enough space and a productive wind resource is in the tens of millions, giving distributed wind applications the potential to contribute at the thousand gigawatt scale. Installed primarily where people live and work, distributed wind turbines are often the public's first exposure to wind energy.

Defining Distributed Wind

Strictly speaking, "distributed wind" refers to any wind facility serving local loads. The U.S. Department of Energy (DOE) Energy Efficiency and Renewable Energy (EERE) Wind and Water Power Technologies Office defines distributed wind based on a wind project's location relative to end-use and power-distribution infrastructure, rather than by technology size or project size. Therefore, the distributed

wind market includes turbines and projects of many sizes, characterized by their proximity to end use and point of interconnection supporting the local grid.

Being connected "behind the meter" at a home, farm, business or facility means that the wind turbine's output serves primarily to reduce the amount of electricity purchased from the utility company, or in other words, to reduce the electric bill. Wind turbines in distributed applications can vary widely in scale and are typically sized so that all or most of their energy production is consumed directly on-site. Distributed wind systems range from 2 kilowatts (kW) with 6 foot blades at a small home to multiple 2 megawatt (MW) wind turbines with 180 foot blades at a large commercial operation such as a cement plant, manufacturing facility, university campus, medical complex, brewery or retail store.

- Smaller wind turbines commonly up to 50 kW foster energy independence for households, small farms and ranches, small businesses, and other consumers.
-
- Multi-MW distributed wind projects reduce energy costs at or near agricultural, commercial, industrial, and institutional sites and facilities.

The distributed wind sector also includes off-grid systems for battery charging, remote homes, telecommunication facilities, and village power. They account for a significant percentage of export sales, as the largest markets for off-grid wind systems are outside the United States. DWEA member turbines are in places as far reaching as Africa, the Mideast, and Asia.

Ownership and Jobs

Distributed wind systems are typically owned by local entities, for example an individual or family, a school district or hospital, a farm or ranch, a local business, a municipality, or a Tribe, that uses most, if not all, of the electricity produced on site.

Most distributed wind projects as well as some wind farms are community-owned incorporating local financial participation and control. Some distributed wind projects and most wind farms are owned by outside professionals, such as energy investors or wind farm developers, and the electricity is sold either under a leasing arrangement to energy consumers or in bulk to a utility company.

Distributed Wind

Produced locally. Used locally.

Distributed wind is the use of wind turbines at homes, farms and ranches, businesses, public and industrial facilities, off-grid locations and other sites connected either physically or virtually on the customer side of the meter. These wind turbine installations offset all or a portion of the local energy consumption at or near those locations or feed directly into the local grid to support utility grid operations.

Distributed, locally-owned and community wind projects typically contribute more to local economic development than conventional wind farms. In fact multiple studies have shown a 2-3x economic

multiplier for such investments.

Community Wind
"Community Wind" is a type of wind project, again of any scale, where the ownership is concentrated locally and therefore the economic benefits are concentrated locally. Unlike distributed wind, however, community wind projects need not produce power "behind the meter" and often sell their production to utility companies or other customers under long-term power purchase agreements. DWEA supports this type of wind development as well.

DWEA's Focus
The Distributed Wind Energy Association (DWEA) was formed specifically to support the needs of smaller-scale wind projects with a significant element of local ownership and electricity use. DWEA's primary mission is to promote and foster all aspects of the American distributed wind energy industry.

1.2 Where Does Distributed Wind Fit in America's Energy Supply Portfolio?
While the U.S. electricity supply has historically been dominated by large central power plants powered by fossil fuels, the fastest growing power generation technologies currently are "central station" wind and solar facilities. Distributed generation technologies, particularly solar, installed throughout the distribution network have seen tremendous growth in recent years and are becoming significant contributors to our national energy supply portfolio. The effects of Hurricane Sandy and other recent natural disasters have highlighted the vulnerabilities of the traditional utility model and infrastructure, and have led to an appreciation of future electricity supply models based on distributed generation, storage, and smart/micro grids that can provide network resiliency and power surety during disturbances. National security interests are also furthered via distributed generation technologies, as they are by definition disbursed, not centrally located. Distributed wind is an important and growing part of this emerging electricity supply model.

Potential
As detailed in Section 4 below, distributed wind, by virtue of the millions of suitable sites, has a technical potential of more than 1,000 GW and a market potential of more than 30 GW by 2030. This puts distributed wind on par with seabed-based offshore wind, combined heat and power (CHP), and non-photovoltaic (non-PV) solar technologies. Distributed wind could, with the right policies in place, be a major contributor to America's clean energy future.

Benefits
Besides the well-known environmental, security, and price stability benefits of all clean energy technologies, distributed wind has a particularly attractive benefit: it's made in America. More than 90% of the small wind turbines installed in America over the past decade were built in America. Distributed wind has one of the highest domestic manufacturing content levels of any renewable energy technology. While providing the added benefits of resource diversity and visibility, and at the same time promoting consumer awareness and "buy in" to renewable energy, distributed wind is part of a renaissance in domestic manufacturing. While already employing thousands of people from Maine, Vermont, and New York to Iowa, Minnesota, Colorado, Oregon, Washington and California, Alaska and Hawaii, it has very significant job creation potential in the years ahead. Distributed wind systems are installed in every state, and the opportunities for distributed wind deployment are significant throughout the nation, on both private and public lands.

1.3 Who Buys Distributed Wind Systems?

The markets for distributed wind are primarily in rural and commercial areas with adequate space (one acre or more) for the turbines and towers. These customers are typically homeowners, farmers, and business owners who are looking both to reduce their utility bills now, and to reduce their exposure to rising electric rates in the future. By the time they install wind energy systems these customers have typically already invested in energy conservation measures to reduce their consumption. The wind energy investment is their latest and largest investment in energy security.

The most active U.S. market areas are in states that provide robust incentives and have above average electric rates. Within those states the markets are concentrated in areas with stronger wind resources. A prime example is Wyoming County in New York, which has seen a 300% growth in distributed wind installations over the last year. The New York State Energy Research and Development Authority (NYSERDA) provides incentives through its "Customer-Sited Tier" renewables program and Wyoming County has both electric rates that are 80% above the national average plus good wind resources. Sales of distributed wind systems tend to develop in clusters because visible working small and medium wind systems drive consumer interest. New York, Iowa, Alaska, Minnesota, California, Texas and Illinois are currently among the most active states for distributed wind.

1.4 Who makes and installs Distributed Wind Systems?

Manufacturers

The major U.S. based original equipment manufacturers (OEMs) of wind turbines for distributed wind projects are General Electric with manufacturing in South Carolina and Florida, Northern Power Systems in Vermont, Bergey Windpower in Oklahoma, Xzeres Wind in Oregon, Dakota Wind in North Dakota, Primus Wind Power in Colorado, Pika Energy in Maine, Aeronautica in Massachusetts, Ventera in Minnesota, and Wind Turbine Industries in Minnesota. OEMs with significant sales and offices in the U.S, with substantial U.S. content include Endurance Windpower headquartered in Canada, Eocycle Wind in Canada, and Vergnet in France. These OEMs range in size from a few dozen to several thousand employees and include both privately-held and public companies.

Supply Chain

A wind turbine has hundreds to thousands of parts supported by a large and diverse supply chain. A typical distributed wind turbine manufacturer buys goods and services from several hundred vendors spread throughout the country. DWEA estimates that over 3,000 U.S.-based companies in 30 states are directly supplying parts, materials, or services to distributed wind OEMs.

Ancillary Products and Services

In addition to the wind turbine, a distributed wind installation requires towers, wiring, concrete, trucking, backhoes, trenchers, cranes, and assorted other goods and services. These products and services can account for up to 30% of the installed costs. Each of these system components creates additional domestic, local jobs. Thus dozens of local construction companies in these states support the DW industry.

Developers/Dealers/Installers

Distributed wind systems are sold and installed by nationwide networks of developers, equipment dealers, and installers. Sales, permitting, and installation labor accounts for approximately 20% of the installed cost of a distributed wind system supporting a large number of local jobs. For solar PV this sector accounts for most of the industry's jobs since most solar modules are imported.

Operations and Maintenance (O&M) Providers
Once installed, distributed wind systems must be inspected and maintained regularly to provide high operational availability and maximum performance, requiring ongoing specialized labor support. Distributed wind systems are typically designed to provide at least 20 years of service, but some models are designed to operate for more than 50 years.

Financial Services
Financial and legal services are fast growing segments of the distributed wind industry due to the use of power purchase agreements on larger scale virtually net metered wind projects and the rapid growth in wind leasing for farmers, homeowners, and businesses.

1.5 The five most important things to know about Distributed Wind

Distributed wind is different in many ways from wind farms or industrial wind industry as well as other more mature and developed clean energy sectors and technologies. The defining attributes of distributed wind include:

Quality 1) Distributed wind turbines are Made in the USA
Unlike most other cleantech equipment, a large majority of the small and medium scale wind turbines installed in distributed applications in the U.S. are built here. American OEMs are producing the lowest cost, most reliable, and most popular small and medium scale wind turbines available. These products also supply large and growing international markets, with exports often accounting for 30-50% of unit sales on an annual basis.

Quality 2) Distributed wind has great potential for cost reduction and expansion
Distributed wind has received far less public support and private sector investment than the more developed renewable energy sectors such as wind farms and solar PV, so it's small and medium wind turbine products have lagged in both technology evolution and volume manufacturing. Numerous large cost reductions are available for distributed wind through advanced technology and mass production.

Quality 3) Environmental impacts are low
A wind turbine installed for distributed generation is by its very nature a project on land that has already been disturbed. People already live or work there. The U.S. Fish and Wildlife Service recognizes this and provides relaxed recommendations for distributed wind environmental reviews. A residential wind turbine, for example, is 1/5th the height and 1/200th the size of a typical wind farm turbine. Tall towers (80 – 150 feet) are required, but distributed wind systems are commonly viewed with pride as icons of environmental stewardship and of clean, secure, local energy.

Quality 4) Distributed wind works with and strengthens the existing grid
Distributed wind systems provide generation near the point of end use on utility distribution networks. They do not require new transmission lines, and can improve the quality for service for the utility by providing voltage support and VARs for weak feeders[1]. In areas where winds are typically stronger during the winter and evening hours, distributed wind can provide reductions in peak heating loads, and open new "plug and play" opportunities to offset fuel oil and propane.

[1] Integration of Distributed Generation in the Power System, 2011, Bollen & Hassan, ISBN: 978-0-470-64337-2

Distributed Wind actually fits residential demand curves better than solar because the peak occurs after sunset; when wind power is often available but solar power is not. The fast deployment potential for Distributed Wind makes it a valuable tool for addressing grid issues.

Quality 5) Costs are higher, but so is the value of the electricity produced
Distributed wind systems typically have a higher levelized cost of energy (LCOE) than wind farms or other centralized generation technologies, but the value of the energy they produce is also worth more since they are, in effect, selling into retail, rather than wholesale markets. Installed "behind the meter" means that a kilowatt-hour (kWh) of wind power offsets a kWh of purchased electricity at the full delivered retail rate. Distributed wind will always have a higher LCOE than a properly sited windfarm but its return-on-investment can, nonetheless, be comparable or even better because of the difference between retail electric rates and the much lower Power Purchase agreement (PPA) rates paid to windfarm developers.

1.6 Fact-checking the five biggest myths about Distributed Wind
There are, unfortunately, some misconceptions about distributed wind that keep showing up in the media and among important stakeholders, including federal agencies:

Reality 1) Moderately windy sites, not just high wind areas, are suitable for Distributed Wind
Distributed wind systems are designed to operate effectively where people live and work, and those places are typically not the best wind sites in the region. In contrast, central-station wind farms compete with other bulk power generation technologies (i.e., coal and natural gas) at the wholesale level, so project developers need to find the windiest ridges and elevated sites to gain a competitive advantage. But since distributed wind systems offset retail power, even moderate windy resources are adequate. DWEA estimates that approximately half of the rural residential, farm, and commercial sites in the U.S. have wind resources suitable for small and medium wind systems, and that amounts to millions of sites.

Reality 2) Although solar PV prices are low, U.S. small and medium wind turbines can compete
In recent years, the domestic distributed wind market has not kept up with the rapid growth of solar PV. The costs of imported solar PV modules have plummeted, principally due to $40 billion provided in government-backed soft loans for solar mega-factories in China[2], causing global oversupply. Selling prices were so low that the U.S. Department of Commerce has imposed hefty import duties on Chinese solar modules. While the lower solar prices have been a boon to U.S. solar retailers and developers, they have posed a severe challenge for distributed wind OEMs to remain competitive. The good news is that the distributed wind industry is becoming more cost efficient and is regaining presence in markets where prior imbalanced incentive policies are being reversed or made more equitable.

Reality 3) Customer-owned wind turbines do not disrupt utility business models
The U.S. utility industry, built on an "exclusive supplier" model, has created a huge and highly reliable electricity supply infrastructure that is a backbone of our economy and helps support one of the highest living standards in the world. In the absence of on-site storage, customer-sited generation, be it wind or solar, does reduce retail energy sales without also reducing the infrastructure for back-up electricity supply. DWEA supports a fair allocation of those costs so long as any "windfall profits" associated with utilities buying excess generation at low "avoided cost"

[2] Mercom Capital, as reported in "The Reality of China's Billions in Solar Loans", Greentech Media, Sept. 28, 2011

rates and selling to the wind customer's neighbors at high retail rates, are also factored in. In the long run DWEA sees tremendous opportunity for utility commissions and utilities to rate base distributed generation assets in the same way that central power plants are financed today. At scale, DWEA believes this would require outsourcing of specialized installation and O&M services such that non-utility businesses would still provide the bulk of the industry employment.

Reality 4) Despite inventions, conventional wind turbine designs remain the most efficient
Every week it seems a new breakthrough small wind technology or product is announced in glowing press releases with compelling claims of vast advantages over conventional wind turbine configurations. These products, typically from non-engineers, make great news appeal, but none of the hundreds of "revolutionary" designs announced over the last decade have succeeded commercially. While the niche market for wind-driven architectural applications at football stadiums, retail chains, and corporate headquarters will likely persist, the true promise for lower cost distributed wind is more advanced technology for horizontal-axis wind turbines installed on tall towers. Turbine certification requirements in particular are helping to ensure that public incentives are only offered to wind turbines that have been shown to be safe and effective. After unfortunate instances of federal agency and military purchases of sub-standard wind products, in 2014 the U.S. Department of Energy sent a memorandum to 13 federal agencies urging them to only use certified wind turbines – models that have been shown to perform and therefore receive a "stamp" of approval. DWEA fully supports this quality assurance guidance.

Reality 5) While distributed wind can work well in many areas, successful rooftop wind applications remain improbable
Rooftop wind is wishful thinking that has caused many headaches. Study after study and trial after trial have shown that the tops of houses and buildings are inappropriate for distributed wind systems, unless they are intentionally meant to be weather vanes, or other "kinetic art." The top of most high-rises are sheltered and have high turbulence, both of which decrease performance significantly. And contrary to the claims of the opportunists (see Reality #4 above) no wind turbine technology exists that can overcome, let alone exploit, these physical realities. The same is true for short towers. The push for green images has inadvertently encouraged "eco-bling" wind installations that may not produce a meaningful amount of electricity. However, thousands of certified distributed wind systems properly sited in open areas – away from tall trees and other obstacles – are successfully producing cost-effective electricity.

2. Current and Future Technology

2.1 How Distributed Wind systems work with the grid
Distributed wind systems are comprised of one or more wind turbines connected to the homes' and facilities' wiring at the breaker panel level. When the wind turbines are not producing power, the homes and facilities draw all of their electrical needs from the utility grid. When the turbines begin producing electricity, the homes and facilities begin drawing less power from the utility. The primary economic benefit from distributed wind systems comes from lower monthly electric bills.

If the wind turbines produce more power than needed by the homes and facilities, then the excess power flows on to the electric grid and is used by neighboring homes or facilities. The right to install and

operate a distributed wind system and to be paid a computed rate for any excess energy produced is provided by federal statute (PURPA, Section 210). At a minimum utilities must pay for the excess energy at an "avoided cost" rate approved by their governing state public utility commission. In practice these buyback rates are typically biased on the low side. In over 40 states, one or more utilities offer net metering options for small distributed renewables, which allow excess power to "run the meter backwards," essentially banking the energy for periods of lower renewable energy production.

2.2 Small and large wind turbines are different

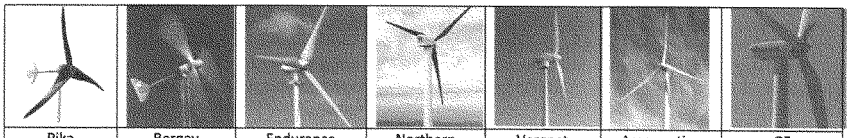
All wind turbines consist of a rotor that captures the kinetic energy of the wind through aerodynamic blades, which then drive a generator that produces electricity. Large turbines are most often installed in localized arrays of a dozen to hundreds of turbines in "wind farms," which have a dedicated crew of maintenance workers. Distributed wind turbines, on the other hand, are installed one or two at a time at sites spread over a windy area. Maintenance workers often have to travel hours just to reach the turbine, so maintenance is more of a burden. For this reason many of the best-selling small wind turbines (≤ 100 kW) are much simpler mechanically than large turbines. Many have special-purpose direct drive generators, fixed pitch blades, few sensors, and passive controls, all aimed at reducing the number of moving parts and the need for maintenance. Medium sized wind turbines (100 – 1,000 kW) tend to operate more like megawatt-scale turbines because the cost of maintenance trips is less of a concern due to their higher energy production.

2.3 The technical challenge

A distributed wind turbine will typically operate 6,000 – 8,000 hours per year, which is the equivalent of putting 150,000 miles a year on a car. It needs to do this for at least 20 years with a minimum of maintenance costs. It needs to operate automatically and safely though thunderstorms, damaging winds, hurricanes, ice storms, snow, hail, rain, lightning, earthquakes, sand storms, salt spray, and whatever else nature throws at it. Designing and perfecting a smaller scale wind turbine that can do this is a sizable engineering challenge and one that many, many new entrants in the field have failed to master. The good news is that some distributed wind products have demonstrated operating lives of 35 + years (still operating) and have successfully performed for more than20 years with 100% availability and near-zero maintenance costs[3].

2.4 Examples of Best-Selling Products

More than 99% of the turbines used in distributed wind systems are horizontal-axis turbines, and most use three blades, because this is the most competitive configuration. Vertical-axis wind turbines have not yet progressed past niche architectural applications. Some of the best-selling distributed wind system turbine models include:



Pika	Bergey	Endurance	Northern	Vergnet	Aeronautica	GE
1.8 kW	10 kW	54 kW	100 kW	275 kW	750 kW	1.5 MW
2,800 kWh	16,000 kWh	125,000 kWh	165,000 kWh	420,000 kWh	1,100,000 kWh	2,250,000 kWh

[3] Overview of Bergey Windpower, corporate presentation, 2011

2.5 Advanced Technology

Due to the lower public investment in small and medium wind technology and deployment, the wind turbine and manufacturing technologies of distributed wind are not as advanced as more developed clean energy technologies, such as wind farms and solar PV. The good news is that significant technology and manufacturing advances that will deliver meaningful cost reductions are within reach. The U.S. Department of Energy's new Competitive Improvement Program (CIP) and the U.S. Department of Commerce-funded Sustainable Manufacturing, Advanced Research and technology (SMART) Wind Consortium are excellent examples of effective cost-shared public/private R&D efforts driving fast paced innovation in the distributed wind technology sector.

Distributed Wind systems have a number of promising areas for technology improvement, including:

- **More effective rotors and blade structure designs:** The rotor system, consisting of two or three blades, is the most critical component of a wind energy system and an area ripe for innovation. Large scale wind systems have benefitted greatly from new airfoils and new blade structural designs that allow larger rotors to be installed on smaller drivetrains, towers, and foundations. So, for very small increases in installed costs, large gains are made in energy production, reducing LCOE. While this basic strategy applies to small and medium wind turbines as well, the scale difference means that different aerodynamic and structural solutions must be developed.

- **More efficient generators designed for higher production volumes:** Generators convert the wind energy captured by the rotor into electricity. As with large wind turbines, some competitive distributed wind turbine models have gearboxes and high speed generators, and some models have low speed generators without gearboxes. At the residential scale, however, most wind turbines have special purpose direct-drive generators representing important opportunities to improve efficiency and designs for higher production volumes.

- **Optimized and simplified power electronics/controls:** Power electronics (inverters) are used to convert the raw electrical output from a variable speed wind turbine into utility-grade power. The power electronics used by the solar industry, and manufactured in high volumes, are similar but are also different in important ways, such as the input interface and the required voltage operating range. The performance of many small wind systems is compromised by having to use inverters designed primarily for use with solar PV modules in order to connect to the grid. Power electronics technology is constantly improving, and numerous opportunities are rapidly emerging to apply state-of-the-art technologies to improve performance and reduce costs of small and medium wind turbines. At the medium scale many wind turbine models are designed to operate a near constant speed and without power electronics, but these "induction generator" designs also need more sophisticated operational controls.

- **Improved tower designs**: Even the smallest distributed wind turbines need to be placed on towers at least 80 feet tall in order to be effective due to diminished wind speeds and turbulence close to the ground. In addition, the industry "rule of thumb" is that the bottom of the rotor should also be at least 30 feet above any obstacles within 500 feet of the turbine. Where there are 100 foot trees, small and medium wind turbines may need 140 – 160 foot towers to be most effective. The near-ubiquitous monopole towers used in the large turbine industry become proportionately more expensive when applied to smaller wind turbines, so lattice and guy-wire supported tower configurations are more often employed. Tower design improvements are needed for small and medium wind systems that use less ground space, have

a more appealing appearance, and cost less to produce and install.

- **Streamlined installations:** Installation can cost up to 30% of the total installed cost for a small or medium wind system. Installation costs include excavating, forming, reinforcing, pouring, and finishing concrete foundations; running underground wiring from the tower to the building; assembly and erection of the tower and turbine; mounting of electrical components and switches; interconnection and metering; and commissioning. Installation typically involves heavy machinery such as forklifts, backhoes, trenchers, cement trucks, and one or more cranes. Weather and soil conditions can easily derail installation schedules. Many opportunities exist to develop cement-less foundations or anchoring, labor-saving equipment designs, and system designs that eliminate the need for cranes for distributed wind installations.

- **Leaner operations and maintenance:** Wind turbines require regular inspections and preventive maintenance to achieve high reliability and optimum power production performance. Maintenance costs can be reduced substantially through value-engineering, smart structures, and advanced monitoring.

2.6 Advanced manufacturing

Small and medium wind turbines, towers, and electronics are manufactured in batch processes rather than the near continuous "assembly line" processes of most other consumer and commercial capital goods. Even the simplest of small wind turbines requires dozens of manufacturing processes covering the industrial spectrum of machining, forming, assembly, painting, testing/quality control, and packaging. New advanced manufacturing technologies and processes developed for other types of products hold promise for lowering the cost of small and medium wind systems. These possibilities are being explored by DWEA's SMART Wind Consortium under funding from the U.S. Department of Commerce National Institute for Standards and Testing (NIST).

3. Current and Future Distributed Wind Costs

3.1 Installed Cost of Distributed Wind Systems

Installed cost, on a dollars per Watt basis, is a common and readily understandable economic figure of merit. While useful, installed cost does not account for a project's capacity factor, which depends on the renewable resource at the customer's site, or operating costs and project longevity, which can vary by product and technology. A scale effect is seen with capital costs of distributed wind, with smaller systems costing more on a per kW basis. This is primarily due to higher relative tower and installation costs. A greater range of installed costs is seen at the residential level due to the different tower types and heights available.

The following table provides average installed costs for distributed wind systems in 2014, and the industry's cost targets for 2030:

Turbine Size	Recommended Height	Typical User	2014 Cost/kW	2030 Cost Target
1 – 3 kW	60 ft.	Off-Grid, Residential	$8,500	$4,500
4 – 15 kW	120 ft.	Residential, Small Farm	$7,000	$3,200
16 – 100 kW	150 ft.	Farm, Commercial, Public Facility	$6,000	$3,000
101 – 1,000 kW	180 ft.	Commercial, Industrial, Public Facility	$4,500	$2,800
1.1 – 2.5 MW	240 ft.	Industrial, Institutional	$4,000	$2,500

This data was compiled by DWEA. Cost savings will be achieved through a combination of technology improvements, advanced manufacturing, higher volume manufacturing, and lowering soft costs.

3.2 Capacity Factors

The economics of distributed wind are also heavily influenced by each installation's capacity factor, or the amount of annual energy produced per kW of installed capacity. One of the best, and worst, aspects of wind energy is the sensitivity of the energy production to the local wind resource and the height of the wind turbine tower. The same distributed wind turbine model could see annual capacity factors ranging from 2% (not recommended) to 40% depending on where it is installed. For reference the average wind farm capacity factor is 36% and solar system capacity factors typically range from 12 – 18%. Distributed wind systems will typically be installed in lower wind resource areas than wind farms because most people do not live and work on the highest elevation and windiest land in the region. The following table provides average capacity factors for distributed wind systems in 2014, and the industry's targets for 2030:

Turbine Size	Recommended Height	Typical User	2014 Capacity Factor	2030 CF Target
1 – 3 kW	60 ft.	Off-Grid, Residential	15%	20%
4 – 15 kW	120 ft.	Residential, Small Farm	18%	30%
16 – 100 kW	150 ft.	Farm, Commercial, Public Facility	20%	30%
101 – 1,000 kW	180 ft.	Commercial, Industrial, Public Facility	20%	32%
1.1 – 2.5 MW	240 ft.	Industrial, Institutional	20%	34%

Higher capacity factors will be achieved through a combination of technology improvements and taller towers. As with large wind turbines, advanced airfoil and rotor technology will allow small and medium turbine rotors to get larger without increasing costs. This increases energy production and lowers LCOE.

3.3 Levelized Cost of Energy

Levelized Cost of Energy (LCOE) is a common reference used to judge the cost competitiveness of an energy generation technology and is the primary economic metric reference for the U.S. Department of Energy. LCOE costs include the total cost of ownership of a generation asset, including opportunity costs (returns available from alternative investments), over the lifetime of the system. The net present value of these costs are then divided by the projected lifetime energy production under the reference wind resource conditions. In theory this allows direct comparisons of generation costs, before applying any subsidies or incentives, between different products and technologies. In practice the baseline assumptions for different technologies can provide some skewing of the results, and the best use of LCOEs lies in gauging the improvements within a technology for various technical or soft cost advances.

Nonetheless, LCOE provides a useful benchmark and does provide an approximate comparison between technologies. The following table provides average LCOEs for distributed wind systems in 2014, and the industry's cost targets for 2030:

Turbine Size	Recommended Height	Typical User	2014 LCOE (¢/kWh)	2030 LCOE Target (¢/kWh)
1 – 3 kW	60 ft.	Off-Grid, Residential	28	11
4 – 15 kW	120 ft.	Residential, Small Farm	20	6.5
16 – 100 kW	150 ft.	Farm, Commercial, Public Facility	16	5.7
101 – 1,000 kW	180 ft.	Commercial, Industrial, Public Facility	12	5.4
1.1 – 2.5 MW	240 ft.	Industrial, Institutional	10	4.6

Lower LCOE's are a combination of improvements in installed costs and capacity factors. For reference, in 2013, according to the EIA, the average cost of residential electricity was 12.1¢/kWh and the average cost of commercial electricity was 10.4¢/kwh.

3.4Comparison with Other Distributed Generation Technologies

Distributed wind has the potential to be the lowest cost clean energy option for millions of homeowners, farmers, businesses and public facilities and to be economically viable without subsidies.

The following table compares DWEA's projected costs in 2030 for distributed wind and 2020 US-DOE cost targets for solar:

System Size	Typical User	Wind 2030 LCOE (¢/kWh)	Solar 2020* LCOE (¢/kWh)
1 – 3 kW	Off-Grid, Residential	11	N.A.
4 – 15 kW	Residential, Small Farm	6.5	6.5
16 – 100 kW	Farm, Commercial, Public Facility	5.7	7
101 – 1,000 kW	Commercial, Industrial, Public Facility	5.4	6
1.1 – 2.5 MW	Industrial, Institutional	4.6	5

* DOE SunShot Program targets, assumes CAPEX of $1.50/W residential, $1.25/W commercial, and $1.00/W utility-scale, represent 50% cost reductions

4. 2030 Distributed Wind Potential

4.1 Methodology

The U.S. DOE has established an 8,000 GW potential figure for land-based large-scale wind, derived by looking at the amount of windy land available for development and applying assumptions on exclusions and utilization. In a similar fashion, the DOE's 4,200 GW potential for offshore wind was derived by looking at the windy acreage available offshore and applying assumptions on exclusions and utilization.

But a different approach is required for distributed wind because every "behind the meter" project requires a home, farm, business or public facility to be connected to. The distributed wind potential, for example, is largely excluded from DOE's overall wind potential figure because the DOE models exclude much of the land where people live and work. Buildings account for the majority of the electricity consumed in the U.S.

4.2 Distributed Wind Market Potential

Installed "behind the meter," distributed wind systems serve loads on the customer side of electric meters located at buildings or special purpose electric loads such as pumps. To estimate the potential for distributed wind in the 2030 timeframe, DWEA has used available statistics or best estimates of the number of common categories of buildings, estimated their growth to 2030, applied exclusions for wind resource and other unsuitability factors, and estimated the average size of turbines that would best fit the category. These results are shown below.

Market Segment	2014 Size, Units	Data Source	2030 Size, Units	Percent Suitable	2030 Potential Installed Units	Average Size (kW)	Potential (MW)
Buildings	8,900,000	Census, 2008	14,300,000	20%	2,860,000	275	786,500
Rural Residences	24,900,000	AHS, 2013	34,200,000	35%	11,970,000	12	143,640
Farms	2,100,000	USDA, 2012	2,000,000	40%	800,000	100	80,000
Public Buildings	750,000	DWEA Estimate	875,000	20%	175,000	300	52,500
Schools	140,000	NCES, 2010	165,000	35%	57,750	400	23,100
						Total Potential (MW):	**1,085,740**

The sheer number of homes, farms, commercial buildings, schools, and facilities with enough space and a usable wind resource, numbering in the tens of millions, gives distributed wind applications the potential to contribute at the gigawatt scale. The 1,100 GW potential of distributed wind is on par with the 1,100 GW potential that U.S. DOE has estimated for offshore wind for water depths up to 30 m. The U.S. currently has 1,100 GW of installed generating capacity from all sources.

DWEA's estimate above does not include special purpose loads such as pumps and irrigation systems. Nor does it include community wind projects, wind gardens, or additional projects made feasible by virtual net metering, which several states are implementing. DWEA estimates that these additional market segments could booth distributed wind's potential by 25% to approximately 1,400 GW.

Navigant Research recently published a report predicting the distributed market worldwide for small and medium wind up to 500 kW at 3.2 GW worldwide by 2023.

4.3 Energy Production Potential

Distributed wind turbines currently operate at capacity factors in the range of 15 – 20%, which while greater than solar for much of the U.S., is less than the average capacity factor for wind farms of 36%. Over the next 15 years DWEA predicts the average capacity factor for DW turbines will increase to 30% as shown in Section 3.2 above. This equates then to a theoretical annual generation potential of 2,900 TWh in 2030. The net electricity generation in the U.S. for 2014 was 4,100 TWh. Distributed wind has the potential to make a significant contribution to the U.S. electricity supply portfolio.

4.4 Additional Benefits

In addition to its clean energy contributions, distributed wind provides a number of other significant side benefits, including:

- **Rural Economic Development:** Solar funding at the state and federal levels overwhelmingly supports projects in urban and suburban areas, whereas distributed wind primarily supports projects in rural areas. The customer savings, construction labor, materials and services, and the long-term operations and maintenance support translate to local jobs and help keep energy costs circulating in the local community. Distributed wind development can help improve the balance and distribution of benefits from clean tech policies providing rural voters and their representatives a firmer basis for supporting policies favoring cleantech.

- **Promotes More Energy Choices for Americans:** Consumers benefit and resources are more efficiently allocated when multiple cleantech technology choices are available. Wind, solar, and hydro resources vary greatly from region to region across the United States. Land availability

and priorities for its use vary. Consumers place different priority on where a product is manufactured. No one technology is optimal for everyone, everywhere. Greater cleantech technology diversity will increase private sector investment in clean energy. Notably this consumer choice issue truly resonates with citizens irrespective of party affiliation.

- **Plays to American Technology and Manufacturing Strengths:** American small and medium wind manufacturers have world-leading technology and command significant global market shares. The domestic market share for U.S. based manufacturers exceeds 90%. Distributed wind is part of the renaissance in American manufacturing and nurturing the DW industry will drive long-term job creation throughout the U.S. The DW industry supply chain currently extends to more than thirty states.

- **Strengthens Exports:** The worldwide market for small and medium wind systems is growing and exports are a significant market for U.S. distributed wind manufacturers and systems integrators. In some years total export sales exceed domestic sales and exports have been as high as 80% of total sales. U.S. manufactured small and medium wind turbines have been installed in over 130 countries. The UK, Italy, and Japan are the largest export markets in 2015. We know from the history of large wind and solar that robust domestic markets help manufacturers leverage export sales through increased cost competitiveness and market development resources. Growing the U.S. distributed wind market will also grow exports.

- **Strengthens the Grid:** Significant amounts of distributed wind also improve grid power quality, provide opportunities to improve customer electric reliability, complement solar by providing winter peak shaving, and support the development of micro-grids. Distributed wind encourages private sector investment in clean energy infrastructure and helps customers hedge against rising electric rates.

- **Shorter Project Cycles:** The distributed wind project cycle is typically 2-9 months, compared to 2-4 years for land-based windfarms and 8-12 years for offshore windfarms. The U.S. Fish and Wildlife Service recognizes the lower environmental impacts of distributed wind compared to wind farms.

- **Places more Wind Energy in the Public Eye:** Distributed wind is installed where people live and work. It is more "present" and visible to many more people than the remotely located windfarms that make up the bulk of America's wind energy portfolio. Familiarity can dispel concerns and misinformation promoted extensively by the opponents of wind power. In this way small and medium wind can lead to greater acceptance and development of large wind.

5. Barriers

Distributed wind faces similar cost and consumer acceptance barriers that most emerging technologies face, but significant policy barriers also pose unique challenges for distributed wind. Understanding those barriers is a prerequisite to plotting an effective path to greater utilization and a greater role in our nation's energy supply portfolio.

5.1 Imbalanced Renewable Energy Policies

Some of the policies that have been instrumental in growing the solar market have had the unintended consequence of retarding the growth of the distributed wind market. Examples include:

- Solar-only carve-outs in Renewable Portfolio Standards (RPS) programs in states such as NJ, CA, and MA.
- Solar-only Renewable Energy Credit (S-REC) programs where the REC's can sell for 100 times the price of wind generated RECs (e.g., NJ).
- Solar-only state initiatives such as A37/SB 05-143 in Colorado (providing >$100 million in solar rebates, zero for wind).
- Solar-specific utility rebate programs offered by a large number of utilities around the country and numerous solar-focused programs of all types that have provided incentives 2- 10 times as high as for distributed wind.

As solar module prices have plummeted in recent years, many of these imbalanced solar programs have been scaled back and an emerging trend is a reversal of the bias. The Indiana utility NIPSCO, for example, two years ago had a FIT program that paid solar 30¢/kWh and wind 17¢/kWh, but in recognition of current cost disparities now has a program that pays solar 17¢/kWh and small wind 25¢/kWh. In Japan, the FIT program now pays distributed wind up to 20 kW over twice the rate of solar PV "to encourage technology diversity".

5.2 Cost

As with other renewable energy technologies, the primary reason that more customers do not buy or invest in distributed wind is that it currently costs too much. Cost reduction is the highest priority of the distributed wind industry because it directly affects business prospects, and because there is a general understanding that the products and industry must at least achieve parity with conventional energy if it is to survive long term. Technology improvements will play an important role in lowering costs and, as discussed in Section 2.5 above, distributed wind has several areas with good prospects for improving performance and lowering manufacturing costs. But it is important to remember the powerful role that manufacturing and installation volume play in total costs to the end user. Simply stated: "More people would buy them if they cost less, but they won't cost much less unless more people buy them." Addressing this chicken-and-egg challenge is where smart subsidies can build markets and industries.

5.3 Zoning Rules and Permitting

Rural areas in the U.S. have a long history with widespread use of water-pumping windmills and small wind turbines, so DWEA believes it is safe to assume that permitting ultimately will not prove to be a significant barrier to utilization. In the near term, however, it is a very significant barrier. Small wind turbines need towers that are 80 – 180 feet in height, but also need building permits in counties and cities that have 35 foot height restrictions and no special exemptions for individually owned wind turbines. The ubiquitous 35 foot height restriction has its origins in the fire safety of inhabited structures over a century ago, but its persisting impact on small and medium wind turbine permitting cannot be overstated. It can, and often does, throw the approval process for small wind turbines into the same zoning processes used for high rise buildings, liquor stores, adult entertainment venues, and oil refineries. It can take more man-hours to obtain a permit to install than it does to manufacture, deliver and install a small wind turbine. With over 25,000 separate zoning jurisdictions in the U.S., DWEA estimates that addressing each zoning ordinance individually would take more than one million person-hours and cost more than $250 million.

Similar, though less stark, barriers exist for solar and are a major target of the U.S. DOE's SunShot Initiative. As part of efforts to reduce "soft costs," the DOE is funding tens of millions of dollars of state and local programs aimed at innovative and replicable approaches to streamlining the permitting of solar installations. A similar opportunity exists for federal support of initiatives to streamline permitting for Distributed Wind systems.

5.4 RD&D Lost in the Shadow of Wind Farms

Since the mid-1980's the U.S. DOE wind energy RD&D (Research, Development, & Deployment) program has heavily concentrated its programs and funding on reducing the costs of large wind turbines in wind farm applications. In recent years U.S. DOE has added a major focus on offshore wind development. This 30-year effort has played an important role in the success of wind power in the United States: 75 GW of installed capacity at the end of 2014 and 177 TWh of generation in the 12 months ending in August 2014, representing 4.3% of total U.S. electricity production.

This focus, however, has meant that small and medium wind technology has lagged behind the technical and market development of other distributed renewable and cleaner energy technologies. For example, the U.S. DOE solar RD&D budget for FY15 is over $300M, while the DOE distributed wind budget is estimated at under $3M out of its $109M overall wind energy program[4]. This is why increasing U.S. DOE funding for distributed wind is a high priority for DWEA.

6. Policy Drivers

Policy, especially financial incentives, determines the pace of market development for clean energy technologies. While distributed wind incentives have lagged other clean energy technologies, they are now beginning to catch up and markets are growing. Non-financial policies that encourage or ease the use of distributed wind are also important. The following policy drivers are listed in the approximate order of their impact on the development of distributed wind markets.

6.1 Federal Tax Credits

For the U.S. market the most important policy driver, by far, is the 30% Investment Tax Credit (ITC): Section 48 of the tax code for commercial installations and Section 25 for non-commercial (residential) installations. For distributed wind up to 100 kW, the ITC was enacted in 2009 and expires in 2016. The ITC for wind turbines over 100 kW is tied to the Production Tax Credit (PTC, Section 45), which expired at the end of 2014. The market for medium-scale wind turbines for behind the meter applications is currently stalled due to the unavailability of the ITC, placing a real hardship on manufacturers and project developers in the over 100 kW distributed wind space. The industry has already seen business failures and exits from these U.S. companies.

DWEA believes that extension of the ITC past 2016 and raising its size limitation past 100 kW for wind are essential to the development of Distributed Wind in the U.S. The PTC does not apply to distributed wind because energy is not sold to an independent third-party. An upfront tax credit, such as the ITC, is a more effective incentive structure for Distributed Wind due to the market sensitivity to capital costs and payback period. DWEA has supported PTC/ITC extensions since 2009 that have included a provision

[4] "EERE FY 2016 Budget Request", Dr. David Danielson, Feb. 2, 2015, stakeholder presentation

(Section 48) allowing taxpayers to take the 30% ITC in lieu of the PTC. This has allowed the over 100 kW Distributed Wind market to develop. DWEA has also supported legislation, such as HR. 4761 (Blumenauer / Cole) in the last Congress, and S. 1741 (Franken/Tester) in the 112th Congress, which would raise the size limit of the wind ITC to 20 MW.

The Distributed Wind industry has only had a federal incentive since 2009 and it would be very unfortunate and a failure of smart energy, environmental, and industrial policy to let the ITC expire in 2016 and not address the unfair limitation to 100 kW. It is also worth noting that DW has not had the market acceleration of either wind farms or solar PV and the fiscal impact of an ITC extension for distributed wind would be a very small fraction of the costs for solar PV, wind farms, or other energy sources including fossil fuels. Given the GW potential for Distributed Wind and the modest fiscal impact of an extension, DWEA believes further federal investment in this sector is well justified. The ITC extension and/or expansion is DWEA's #1 Policy Priority in 2015.

In January 2015 the Internal Revenue Service issued certification requirements for the small wind ITC that will help ensure the products supported are safe and effective.

6.2 State Rebates and Other Financial Incentives

A handful of states, including NY, OR, CA, MA, MD, and NC, offer additional financial incentives such as rebates, tax credits, or production based payments, however these programs are highly variable and often short-lived. Where these incentives are robust, such as in New York State, the distributed wind market is growing more rapidly due to the more favorable economics. Prior to the enactment of the federal ITC in 2009, these state incentives were the only ones available and distributed wind had no national market. The number and scope of state incentive programs for distributed wind have declined in recent years due to the recession, different priorities of governors and legislatures, and other factors.

6.3 USDA REAP Grants

Since 2002 the U.S. Department of Agriculture has offered competitively-awarded grants up to 25% of project costs for renewable energy and efficiency projects for farms and rural businesses. While this program has largely funded efficiency and solar projects in the recent past, reforms were implemented in 2015 and are likely to encourage expanded use of the program by farmers and rural businesses. The U.S. Congress, via the Agriculture and Appropriations Committees, has re-authorized and funded the popular program through 2019. DWEA strongly supports REAP and maintaining farm bill mandatory funding, as well as additional discretionary dollars, to the extent feasible.

6.4 Net Metering

On any "behind the meter" renewable energy system sized appropriately for the local load, there will be times when the output exceeds the home or facilities demand. This excess generation flows into the utility's distribution network and is immediately sold to a neighboring home or facility. Federal law (PURPA Section 210) requires all utilities to pay for this excess energy, but at a rate that is generally less than the retail rate. Net metering is a state or utility policy that allows excess energy to be "banked" for times of insufficient generation, usually handled by allowing the utility meter to turn backwards. For residential-sized wind turbines, net metering produces savings to utilities due to lower administration costs. In utility territories with low "avoided cost" rates, net metering can have a significant impact on the system economics. In several states, such as NY, VT, and MA, virtual net metering is allowing farmers to share the benefits of a single larger wind turbine over several electric meters on their property or even on different properties they own.

Net metering policies are currently under attack is several states. As previously stated (see Section 1.6), DWEA supports fair net metering policies. For the smallest of systems, up to ~ 25 kW, DWEA believes that annualized net metering is justified on the basis of utility savings on meter reading, accounting, and check writing.

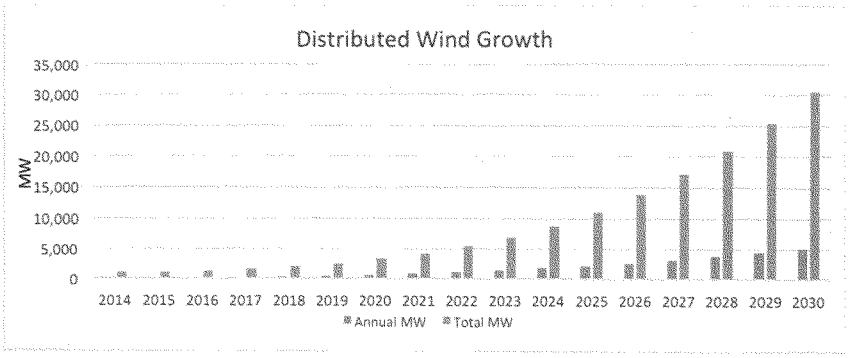
6.5 Interconnection Requirements

Utilities set requirements for equipment and customers that connect to their distribution network. When these requirements are reasonable and standardized they serve to streamline the interconnection approval. However, in some cases the requirements are excessive and serve to raise customers' costs. These anti-competitive practices have on occasion served to stop wind and solar projects by making them uneconomic. An example is the special $1M liability insurance requirement imposed by many rural electric cooperatives (but not by investor-owned utilities).

7. The DWEA "30 GW by 2030" Initiative

A recent public survey showed that 90% of Americans want increased development of solar and wind – 80% want solar and wind to "increase a lot" and 10% want it to "increase somewhat." Distributed wind is a technology/market that has superior growth potential over the next 15 years. It is literally the "low hanging fruit" of clean energy in the United States.

The DWEA "30 GW by 2030" initiative has the goal of reaching 30 GW, or 30,000 MW, of distributed wind capacity in the U.S. by 2030. Starting with 1 GW in 2015 and averaging 30% annual growth, the DWEA plan would result in 30.5 GW of distributed wind by 2030.



By 2030 the distributed wind industry is projected to reach annual revenues of $12.7 billion, employing over 150,000 people. The nearly half a million distributed wind turbines would be producing more than 66 TWh of pollution-free electricity, enough for over 5.8 million homes. The environmental benefit of 30 GW of distributed wind installations in 2030 represents the displacement of 44,800,000 tons of carbon dioxide and 11.5 million cars. While it may not be possible to maintain the current 90%+ domestic content, DWEA believes that with the policy leadership it will take to achieve this growth, the domestic content in 2030 could exceed 80%.

The policies that form the foundation of the DWEA "30 GW by 2030" plan include:

- Extending the existing ITC for distributed wind for several years, or removing the 100 kW limit for the federal Investment Tax Credit (matching solar) and providing a long-term extension.
- Providing a 40%ITC for residential wind systems up to 20 kW as part of the ITC extension
- Increasing the U.S. DOE budget for distributed wind RD&D to at least 15% of the overall wind energy research budget, with a range of activities paralleling the DOE solar program and investments made in prior years for larger land-based and offshore wind.

- Maintaining the USDA REAP program through and beyond 2019 at current or higher funding levels while ensuring it aggressively incents DW pro-actively.
- Encouraging rural electric cooperatives to sell and finance distributed wind systems to their members.
- Supporting exports of American-made distributed wind technology via international agencies and the White House Rural Export Initiative.

The future of distributed wind is where its LCOE is competitive with the grid in a large enough market for the industry to grow and thrive. State and federal subsidies are the bridge to that future by enabling the industry to reach volumes that bring down the total project costs to offset the eventual loss of these subsidies. The DWEA "30GW by 2030" plan would create that bridge and make distributed wind a significant long-term contributor to America's clean energy future.

8. Conclusion

DWEA believes that small and medium wind energy systems in behind-the-meter applications have sufficient potential, at the gigawatt scale, to warrant a concerted fifteen year effort at the federal and state levels to accelerate the development of the technology, manufacturing, and deployment of distributed wind systems. By 2030 these initiatives could create over 150,000 new skilled jobs, give consumers more choices for clean energy, greatly expand exports, and contribute significantly to environmental goals. The benefits of distributed wind are concentrated in rural areas and will be felt in every state. Now that windfarms and solar electric, among other technologies, are well established in the market place DWEA believes it is time to bring distributed wind to the policy forefront.

Griggs-Steele Empowerment Zone, Inc.

Rural Empowerment Zone Program in Griggs and Steele Counties
North Dakota

Prepared March 30, 2016, by Beth Berge, Chief Operating Officer

Since its inception in 1999 through the end of its funding designation in 2009, the Griggs Steele Empowerment Zone (GSEZ) was allocated nearly $17.7 million in federal funds.

Of the total funds received under the Empowerment Zone program, approximately 14% was used for administration of GSEZ, 43% was used for the revolving loan fund program, 14% for the equity fund program, and 29% was used for grant projects and other programs including community reimbursements; business retention, expansion, and targeted recruiting; and programs aimed at enhancing and developing housing, healthcare, daycare, renewable energy, tourism & recreation, and food processing & value-added agriculture within the Zone. These programs and strategies were developed by GSEZ to help achieve its mission to increase population while maintaining rural values and lifestyles, to enhance community facilities and services to support revitalization, to end out-migration and to invigorate and diversify the economy.

Early on, communities in the Zone recognized the need for developing and improving infrastructure in their areas in order to facilitate business development. Approximately $632,000 of empowerment zone funds, leveraged with an additional $600,000, was used to provide water, sewer, and roads to create or improve industrial parks in the communities of Cooperstown, Finley, and Hope. GSEZ also used nearly $1.5 million of its federal funds for the construction of new buildings and for the remodeling and renovation of existing buildings to support new or expanding businesses in the communities of Hannaford, Cooperstown, Binford, Hope, and Finley.

With its revolving loan fund program, it's estimated that $8.2 Million was leveraged against the $7.6 million received in federal funds, with an estimated 300 jobs created and/or saved.

With the help of empowerment zone funds, GSEZ partnered with another local development group to form M-Power, LLC, a local wind energy development company. Local investors and land owners contributed significantly to the project, and in 2009, two construction-ready wind projects were sold: one to Otter Tail Power Company and one to NextEra Energy Resources. Located near Luverne, ND, the wind farms began operation in 2009. The wind farms are known as the *Luverne Wind Farm*, capable of producing 49.5 MW of electricity, and the *Ashtabula II Wind Farm*, capable of producing 120 MW of electricity.

In rural areas, quality childcare is very limited but still a vital service needed to keep young families with small children from leaving their community. GSEZ was instrumental in helping provide licensed daycare to families in several Zone communities. Through both technical and financial assistance from

(cont.)

Griggs-Steele Empowerment Zone, Inc.

GSEZ, communities of Cooperstown, Binford, and Hope are able to meet the childcare demands of current residents and to utilize these services as a marketing tool to attract more young families to their communities.

One of the major projects undertaken by GSEZ in 2006-2007, together with leadership from Cooperstown/Griggs EDC, was in constructing a 21,000 square foot industrial building in the city of Cooperstown. With infrastructure provided by the City of Cooperstown, GSEZ used approximately $267,000 of its own revolved funds from its revolving loan program to match a $250,000 USDA Rural Business Enterprise Grant. An additional $770,000 was leveraged in loans from a local bank and other economic development agencies to complete the project.

The industrial building was designed to provide available industrial space for new or expanding primary sector businesses. Today the building is home to Dakota Turbines, a leading manufacturer of American-made 30Kw wind turbines.

In 2008, As GSEZ faced the end of its funding designation, it was agreed that GSEZ would have to narrow its strategies and focus on creating and expanding business activity in the Zone, while focusing on its own sustainability. Therefore, the work plan developed for future years focused on providing loans and equity investments to businesses and organizations within the Zone. The work plan also called for continued support of the community coordinator program which has been a very successful way to improve the link between the zone and the communities.

Plans for the reduction of staff and administrative costs were also implemented during the last half of 2008. With a reduced staff and budget, additional policies and procedures were implemented which place greater responsibility for executive authorization and decision making on the Board of Directors, with increased reliance on the professional expertise and guidance from its Loan and Investment Committees, made up of local community volunteers.

While its funding designation ended in 2009, GSEZ still strives in 2016 to make the Zone a better place to live and work. Empowering the citizens of a community, leveraging GSEZ revolved funds with other local and regional funds, and working together all contribute to the success of our region. With the empowerment zone *designation* period extended through 2016, employers are still eligible to claim the empowerment zone employment credit for qualified empowerment zone employees.

We ask that Congress continue to support our cause, as we strive towards achieving our mission and vision for a future where our friends and children no longer have to leave in order to make satisfying lives for themselves.

QUESTIONS AND ANSWERS

APRIL 6, 2016

Senate Committee on Agriculture, Nutrition, & Forestry
Subcommittee on Rural Development and Energy Hearing
USDA Rural Development Programs and their Economic Impact Across America
Wednesday, April 6, 2016
Questions for the Record
Mr. Craig Hill

Senator Amy Klobuchar

1. I often hear about how difficult it is for new and beginning farmers to get started in agriculture. I worked to include provisions in the 2014 Farm Bill that strengthen beginning farmer programs. The Minnesota Department of Agriculture recently created a new web tool designed to link retiring farmers and farmland to beginning farmers. What are the key barriers to entry, from your perspective, to new farmers entering into production agriculture and do you have ideas on how we could better support new farmers?

Craig Hill, Iowa Farm Bureau Federation, President

Thank you for asking this important question and for supporting beginning farmer programs in the Farm Bill. As the average age of farmers continues to increase it is vitally important that we give the next generation access to the tools that they need to successfully transition into farming. The biggest barrier to entry in agriculture is securing the capital necessary to start farming – specifically purchasing farm land, equipment, and machinery. USDA has several programs that address these issues for beginning farmers which should be a priority in the next Farm Bill. These programs include loan guarantees for down payments, farm ownership, and direct operating loans. Expanding access to these programs and streamlining the application process will make them more easily accessible and widely used. Additionally, it is important that we continue tax policies such as 179 business expensing and 50% bonus depreciation to ensure that tax liability is not any larger of an impediment to purchasing farm equipment and machinery. Strengthening these and other programs in the Farm Bill would help our beginning farmers get started in this capital intensive business.

Another way to reduce barriers to entry is by creating policies which incentivize retiring farmers to transition capitol assets to beginning farms. I'm pleased that Senator Klobuchar has promoted a program in her state that is linking retiring farmers and farmland to beginning farmers. Programs like this along with tax incentives for farmers who sell or lease land, facilities, machinery, and livestock to beginning farmers would help them secure the assets they need to start or grow their new farms.

Senate Committee on Agriculture, Nutrition, & Forestry
USDA Rural Development Programs and their Economic Impact Across America
Wednesday, April 6, 2016
Questions for the Record
Under Secretary Lisa Mensah

Chairman Joni Ernst

1. Are you aware of instances where rural housing projects have become rundown, had tenants vacate unexpectedly, or became havens for drug production and distribution? If so, has USDA Rural Development spoken to Housing and Urban Development about what lessons they've learned over the years to avoid these issues?

   RESPONSE: The RD Multifamily Housing Program has a comprehensive monitoring program of properties, management agents and borrowers. This program includes regular physical inspections of each property to monitor the condition of the properties, and re-inspections of properties to ensure that physical problems from any previous inspection are resolved. RD takes servicing actions to force resolution of physical property conditions such as requiring a workout plan outlining how problems will be addressed and monitoring compliance with the plan. RD can also initiate acceleration of the loan if problems noted are not resolved. RD also conducts triennial supervisory management reviews, where the operations of the property are reviewed and management practices are examined. Tenant files are reviewed for compliance and tenant interviews are held to obtain perspective and insight offered by property residents. Each property is required to provide RD with its tenant selection plan, including tenant screening processes and a management plan that describes how the property will operate. RD multifamily staff, at both the state level and the national level, is dedicated to working closely with borrowers and management agents to resolve issues promptly.

   RD participates in several working groups with HUD, and in the course of those meetings does exchange information with HUD regarding best practices of both agencies that are most effective in maintaining the quality of our properties and the safety of their

residents.

2. An issue that was brought to my attention last year by Iowans related to concerns that a number of low income residents living in subsidized rural housing were at risk of eviction due to a lapse in payments of rental assistance. Thankfully a short term fix was placed in the 2016 appropriations bill that ensured Rural Housing Services could payout the funds to participating landlords. What is USDA doing going forward to ensure that no Iowans are faced with a similar scare like the one last year?
   RESPONSE: Beginning this fiscal year, USDA instituted use of a new estimating methodology for its Rental Assistance Program to more effectively forecast the amount of subsidy needed by multifamily properties financed by the Department. This methodology, in combination with authority received
   in the 2016 appropriations to utilize all available Rental Assistance to fund renewals of subsidy agreements, will further ensure that properties have sufficient funding throughout the 12-month funding period. Thanks to Congress' support in approving increased funding, no renters faced eviction due to a lapse in payment of rental assistance. No shortages are expected to occur going forward and tenants will not experience situations similar to 2015.

3. In the last Farm Bill, Congress authorized a pilot program to fund 1 gigabit speed broadband projects. While there is certainly interest among many constituencies to fund projects of this magnitude, I think it is imperative we use limited federal resources to look at basic broadband to unserved areas before we start subsidizing projects that provide speeds most small rural businesses, not to mention families, do not need going about their daily activities. Does Rural Development have any plans to increase the current baseline speed of 4 up and 1 down required of providers who participate in the Farm Bill broadband loan program? If so, what speeds does USDA anticipate requiring?

   RESPONSE: Thus far, no funds have been appropriated for the pilot gigabit program and the pilot has not been set up at this time due to the lack of funding. However, our Community Connect program does provide grants to fund broadband in unserved rural areas. On April 18, RUS published a funding notice announcing the availability of $12

million in grants through the Community Connect program. In addition, on April 8, 2016, we published a Notice of Solicitation of Applications (NOSA) opening up another Farm Bill Broadband Program application window. This NOSA raised the required speeds applicants must offer 4 down and 1 up to 10 down and 1 up. This will make more of the country eligible for the program. Under this program, applications that propose to serve the greatest number of unserved households will be given priority for funding over other eligible applications. Eligible areas are those in which at least 15 percent of the households are unserved. In determining required speeds, RUS takes into account guidance from the FCC and the lack of service in rural areas, which are ten times more likely to be unserved than their urban counterparts (source: FCC 2016 Progress Report).

4. The Rural Business and Cooperative Services (RBS) mission in the past has played an important role in supporting cooperatives. It provided information on cooperatives' role in various commodity sectors, and on cooperative legal foundations, taxation, finance, governance, and board-management relations. Over time, the ability of RBS to continue to provide those functions has diminished with the loss of many of the experienced professional staff. With the reorganization within RBS, and the creation of a Community Economic Development Division, what steps are you taking to ensure that RBS has sufficient resources, most importantly staff, to carry out its research and education functions?

   RESPONSE: RBS' commitment to cooperative support has not changed, and the Agency remains proud of the work it does in support of cooperatives. While true that RBS has lost a wealth of institutional knowledge and experience through retirements throughout the organization, it has been able to continue to deliver its programs and support to cooperatives with all the quality and consistency that it is known for. Replacing staff with extensive experience is not easy, but RBS has addressed this challenge by bringing on both seasoned cooperative experts and younger individuals that can quickly learn and grow.

   I must note that the reorganization referred to in the question has not occurred and is a proposal at this juncture. Current cooperative research, statistics, marketing, and

education functions have not changed. However, as part of the proposed reorganization, staff dedicated to those functions would all be organized within the new structure, but in a way that better ties the work into our programs. All of the existing functions and products of Cooperative Programs, including annual cooperative statistics surveys, Rural Cooperatives Magazines, Cooperative Information Reports, Cooperative Development Guides, training manuals for cooperative members and executives, cooperative education curriculum for high school agriculture teachers, marketing support for beginning farmers and ranchers, and its suite of cooperative grant programs, would continue uninterrupted into and after the implementation of the proposed reorganization. RBS has seen to this by ensuring that, regardless of a new place on an org chart, no current RBS headquarters employee, within Cooperative Programs or otherwise, will see any changes to his/her title, grade, series, position description, duty station, or core functions. RBS will continue to devote resources to the core mission of support and promotion of cooperatives that currently exists in its Cooperative Programs.

5. As you know, Iowa is home to many robust rural water systems, and in some instances they may be well positioned to extend their service to additional communities. When the USDA RD is considering a loan or grant for water treatment or distribution in a rural community, what process do they go through to ensure that taxpayer dollars are being spent effectively, when a town is considering a standalone system in lieu of joining an existing utility?

   RESPONSE: The USDA RD Water and Waste Loan and Grant Programs has assisted rural communities for nearly eighty years with financing for infrastructure and technical assistance that enables local leaders to provide clean, safe and affordable water and waste disposal services to rural residents. The Program has funded construction of systems for individual communities, multi-community partnerships and larger regional systems or water districts. The portfolio consists of more than 16,000 outstanding loans and maintains a less than one-half of one percent delinquency rate. The program is delivered locally through our Rural Development State and Area offices and is designed to help each rural water system succeed. Technical Assistance is available at no charge

to rural communities as they assess their systems and future requirements, seek funding for construction or enhancements to those systems, and operate their systems. The RD Water and Waste loan and grant Program application requires each applicant to submit a completed Preliminary Engineering Report, in which alternative approaches to providing the needed service must be considered. The Agency does encourage rural community leaders to explore partnership alternative that may improve the affordability of service for their customers. We do this, primarily, through consultation with our field staff. The program also awards priority points to projects proposing to merge ownership, management or operation of smaller facilities providing for more efficient management and economical service. (7 CFR 1780.17(d))

Additionally, the Agency's Regional Community Economic Development (RCED) set-asides, implanted per Section 6025 of the 2014 Farm Bill, offer priority points and set aside funding for projects that are part of a broad regional development initiative. To date, $63.4 million has been awarded to support 20 RCED water and waste projects. The agency also developed, in collaboration with EPA and rural stakeholders, the Rural and Small Systems Guidebook to Sustainable Utility Management, through which rural systems of all sizes can assess key components of their system and develop plans for improvement. Agencies and technical assistance providers across the country, including in Iowa, are now using this management tool to better identify and implement strategies to improve rural and small system operations.

The program respects the right of local leaders to make critical decisions regarding the provision of water and waste services in the rural areas they serve, and encourages partnering or merging with other systems, particularly in cases where an individual community is unable to sustain long-term, reliable service. The detailed and holistic approach of the program and its requirements has produced many sustainable, individual, multi-jurisdictional and regional rural water and waste systems. USDA RD regularly monitors the financial sustainability of its water and waste borrowers. In 2015, approximately 95% of the nearly 8,000 borrowers met or exceeded sustainability

benchmarks. In Iowa, the percentage of systems meeting or exceeding the benchmarks was 97 percent.

6. To better reach out and provide water and wastewater infrastructure in rural America, will the agency provide an incentive to rural communities as well as regional water and wastewater systems to apply at the lowest interest rate* for projects in unserved or underserved areas of the country? And if so, can this be done at the agency level?
   *As of April 1, 2016, program loan interest rates are:
   Market rate: 2.875%
   Intermediate Rate: 2.25%
   Poverty Rate: 1.75%

   RESPONSE: USDA RD is exploring ways to incentivize established and successfully operating water and waste systems to extend service to unserved or underserved rural areas. The Agency is seeking input from rural stakeholders, such as the National Rural Water Association (NRWA). NRWA hosted a Water District Finance and Regulatory Issue Forum in 2015. A second forum is scheduled for June 2016 and USDA RD will participate.

7. To better reach out and provide water and wastewater infrastructure in rural America, will the agency provide an incentive to consider only the "benefitted area" when reviewing the funding underwriting to determine if any other needed subsidy such as additional grant dollars is warranted?

   RESPONSE: USDA RD is exploring ways to incentivize established and successfully operating water and waste systems to extend service to unserved or underserved rural areas. Grant funding is limited and other options must be considered. The Agency also encourages larger regional water and waste systems, many of whom have benefited from RD loan and grant funding, to share the benefits of economies of scale with unserved and underserved rural areas rather than requiring smaller and more remote communities to bear the full burden of infrastructure build-out to their areas. The

Agency will continue to work with rural stakeholders to address ways to affordably extend service to unserved and underserved rural areas.

Senator Amy Klobuchar

1. In your testimony you state that building the Northeast Service Cooperative fiber network in Minnesota's Iron Range was "a challenge." What lessons did Rural Utilities Service RUS learn from this challenge and how are you working to improve your broadband deployment efforts moving forward?

RESPONSE: All major rural infrastructure projects—including those funded under the American Recovery and Reinvestment Act (ARRA)—have various challenges to that must be addressed for the project to be completed and able to provide services to consumers. These are common issues in the telecommunications industry, especially when building broadband infrastructure in rural areas. Last fall more than 250 AARA projects were successfully completed, including the Northeast Service Cooperative middle-mile project. The project effectively met the objectives of the approved application and is in compliance with Program requirements. As a result of the project, Minnesota rural communities in the "Iron Range," including schools, hospitals, libraries, businesses, and residents, have high-speed broadband access.

Below are testimonials from various middle mile institutional customers attesting to the success of the project:

1) International Fall School District
Location on Map: International Falls, Minnesota
Contact Information: Dave Skwarok
Level of Service: Broadband Internet Service 100 Mbps
About the Service: "The speed has increased, more concurrent user. Mobile devices to access education. Scalable. Amazing project. This was a tremendously successful project."

2) Vermilion Health Clinic
Location on Map: Tower, Minnesota
Contact Information: Randy Long
Level of Service: 1 Gbps Ethernet
About the Service: "Increased capacity at the clinic that wasn't available before."

3) Arrowhead Library System
Location on Map: Hibbing, Minnesota
Contact Information: Robert Sundstrom
Level of Service: 1 Gbps Ethernet
About the Service: "We are happy with the service. Previously they had T-1 service, which is 1.5 Mbps. There are less complaints from the libraries."

4) Jay Cook State Park
Location on Map: Carlton, Minnesota
Contact Information: Steve Lutzka
Level of Service: 1 Gbps Ethernet
About the Service: : "The new service is better. Everything is working. This service enables WiFi within the park."

5) Min No Aya Win
Location on Map: Cloquet, Minnesota
Contact Information: Fred Underwood
Level of Service: 1 Gbps Ethernet
About the Service: "You don't get that many diverse entities to work together if there wasn't a lot of planning. There's not one person that doesn't like the increased service."

2. In 2012, President Obama issued an executive order entitled Accelerating Broadband Infrastructure Deployment that directed federal agencies to promote "dig once" policies

to install underground broadband infrastructure at the same time as other construction projects. What steps has Rural Utilities Service taken to promote "dig once" policies?

RESPONSE: USDA's Rural Utilities Service (RUS) supports and encourages its stakeholders to consider "dig-once" policies and best practices. "Dig-once" coordination of infrastructure projects helps accelerate and expand broadband deployment in rural communities and reduces costs for broadband providers and local and state governments. Furthermore, it limits the environmental impact and the duplicative costs from repeated excavation.

Through the Broadband Opportunity Council, RUS collaborates with other federal agencies that fund infrastructure projects, such as EPA, GSA, HUD, and DOI, to promote the 'dig-once" policy. The Council, which Secretary Vilsack co-chairs with Commerce Secretary Penny Pritzker, developed a report in September 2015 that included further promotion of the "dig-once" policy with the following steps:

- Review Agency regulations to assess whether changes facilitate and/or promote dig-once policies for Local and State governments.
- Develop, publish and disseminate best practices documents and models to stakeholders and explore opportunities to provide technical assistance and expertise to interested State, Local and Tribal governments, and recipients of Federal construction support.
- Review existing notification systems for Federally supported construction projects and identify opportunities to promote increased levels of information and visibility to Local and Tribal governments, utilities and broadband and communications service providers to facilitate practical project-level coordination between project sponsors and broadband providers.
- Agencies with Federal land stewardship responsibilities ensure that they lead by example in implementing dig once policies that encourage broadband competition and deployment, including planning, joint use, construction and notification.

Furthermore, USDA's Forest Service is working with the Bureau of Land Management to consider alternatives for including requirements for environmental analysis in new highway development that covers potential broadband and energy transmission projects.

Senator Debbie Stabenow

1. This committee worked hard to craft the rural development and energy titles of the 2014 Farm Bill to reflect the current needs of rural America. We merged programs and created efficiencies that saved taxpayers' dollars and made program delivery more efficient. In the next few years, as we transition from a focus on implementation of the 2014 bill toward writing the next Farm Bill, do you have suggestions for improvement to those two titles of the Farm Bill?

RESPONSE: Since passage the 2014 Farm Bill, the Department has worked diligently to implement the new provisions and programs outlined in the statute. Since that time, the Department has stood up new final rules and made programmatic changes as directed by the Farm Bill. Some of these changes include:

- Added preference points for veteran farms and ranchers to the Value –Added Producer Grants program;
- Expanded the Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program to include renewable chemicals and biobased product manufacturing as well increase diversity in the types of projects approved;
- Established set-aside funding of up to 10% of funding for programs including Rural Business Development Grants, Business and Industry loans, Community facility loans and Grants, and Water and waste water programs as directed by Section 6025 of the 2014 Farm Bill.

We're currently evaluating the impact of these provisions and programmatic changes. Additionally, Rural Development is in the process of promulgating final rules for other

programs as directed by the Farm Bill. We look forward to engaging with stakeholders and Congress as work begins on the next Farm Bill.

2. The Rural Energy for America Program, also known as REAP, has invested millions of dollars in renewable energy and energy efficiency projects across the country. And both Mr. Somerville and Mr. Shaw's written testimonies went into some detail about why the program is so popular with rural landowners and small businesses. However, we still hear from producers that demand for this program far outstrips funding available. If USDA were given additional mandatory REAP dollars in the next Farm Bill is it fair to say the Department could put them to good use creating jobs in rural America?

   RESPONSE: The Rural Energy for America Program (REAP) has been very successful providing benefits to agricultural producers and small businesses. REAP impacts the profitability of the recipient by reducing or offsetting energy costs through the installation of renewable energy systems or through the completion of energy efficient improvements. The resulting economic impact results in creating or saving of jobs for the farmer, rancher and/or small business. The contractor, installer and other companies who install renewable energy systems or make energy efficient improvements benefit by bringing Federal funds into the local economy.

3. We've heard some feedback that the REAP program, while hugely successful, has had some difficulty funding so-called "distributed wind" projects in rural America. Can you talk about how USDA is working to improve the implementation of REAP to work better for distributed wind?

   RESPONSE: The Agency continues to evaluate the diversity of the projects funded under REAP, with the desire to achieve technological diversity via a proportional amount of projects funded from each technology. Ten Administrative Points are available to the Agency to use to help achieve technological diversity. These points have historically been used for wind projects to achieve technological diversity.

In addition, the Environmental review process that the Agency uses has historically been onerous for small wind projects. USDA recently published a regulation that revises the environmental review process. The streamlined environmental requirements will be beneficial for small, distributed wind projects.

4. Has the USDA ever considered partnering with other relevant government agencies – Department of Energy, as one example – to do an analysis of the bioeconomy marketplace and trends in the industry going forward? If not, do you feel that such a report might contain helpful information that could guide Congress' discussions as we embark on the next Farm Bill's energy title?

   RESPONSE: USDA does, in fact, collaborate on a regular basis with other agencies, including the Department of Energy (DOE) to analyze the bioeconomy market place. For example, USDA and the Department of Energy co-chair the Biomass Research and Development Board, which includes members from Interior (DOI), Transportation (DOT), Defense (DoD), Environmental Protection Agency (EPA), National Science Foundation (NSF), and the Office of Science and Technology Policy (OSTP). The Board is committed to collaboration among federal agencies on bioeconomy conceptions that would triple the size of today's bioeconomy by 2030—to more than a billion tons of biomass. Biomass that can be sustainably produced and utilized to grow the bioeconomy that will lead to more jobs, rural prosperity, biofuel production, heat and power generation, biobased manufacturing and production, and reduced greenhouse gas emission.

   In February 2016, the Board published "Federal Activities Report on the Bioeconomy," to emphasize the significant potential for an even stronger U.S. bioeconomy through the production and use of biofuels, bioproducts, and biopower. This report is intended to educate the public on the wide-ranging, federally funded activities that are helping to bolster the bioeconomy. Further, the report highlights some of the critical work currently being conducted across the federal government that either supports or relates to the bioeconomy.

The Board is just one example of collaboration and cooperation between the USDA and DOE. This year, there has been an exchange of staff between USDA's Office of the Chief Economist and DOE's Bioenergy Technologies Office to improve and expand coordination. Staffs at USDA and DOE continue to discuss and collaborate on feedstock resource assessment. The two agencies also collaborate on the Defense Production Act initiative and the Farm to Fly program.

Further, USDA collaborates with DOE and other agencies in an ongoing demonstrated commitment to expand the role of biomass as a way to reduce the need for oil and gas imports; to support the growth of agriculture, forestry, and rural economies; and to foster major new domestic industries — biorefineries — making a variety of fuels, chemicals, and other products. A significant part of this effort is the so called "Billion Ton Study" research, first published in 2005 and updated in 2011. The "2016 Billion-Ton Report: Advancing Domestic Resources for a Thriving Bioeconomy," is the third in a series of national assessments that calculate the potential supply of biomass in the United States. The report concludes that the United States has the future potential to produce at least one billion dry tons of biomass resources (composed of agricultural, forestry, waste, and algal materials) on an annual basis without adversely affecting the environment. This amount of biomass could be used to produce enough biofuel, biopower, and bioproducts to displace approximately 30% of 2005 U.S. petroleum consumption and would not negatively affect the production of food or other agricultural products.

Finally, USDA has sponsored studies of the bioeconomy marketplace and industry trends, including the June 2015 report, "An Economic Impact Analysis of the U.S. Biobased Products Industry: A Report to the Congress of the United States of America". This study was prepared for and sponsored by the U. S. Department of Agriculture (USDA) BioPreferred® program as mandated in Section 9002 of the 2014 Farm Bill (the Agricultural Act of 2014; P.L. 113-79). The report is a follow up to an October 2014 report, "Why Biobased? Opportunities in the Emerging Bioeconomy prepared for USDA."

Senator Michael Bennet

1. I've heard from farmers across Colorado who have been hard hit by low commodity prices. For example, in 2010, corn in Colorado sold for more than $7 per bushel. Last year, it was priced at $3.70. When commodity prices are low, farmers have a hard time making ends meet, and have fewer opportunities to invest in technologies that may increase yield or decrease water use. Some of these farmers and ranchers have been able to supplement their income with lease payments from wind turbines. In fact, last year in Colorado, farmers and ranchers received $9 million in wind lease payments. Can you tell us more about what USDA is doing to encourage renewable energy development in rural America? Are there additional steps we can take in the next iteration of the Farm Bill to drive more renewable energy investment in these rural communities?

   RESPONSE: USDA is maintaining a dual focus on encouraging implementation of energy efficiency improvement projects and development of renewable energy systems in rural America.

   USDA is enhancing cross-training and Rural Development Rural Business-Cooperative Service (RBS), Natural Resources and Conservation Service (NRCS), Farm Service Agency (FSA) field office staff to encourage full deployment of USDA programs in underserved areas and underserved populations.

   NIFA, NRCS, RBS, and RUS are working on a pilot to deploy a collaborative framework to provide program information and technical assistance to underserved populations in high-poverty areas.

   RBS simplified the application for the REAP grant program in order to broaden utilization of the program and reach limited resource agricultural producers and rural small business. The simplified application reduces the burden of applicants by using Agency-provided templates for smaller projects. Demand for the REAP grant program has increased in FY 2016. While RBS also enhanced the REAP guaranteed loan program, the total amount of REAP guaranteed loans approved in FY 2015 exceeded the historic high

by more than 200 percent.

RBS established four Regional Energy Coordinators to work with field office staff to assist in the delivery of RBS energy programs by providing technical assistance to potential applicants of projects implementing technologically advanced energy systems.

USDA is also focused on encouraging the development of bioenergy and biobased products and materials. RBS' Rural Energy for America Program, the Biorefinery, Renewable Chemical and Biobased Product Manufacturing Assistance Program (Section 9003), and the Business and Industry program can provide financial assistance and loan guarantees for the development of biorefineries and biomass conversion facilities. In addition, the suite of Title IX programs is critical to the research and development and resolving challenges the industry is facing ranging from feedstock to processing and conversion and marketing of biobased products.

2. USDA's Housing programs have provided more than 11,000 grants and loans for Colorado's rural communities. Last year, the USDA invested over $328 million to build, purchase, repair and rehabilitate homes across Colorado. These programs not only increase home ownership and rental opportunities, but also help farmers and ranchers who rely on a steady and reliable workforce. For example, construction recently began on a Farm Labor Housing Complex in Fort Morgan. When it's completed, this complex will provide affordable housing for agricultural workers and their families in the area. How has the unique nature of the farming and ranching industry changed the demand for USDA's Housing programs?

Response: Rural Development (RD) recognizes the unique needs of the agriculture industry by supporting workers employed by farmers and agriculture processors. RD's Farm Labor Housing program helps meet the unique needs of farmers and the agriculture industry by providing workforce housing specifically for those employed in planting, growing and harvesting crops, as well as processing agricultural products. Another unique aspect of farm labor housing is the need for larger unit sizes to

accommodate working families. These larger units require more infrastructure and a greater investment of funds than RD's other affordable rental housing program, the Section 515 Direct loan program. RD's Farm Labor Housing loan and grant programs have limited funding levels, so it is crucial to receive the support of state housing financing agencies in providing tax credit equity to stretch our funding and provide safe and decent affordable housing to this underserved community.

3. USDA's Single and Multi-Family Housing programs have provided over $2 billion in grants and loans to rural communities in Colorado since 2009. These funds have benefited a wide range of people - from helping a single mother in Alamosa to buy a home for herself and her three-year-old daughter, to rehabilitating housing for low-income communities in Conejos County. Historically, these programs have resulted in extremely low default rates, and these default rates continue to decrease. What is it about these programs, and the partnerships that form because of these programs, that make them so successful?

   Response: These programs are successful for a number of reasons. First, we have a local presence, with RD staff in the communities where we do business, to make sure our programs are delivering help to those who need it. RHS maintains 47 State offices and hundreds of Field offices throughout the Nation, as well as in Puerto Rico, the Virgin Islands and the Western Pacific Territories. The USDA staff in these offices provide an invaluable perspective on the issues confronting the rural communities they serve, because they also live and raise their families in these communities. Second, we seek to work with our partners to solve problems with program delivery, or make our programs work more efficiently for all of our partners. Finally, we are able to provide a number of flexible tools to help ensure the success of our programs. On the multi-family side, this includes working with other public and private partners to finance our affordable housing revitalization efforts, as well as being able to provide different types of financing (including our Section 515 Direct loans, Section 538 Guaranteed loans, preservation financing through the MPR demonstration program, and Rental Assistance) based on the specific needs of our properties. On the Single Family side, we combine strong underwriting and servicing with partnerships with nonprofits, realtors,

counselors and private lenders to provide needed outreach, access and service to residents of rural communities.

Senate Committee on Agriculture, Nutrition, & Forestry
USDA Rural Development Programs and their Economic Impact Across America
Wednesday, April 6, 2016
Questions for the Record
Mr. Monte Shaw

Senator Amy Klobuchar

1. I recently led a letter that was signed by several of my colleagues on this subcommittee to the Environmental Protection Agency (EPA) urging they release a strong Renewable Fuels Standard (RFS) this year, on time, that also drops the use of the distribution waiver. What do you believe the EPA needs to do to get the RFS back on track?

Response from Mr. Monte Shaw

Senator Klobuchar, on behalf of Iowa's renewable fuels producers please allow me to thank you for joining with Senator Grassley to lead the effort on the letter to the EPA. As of this writing, I am seeing reports that the EPA has sent this year's RFS proposed rule to the White House OMB for review. So your timing was vital!

In a general sense, the EPA simply needs to start enforcing the law Congress wrote as was intended. Unfortunately, for the past few years it appears the EPA has determined their preferred outcome and then worked backwards to shoehorn a justification for that outcome into the law. As the RFS rule finalized last year shows, that can be a messy proposition and not the proper role for an executive agency.

For specifics, I would commend the comments of the American Coalition for Ethanol, Growth Energy, National Biodiesel Board and Renewable Fuels Association (along with IRFA's own) to the official docket during the public comment period on last year's rule. In addition, I'll highlight a few issues here.

1. The illegal distribution capacity waiver must be ended, and the undifferentiated renewable fuel level should be set at the statutory 15 billion gallons. There has been absolutely no scintilla of evidence brought forward to suggest that the implementation of the statutory RFS levels for undifferentiated renewable fuel in 2017 (or for 2014-2016 for that matter) would cause severe economic harm or that there is an inadequate domestic supply of renewable fuel. Absent such evidence, the EPA is simply not authorized to modify the statutory levels. In fact, exports have become a crucial market for U.S. ethanol producers as the domestic market for ethanol remains artificially constrained.

2. The biomass-based diesel targets must be increased substantially to reflect both the current U.S. production capabilities as well as the tsunami of biomass-based diesel imports flooding this country from Argentina and other countries. While last year's rule provided modest increases in the RFS levels for biomass-based diesel for 2016 and 2017, when one factors in biomass-based diesel imports, it would not be shocking to see U.S. production actually decrease over this time frame. This year's rule must take these imports into account and provide a growth opportunity for U.S. biomass-based diesel producers and feedstock suppliers.

3. EPA must re-embrace its accounting of carryover RINs and stop ignoring their existence when setting RFS levels in this year's rule. In an astonishing and confusing change of protocol in setting the 2014-2016 RFS levels, EPA announced the "availability of carryover RINs should not preclude reducing the applicable volumes." A RIN is nothing more than the electronic signature of a physical gallon of qualifying renewable fuel. Carryover RINs represent actual, physical gallons of renewable fuel that were produced and, whether already blended or not, remain available – in their electronic format – as part of the total renewable fuel supply for use by obligated parties in complying with their RFS requirements.

   The decision by EPA to break with its own precedents of factoring carryover RINs into RFS supply considerations only adds to the sense that EPA has lost its way. Congress and the President enacted the RFS to increase the production and use of renewable fuels. Use of the narrow and limited waiver authority granted by Congress to reduce the annual RFS levels should not be done lightly. Ignoring roughly two billion carryover RINs when determining available supply simply flies in the face of the clear intent of the program.

It also flies in the face of EPA's own precedents. When evaluating several requests for RFS waivers during the historic drought of 2012, just as when evaluating the 2008 waiver requests, the EPA clearly and specifically took into account the "available quantity of carryover RINs" when determining whether a waiver was justified. The reduced yields and higher corn prices associated with the horrendous 2012 drought led to a significant pull-back in ethanol production. However, as "indicated by EPA's modeling, the impact of the RFS volume requirements is highly dependent on the volumes at issue, the number of RINs carried over from prior years and the relevant market commodity prices..." In discussing the importance of carryover RINs, EPA noted "the number of rollover RINs available during the 2012/2013 marketing year affects the impact of implementation of the RFS volume requirements in 2013."

Had the "availability of rollover RINs" not be been factored in to EPA's "stochastic modeling," it is fair to ask whether the decision to deny the 2012 waiver might have been different. Yet, history shows the decision by EPA to factor in carryover RINs was correct. Partly by using carryover RINs, obligated parties met their 2012 and 2013 obligations and there was little meaningful impact from the RFS on other economic sectors. The drought induced price impacts dissipated and disappeared as the 2013 corn crop matured and was ultimately harvested.

Consistent with the 2008 and 2012 waiver request evaluations, EPA once again factored carryover RINs into their 2013 RFS level determination. In deciding not to reduce the 2013 statutory RFS levels, EPA stated: "There will also be a significant number of carryover RINs available from 2012 that can be used in lieu of actual volume in 2013 and which are sufficient in number to address limitations in consumption of ethanol blends higher than E10..."

In fact, in response to suggestions during the 2013 public comment period that EPA should not factor in carryover RINs when determining annual volume requirements, the EPA responded: "...the final rulemaking for the RFS1 program did not describe the purpose of carryover RINs in such narrow terms. Droughts were indeed provided as an example of a market circumstance that could limit the production of renewable fuels, but the RFS1 final

rule also described the use of carryover RINs more broadly as a means for protecting against any potential supply shortfalls that could limit the availability of RINs."

Even more importantly, after noting that carryover RINs "are a valid compliance mechanism" the EPA highlighted that their job is "estimating the adequacy of the availability and use of ethanol in 2013 for compliance purposes, and the availability of carryover RINs is certainly relevant in analyzing that issue. Therefore, we believe that it is appropriate to consider carryover RINs in the context of evaluating the comments received on the need for further compliance relief to address the E10 blendwall." This approach was challenged and upheld by federal courts.

IRFA urges the EPA to return to the commonsense approach of factoring carryover RINs into the decision-making process as was done during the 2008 and 2012 waiver request determinations, and again when EPA set the 2013 RFS levels. To continue with the carryover RIN policy from last year would be an arbitrary and capricious action at the expense of renewable fuel producers and the stated goals of the RFS.

4. EPA should follow its own protocols when estimating year-end RIN generation. Last year, when trying to set the RFS level for 2015 at "what the market actually achieved" the EPA did not have RIN data (at that time) for the entire calendar year 2015. It had to essentially estimate renewable fuel supply for the last quarter. Under its own protocol, the EPA was supposed to base this estimate on year-to-date data adjusted for prior year supply trends. Despite the EPA analysis showing higher RIN generation during the final quarters of previous years, EPA failed to follow its own protocol and used the 2015 average based on partial year data. If the EPA had followed its own protocol, the Renewable Fuels Association determined the 2015 RFS level for conventional biofuels should have been set at 14.14 billion gallons – or 90 million gallons higher than the level finalized by EPA. Some may say that 90 million gallons in a 15 billion gallon pool isn't a big deal. But that is the difference between a large ethanol plant either operating or sitting idle. That is a big deal. Those 90 million gallons were produced and consumed. Their carryover RINs exist today for future RFS compliance. They should not be allowed to stay in the pool of carryover RINs. Simply put, the EPA should factor those 90 million RINs into this year's proposed rule RFS levels.

5. EPA must recognize growing U.S. gasoline demand. EIA's recent Short-Term Energy Outlook (April 2016) projected record gasoline consumption in 2016, surpassing the previous record set in 2007, with no drop-off projected in 2017. Much of the rhetoric defending EPA's decision to reduce RFS levels in last year's rule centered on the notion that gasoline demand was going down, not up. But a reviving economy and lower crude oil prices have the U.S. on pace for record gasoline consumption. As nearly all U.S. gasoline is blended with at least 10-percent ethanol, the up-tick in gasoline demand represents the ability of obligated parties to easily utilize much larger quantities of ethanol, even without turning to higher blends like E15 or E85. Further, the availability and use of higher ethanol blends will be boosted by the implementation of USDA's Biofuels Infrastructure Partnership.

6. Speaking of higher blends, EPA's failure to unlock E15 as a year-round fuel for the majority of the country (conventional gasoline areas) is likely the largest impediment to renewable fuels growth other than the reductions adopted last year in RFS levels. We believe the EPA has the legal authority to equalize the summer-time vapor pressure requirements for E10 and E15. By doing so, the EPA would allow the same gasoline blendstock to be used to blend either product. Today the oil companies supply the proper blendstock for E10, but withhold the separate E15 blendstock, thereby denying retailers and consumers the opportunity to choose E15 during the summer.

7. Finally, one of the key goals of the RFS was to expand the production and use of advanced biofuels like cellulosic ethanol. Iowa is proud to be home to three commercial-scale cellulosic ethanol plants. But we have found that EPA has made it too easy for obligated parties to avoid buying liquid gallons of cellulosic ethanol due to the administration of the cellulosic waiver credit (CWC) program. We understand why Congress enacted the CWC program, but the goal was to ensure obligated parties weren't faced with a situation where RFS compliance was impossible. The goal was not to make waiver credits preferable to actual, existing liquid gallons. According to Quad County Corn Processors (QCCP), an ethanol plant in Galva, Iowa that produces both cellulosic and corn starch ethanol: "We need a reasonable path to securing the D3 RIN value and liquidity."

   QCCP suggests EPA issue minimal cellulosic waiver credits now that there is sufficient cellulosic production to meet the RFS levels. This will require the obligated party to

purchase physical gallons which ultimately reduces carbon. If unlimited cellulosic waiver credits are issued, the obligated parties may buy waiver credits and D3 RINs for 2015 compliance and carry significant D3 RINs forward for 2016 and 2017 which will adversely impact the D3 RIN market in those years.

On the other hand, EPA could also allow cellulosic producers of D3 RINs the ability to sell the D3 RINs to the EPA at the CWC price offered to obligated parties plus the D5 market price. Allowing the producers and obligated parties the same opportunity would erase the uncertainty now undercutting investment in new technologies and innovations.

In conclusion, the IRFA would be happy to provide more detail or documentation for any of our comments here. We again thank you for your leadership on the issue of renewable fuels and rural America. The RFS is one of the vital keys to reinvigorating rural America and, as you can see from the items above, there are many fronts on which the EPA can take action to fully realize the Congressional intent of the RFS and to maximize the RFS benefits to rural economies.

Senate Committee on Agriculture, Nutrition, & Forestry
Subcommittee on Rural Development and Energy Hearing
USDA Rural Development Programs and their Economic Impact Across America
Wednesday, April 6, 2016
Questions for the Record
Mr. Cris Somerville

Senator Amy Klobuchar

1. Minnesota is seventh in the nation for installed wind capacity and nearly 16 percent of the electricity generated in the state during 2014 came from wind power. You mentioned in your testimony how important the small wind investment tax credit and REAP (the Rural Energy for America Program) are for the distributed wind industry. What suggestions do you have for other ways in which USDA can support distributed wind?

Senator, thank you very much for the question. There are a couple other programs within USDA that could be enhanced to better support distributed wind energy.

First, the R.U.S. could give some preference to distributed wind, such as a lower interest rate.

Secondly, the Value Added Producer Grant Program could also make distributed wind a focal point.

But...
What our industry really needs right now, and that all of us American small-wind manufacturers are struggling with, is finding a funding mechanism for attractive leasing programs. We hope to produce lease programs that reduce our customers' monthly electrical costs, and this can only be done with longer term (20 years) financing programs. These programs do not exist within any conventional lending/leasing companies today.

We have models that we know will work. The solar industry has produced long-term operating-lease programs that have caused the solar industry to boom. They have done this by having very large financial partners involved. There are some unique challenges to getting this same program to work for distributed wind, but maybe the Federal Government, specifically the USDA, can help us with.

Could a program within USDA, maybe even R.U.S., be utilized to finance leasing programs? Could our Rural Electric Cooperatives partake somehow in such a lease program, so that they are more-included in our renewable energy future? These are just a couple questions that we in the small-wind industry are asking ourselves. I would very much like to continue this

conversation because it is vitally important to Dakota Turbines, our entire industry, and our country's renewable energy future. If you are interested in investigating this further, I would encourage talking with DWEA since they represent our entire American small wind industry. Lloyd Ritter, in particular, has years of experience working on policies to advance our industry. Here is his contact info:

Lloyd Ritter
Green Capitol LLC
202-215-5512
lritter@greencapitol.net

Again, thank you for your continued interest and support for USDA programs that help Dakota Turbines and other US manufacturers just like us.

Sincerely,

CRIS SOMERVILLE
President, Dakota Turbines

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